7200AA23RFA00TBD
"Feed the Future Innovation Lab for Climate Resilient Cereals"

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This United States Agency for International Development (USAID)/Bureau for Resilience and Food Security (RFS) **Draft Notice of Funding Opportunity** (NOFO) is issued for the purpose of providing stakeholders and potential partners an opportunity to review, comment, suggest, and enhance areas in the attached **Draft NOFO** for a new global activity: **Feed the Future (FTF) Innovation Lab for Climate Resilient Cereals (CRCIL)**, which aims to design, lead, and implement a research program focused on the discovery/identification of novel alleles for traits critical in climate adaptation, validate and transfer to elite lines of rice, wheat, sorghum and millet in FTF countries and adjacent areas with similar farming systems.

Climate change is already significantly affecting agriculture, threatening economic growth and food security, and it is expected to get worse. Climate change models predict that for every 1°C increase, the global yields of the world's three major cereals – rice, wheat and maize – are expected to decrease by roughly 3, 6 and 7 percent, respectively.[1] The rural poor, who depend on these cereal crops for their food and livelihood, will be hit hardest. Cereal crop production is key to the USAID's Bureau for Resilience and Food Security (RFS) mission to advance inclusive agriculture-led growth, resilience, and nutrition. Prioritization studies associated with the Crops to End Hunger initiative estimated impacts of faster productivity growth for selected crops on income and other indicators in developing countries in 2030, and based on poverty-weighted estimates, cereals were among the top crop groups.[2] Research on climate resilient cereals is of paramount importance for climate change adaptation and mitigation, as sustained investments will provide a pipeline of innovations – from research through development, demonstration, and deployment – that address current and future crises.

The estimated life-of-project budget for the new Climate Resilient Cereals Innovation Lab (CRCIL) is up to $37 million for five years from August 2023 to August 2028. Eligibility for

[1] Zhao, C., et al. (2017). Temperature increase reduces global yields of major crops in four independent estimates. Proc. Natl. Acad. Sci. USA 114(35):9326-9331. https://doi.org/10.1073/pnas.1701762114

[2] Keith Wiebe, Timothy B. Sulser, Shahnila Dunston, Mark W. Rosegrant, Keith Fuglie, Dirk Willenbockel, Gerald C. Nelson. Modeling impacts of faster productivity growth to inform the CGIAR initiative on Crops to End Hunger. Published: April 15, 2021 https://doi.org/10.1371/journal.pone.0249994

this award is restricted to U.S. colleges and universities as defined under Section 296(d) of Title XII of the FAA. See Section C.I of this draft notice of funding opportunity (NOFO) for eligibility requirements. Minority Serving Institutions are encouraged to apply.

This Draft NOFO is issued solely for information and planning purposes. It should be noted that providing comment on the draft Program Description (Section A.IV) will not give any advantage to any organization in any subsequent procurement. USAID/RFS will not provide answers to any questions submitted in response to this request.

The new Innovation Lab will build on a series of successes in agricultural research that have generated innovations and knowledge on the genetics/genomics and breeding of climate resilient cereals. It will be distinct from earlier Innovation Lab programming in that it will integrate four cereal crops under one Innovation Lab for cross-learning. Comments are requested to help refine key elements of the draft design to ensure clarity, maximum development impact, coordination with existing and planned USAID and other development partner programs, and alignment with country and regional priorities. USAID/RFS may significantly revise this proposed new activity and planned solicitation after receiving comments from this and completing further consultations with internal and external stakeholders.

Please provide comments no later than March 27, 2023 by 4:00pm, Washington, DC time via email to Leah Leach at lleach@usaid.gov. While there is no limit on the length of submissions, we value concise, issue-specific comments with reference to page and section numbers in the draft design document. The Climate Resilient Cereals Innovation Lab (CRCIL) funding opportunity will be issued at a later date and will be announced on the Grants website at https://www.grants.gov (anticipated around April 2023). All interested parties must respond to that notice of funding opportunity announcement separately from any response to this draft announcement. One award is anticipated, but USAID reserves the right to fund any or none of the applications submitted in response to the NOFO. Following the posting of the NOFO, USAID will issue a Q&A amendment to the NOFO approximately two weeks after the date of posting.

USAID seeks feedback in particular on the following questions:

1. Are the theory of change and programmatic objectives clear and realistic? How could they be improved?
2. Does the draft Program Description (**Section A.IV**) provide potential implementers with sufficient information and guidance about USAID's overall objectives and expectations?
3. What are the most important traits critical in climate adaptation of cereals (rice, wheat, sorghum & millet) in Feed the Future (FTF) countries[3] for which novel allele discovery/identification should be done?
4. While working on key traits for climate adaptation, how does a new investment in climate resilient cereals leverage and crowd source other traits important in a target production environment (product profiles) considering the efforts being made by

[3] Feed the Future target countries include Bangladesh, Democratic Republic of Congo, Ethiopia, Ghana, Guatemala, Honduras, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Nigeria, Rwanda, Senegal, Tanzania, Uganda, and Zambia (https://www.feedthefuture.gov/countries/)

international and national research systems in FTF countries?

5. What tools and methods are needed to discover/identify, validate and transfer new alleles for traits important in climate adaptation to elite breeding lines of target breeding programs in FTF countries?
6. How can the trait discovery and deployment work be leveraged for similar work in the targeted cereals?
7. How can public and private sector entities partner in the discovery, validation, transfer and facilitate commercial delivery of research results?
8. What approaches to climate resilient cereal research would best support locally-led development[4] and strengthen local capacity[5]?
9. Please provide any additional information that is in line with the Program Description (**Section A.IV**).

Issuance of this pre-notice of funding opportunity request for comments does not constitute an award commitment on the part of the U.S. Government nor does it commit the U.S. Government to pay for any costs incurred in order to prepare response to this Pre-Notice.

[4] https://www.usaid.gov/documents/what-locally-led-development-fact-sheet
[5] https://www.usaid.gov/policy/local-capacity-strengthening

ABBREVIATIONS AND ACRONYMS USED IN THIS NOFO

ACTESA	Alliance for Commodity Trade in Eastern and Southern Africa
ADS	Automated Directives System of USAID Policies
AGRA	Alliance for Green Revolution in Africa
AO	Agreement Officer
AOR	Agreement Officer's Representative
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BEO	Bureau Environmental Officer
BPMS	Branding Plan and Marking Strategy
CAADP	Comprehensive African Agricultural Development Program
CCIRs	Cross-Cutting Intermediate Results
CGIAR	Consultative Groups for International Agricultural Research
CLA	Collaboration, Learning and Adapting
COMESA	Common Market for Eastern and Southern Africa
CRCIL	Climate Resilient Cereals Innovation Lab
CTEH	Crops to End Hunger
DDL	Development Data Library
DEC	Development Experience Clearinghouse
DIS	Development Information Solution
EAC	External Advisory Committee
ECOWAS	Economic Community of West African States
EiB	Excellence in Breeding
EMMP	Environmental Management and Mitigation Plan
FTFILs	Feed the Future Innovation Labs.
FAA	Foreign Assistance Act
GFSA	Global Food Security Act
GFSS	Global Food Security Strategy
GI	Genetic Innovation
GS	Genomic Selection
IL	Innovation Lab
IEE	Initial Environmental Examination
IRs	Intermediate Results
LOE	Level of Effort
LWA	Leader with Associates
ME	Management Entity
MEL	Monitoring, Evaluation and Learning
MSIs	Minority-Serving Institutions
MTDC	Modified Total Direct Cost
NAROs	National Agricultural Research Organizations
NARS	National Agricultural Research System
NGOs	Non-Governmental Organizations
NICRA	Negotiated Indirect Cost Rate Agreement
NOFO	Notification of Funding Opportunity
OAA	Office of Acquisition and Assistance
OFAC	Office of Foreign Assets Control
OUs	Operating Units
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan

PI	Principal Investigator
PLC	Product Life Cycle
PSE	Private-Sector Engagement
R&D	Research and Development
RFA	Requests for Application
RFS	Bureau for Resilience and Food Security
SAM	System for Award Management
SEP	Sub-awardee Engagement Plan
TEA	Total Estimated Amount
TPP	Target Product Profiles
UEI	Unique Entity Identifier Number
USAID	United States Agency for International Development

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SECTION A: PROGRAM DESCRIPTION

A.I. Authority

This funding opportunity is authorized under the Foreign Assistance Act (FAA) of 1961, as amended. The resulting award will be subject to 2 CFR 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and USAID's supplement, 2 CFR 700, as well as the additional requirements found in Section F.

In Section 103 of the Foreign Assistance Act of 1961 (FAA), as amended, Congress recognizes the value of agriculture, rural strengthening, and nutrition assistance...*to alleviate starvation, hunger, and malnutrition; to expand significantly the provision of basic services to rural poor people to enhance their capacity for self-help; and to help create productive farm and off-farm employment in rural areas to provide a more viable economic base and enhance opportunities for improved incomes, living standards, and contributions by rural poor people to the economic and social strengthening of their countries*. Congress further recognizes that agricultural research is necessary to achieve foreign assistance goals and requires that such research carried out under the Act...*shall (1) take account of the special needs of small farmers in the determination of research priorities, (2) include research on the interrelationships among technology, institutions, and economic, social, environmental, and cultural factors affecting small-farm agriculture, and (3) make extensive use of field testing to adapt basic research to local conditions* [Sec.103A.(3)]. Finally, Congress provides that *special emphasis shall be placed on disseminating research results to the farms on which they can be put to use, and especially on institutional and other arrangements needed to assure that small farmers have effective access to both new and existing improved technology*.

The U.S. Congress granted USAID the authority to direct and fund programs of international agriculture research under the FAA. Now referred to as Title XII Legislation (FAA Sect. 296a), USAID is directed to provide support for the benefit of both developing countries and the United States to mobilize the capacities of U.S. universities and public and private partners of universities for: 1) Global research on problems affecting food, agriculture, forestry, and fisheries; and 2) Improved human capacity and institutional resource strengthening for the global application of agriculture and related environmental sciences.

Demonstrating the continued importance of American leadership in international food and nutrition security efforts, including agriculture research and strengthening, in 2016 the U.S. Congress and the president passed into law the Global Food Security Act (GFSA)[6] with strong bipartisan support and in 2018 reauthorized it through 2023.

A.II. The Feed the Future Initiative, Global Food Security Act, and Research for Development

Started in 2010, the Feed the Future Initiative[7] works to sustainably reduce global poverty and hunger, recognizing the need to increase global agricultural production significantly by the year 2050 to provide sufficient nutritious food for the world's growing population. The Global Food

[6] Pub. L. 114-195, July 20, 2016, 130 Stat. 675 (https://www.congress.gov/114/plaws/publ195/PLAW-114publ195.pdf); 22 U.S.C., Chapter 100 (http://uscode.house.gov/view.xhtml?path=/prelim@title22/chapter100&edition=prelim)
[7] http://www.feedthefuture.gov/

Security Act (GFSA) builds on what we learned through Feed the Future and reflects changes in the global context since its launch. Assistance authorized under the GFSA continues to be branded as Feed the Future (FTF). The signature, top-line goal of the GFSA is to sustainably reduce global hunger, malnutrition and poverty.

In 2016, USAID submitted to Congress the Global Food Security Strategy (GFSS)[8], a new whole-of-government strategy for global food and nutritional security, on behalf of the 11 U.S. Government agencies responsible for carrying out the GFSA. The GFSS sets out how to achieve the goal of the GFSA through the primary strategy objectives of inclusive and sustainable agriculture-led economic growth (SO1), strengthened resilience among people and systems (SO2), and a well-nourished population (SO3). Technical guidance as to how the U.S. Government approaches global food and nutrition security in its strengthening activities can be found on-line at feedthefuture.gov.[9] Building off the successes and lessons of the first GFSS, the FTF interagency community developed the updated the GFSS[10] for FY 2022-2026, a robust response to the crises that threaten to undermine global food-security progress – COVID-19, conflict, inequity, and climate. Through this strategy, we aim to contribute toward a 20% reduction in poverty and stunting in the areas where we work between 2022-2026 by partnering with foreign governments, the private sector, civil society, implementers, and the research community. Our overarching Goal is still to sustainably reduce global poverty, hunger, and malnutrition across FTF's three Objectives:

To meet the challenge of producing more and nutritious food with fewer natural resources while also adapting to increasingly erratic weather patterns and market price swings, the international community will need to fully harness the benefits of agricultural science and technology. Following the update of the GFSS, The U.S. Government's Global Food Security Research Strategy[11] was also updated for FY 2022-2026.[12] After a broad consultation with the global research community and interagency partners, several priority areas emerged. Feed the Future will support research activities that collectively represent three themes: a) climate-smart agricultural innovation, b) nutrition and food systems, and c) genetic improvement of crops and livestock. The strategy recognizes that research activities are most effective when they result from a sound prioritization process; directly engage community members and partners; bolster local participation and ownership; and are designed with market systems, risk reduction, and scale in mind.

This "research for development" is neither an abstract quest for fundamental knowledge and improvement of scientific theories, nor is it the straightforward delivery of goods and services associated with development work. Rather, research for development is a unique enterprise requiring the rigor, discipline, awareness of local context, and building of relationships associated with global development. Research for development generates knowledge and new or improved technologies and practices, but it does not stop there. Effective research for development puts information and innovations in the hands of stakeholders, where impacts may be achieved. Indeed, the agricultural research investments supported by USAID are designed by considering "impact pathways," which map out the connections between research outputs and development outcomes. This thoughtful design is not only critical for success, it is also mandated by Congress. But these impact pathways are not linear and are best considered using a systems approach. Agricultural

[8] https://www.feedthefuture.gov/resource/u-s-government-global-food-security-strategy-fy-2017-2021/
[9] https://www.feedthefuture.gov/guidance-and-tools-for-global-food-security-programs/
[10] https://www.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food- security-strategy
[11] https://www.feedthefuture.gov/the-u-s-governments-global-food-security-research-strategy/
[12] https://www.feedthefuture.gov/resource/u-s-government-global-food-security-research-strategy-fy22-26/

transformation requires consideration of the interrelationships and interaction among soil fertility, agronomy, genetics, animal science, water management, the role of private sector and market access, policies, nutrition, local capacity and commitment, gender, and the specific needs of youth.

Centrally-funded research programs link national, regional, and global research partners to identify, develop, and adapt promising practices and technologies for local farming systems, and to intensify and diversify major production systems where the poor and undernourished are concentrated. As part of these programs, the USAID Bureau for Resilience and Food Security (RFS) manages a portfolio of research activities collectively known as the Feed the Future Innovation Labs (FTF ILs). Led by U.S. Title XII Universities and intended to be collaborative research programs between U.S. universities, host-country universities, and national agriculture research organizations (NAROs), the FTF ILs are an integral component of USAID's implementation of the GFSS through their leadership and implementation of research and capacity strengthening. FTF ILs are further designed to meet Congress's demand to bring benefits to both U.S. and developing country stakeholders. Through the establishment of strong relationships with NAROs overseas, U.S. researchers gain access to international knowledge and expertise, greater awareness of the global investment landscape, and an appreciation of the challenges and technologies used in those countries. The Feed the Future Innovation Lab for Climate Resilient Cereals (or Climate Resilient Cereals Innovation Lab, CRCIL) will be part of this portfolio of FTF Innovation Labs.

A.III. Background and Introduction of the Climate Resilient Cereals Innovation Lab (CRCIL)

The Center for Agriculture-Led growth (CA) within RFS developed a new, internal strategic framework for crop innovation, which provides an integrated approach to support the development and scaling of improved crop varieties to function as drivers of productivity, growth, resilience, and nutrition. Though no one activity can span the entire pipeline of Research and development (R&D), seed systems, dissemination, extension, and farmer adoption across the GFSS target geography, the cereal crops innovation strategic framework provides a broad foundation to align and coordinate diverse USAID investments, across multiple operating units, for enhanced food and nutrition security impact (Fig. 1). Together, activities implemented under this strategic framework tie downstream market demand to a continuously responsive, upstream breeding system; link improved cereal crop varieties to the seed systems that take them to scale; and support seed systems to deliver improved varieties that drive gains in smallholders' fields and on local and regional markets—with impact-oriented performance metrics to monitor outputs and outcomes at each stage of the process. Across the strategic framework, all activities aim to improve key capacities of public- and private-sector actors within GFSS target countries' innovation, seed, and market systems to foster the increased self-reliance needed to sustain cereal crops improvement efforts as key drivers of food security, economic growth, resilience, and improved nutrition moving forward.

In alignment with this broader cereal crops innovation strategic framework, four engagements particularly guided RFS/CA's approach to the strengthening of this new FTF IL:

1) Prioritization studies conducted by IFPRI and USDA-ERS: Crops to End Hunger (CtEH) modeling estimated impacts of faster productivity growth for selected crops on income and

other indicators in developing countries in 2030, and ranked crop groups based on poverty weighted estimates and cereals were among the top groups.[13]

2) Findings from USAID's previous investments in crop research and their program evaluations (which included recommendations for future research priorities).
3) Consultations webinar on crop improvement and food security in a changing climate with research stakeholders to define gaps and opportunities for future investment on climate adaptation.[14]
4) A series of planning consultations with other donors to the CGIAR research centers initially to design and coordinate action on the Crops to End Hunger Initiative (CtEH).[15] The CtEH will update CGIAR research centers and NAROs with improved breeding management systems, strengthened partnerships, and access to modern breeding tools. It will also lead to strengthening of crop- and geography-specific Product Profiles to guide breeding efforts to produce new varieties having characteristics demanded by local markets and farmers. Further consultation with donors and the global research community has led to the creation of the Genetic Innovation Action Area in the CGIAR starting from 2022.[16]

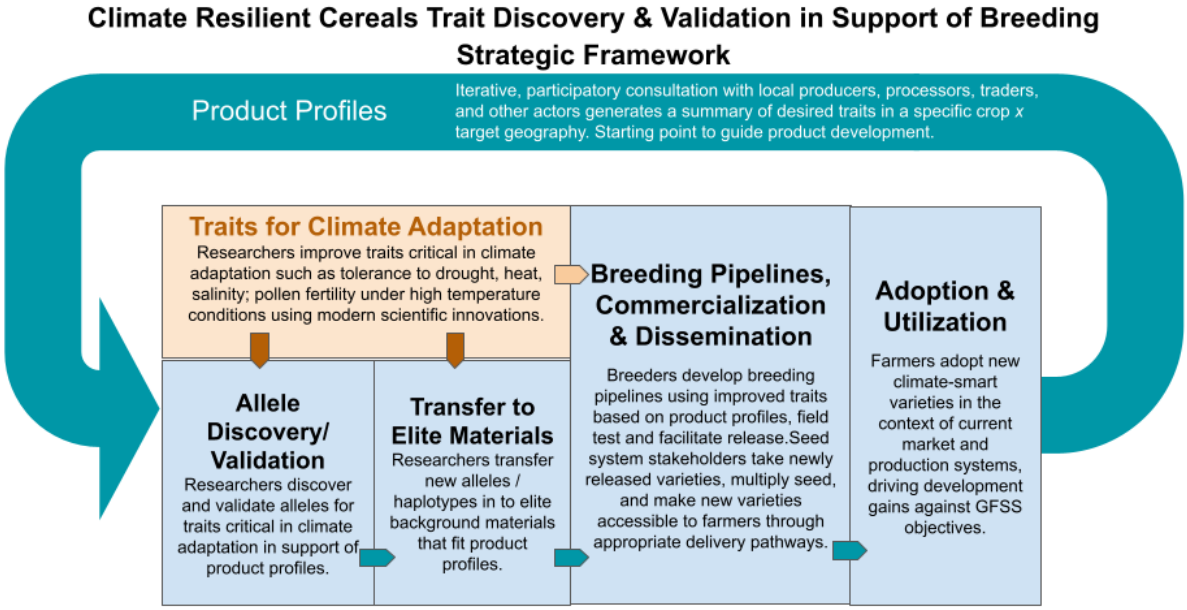

Figure 1 – The Climate Resilient Cereal Crops Improvement Strategic Framework illustrates the key elements necessary to a healthy cereal crops improvement system. The simplified model does not show all of the elements, actions, or stakeholders necessary for such a system to be fully functional.

During the internal assessment conducted by RFS/CA/Input Systems Division, it was decided to design a bigger activity that considers four cereals crops which culminated in the new cereal crops innovation strategic framework. Through this consolidation of important follow-on research in wheat,

[13] Keith Wiebe, Timothy B. Sulser, Shahnila Dunston, Mark W. Rosegrant, Keith Fuglie, Dirk Willenbockel, Gerald C. Nelson. Modeling impacts of faster productivity growth to inform the CGIAR initiative on Crops to End Hunger. Published: April 15, 2021 https://doi.org/10.1371/journal.pone.0249994
[14] https://agrilinks.org/events/vision-crop-improvement-and-food-security-changing-climate
[15] https://www.cgiar.org/wp/wp-content/uploads/2018/11/SC7-B_Breeding-Initiative-1.pdf
[16] https://www.cgiar.org/research/action-areas/

sorghum and millet plus new research funding opportunity in rice, USAID will achieve greater managerial efficiency, global visibility, and convening power among international crop research stakeholders, while also streamlining interactions with partner Missions through a single point of contact for cereal crops innovation efforts. Based on the successes highlighted in internal and external evaluations of the prior cereal crops innovation activities, the new CRCIL will embrace the comparative advantages of the U.S. university community in cereal crops improvement efforts and will have three Areas of Inquiry:

1. Novel investigations into the discovery/identification of alleles for traits important in climate adaptation in cereal crops.
2. Validation of these newly discovered alleles and/or existing alleles discovered by the global research community through leverage, and
3. Transfer novel alleles/haplotypes of traits critical in climate adaptation to elite breeding background materials to accelerate breeding processes and development of farmer-preferred varieties.

Though this is a new activity, it will nonetheless build on lessons learned for increased sustainability of IL program impacts, including both partner country and U.S. human and institutional capacity strengthening and systems-oriented, multi-sectoral partnership approaches to ensure that the necessary relationships, resources, and skills remain to enable local leadership once the activity has come to an end.

A.IV. Program Description

A.IV.a. Program Overview

The Feed the Future Innovation Lab for Climate Resilient Cereals will be a five-year Leader with Associates (LWA) Cooperative Agreement, awarded to a U.S. university to develop a global portfolio of climate resilient cereals improvement research-for-development activities. The Total Estimated Amount (TEA) allows a maximum award ceiling of up to $37,000,000.00, structured as follows:

a) A $22,000,000.00 Leader Award will support the Successful Applicant to act as the Managing Entity (ME) of the Climate Resilient Cereals Innovation Lab. In this capacity, the Successful Applicant's primary responsibility will be to develop, select, and manage a portfolio of cereal crops (wheat, rice, sorghum and millet) improvement research and capacity-strengthening activities. The Leader Award is intended to support ME costs associated with managing and implementing the portfolio of Climate Resilient Cereals Innovation Lab activities, with a majority of Leader Award funds to be allocated to sub-awarded (or sub-contracted) research and capacity strengthening activities. These sub-awards must include a mix of competitively procured activities and commissioned (i.e. non-competed) activities.
b) $15,000,000.00 of potential additional funding, through buy-ins and associate awards, may be awarded noncompetitively by USAID Missions or other Offices to support additional activities that fall within the technical scope of the award.

The Climate Resilient Cereals Innovation Lab will invest in the discovery, validation and transfer of alleles controlling traits critical in climate adaptation using new breeding tools and methods that enable faster, cheaper, and more effective generation of improved cereal crop varieties in support of breeding efforts led by national agricultural research systems (NARS) and CGIAR Centers. Improved

cereal crop varieties that produce greater yields with the same amount of inputs (land, water, fertilizers, etc.) and under stressful conditions (drought, heat, poor soil fertility, etc.), combined with appropriate partnership and scaling mechanisms, can lead to greater profits, reduced poverty, food security, and enhanced resilience for small-scale farmers. Research and associated capacity strengthening must ensure that a continuing pipeline of improved technologies, practices, and knowledge becomes available to help achieve the development objectives of the Global Food Security Strategy (GFSS).

Despite these potential benefits, the adoption and impact of new alleles/haplotypes for climate resilience in cereals within the agriculture innovation and market systems can be limited by lack of awareness of their benefits, limited knowledge of the best way to utilize these novel alleles in variety development and deployment research in the context of local farming and food systems, age and gender dynamics of research programs and of technology adoption, lack of input availability and resources, labor requirements, marketability, demand instability, and a host of other constraints. Research and associated capacity strengthening to help address these challenges can improve the adoption of such technologies leading to accelerated genetic gains in new climate resilient cereal crop varieties.

The Climate Resilient Cereals Innovation Lab will design, lead, and implement a program of cereal crops improvement research and capacity strengthening aimed at addressing opportunities and challenges associated with cereal crops improvement and will additionally serve as a resource to Missions and their partners on the role of continuous cereal crops improvement research in inclusive economic growth, climate adaptation, gender-sensitive and youth-inclusive development, and resilience. The Climate Resilient Cereals Innovation Lab is broadly expected to help implement and communicate impact pathways from the selected cereals crops research to development outcomes through partnerships with USAID Mission-supported value chain programs, national partners, private companies, community-based organizations, and other donors and their programs.

The Climate Resilient Cereals Innovation Lab will work as part of the RFS's Product Life Cycle (PLC) Framework (Section A.IV.d.7) on allele discovery for important traits for climate adaptation, validation and transfer of those alleles/haplotypes to elite background that leads to breeding pipeline improvements as a result of genetic innovation. The Climate Resilient Cereals Innovation Lab will take as a starting point crop product profiles — specific crops and traits demanded by farmers, companies, and other value-chain actors within target geographies — generated through multi-stakeholder consultations under complementary crop improvement activities (for example, other Innovation Labs' breeding programs, public private partnerships around crop improvement, or the CGIAR-led Genetic Innovation initiatives). The Climate Resilient Cereals IL will utilize product profiles to guide activity selection toward the most promising lines of inquiry and technology innovation that will produce improved varieties most closely matching the developed product profiles. The NARS, CGIAR centers, and private companies will be responsible for creating improved varieties that most closely match the product profiles. The IL will also carry out local capacity strengthening activities to enable the NARS to continue the process of breeding for climate adaptation in cereals that include discovery of novel alleles/haplotypes, validation and transfer to elite breeding materials.

To overcome the many challenges for improving cereal crops production, the Climate Resilient Cereals Innovation Lab is expected to consider the value chains as a whole, directing research activities to utilize outputs of concurrent or former research. Given the research-for-development

(R4D) orientation of this program, there must be integration and a systems approach across projects to improve the relevance of program outputs. The Climate Resilient Cereals Innovation Lab must continue to capitalize on previous investments in research and discovery through outreach and seed systems stakeholder training programs and accelerate development outcomes with regional and global collaborators. The new program must consider ways to ensure collaboration occurs among research activities across Climate Resilient Cereals Innovation Lab.

The Climate Resilient Cereals Innovation Lab (CRCIL) must develop a research agenda that enhances livelihood possibilities – with due attention to low income communities, women, and youth – and increases food and nutrition security. The IL will contribute to USAID goals of improving food and nutrition security through inclusive and sustainable agriculture-led economic growth, strengthened resilience among people and systems, and a well-nourished population, especially among youth, women, and young children.

The portfolio of research and capacity-strengthening activities must fulfill the following four objectives:

1) Discover novel alleles/haplotypes for traits critical in climate adaptation, validate, and transfer to elite breeding lines that improve the efficiency and accuracy of partner countries' traits discovery and breeding efforts for the chosen product profiles. These may include phenotyping methods, genetic tools, or other approaches to develop new varieties with improved traits such as productivity; abiotic (drought, heat, salt tolerance, etc.) and biotic (disease, pests) stress tolerance; quality traits such as nutritional content, consumer preference, or processing characteristics; or other properties as identified in the product profiles.
2) Strengthen the capacity of developing-country partners to effectively discover, validate and transfer new alleles into elite backgrounds using new tools and methods for accelerating breeding for improved, locally-appropriate cereal crop varieties targeted to smallholder farmers within their countries and regions.
3) Access and leverage resources and align efforts that support CRCIL activities and objectives through coordination amongst essential stakeholders across the broader global research community — including the private sector, U.S. universities, international research institutions, NARS, public and civil society organizations, and others.
4) Coordinate CRCIL research activities and outputs with other activities across the broader FTF cereal crops improvement portfolio with both upstream market demand and downstream seed-system and scaling efforts.

In order to fulfill these four objectives, the ME must provide global technical leadership, directed by a prominent member of the global agricultural research field, that informs USAID's climate-resilient cereals improvement research agenda while also ensuring effective, efficient management and implementation of all activities within the CRCIL portfolio. The successful Applicant must therefore provide a compelling narrative throughout the application that effectively and efficiently ensures that all activities meet USAID requirements for international research collaborations as well as a compelling approach to guide procurement of a portfolio of research and capacity-strengthening activities that will achieve these four strategic objectives.

Each IL that is awarded assistance funding through an LWA has the following core management functions:

- Development and Selection of the Research Portfolio
- Integration of the Cross-Cutting Issues (Annex 2)
- Program Planning and Management of the Research Portfolio
- Monitoring, Evaluation, and Learning
- Knowledge-Sharing, Outreach, and Data Management
- Management of Associate Awards

In order to be fully successful, the ME of the CRCIL must implement all activities through the lens of three overarching principles:

1) **Ensure the scientific quality of the research portfolio**
2) **Ensure the relevance of the research and program activities for U.S. and partner country stakeholders, and**
3) **Ensure accountability for program implementation, including financial oversight.**

The Applicant must provide a compelling, technically outstanding strategic vision to guide its procurement and management of a portfolio of cereal crops improvement and capacity strengthening activities. Effective integration of cereal crops improvement research within the agriculture innovation and market systems creates opportunities to advance all three strategic objectives described under the GFSS: inclusive and sustainable agriculture-led economic growth, strengthened resilience among people and systems, and a well-nourished population.

A.IV.b. Results Framework and Theory of Change

(i) Project Purpose

The purpose of the Climate Resilient Cereals Innovation Lab (CRCIL) is to discover and/or identify novel alleles for traits critical in climate adaptation, validate and transfer to elite breeding materials of rice, wheat, sorghum, and millet; and facilitate their use by partner breeding programs, and strengthen the capacity of public-private partners in FTF countries.

The IL's research outputs are intended to directly contribute to achieving the Global Food Security Strategy (GFSS) Objective 1, Inclusive and sustainable agriculture-led economic growth, and Objective 2, Strengthened resilience among people and systems. They will contribute to the following Intermediate Results (IRs) and Cross-Cutting Intermediate Results (CCIRs):

- IR1 Strengthened inclusive agriculture systems that are productive and profitable
- IR4 Increased sustainable productivity, particularly through climate-smart approaches
- CC IR6 Improved human, organizational, and systems performance

They will also indirectly contribute to achieving the following CCIRs:

- CC IR3 Increased gender equality and female empowerment
- CC IR4 Increased youth empowerment and livelihoods

(ii) Development Theory of Change

IF novel genes for traits critical in climate adaptation are discovered/identified, validated using new tools and methods of scientific innovations, and deployed into elite background materials (breeding lines), THEN they will be used by partner breeding programs to develop new climate resilient cereal crop varieties that will help to reduce global hunger, malnutrition and poverty because of their adaptation to current and future climate challenges and mitigate climate effects. (IRs 1,2)

FURTHERMORE, IF gender and youth considerations are intentionally addressed in the development of new climate resilient cereals, THEN women's roles will be elevated in the household and across the agricultural sector and attractive employment opportunities for youth will be created in agriculture. (CC IRs 3, 4)

A.IV.c. Approach to Ensure Scientific Quality

A.IV.c.1. Background and Context

The world population is projected to increase from 7.7 billion people today to 9.7 billion people in 2050 with a concordant 70 percent increased demand for food and other resources – a 100 percent increased demand in the developing world.[17] And yet today, with fewer resource pressures than are expected in the future, undernutrition in all forms is either the primary or a significant contributing factor in 45 percent of deaths annually among children under five globally.[18] While this number, and undernutrition in general, has been trending downward since reliable measurements have been taken since the early 90s, it may be on the cusp of returning upward. Undernutrition among all people globally has recently started a worrisome trend upward from its lows in 2016. This trend reversal has been primarily driven by negative outcomes in sub-Saharan Africa,[19] which are correlated with increased conflict and a large 2016 ENSO (El Niño/La Niña) event and Covid 19 impacting the continent. Increasing yields and quality of local staple crops has tremendous potential to combat these trends. Cereal crops provide the bulk of carbohydrates and some protein. Among the cereals, sorghum and millets have been a part of traditional African and Asian diets for millenia due to their adaptability, drought resistance, and ability to grow in poor soils.

Significant challenges exist in transforming global agriculture systems to better meet the demands for food security, nutrition, and inclusive agriculture led economic growth. Major challenges include climate change, low productivity or unstable production systems, inefficient market systems and value chains, weak management capacity, inadequate transportation systems, inequitable and insecure access to land, inadequate environmental and landscape management, poor water resource management, feeds and input supply, pest management, and food safety issues. While the CRCIL will not be charged with developing new varieties or research to address these challenges directly, trait discovery using new tools and methods of genomics and systems biology under the IL must be useful for addressing these challenges – even if indirectly. Confronted with these challenges, cereal crops production systems will need to produce food in an economically, environmentally, and socially sustainable manner that increases productivity, incomes, and nutrition for vulnerable and poor

[17] FAO. 2011. The state of the world's land and water resources for food and agriculture (SOLAW) – Managing systems at risk. Food and Agriculture Organization of the United Nations. Rome and Earthscan, London.
[18] In 2017 there were 5.4 million deaths of children under the age of five, 2.4 million of which were attributed to undernutrition. https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality.
[19] https://ourworldindata.org/grapher/share-undernourished-2000-2017?time=2000..2017

populations while reducing risks from economic, environmental, and climatic shocks.[20] As such, significant opportunities exist for transforming cereal crops production through the improvement of traits important for climate adaptation and making them available to crop breeders.

Examples of challenges in cereal crops research and crop production:

- Under-performing varietal improvement research systems
- Lack of regional and global communication and knowledge-sharing among researchers
- Disconnected agriculture innovation and market systems that do not have the capacity or capability to take into account changing producer, processor, and consumer demands
- Under-performing production systems
    - Crop yields in many developing countries do not approach the yields seen in developed countries nor even the potential yield shown in crop research stations within those same developing countries.
- Emerging diseases, biosecurity threats, and a need for rapid disease diagnostics
- Need for climate resilient, low environmentally impactful, and sustainable agriculture systems
    - Competition for access to land and water resources threatens agriculture and the environment.
    - Extreme weather events and climatic risks threaten agriculture systems, including soil fertility, invasive species and crop diseases, etc.
- Malnutrition and human health challenges
- High demand for multi-use crops for food, animal feed, animal fodder, and mulch
- Need for improved food safety
    - Proper preservation is critical to maintain food safety and preserve the nutrients in the food.
    - Crops that resist post-harvest spoilage and pest infestation could be an important tool to improve food safety.
- Inadequate understanding of gender and youth preferences and opportunities
    - More opportunities are needed within the cereal crops production innovation and market systems to generate livelihood opportunities, including employment, for women and youth.

Targeted Cereal Crops

USAID/RFS conducted an internal analysis to determine which crops to target in research for development. The following three sets of information formed the primary basis of the analysis:

1) Prioritization studies conducted by IFPRI and USDA-ERS: Crops to End Hunger (CTEH) modeling estimated impacts of faster productivity growth for selected crops on income and other indicators in developing countries in 2030, and ranked crop groups based on poverty weighted estimates and cereals were among the top groups.[21]
2) Findings from USAID's previous investments in crop research and their program evaluations (which included recommendations for future research priorities).

[20] Pingali, P. L. 2012. Green Revolution: Impacts, limits, and the path ahead. Proceedings National Academy of Sciences. 109: 12302–12308.
[21] Keith Wiebe, Timothy B. Sulser, Shahnila Dunston, Mark W. Rosegrant, Keith Fuglie, Dirk Willenbockel, Gerald C. Nelson. Modeling impacts of faster productivity growth to inform the CGIAR initiative on Crops to End Hunger. Published: April 15, 2021 https://doi.org/10.1371/journal.pone.0249994

3) Consultations on crop improvement and food security in a changing climate with research stakeholders to define gaps and opportunities for future investment on climate adaptation.

After the review and prioritization, rice, wheat, sorghum and millet were chosen as the target cereal crops to be considered under the CRCIL. Although maize will not be a focus crop for this investment, knowledge from maize will be leveraged to advance the work on other cereals like sorghum and millet.

Product Profiles and Complementary Global Investments

Complementary investments in cereal crops are taking place in the CGIAR/National Agricultural Research and Extension Systems (NARES) breeding networks of the CGIAR. The CGIAR Genetic Innovation (GI) action area works on Accelerated Breeding, Precision Genetics, Gene Banks, Breeding Resources, Market Intelligence, and Seed Equal (Seed System) initiatives.[22] USAID is one of the funders of the Genetic Innovation action area. The CRCIL must take advantage of systemic improvements in CGIAR research centers and NARES enabled through the GI. In particular, an integral part of the CRIL is to utilize market-oriented, crop- and geography-specific Product Profiles, which will guide and coordinate generation of demand-driven research outputs from the CRCIL. It is not the responsibility of this IL to create such Product Profiles, but all research investment must be undertaken with the insights about traits critical to climate adaptation, and associated in-demand traits, qualities, and characteristics described in the product profiles to increase the ability of crop scientists to meet the goal of climate adaptation, farmer and consumer demands. Other resources include Innovation Labs on wheat, sorghum and millets, and crop improvement. Other areas of complementarity include the International Wheat Yield Partnerships[23], and "Mining useful alleles for climate change adaptation from CGIAR genebank.[24]

Within these broad parameters, Applicants must identify which challenges are the most pressing to overcome, which opportunities hold the best promise to advance the strategic objectives of the GFSS and the four objectives of the CRCIL, and how those challenges and opportunities must be addressed in the context of the targeted cereal crops, areas of inquiry (section A.IV.c.2), and the cross-cutting themes (A.IV.d.3). Such research themes must demonstrate that the Applicant understands the role that the cross-cutting issues have within the broader research themes and that research themes are encouraged to also directly address research questions targeted at cross-cutting issues. As the FTF ILs are mandated to benefit both partner countries and the U.S., the CRCIL must consider research priorities among U.S. stakeholders and propose how U.S. stakeholder perspectives are reflected in the IL.

A.IV.c.2. Areas of Inquiry

Applicants must craft Areas of Inquiry that lay out a coherent framework of themes and research approaches that:

- Generate research outputs that accelerate cereal crops productivity growth by addressing key opportunities and challenges within cereal crops improvement research and Agricultural

[22] https://www.cgiar.org/research/action-areas/
[23] https://iwyp.org/
[24] https://www.cimmyt.org/news/new-endeavor-fast-tracks-the-power-of-crop-diversity-for-climate-resilience/

Innovation System (AIS) in order to increase agricultural productivity, resilience, inclusive agriculture-led economic growth,[25] and human nutrition;[26]
- Are appropriate within the context of the GFSS target geographies and cereal crops production systems;
- Build on past research and reflect current knowledge and approaches within the relevant research disciplines, including concurrent efforts of the CGIAR, ILs, Private Sector and other development partners;
- Strategically emphasize topics and approaches in which a USAID-funded university program would hold a comparative advantage, while leveraging the strengths of related programs implemented by other partners in order to maximize research, local capacity, and development impacts; and
- Integrate and address the cross-cutting issues discussed in section A.IV.d.3 as appropriate throughout all research areas of inquiry in order to ensure that issues of gender and youth, nutrition, resilience, local capacity, and private sector engagement are incorporated into the design and conception of the proposed research agenda.

Aligning with these themes, USAID proposes the following Areas of Inquiry that illustrate USAID's research interests and have been identified as critical to transforming cereal crops improvement research and innovation and market systems to accelerate yield gains and generate greater and more inclusive income growth opportunities, improved nutrition, and increased resilience and climate change adaptation:

- **Area of Inquiry 1: Discover/identify new alleles for prioritized traits critical in climate adaptation using genomics and systems biology approaches.** In this area of inquiry, CRCIL will align with core breeding program partners to assess breeding pipelines and the available elite lines important to established target product profiles for introgression of desirable alleles.

- **Area of Inquiry 2: Validate novel alleles/haplotypes controlling climate-resilience traits of cereals crops through functional genomics, phenomics, computational methods, and other relevant approaches in the respective target production environments.** In this area of inquiry, CRCIL will apply predictive and crop modeling approaches to determine the importance of traits and emergent genotype x environment interactions.

- **Area of Inquiry 3: Transfer validated alleles/haplotypes for traits important for climate adaptation into elite breeding materials to develop improved varieties with enhanced genetic gain in the market segments identified from the outset**. This may include strengthening of methods to accelerate introduction of desirable alleles, potentially including genomics-enabled selection, genome editing, etc.

It is the ME's responsibility to ensure that the research program, starting with the Areas of Inquiry, aligns to the relevant themes within the GFSS or any new food and nutrition security initiatives during the IL's period of performance.

[25] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on- agriculture-led-economic-growth/
[26] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-nutrition/

Applicants must propose and justify an approach to addressing the Areas of Inquiry described above that will guide the ME's development, selection, and management of a focused portfolio of research activities that achieve the four objectives of the CRCIL. Applicants may also propose well-justified additional or alternative areas of inquiry aligned with the four objectives of the CRCIL, or propose an alternative organization or framing of these concepts and approaches as appropriate to advance a creative, high-impact Program Description.

A.IV.c.3. Portfolio selection

A key premise of all the FTF ILs is collaborative research through partnerships. To accomplish the goals of the CRCIL, the ME, in direct partnership with USAID, must craft and organize a coherent program of high-quality research activities, focusing on areas where the FTF IL approach has a comparative advantage. The ME defines the research agenda and objectives in a five-year research plan designed in collaboration with USAID. The ME will then issue its own Requests for Applications (RFAs) to partner with U.S. and international research and educational institutions, and the private sector under formal sub-agreements that define, authorize, and fund the work to be done under the IL. The ME is responsible for overall program implementation, financial and administrative management, assurance of quality of results by its partners, and reporting of results, among other responsibilities.

Prior to selection of the portfolio of activities, the ME must develop a strategy to monitor the process of technology adoption and program impact. All research activities must be structured to answer, directly or indirectly, at least the following questions before, during, and after the development and dissemination of research outputs:

- How does the research activity advance USAID-supported goals and strategic objectives, particularly on climate change adaptation?
- How does the research activity address the agronomic, economic, and environmental needs of FTF beneficiaries, both men and women, as they define those needs? Is the research and/or the likely output accessible, as appropriate, to both men and women? Is the research, as appropriate, accessible to youth?
- How does the research activity address issues related to environmental sustainability?
- How does the research activity address food security, diet, and nutrition issues?
- How does the research activity help to increase whole-farm profitability and productivity and safeguard the resources upon which future generations will depend?
- How does the research activity accelerate genetic yield gains among the selected target cereal crops?

(i) Initial Activities

To reduce delays between project award and initial program outputs, four to seven research activities (referred to as Initial Activities) are to be proposed with the submission of the application. Initial Activities must serve at least one of the following purposes: generating information products and common research goods to be utilized by the competitively awarded activities; addressing an immediate, time-sensitive need within the areas of inquiry; and/or generating an identifiable "Quick Win" within the areas of inquiry.

Requirements: Each Initial Activity must address issues, whether they be programmatic, technical, or systemic, that align with the scopes of the proposed areas of inquiry. Initial Activities must be ready to commence within 60 to 90 days of award. (Due to internal USAID approval processes, including but not limited to concurrence from the relevant USAID Mission, start dates in actuality may be delayed beyond 90 days.) Initial Activities must be able to fulfill their work plans within 18 months from their start dates; completion within 12 months is preferable, though. There is no budget limit for any individual activity during the Application phase. During the co-creation process, USAID and the Apparently Successful Applicant will together select which Initial Activities to further pursue (if any) and any recommended changes. After award, the ME will submit selected revised Initial Activity descriptions and budgets which USAID will review and either approve or not approve. No more than $750,000 will be allocated to the final combined portfolio of Initial Activities. USAID values diversity in every aspect of program design, and these Initial Activities are no exception – the proposed portfolio of Initial Activities must include a diverse and representative mix of universities and partner organizations, countries, and global outputs and must address the cross-cutting issues. Within the main body of the technical application, each of the Initial Activities must be summarized, and Applicants must include an estimated length of time and cost. Additionally, in an annex to the technical application that will not count against the page limit, each of the Initial Activities must be discussed in more detail, including but not limited to:

a. The PI(s) and institution(s) to conduct the work including contact information, Unique Entity Identifier (UEI) number, and SAM registration;
b. Research/activity objective(s);
c. Rationale for including this activity as an Initial Activity and the relationship to the overall objectives of the CRCIL;
d. How the research outputs will be expected to generate information products and common research goods to be utilized by the competitively awarded activities, address an immediate, time-sensitive need within the Areas of Inquiry, and/or generate an identifiable "Quick Win" within the Areas of Inquiry;
e. How the activity will address the cross-cutting issues (including local capacity strengthening and private sector engagement);
f. Work plan; and
g. Detailed budget.

The annex must include all of the information that would be expected of entries to the competitive research award process (see A.IV.c.3.(ii)); however, it is not the intent of USAID to overly burden the Applicants during the proposal phase, and as such, the details of each proposed Initial Activity do not need to be fully complete at this stage, but can instead be considered a concept note limited to one page, single-spaced (maximum two pages including budget).

How these Initial Activities will be used during the Application evaluation process: The Initial Activities will be evaluated according to E.II as an integral part of the overall Application according to the quality of the research concepts, applicability to overarching research goals, and the diversity represented among the concept notes (men, women, foreign PIs, U.S.-based PIs, inclusion of PIs from U.S. Minority Serving Institutions [MSIs], Areas of Inquiry, focal crops, focal countries, private sector, and cross-cutting issues).

Final selection of the Initial Activity portfolio: Selection and finalization of the Initial Activities will occur during the co-creation phase and through the first 60 to 90 days of the start of the terms of

performance for the CRCIL. If the Applicant intends to have an additional review process (e.g., through the External Advisory Committee) as part of the CRCIL's process to approve the Initial Activities, then this process must be described in the Technical Application. USAID will determine and approve the final selection and scope of these Initial Activities and reserves the right to approve all, some, or none of the proposed Initial Activities or to approve with modifications. The combined cost of the portfolio of Initial Activities will not exceed $750,000. Research proposals not selected as Initial Activities may be re-submitted during the Competitive Research Selection phase (see below). PIs of selected Initial Activities (and PIs of non-selected Initial Activities) will not be restricted from submitting new proposals during the open competition phase.

(ii) Competitive Research Selection

USAID maintains a commitment to fair and open competitive procurement processes out of conviction that this approach generates the highest-quality research and strengthening outcomes. As a result, a majority of the funds allocated for research activities must be used for sub-awards issued through competitive solicitations issued by the ME. To support a vigorously competitive solicitation process, the ME will develop and publicize RFAs that elicit high-quality applications from a diverse type and number of institutions in the U.S. (including MSIs) and from appropriate international institutions and the private sector. For each RFA that the CRCIL releases, the ME will organize an intellectually rigorous peer review process through which peer reviewers with a range of relevant expertise will be engaged. The Competitive Research Selection process must produce a portfolio of sub-awards that collectively meet the CRCIL objectives and integrate cross-cutting issues, local capacity strengthening, and private sector engagement.

Typically, ILs create and rely on an External Advisory Committee (EAC) that reviews all applications submitted to the ME in response to RFAs. The EAC provides recommendations to the ME on sub-award selection. The EAC then periodically reviews the progress of the sub-award activities and provides recommended changes as needed.

Requirement for Application: Applicants are required to submit as an Annex that will not count toward the page limit a draft RFA for one of the proposed Areas of Inquiry. This draft RFA will be reviewed as part of the Technical Application evaluation. In the main body of the Technical Application, Applicants must also describe the process for precluding any favoritism and avoiding, neutralizing, or mitigating any potential organizational conflict of interest that the ME or peer review panel members may have (e.g., a research proposal submitted by other faculty from the same institution where the ME resides).

(iii) Commissioned Activities

Because of the nature of global development work, USAID recognizes that there may be instances when directed or commissioned research and associated activities will best meet the strategic needs of USAID and its partners and the CRCIL objectives. Consequently, the ME also must be prepared to directly commission research without a competitive process. The ME must provide compelling justification to do so after review and recommendation by appropriate CRCIL advisory body/ies (e.g, EAC) and final approval by the Agreement Officer (AO).

Applicants must describe the process of how the ME will determine whether such an activity is appropriate and how it will handle any Conflicts of Interest between proposed PIs and ME staff, the

ME PIs at its home institution, and existing research activities. During the co-creation phase, USAID and the Apparently Successful Applicant will determine an appropriate maximum funding amount that can be utilized to support such commissioned activities over the life of the CRCIL.

A.IV.d. Approach to Ensure Relevance of the Program Portfolio

A.IV.d.1. Global Engagement of the CRCIL Director

To ensure strong engagement among the CRCIL, other international research institutions, NARS, and the private sector, USAID is seeking an IL led by a prominent member of the global agricultural research field, a person highly experienced in producing valued global agricultural research goods. The CRCIL Director must be a thought leader in the area of cereal crops genetics and improvement with an actionable vision for leading the global cereal crops improvement community and capable of interfacing well at high levels of international organizations, national governments, and the private sector. One of the responsibilities of the CRCIL Director will be to catalyze additional international investments and resources to increase impact beyond what USAID is solely able to fund.

A.IV.d.2. Incorporation of GFSS Objectives

The Applicant is expected to develop a research and local capacity strengthening program that incorporates these objectives into the activity design, knowledge generated and evaluation tools. The GFSS objectives aim to advance food security and improved nutrition by focusing efforts around three interrelated and interdependent objectives discussed below.

(i) Agriculture-led Economic Growth

Innovations from research are seen as central to driving impact and productivity growth in agriculture. The 2019 World Bank study "Harvesting Prosperity[27]" demonstrates that agricultural growth is up to four times more effective in reducing extreme poverty than growth in other sectors in poorer developing countries. Growth in the agriculture-food sector is especially dependent on research-generated innovation, far more so than other development sectors. And while the GFSS has multiple objectives, FTF Innovation Lab research investments often lead to outcomes that advance multiple GFSS objectives. Productivity gains drive agricultural growth through higher yields, reduced risks from pests or diseases, reduced post-harvest losses and improved quality, and overall improved value resulting from strong market demand for higher quality foods. Applicants must demonstrate a clear understanding of how the CRCIL's research program will lead to generating new innovations, technologies and knowledge that will lead to the development of improved climate resilient cereal varieties adapted to current and future climate change scenarios.

(ii) Strengthen Resilience among People and Systems

Under this GFSS objective, resilience and risk are interrelated. Resilience is the ability of people, households, communities, and systems to reduce, mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth. It is an essential condition for sustainably reducing global hunger, malnutrition, and poverty as well as to reduce reliance upon emergency food assistance.

[27] https://openknowledge.worldbank.org/bitstream/handle/10986/32350/9781464813931.pdf?sequence=6&isAllowed=y

Risk management is the set of activities, behaviors, decisions, and policies that allow individuals, households, and communities to mitigate (reduce) the likelihood or severity of a shock and to transfer or positively cope (without employing negative coping strategies, such as productive asset depletion) with shocks, stress, and risk exposure, including adaptation strategies that help individuals, households, and communities manage longer-term trends and stresses. The CRCIL should become an important source of risk-reducing innovations, technologies and knowledge.

The GFSS Resilience objective also shares GFSS Intermediate Result 4 – Increased sustainable productivity, particularly through climate-smart approaches. Addressing the role of crop breeding and adaptation research in increasing food security can incentivize investment through both increased productive potential and reduce risk.

Applicants must demonstrate a clear understanding of how the CRCIL's research efforts will lead to improved and/or new innovations, technologies, and methods that will be utilized to contribute to decrease risk or improve risk management. Applicants must consider and detail how the Innovation Lab will strengthen functional capacities of local partners and systems to adapt and respond to abiotic and biotic cereal crops risks to realize the potential of innovation to protect local, national, and regional food systems on which the poor depend.

(iii) A Well-Nourished Population

A well-nourished population, especially among women and children, is the second GFSS objective. In a food systems approach, FTF ILs generate technologies, methodologies and policies that contribute to improved nutrition, both directly and indirectly. While various activities across sectors are needed to meet this outcome, the CRCIL will focus research efforts on discovering, identifying, creating, and upgrading innovations, technologies, and methods that identify and strengthen opportunities for smallholder farmers to sustainably and economically produce safe, nutritious crops free of abiotic and biotic problems.

A.IV.d.3. Incorporation of Cross-Cutting Issues

The ME will develop a coherent approach to ensure that essential cross-cutting issues are addressed at both the program level and incorporated within individual component activities as appropriate. It is important to note that the product profiles will already have considered many of the cross-cutting issues and their relevance to varietal traits important to downstream users such as producers, processors, and marketers; however, the ME will serve as an important check to ensure that these concerns are fully addressed as far as the objectives of the CRCIL allow.

Applicants must ensure that the following cross-cutting issues are addressed in their Application, both across the IL portfolio and within component activities. Applicants are encouraged to utilize external sources, especially the ones provided within this pre-notice draft NOFO and as footnotes, to guide their understanding of these issues beyond the descriptions presented here. USAID understands that the CRCIL will not be directly creating the new cereal crop varieties described by the product profiles, but it is in USAID's interest for Applicants to understand how those varieties take into consideration the cross-cutting issues and how they impact the discovery of new alleles and genomic knowledge produced by the IL.

(i) Gender Equality, Equity, and Participation

USAID policy requires that gender equality be addressed as appropriate in all USAID-funded activities and that programming contribute to the USAID Gender Equality and Female Empowerment Policy[28] objectives and the GFSS Cross-cutting Intermediate Result of advancing gender equity and female empowerment.[29]

The ME is expected to outline key research processes or questions to support gender integration in each objective and proposed Area of Inquiry. The CRCIL must develop knowledge, recommendations, tools, and strategies that recognize and account for the needs and multi-dimensional roles of both women and men in small-scale production and marketing systems. Gender-sensitivity begins from initial product profiling and trait selection and continues through the agriculture innovation and market systems that support smallholder production, processing, and marketing. As the CRCIL develops technologies to accelerate breeding processes and build the genetic bases of cereal crops characteristics, it must ensure that such outputs reflect and contribute to the strengthening and accessibility of varieties that meet women's and men's needs as farmers, processors, and consumers. Similarly, the CRCIL must ensure that research efforts and outputs meet the needs of women and men as researchers. Efforts that engage other actors further downstream in strengthening and marketing must consider how factors such as access to agricultural information and cooperative membership, ability to access complementary inputs needed by new varieties, cost, and shifts in workload may differentially affect gendered uptake and impact of new varieties. Because men and women are not homogenous groups, the CRCIL must, to the extent possible, be sensitive to this diversity, and explicitly recognize the specific needs among different communities.

Gender-responsive agricultural research involves the identification of questions that are informed by and relevant to women's and men's roles, responsibilities, participation in, and benefits from agriculture innovation and market systems; the ability to collect and analyze data to answer those questions; and the ability to engage with and communicate findings to stakeholders. Gender analysis and integration must be implemented as a cross-cutting effort within all activities. Additional guidance on integrating gender can be found in the GFSS Gender Technical Guidance.[30]

Applications must demonstrate a clear understanding of gendered challenges and opportunities 1) among small-scale farmers that can be addressed through improved and available seeds, 2) in engagement of women in the seed systems value chains, 3) among researchers to adapt and respond to realize the potential of agriculture innovation and market systems, and 4) to reduce barriers to entry and advancement in research for women as scientists and as farmers. Where this information is unavailable, Applicants must address knowledge gaps to ensure that outputs and outcomes of research conducted under the CRCIL are beneficial to both women and men.

(ii) Youth Inclusion

Similarly, yet distinct from the gender requirements noted above, the 2012 Youth in strengthening Policy[31] mandates the inclusion of critical priorities concerning youth (ages 10 – 29) across USAID's portfolio, and the GFSS has committed itself to mainstreaming youth in agriculture, food security,

[28] https://www.usaid.gov/sites/default/files/documents/1865/GenderEqualityPolicy_0.pdf
[29] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-advancing-gender- equality-and-female-empowerment/
[30] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-advancing-gender- equality-and-female-empowerment/
[31] https://www.usaid.gov/policy/youth

and nutrition whenever and wherever possible using a Positive Youth strengthening framework.[32] The CRCIL must be a youth-sensitive program that will develop knowledge, recommendations, tools, and strategies that recognize and account for the needs and multi-dimensional roles of youth in small-scale production and the innovation and market systems in which small-scale production is embedded.

Because young people are not homogenous groups, the CRCIL must, to the extent possible, be sensitive to this diversity, and explicitly recognize the specific needs of various groups and economic roles within the broader category of youth. In some instances, it may be necessary to conduct an analysis that improves the evidence base and allows for better targeting to advantage youth in livelihood generation. Youth analysis must be integrated within all activities.

Applicants must outline key research processes or questions to support integration of priorities concerning youth in each objective and proposed Area of Inquiry. Through youth analysis, Applicants must demonstrate a clear understanding of young men's and women's distinct roles in agriculture innovation and market systems; where this information is unavailable, Applicants must describe how they will assess and address knowledge gaps to ensure that outputs and outcomes of research conducted under the IL are beneficial to young men and women. Applicants must present an approach that addresses the critical need in agricultural research of a "pipeline" of interested youth who are willing to commit their professional lives toward advancing agriculture in their home countries.

(iii) Nutrition and Food Safety

A well-nourished population, especially among women and children, is a high-level goal of the GFSS. While multiple types of activities in several sectors are needed to meet this outcome, the CRCIL must focus research efforts on discovering alleles for traits critical in climate change adaptation, validating and transferring to elite background materials that improve and accelerate the varietal creation process toward meeting product profiles. As an example of downstream benefits, there is potential for households to adopt more nutritious diets through increasing availability of cereal crops that hold valuable nutritious properties and through biofortification of existing, popular cereal crops – both of which would be identified in product profiles. There is also an opportunity for new tools that will lead to increased understanding of how to breed cereal crops with greater intrinsic food safety (e.g., crops that resist toxic mold growths).

In response to these priorities, the ME will implement a coherent approach to ensure that nutrition is addressed in the context of cereal crops improvement research and capacity strengthening efforts at the program level, as well as incorporated within individual component activities as appropriate. Additionally, it is important to consider whether dietary changes result in new burdens placed on households, especially women. The USAID Multi-Sectoral Nutrition Strategy is a recommended resource.[33]

Applicants must demonstrate a clear understanding of how the CRCIL's research efforts and local capacity strengthening will lead to improved and/or new technologies that will be utilized to create

[32] http://www.youthpower.org/
[33] The USAID Multi-Sectoral Nutrition Strategy addresses pathways to optimal nutrition. https://www.usaid.gov/nutrition-strategy

improved cereal varieties and stronger agriculture innovation and market systems that contribute to improved dietary and nutritional outcomes.

(iv) Resilience and Risk Management

The second objective of GFSS is strengthened resilience of people and systems.[34] Resilience is the ability of people, households, communities, and systems to reduce, mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth. It is an essential condition for sustainably reducing global hunger, malnutrition, and poverty as well as to reduce reliance upon emergency food assistance. Studies conducted during the 2016 ENSO event found that households in Ethiopia participating in increased resilience programs experienced just a four percent decline in food security while other households experienced a decline of 30 percent. Other studies have found that each $1 spent on resilience yields almost $3 in emergency food aid savings.[35] Resilience is as important for enabling people to escape and remain out of poverty, hunger, and malnutrition everywhere USAID works with countries on their journey to self-reliance as it is for reducing (averting) the need for humanitarian assistance in areas of recurrent crises, where the primary focus of USAID's resilience work takes place.

Risk is the potential for an uncertain event or trend to have adverse consequences on lives; livelihoods; health; property; ecosystems and species; economic, social, and cultural assets; service provision (including environmental services); and infrastructure. Notably, risk exposure, particularly weather risk exposure, impacts behavior and livelihood decisions *ex ante*, regardless of whether the shock actually occurs. Risk management is the set of activities, behaviors, decisions, and policies that allow individuals, households, and communities to mitigate (reduce) the likelihood or severity of a shock and to transfer or positively cope (without employing negative coping strategies, such as productive asset depletion) with shocks, stress, and risk exposure, including adaptation strategies that help individuals, households, and communities manage longer-term trends and stresses.

The GFSS Resilience objective also shares GFSS Intermediate Result 4 – Increased sustainable productivity, particularly through climate-smart approaches. Addressing the role of cereal crops improvement research in increasing productivity can improve resilience at household, community, and landscape levels and reinforce efforts to improve risk reduction, mitigation, and management amongst people and systems. Opportunities exist to examine which improvements need to be made to current cereal crops improvement research programs, including in forecasting future research needs as a means of reducing future risks, to enable them to respond more quickly and effectively to the challenges of climate adaptation, farm enterprise diversification, improved soil fertility, natural resources management, and input management. The product profiles will provide insight into which of these challenges may be most pressing or common across the portfolio and should be used as the ME's guide when selecting research activities. It is important, however, to also understand burdens on households and potential changes in gender dynamics within them and how various stakeholders respond to transformation in agricultural and food systems. In response to these priorities, the ME will implement a coherent approach to ensure that resilience and risk management is addressed in the context of research and capacity strengthening efforts at the program level and incorporated within individual activities as appropriate.

[34] https://www.usaid.gov/resilience/resources and https://www.feedthefuture.gov/resource/global-food-security-strategy-guidance-on-resilience/
[35] https://www.feedthefuture.gov/resource/global-food-security-strategy-guidance-on-resilience/

Applicants must demonstrate a clear understanding of how the CRCIL's research efforts will lead to improved and/or new technologies that will be utilized to create improved cereal crop varieties that contribute to increased resilience, risk management, and climate-smart agriculture.[36] Applicants must consider and detail how the CRCIL will strengthen functional capacities of local partners to adapt and respond to risks to realize the potential of innovation to strengthen the agriculture innovation and market systems.[37]

(v) Inclusion

Key to inclusive agricultural and economic growth is the inclusion of those most marginalized. Whether building on prior women's economic empowerment theory and evidence or engaging youth or persons with disabilities in meaningful and creative ways, the technical products produced by the CRCIL will reflect considerations for inclusive agricultural development.[38] In addition, the ME's operations and methods on the ground will incorporate the capacity and tools to identify and address the factors that underlie marginalization related to the CRCIL's activities. USAID recognizes that sometimes this means direct engagement with marginalized groups, but other times inclusion impacts may be created indirectly, with care to monitor actual results – this is likely to be the point of concern for the ME. USAID takes a broad view to inclusion, and specific groups of interest can and should vary and intersect depending on context, including the extreme poor; women; youth; people with disabilities,[39] ethnic and religious minorities; indigenous peoples; LGBTQI (lesbian, gay, bisexual, transgender, queer, and intersex) persons;[40] widows and orphans; and other marginalized groups. The ME will endeavor to include and not exclude these persons from benefiting from the associated research and activities of the CRCIL.

Applicants must demonstrate a clear understanding of how the CRCIL's research efforts will lead to improved and/or new technologies that will be utilized to create improved varieties and agriculture innovation and market systems that are inclusive of all groups. This must also include a discussion on how the Applicant will ensure that the IL's local capacity strengthening activities promote inclusivity. Applicants must also describe how they will reach out to MSIs and ensure their inclusion in the research portfolio. Applicants from MSI-designated institutions must describe their outreach process to other MSIs and to non-MSI institutions.

A.IV.d.4. Addressing Climate Change and Natural Resource Management

The GFSS is abundantly clear on the threat that rapidly changing climate patterns present to agricultural production. The intensifying challenge of changing climate patterns and extreme weather events such as droughts, floods, and extended periods of extreme temperatures pose major challenges to global food security, requiring new food production practices along with enhanced monitoring and response to agricultural pests and diseases. USAID also seeks sustainable approaches that do not exacerbate climate change or other environmental harm. Exacerbating the climate challenge is

[36] https://www.agrilinks.org/search?criteria=climate+smart+agriculture
[37] https://tapipedia.org/framework/4-1-capacities
[38] Please see the GFSS technical guidance for Advancing Gender Equality and Female Empowerment https://www.feedthefuture.gov/wp-content/uploads/2018/03/GFSS_TechnicalGuidance_Gender.pdf
[39] https://www.usaid.gov/what-we-do/democracy-human-rights-and-governance/protecting-human-rights/disability
[40] When working for the inclusion of LBGTQI persons, the concept of 'Do No Harm' is critical to their safety. See USAID LBGT Vision for Action, p. 8 for more. https://www.usaid.gov/sites/default/files/documents/1874/LGBT_Vision.pdf

continued stress on ecosystems, the land, water, and natural resource base upon which productive agriculture relies. Responding to these challenges requires research to provide new tools and approaches for increasing agricultural productivity, monitoring and managing pests and diseases and associated risks, better managing and governing natural resources related to the food supply and adapting to the effects of a changing climate.

A.IV.d.5. Agricultural Innovation Systems Approach

The long-term sustainability and success of food security and nutrition research investments are dependent on both continuous capacity strengthening for agricultural innovation and the hand off of research outputs to partners who effectively promote their widespread adoption and diffusion following a product life cycle framework (A.II.d.7). Achieving scale must be planned from the start. To do so, FTF ILs must play an important role in partnering with sector stakeholders to identify opportunities and barriers in innovation and market systems through their research, as well as facilitating local system capacity strengthening and relationships that are necessary to scale use of beneficial technologies and practices. Many technologies require private or public sector engagement to optimize diffusion and adoption at scale. Not every innovation will require the same set of actors or the same pathways, but discernment at the Target Product Profile (TPP) stage of research planning and design within a Product Life Cycle increases the likelihood of advancing global food security, resilience and related nutrition investment.

An agricultural innovation systems (AIS) approach may be a useful lens through which capacity strengthening and scaling may be considered. This approach shifts attention away from research and the supply of science and technology as an independent operation and towards the whole process and ecosystem of innovation in which research is embedded. An AIS perspective considers the interaction of people, the knowledge, technology, infrastructure, and cultures they have created or learned, who they work with and their motivations and incentives, and what new ideas they are experimenting with. And it pays explicit attention to this interaction of individuals and organizations across the domains of research and education, the private sector and markets, agricultural extension and other bridging institutions, and the enabling environment.
Using this lens, the CRCIL should focus on strengthening the critical capacities and relationships among public research and extension programs and private sector in cereal crops market systems, as appropriate. This will be achieved in part when the NARS adopt the technologies and knowledge developed by the CRCIL and have the organizational and relational capacities so that NARS are equipped to create new, improved innovations that are responsive to end users such as smallholders and small enterprises, private- and public-sector technology-scaling partners, and the needs of local AIS stakeholders.

A.IV.d.6. Local Capacity Strengthening

The development and adaptation of innovations suited to local contexts require a strong and empowered cadre of researchers and practitioners with advanced competencies and professional skills who are embedded within high-performing organizations and institutional networks. Integrating capacity strengthening into the design and implementation of the CRCIL will be vital to sustaining and innovating research for accelerating cereal crops improvement.

Capacity strengthening in the GFSS Results Framework is represented as the cross-cutting result of "improved human, organizational, and system performance." Under the GFSS, USAID's approach to

improving human, organizational, and system performance is rooted in local capacity strengthening – a "process of unleashing, strengthening, and maintaining the ability of people, organizations, and society as a whole to manage their affairs successfully." USAID emphasizes the importance of capacity strengthening to improve strengthening results by increasing local ownership, sustainability, and partnerships with other local organizations, donors, the public and private sectors, and other stakeholders.

Research capacity strengthening is a complex and long-term process. Host-country researchers are best placed to identify the challenges, opportunities, and needs of their organizations and local research networks. Consequently, the ME will be responsible for developing a local capacity strengthening approach that aligns with the priorities of host-country and/or regional partners to ensure that opportunities are in alignment with host-country national and regional research priorities and strategically targeted to contribute to a strengthened local AIS. This will ensure that the local capacity strengthening approach reflects host-country and/or regional partner input, as well as the alignment of capacity strengthening activities across the IL portfolio, so that capacity strengthening efforts are not duplicative but reinforcing.

"Capacity" is a function of capacities at three interconnected levels that are parts of a whole: individuals, organizations, and an enabling environment. While capacity strengthening at each level needs to be dealt with in its own right, it is pertinent to stress the crucial importance of partnerships and networks to create interconnectedness across the three levels to create new knowledge to spur innovation. A capacity strengthening for Agricultural Innovation Systems perspective may help frame an approach that integrates more traditional interventions, such as strengthening technical skills through training, with more contemporary interventions – facilitative approaches that support individuals and organizations to develop and manage their own capacity strengthening and learning plans through continuous improvement processes.

- Local capacity strengthening efforts must be designed to primarily benefit host-country individuals and/or host country and/or regional organizations.
- While recognizing the varied roles of men and women in cereal crops improvement research and of men and women as producers, consumers, and marketers of crops, efforts must be made to ensure balance among men and women in access to capacity strengthening opportunities and to promote equal participation of men and women in all activities.
- USAID values a proactively inclusive approach in all development work.

The following documents can provide additional insights on USAID's overarching approach to transforming innovations and reforms into sustained strengthening: USAID Local Systems Framework,[41] the USAID ADS 201 Additional Help Document, Local Capacity strengthening Suggested Approaches,[42] and the USAID Technical Note on the 5Rs Framework.[43] Technical guidance for capacity strengthening in the framework of the GFSS can be found at the GFSS Technical Guidance for Capacity strengthening webpage.[44]

[41] https://www.usaid.gov/policy/local-systems-framework
[42] https://usaidlearninglab.org/sites/default/files/resource/files/ads_additional_help_lcd_1.13.2017.pdf
[43] https://usaidlearninglab.org/library/5rs-framework-program-cycle
[44] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-capacity-strengthening/

The ME will ensure that Local Capacity Strengthening is a fundamental design consideration, both across the overarching program and within individual program activities as appropriate. To the extent possible, Local Capacity Strengthening efforts must be integrated into research activities (sub-awards) as support for trainings, workshops, conferences, and meetings for the purpose of professional strengthening of students and researchers associated with the IL – however, the ME must also reserve a small portion of central funds to facilitate such events and support additional students or staff to attend as needs arise. Well-justified, standalone capacity-strengthening activities also may be appropriate.

Nothing in this section must be interpreted as restrictive to Local Capacity Strengthening of research institutions. An important facet of a system of organizational strengthening includes the incorporation of the private sector to enable technologies to be implemented at scale during and after the life of the CRCIL; therefore the local capacity strengthening approach must necessarily include a plan to improve the capacity of local private sector stakeholders.

Applicants must propose a process and initial ideas for a Local Capacity Strengthening approach (formerly or alternatively called an HICD approach) that aligns with USAID's interests in Local Capacity Strengthening as described in this section; the ME will design a more detailed strategy after the IL award. Applicants must propose a Local Capacity Strengthening approach that describes which individuals or groups will benefit, how they will benefit, and how the benefits will help achieve development outcomes.

Applicants must also consider how the proposed local capacity strengthening program can complement other USAID investments, including the work of other FTF ILs and/or USAID local capacity strengthening efforts and strive to collaborate where possible in activities, especially those aimed at organizational and institutional relationship strengthening. In the case of the CRCIL, Applicants must additionally identify how the ME will create a Local Capacity Strengthening program complementary to the activities of Genetic Innovation, which build upon CtEH and Excellence in Breeding.

A.IV.d.7. RFS's Product Life Cycle Framework

As described in the Global Food Security Research Strategy, product research represents one stage within a continuous, iterative process by which new food security innovations (including technologies, practices, and knowledge) are developed, validated, disseminated, and adopted in order to enhance prosperity, resilience, and nutrition. For new cereal crops innovations to ultimately yield maximum impact in FTF countries, a facilitative approach is typically required to move potential innovation from the research stage to initial adoption by a small number of direct beneficiaries, and ultimately to widespread, sustained adoption at the population level. In order to maximize the potential for research outputs to ultimately achieve development impact, USAID/RFS ensures that best practices to promote technology adoption are integrated into research activities at the earliest stages of design and implementation. This includes:

- Developing a written Target Product Profile based upon market segmentation research and analysis aimed at understanding and codifying the products and traits desired by the market (farmer, processors, customers).
- During initial R&D activity design and implementation, identifying potential product delivery and dissemination pathways that will ultimately support the diffusion of an

innovation.

- Cultivating active and increasing collaboration between researchers and potential public-private scaling partners as innovations advance through the research and development process, beginning at the earliest phase of research design.
- Using participatory research methodologies to engage intended end-users and potential public/private sector disseminators in co-design and validation, ensuring that traits and characteristics preferred by target market segments (smallholder farmers, processors, customers) guide product selection during the upstream research process.
- Soliciting and responding to ongoing, iterative feedback from end-users, stakeholders and market system actors to inform upstream research activities throughout the product research and development process.
- Facilitating successful technology scaling through implementing USAID/RFS agricultural development approaches that consider the structure and function of local product supply and distribution systems in order to promote effective, equitable dissemination of agricultural inputs and other technologies to their intended beneficiaries.

The Product Life Cycle (PLC) is the standardized process that every product undergoes as it matures, from inception through disposal. The RFS PLC Framework captures three main features: a) the development of a Target Product Profile (TPP) drawing on market segmentation research, b) the Product Life Cycle stages that characterize the development of an innovation from definition, to research and development, to commercialization, adoption and eventual phase out, and c) the specific stage gate criteria, established in advance in accordance with the TPP, that must be met at each stage in order to advance (Figure 2). The product life cycle tracks a product as it advances from one stage to the next, using established criteria at each stage to determine whether the product can advance through the "gate" and progress to the next stage. Stage gate criteria include matching key characteristics defined in the TPP as well as other conditions that must be satisfied in order to launch activities required in the next stage.

A life-cycle approach to product development therefore positions USAID/RFS's Climate Resilient Cereals Innovation Lab activities and partners for long-term success, by ensuring that even shorter incremental award phases are designed, managed, and implemented within the strategic context market demand of a product's full life cycle. Forging a strong partnership with appropriate public-private research, development and scaling partners is therefore desired in the earliest phase of research prioritization and design.

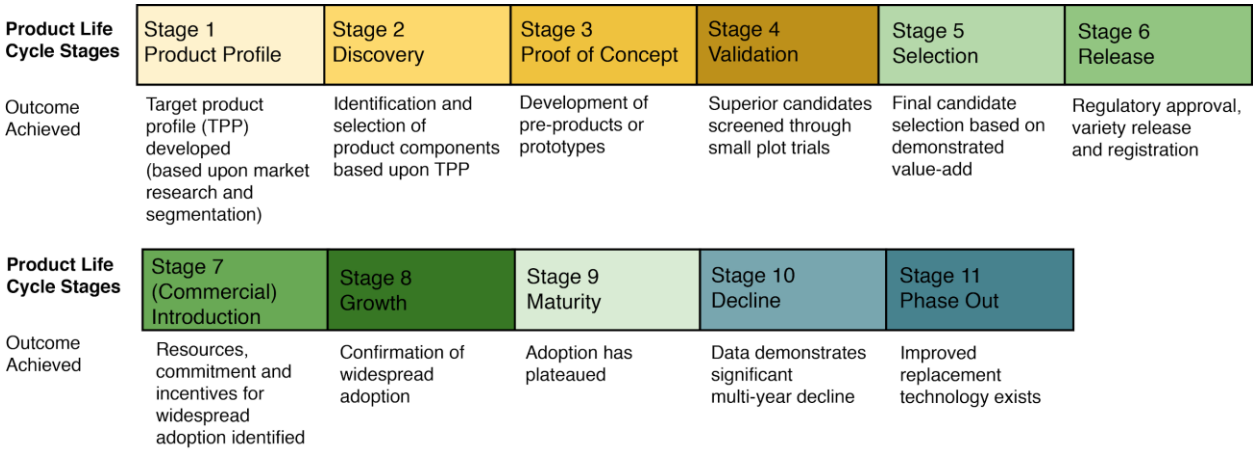

Figure 2. RFS Product Life Cycle Stages

Complementary investments in crop breeding are taking place under the Excellence in Breeding (EiB) Platform, Crops to End Hunger (CtEH) Initiative, and One-CGIAR Genetic Innovation action areas. (USAID is one of five international development organizations that took the lead in creating the CtEH initiative.) The CRCIL must take advantage of systemic improvements in CGIAR research centers and NARS enabled through these initiatives. In particular, an integral part of the CRCIL is to utilize market-oriented, crop- and geography-specific target product profiles, which will guide and coordinate generation of demand-driven research outputs from the Innovation Lab. All research investment must be undertaken with the insights about in-demand traits, qualities, and characteristics described in the target product profiles to increase the ability of researchers to meet farmer and consumer demands. Target product profiles follow the cereal crops market segment specific to each country and context.

A.IV.d.8. Private Sector Engagement

Because public-private pathways can be especially valuable for moving publicly-funded research products to the private sector for broader distribution of research outputs, the CRCIL will focus on strengthening the critical relationships among public breeding programs and national and private sector research and development, as appropriate. Together, these actors can jointly develop an effective upstream research, and downstream development and distribution system within a virtuous cycle of an agriculture innovation and market system that is more responsive to the fast-changing local contexts and adaptively develop improved cereal crop varieties. Such a system will be able to function without additional support from donors. This will be achieved in part by the public research institutions (NARS) adopting the technologies developed by the CRCIL to create new, climate resilient improved varieties that are responsive to their private-sector, seed-scaling partners, and product profiles generated through multi-stakeholder consultations.

For research investments to contribute to achieving development gains in nutrition, resilience, or agriculture-led economic growth in FTF countries, research programs must play an important role in ensuring that research outputs are ultimately handed off to partners who effectively promote their widespread adoption in a manner that enhances food and nutrition security for the target population. The process by which research outputs undergo progressive dissemination, adoption, and impact across expanding geographies and populations is referred to as “scaling.” Scaling can occur via a variety of different delivery pathways, ranging from commercialization by the private sector to dissemination by public-sector or civil-society partners (or a combination thereof). For the purposes

of the CRCIL, the target populations are researchers and other cereal crop improvement actors such as the private sector breeders and seed producers.

Although scaling of technologies, practices, or approaches may not be within the immediate manageable interests of the CRCIL, consideration of downstream adoption pathways and end-user demand can not be deferred until the final moments of transfer to a scaling partner. Therefore, research partners must actively address issues of downstream handoff and eventual scaling of outputs throughout all stages of research activity design, selection, and implementation, as an essential element of a research program's technical and management approach. If scaling succeeds, the technologies developed by the CRCIL will be adopted by cereal crop improvement actors in public and private sector organizations in a manner that contributes to the goals of the GFSS.
Best practices to maximize the scaling potential and development impact of research outputs include:[45]

- Consider local needs, preferences, and market demand throughout activity design and implementation to ensure the resulting research outputs will ultimately achieve scale.
- Explore and identify potential scaling pathways early in activity design and implementation.
- Foster research partnerships with potential scaling partners in order to promote co-innovation, inform development of appropriate and user-oriented technologies, and facilitate downstream adoption of new knowledge and practices.
- Use participatory research methodologies that engage intended end-users and potential scaling partners, especially the private sector, in co-design development and testing of innovations.
- Solicit and respond to ongoing, iterative feedback from end-users, stakeholders, and scaling partners to inform research activities.
- Maintain research partner engagement after handoff to scaling partners with the aim of providing technical support to and building capacity of local scaling partners.

In response to these expectations for development-oriented research programming, the CRCIL is required not only to generate improved knowledge, technologies, and practices, but also to make those research outputs available for uptake by partners who will take them to scale. USAID/RFS and Missions have various mechanisms that may be available to lead these scaling efforts. Public Private Partnerships can also be a valuable mechanism through which to take research outputs to scale by taking advantage of each partner's ability to share resources (i.e. knowledge and technological assets), industry expertise, investment support, managerial expertise, and more.

Applicants are expected to include private sector partners in their applications. Applicants must discuss how linkages with the private sector, local NARS, other global or regional public research organizations, not-for-profit organizations (local or international), and other entities will facilitate research and development and must include a plan for ensuring that these linkages do not solely remain on paper. Applicants must discuss what strengths in these organizations will be sought after and leveraged and what strengths the IL will contribute.

A.IV.d.9. Geographic Focus

Research outputs of the CRCIL must be primarily focused on achieving global and regional impacts, rather than focusing more narrowly on national or sub-national areas. As a key component of the

[45] https://www.usaid.gov/what-we-do/agriculture-and-food-security/us-government-global-food-security-strategy

proposed program description, Applicants must select target countries in which to conduct research and capacity-strengthening activities funded under the Leader Award. Additionally, the ME must be able to expand activities into other countries in which USAID invests agriculture and nutrition resources in response to additional buy-in or Associate Award funding opportunities that may arise. The ME and researchers are encouraged to engage with USAID Mission staff, Mission implementing partners, private sector representatives, and other stakeholders as appropriate, including in the early stages of research design and implementation, to ensure that program activities will contribute to a pathway of significant development impact. (However, Applicants must NOT contact any USAID Mission or Office staff, other than the contact person identified in this NOFO, during the application phase.)

The following sub-sections are to serve as a guide to Applicants during their focal country selection process and are not meant to be prescriptive. Developed countries (other than the U.S.), advanced developing countries (except those hosting a USAID Mission), and restricted countries will not be allowed to host research activities.[46] Additional information on GFSS country strategies and programs can be accessed from https://www.feedthefuture.gov/about/ and the Mission websites.[47]

Applicants must select at least one country in each priority region where there exist the most opportunities for creating new technologies and improving local capacity; FTF target and aligned countries must be prioritized for selection. The application must justify the target country selection using at least the following three primary criteria: (1) local research institutions' ability to support new research efforts within the specified cereal crops, (2) the level of interest of local scientists to advance these cereal crops, and (3) the importance placed on these cereal crops by the local USAID Mission. Countries that do not meet these criteria but host CGIAR research centers will also be considered in order to take advantage of CGIAR regional and crop specific expertise; however, Applicants must justify the selection of such a country and research partner through an articulation of explicit linkages with FTF target country research programs and cereal crops improvement goals. Applicants are encouraged to present and use additional criteria for choosing target countries in order to present the strongest case for each country. Other countries may be proposed by the Applicant, but all target countries selected must collectively optimize tradeoffs among multiple selection rationale.

During the co-creation process after the Apparently Successful Applicant is identified, USAID will work with the Applicant to finalize the list of target countries for the CRCIL. Congress may impose spending caps or other restrictions on any country to which USAID provides assistance, and the ME and USAID must adjust programs accordingly as these constraints arise.

Please note that the regions and countries listed below are not necessarily aligned with USAID Regional Mission coverage. Countries are included by region according to a geographical preference for this IL only (e.g., Malawi is covered by the USAID Southern Africa Regional Mission but is included here under East Africa Region).

[46] For more information on the categorization of countries by USAID, please refer to ADS Chapter 310 – Source and Nationality Requirements for Procurement of Commodities and Services Financed by USAID: https://www.usaid.gov/sites/default/files/documents/1876/310.pdf

[47] https://www.usaid.gov/where-we-work

(i) West Africa Region

USAID-supported, regional agriculture and food security activities in Africa are coordinated and aligned with national priorities and programs of other donors within the framework of the African Union's Comprehensive African Agricultural strengthening Program (CAADP[48]). Through the Malabo Declaration,[49] signatory member states to CAADP aim to maintain an annual agricultural growth rate of six percent and halve poverty by 2025.

In West Africa, USAID works to build the capacity of several key regional organizations. The Economic Community of West African States (ECOWAS[50]) leads the implementation of CAADP through the establishment of a regional investment plan and a regional agricultural agency. The West and Central African Council for Agricultural Research and strengthening (CORAF / WECARD) conducts, coordinates, and disseminates research on agricultural practices and improved seeds to member states and national research centers. With USAID support, ECOWAS and CORAF/WECARD have become leaders in West Africa's agricultural strengthening.

The USAID/West Africa Regional Mission[51] FTF strategy aligns with ECOWAS's regional agricultural plan focusing in three core areas: increased agricultural productivity, improved regional trade, and enhanced institutional capacity. A core objective is to help regional institutions increase their capacity to fulfill their mandates.

FTF target countries in this region are: Ghana, Liberia, Mali, Niger, Nigeria, and Senegal.
FTF aligned countries are: Burkina Faso, Guinea, and Sierra Leone.

(ii) East and Southern Africa Region

In East Africa, USAID and other donors are cooperating with regional economic bodies to strengthen policies and facilitate trade. Key partners in the region include the Common Market for Eastern and Southern Africa (COMESA[52]), the East African Community[53], the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA[54]), and the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA[55]).

Target countries: DRC, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Uganda, and Zambia.

Aligned countries: Burundi, Somalia, S. Sudan, and Zimbabwe.

[48] http://www.caadp.net/
[49] https://au.int/sites/default/files/documents/31247-doc-malabo_declaration_2014_11_26.pdf
[50] http://www.ecowas.int/
[51] http://www.usaid.gov/west-africa-regional
[52] http://www.comesa.int/
[53] http://www.eac.int/
[54] http://www.actesacomesa.org/
[55] http://www.asareca.org/

(iii) Asia

ASEAN is an important multilateral organization in the region and Australian Aid is an important strengthening partner in the region. Interesting intra- or inter-regional research activities could be developed in India so long as they benefit global research goals.

Target countries: Bangladesh and Nepal.
Aligned countries: Burma, Cambodia, Georgia, and Tajikistan.
Strategic partner country: India

(iv) Latin America and the Caribbean

In Central America and the Caribbean, the Organization of American States is the primary regional coordination body. The Tropical Agricultural Research and Higher Education Center (CATIE in Spanish), located in Costa Rica, and the International Center for Tropical Agriculture (CIAT in Spanish), in Colombia, provide regional agricultural research services.

Target countries: Guatemala and Honduras
Aligned countries: Haiti and Central America & Mexico Mission (includes El Salvador)

A.IV.e. Approach to Ensure Accountability

A.IV.e.1. Staffing Plan

To ensure successful implementation of core technical and management functions, Applicants must clearly define the roles and responsibilities of proposed staff, proposed staff positions, other university departments, and external advisory bodies. USAID discourages exclusivity agreements between the Applicant and any candidates that will be proposed for Key Personnel (i.e., a person could be proposed by multiple Applicants). “Key Personnel " of the CRCIL will be the Innovation Lab (IL) Director and the Associate Innovation Lab Director. The proposed technical team, which will include Key Personnel may include Technical Specialists, must collectively demonstrate strong technical capacity such that the CRCIL will be successful in its Approach to Ensure Relevance as described in Section A.IV.d and its subsections.

Applicants must describe in detail the specific staffing plan, including an organizational chart, to ensure efficient use of resources and strong and effective management, administration, technical implementation/performance, and clerical support. The staffing plan must outline the roles and responsibilities of proposed staff positions, proposed lines of responsibility, authority and communication, and procedures to ensure productivity as well as cost and quality control and to ensure that all USAID programmatic requirements are assigned to at least one proposed position. If more than one staff member will be assigned responsibility for an area, functional supervision must be defined for that area.

While it is usually the case that all ME staff positions reside within a single institution (namely, the Applicant institution), it is possible for some staff, including the IL Director or Associate IL Director, to be based in an institution different from the Applicant institution. However, either the IL Director or the Associate IL Director must be employed or contracted by the Applicant institution. The Applicant must clearly describe such a scenario in the organizational structure and lines of reporting

from the IL Director and other ME staff to department heads or management at their home institutions.

(i) Innovation Lab Director

The Innovation Lab (IL) Director has overall responsibility for the management and implementation of the CRCIL, and serves as USAID's principal point of contact for all issues regarding the IL. The IL Director publicly represents the CRCIL to the U.S. Government, the public, the global research community, and other diverse stakeholders, and is ultimately responsible for activity coordination, planning, work plan strengthening, program reporting, and overall program monitoring and evaluation. The IL Director ensures that cross-cutting themes are properly addressed throughout the entire portfolio. The IL Director also ensures coordination, communication, and cross-learning between both internal and external partners and stakeholders of the project. The IL Director is the primary point of contact for strengthening of Associate Awards and buy-ins and is responsible for integrating Associate Awards and buy-ins into the overall IL program.

Applicants may transfer some of the IL Director's responsibilities to the Associate IL Director at the time of application, but must clearly describe this transfer of responsibilities and provide a justification as to why this would benefit the CRCIL (e.g., to free the IL Director to spend more time coordinating with relevant stakeholders) and the impact to Level of Effort (LOE) for both the IL Director and the Associate IL Director. After the start of the IL, the IL Director may decide to transfer some of these responsibilities to other staff contingent upon approval by USAID.

The IL Director is envisioned as a full-time position (0.80 to 0.95 LOE [Full Time Equivalent]); however, if the IL Director meets the subject matter expertise qualifications but cannot commit to full-time management responsibilities, a lower level of LOE may be proposed with justification of such an arrangement and a staffing plan that supports the IL Director's management responsibilities within other staff members. The IL Director must hold at minimum a Ph.D. (or equivalent advanced degree) in a subject relevant to international cereal crops research as described by this NOFO, a minimum of 10 years (15 years preferred) relevant technical expertise, and demonstrated competency in international agricultural research program management. Experience in managing research partnerships between international, national, and local partners is required. Experience integrating gender, social sciences, environmental, and nutritional considerations into research programs is required.

Applicants must identify the person proposed to serve as the IL Director with a complete description including (1) role and responsibilities for IL leadership and implementation; (2) proposed LOE; and (3) qualifications for this position. Higher consideration will be given to Applicants who propose a candidate with experience most closely matching the requirements described above. A CV (limited to 5 pages) and a letter of commitment from the proposed candidate must be included in an annex to the technical application that will not count toward the page limit. (Note: USAID discourages exclusivity for these candidate positions, i.e. the same candidate may be proposed in more than one application.)

(ii) Associate Innovation Lab Director

The Associate Innovation Lab Director supports the IL Director and serves as IL leader when called upon. The Associate IL Director must hold at least a Masters or equivalent advanced university degree in a subject relevant to cereal crops improvement research, a minimum of 5 years relevant

technical expertise, and demonstrated program management competency. If the IL Director does not have experience managing large, USAID-style programs, the Associate IL Director must hold such experience.

Applicants must identify the person proposed to serve as the Associate IL Director with a complete description including (1) role and responsibilities for IL leadership and implementation, including any that are to be transferred from the IL Director; (2) proposed LOE; and (3) qualifications for this position, including qualifications for any responsibilities to be transferred from the IL Director. Higher consideration will be given to Applicants who propose a candidate with experience most closely matching the requirements described above. A CV (limited to 5 pages) and a letter of commitment from the proposed candidate must be included in an annex to the technical application that will not count toward the page limit. (Note: USAID discourages exclusivity for these candidate positions, i.e. the same candidate may be proposed in more than one application.)

(iii) Other Personnel

Proposal of any additional management positions, position descriptions, and accompanying LOE, rests with the Applicant and will depend on the nature of the proposed IL. Proposed personnel must be sufficient to effectively and efficiently execute all technical and management functions. Various responsibilities that need to be filled within a successful ME include:

- Effective management of all financial tasks, including timely and accurate financial statements and reports according to USAID guidelines and generally accepted accounting principles (GAAP).
- Creation of materials to increase awareness and to promote productivity including maintaining a positive image of the IL to all parties, including research and development communities, policy makers and government stakeholders, users of generated technologies, and the general public.
- Execution of planning, monitoring, evaluation, and reporting aligned with USAID requirements.
- In-country coordination to ensure that decisions and analyses are consistent with on-the-ground realities, that activities are aligned with USAID country and regional priorities and geographies, and that critical partners are engaged from the beginning of the project.
- Creation and management of sub-contracts or sub-grants to other responsible institutions to conduct research activities, including international institutions and the private sector. The financial and contract and grant offices of the successful Applicant institution must have the demonstrated capacity to issue and manage such sub-contracts or sub-grants using financial and contract mechanisms appropriate for the expected range of sub-awardees. The accounting system must be able to account for funds allocated to each country, including through sub-sub-awards, and by funding origination year.
- Monitoring, evaluation, and learning of the IL activities (see section A.IV.e.2).

These other personnel are not subject to approval by USAID and as such only the position and associated responsibilities are required to be listed in the application. Applicants are advised to find qualified staff to fulfill these responsibilities prior to program implementation, but USAID will not review individual qualifications or CVs of these other staff positions either during the application evaluation or after award. Please do not send individual's names or CVs for these positions with the application.

(iv) Technical Specialists

Depending on the nature of the research to be conducted under the IL, Technical Specialists may be necessary or preferred to perform specific functions such as conducting scoping studies to inform an RFA (e.g., gender, yield challenges in selected cereal crops, etc.) or monitor programming, according to a plan of action directed by the IL Director. The Technical Specialists' areas of expertise might include, but are not limited to, the following: agriculture, soil health, human nutrition, knowledge management, community development, gender, youth, climate, risks management and resilience, capacity strengthening, policy, and market development. Their expertise may be cross-cutting in several technical fields. Technical Specialists may be local, host country or regional hires with length of assignment determined by need.

(v) Advisory Committee

Applicants must describe how the ME will hold sub-awardees accountable for progress along the defined impact pathway and address how the ME will oversee sub-award activities, along with means to correct, cancel, or terminate under-performing sub-awards. Typically, ILs accomplish this partly through the oversight of an Advisory Committee (variously called an External Advisory Panel, External Advisory Committee, etc.). Applicants must describe the mandate and oversight to be ascribed to any such committee and the desired composition of the members.

A.IV.e.2. Monitoring, Evaluation, and Learning

A "Collaboration, Learning and Adapting" (CLA) approach[56] is a primary precept for USAID work. The ME's explicit incorporation of CLA is expected to strengthen the technical knowledge base for new strategies and programs, as well as contribute to continuous alignment of programs with dynamic contexts, encourage adaptability and accountability, and support early recognition and application of new trends and findings to strategically influence outcomes within and beyond cereal crops improvement research. The ME must plan to develop approaches, such as partnerships and platforms, to share "lessons learned" both internally (among target and partner countries and among the IL participants) and externally, such as with stakeholders, including the public and private sectors and civil society. The ME must provide approaches to ensure that structures and opportunities are in place to facilitate cross-project learning within the CRCIL portfolio and data generated through the CRCIL must be regularly curated by the ME. For this IL especially, knowledge garnered downstream about technology users, their tastes, and preferences, must be communicated upstream to researchers as part of a learning and feedback system and integrated into the product profiles. The ME must also ensure that knowledge and understanding gained from the cross-cutting issues are incorporated into the rest of the portfolio as part of a virtuous cycle in addition to being shared with other FTF stakeholders as relevant. The ME must engage and leverage existing knowledge-sharing platforms and resources to further their reach and impact. For insights on and some examples of knowledge management under FTF programs, please visit Agrilinks[57] and the USAID Learning Lab[58].

The ME must ensure that a clear knowledge management plan is in place that links explicitly with the objectives of the award and which supports achieving and sustaining those objectives. It must include, at minimum:

[56] https://usaidlearninglab.org/faq/collaborating-learning-and-adapting-cla
[57] http://agrilinks.org/
[58] http://usaidlearninglab.org/

1. At least one implementer's technical brief for each Area of Inquiry (no more than three pages maximum), and;
2. Provision of annual key messages and conclusions from work completed to date to all internal program participants and to RFS Monitoring, Evaluation, and Learning (MEL) staff.

A clear and compelling plan to adapt and apply generic best practices of performance monitoring for impact-oriented research in the context of the proposed technical approach is required to provide evidence of the CRCIL's successes. The ME will adaptively manage the portfolio of sub-awards (contracts or grants) to ensure optimal implementation of all activities. The ME will institute procedures that provide sub-awardees with appropriate technical guidance and feedback, to ensure that planned research and local capacity strengthening benchmarks are met, to assure compliance and accountability, and to address unexpected challenges and opportunities. The ME will also ensure that sub-awardees are accountable for progress along their impact pathway. Furthermore, an approach to achieving development impacts must also address opportunities for the CRCIL to implement or support technology-scaling activities, if funding becomes available through Associate Awards or buy-ins. Performance management requires access to useful and timely information on a broad range of factors throughout the life of a program. Without planning how and when this information will be obtained, it will be difficult or impossible, once activities start, to put systems in place to ensure adequate information flow to enable ongoing decision-making and to meet performance reporting requirements (see F.III). The ME must take adequate steps to plan and institutionalize a process for collecting performance information as part of everyday work. This performance information consists of the indicators that will measure progress toward intermediate and final results and includes baseline data and periodic and final performance targets.

The Applicant's approach for ensuring that research activities will be oriented to development impact must be clearly articulated throughout the Technical Application. Applicants must submit a preliminary Activity Monitoring, Evaluation, and Learning (MEL) plan[59] that includes a relevant theory of change describing impact pathways, an accompanying logic model, performance indicators, and a description of how learning and adaptive management will occur. The plan must specify how the monitoring plan and indicators will measure progress and how cross-cutting issues are incorporated and measured throughout the impact pathways. The theory of change and logic model must also acknowledge what is and isn't within the spheres of control and influence of the CRCIL as well as critical assumptions. Impact pathways must also consider knowledge sharing and transfer of research outputs to relevant end users, including local organizations, to contribute to CRCIL objectives. Such end users may be researchers, government decision-makers, development professionals, and the private sector.

The preliminary Activity MEL Plan must include a plan and schedule to establish the following:

- Performance indicators that will measure progress toward achieving the desired results and account for gender and youth dimensions and cross-cutting issues, as relevant. The Activity MEL Plan must use appropriate FTF indicators. Mandatory indicators, required when relevant, are defined under the Standard Program Structure (SPS) indicator categories in the most recent version of the FTF Indicators Handbook: Definition Sheets.[60] Indicators can

[59] See ADS 201.3.4.10 (https://www.usaid.gov/ads/policy/200/201) for USAID requirements on Activity MEL Plans. Note that "Activity" in this sense means the entire Climate Resilient Cereal Innovation Lab.
[60] https://www.feedthefuture.gov/resource/feed-the-future-performance-indicators-under-the-global-food-security- strategy/

include quantitative data (e.g., individuals receiving training) and qualitative information (e.g., description of technology adoption and reported barriers). Indicator definitions and required disaggregation categories can change from year to year. At times, FTF may designate additional mandatory indicators or drop mandatory designations.

- A baseline for the indicators.
- Performance targets, with appropriate benchmarks and milestones of progress.
- Disaggregation of all people-level performance indicators by sex and age cohort.
- Documentation of known data limitations of each performance indicator by explaining any data quality limitations and what steps will be taken to address them.
- Description of the data quality assessment procedures that will be used to verify and validate the measured values of actual performance of all the performance information.
- Designation of the individuals or contractors responsible for any or all parts of performance monitoring, including data aggregation, review, approval, and entry into the Feed the Future Monitoring System (FTFMS; currently called Development Information Solution, DIS in short, see Section F.III).
- The estimated costs of collecting, analyzing, and reporting performance data in the budget.
- A calendar of performance management tasks (i.e. reviewing performance reports, conducting site visits, updating and revising the Activity MEL Plan as will be necessary, etc.) that must be conducted over the expected duration of the IL, with approximate timeline for the completion of each task, recognizing there will be modifications necessary based on the sub-award portfolio.
- An Evaluation Plan that includes possible evaluation questions, ideas for evaluation design, and methodologies to be used. This plan will be utilized by the external evaluation team to design the external evaluation that may take place in year 4. Also see Section F.III.
- (Note: All of the aforementioned items will be refined after award and again after selection of the portfolio of activities.)

A.IV.e.3. Open Data Management Plan

USAID is committed to making U.S. Government funded data accessible, discoverable, and usable by our partners and is proactively releasing Agency-funded data to the public as a member of the Open Government Partnership,[61] USAID's policy of sharing data in machine readable formats for public benefit is in adherence with the Office of Management and Budget's Open Data Policy[62]. The ME is responsible for developing a Data Management Plan in accordance with USAID strengthening Data ADS Chapter 579[63] and storing and maintaining data in such a way as to deliver the data to the USAID Development Data Library (DDL).[64] Applicants must describe the kinds of data expected to be generated and how the CRCIL will adhere to the Open Data Policy with each type of data, including whether data will be entered into the DDL, another data platform that meets the standards of the policy, or both.

A.IV.e.4. Buy-ins and Management of Associate Awards

The CRCIL will be implemented under a Leader with Associates (LWA) mechanism, as described in the cover letter, Section A.IV.a, and Section B.I. Funding will be obligated under the Leader Award

[61] http://www.opengovpartnership.org/
[62] https://project-open-data.cio.gov/
[63] http://www.usaid.gov/ads/policy/500/579
[64] https://www.usaid.gov/data

to support the core program focused on cereal crops research for development. The Innovation Lab may also accept up to $15,000,000.00 of additional funds, through buy-ins and Associate Awards from USAID Missions or other Operating Units (OUs) in USAID, to support additional activities related to its core research mission. Buy-ins and Associate Awards permit USAID Missions or OUs to address country-specific needs or respond to dynamically changing programmatic requirements by tapping into a competitively awarded program that offers global expertise that can be put into place quickly and efficiently. Depending on the nature of the request, buy-ins and Associate Awards may consist of commissioned activities, competitively awarded sub-awards, or both. Therefore, the ME must be prepared to identify and seek out partners to address a broad array of research questions regarding cereal crops research. **However, these additional activities and associated funding are not guaranteed.**

Buy-ins to the Leader Award are particularly valuable tools for Missions to access a global research program such as the CRCIL. Buy-ins are generally used to fund small activities ($1,000,000 or less) that are already part of the approved Leader Award technical program. For example, an Innovation Lab conducting environmental sampling in one country might receive a buy-in from the USAID Mission in another country to conduct similar sampling there. Buy-ins are managed under the Leader Award (i.e., financial and activity reporting are incorporated into the core program documentation and submitted to the Operating Unit funding the Leader Award).

Associate Awards are frequently used to scale up technological innovations proven to be successful by ILs, are generally larger than $1,000,000.00, and often have a timeline longer than one year. Associate Awards require an agreement separate from the Leader Award, and financial and activity reporting may be overseen from the Operating Unit funding the Associate Award. An Associate Award has its own timeline apart from the Leader Award and may extend beyond the duration of the Leader Award program. For these reasons, OUs that prefer to maintain direct management of an activity may instead choose to issue an Associate Award to an IL.

Applicants must describe how the CRCIL will manage potential buy-ins and Associate Awards, including potential staffing changes and how the ME will engage additional experts required to fulfill potential research or scale-up objectives.

A.IV.e.5. Subawardee Engagement Plan

Requirement for Application

Applicants are required to submit as an annex a Sub-awardee Engagement Plan (SEP) which will not count toward the Application page limit. The SEP will be reviewed as part of the Management Approach of the Technical Application evaluation. The SEP will describe the plan for identifying, managing, and partnering with sub-awardees that provides sufficient detail for USAID to review alternative approaches among Applicants as well as sufficient detail to guide the ME in its interaction with, support to, and management of subawards and sub-awardees. In addition, this section provides the opportunity for Applicants to address the Title XII legislative mandate that implementing Title XII institutions partner with non-traditional partners, including MSIs, civil society, the private sector and local partners. The SEP must include letters of support and commitment for those partners already identified as well as the process they intend to undertake following the award to continue to seek out these types of partners. USAID discourages exclusivity agreements between the Applicant and proposed partners.

It is possible that Applicants will have three or more different kinds of partners including:

- possible consortium members, if one or more U.S. universities or research entities come together to bid to provide overall leadership on global research and on capacity strengthening, including possibly the private sector and MSIs;
- sub-awardees (local and/or international) providing specific services necessary to project success; and
- country or regional research institutions that will be in some sense the direct "beneficiaries" of the work of the prior two categories, and also the primary implementers of country and regional research under this activity.

The SEP may also set out how the Applicant will have deeper and fuller relationships with the country or regional partner policy research organizations with which it plans to partner.
Please note that a consortium approach is one possible approach to engagement, partnership, and subawards since any consortium would be led by a prime awardee to interface with USAID.

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SECTION B: FEDERAL AWARD INFORMATION

B.I. Estimate of Funds Available and Number of Awards Contemplated

USAID intends to award one (1) Cooperative Agreement Leader with Associates (LWA) Award pursuant to this notice of funding opportunity. Subject to funding availability and at the discretion of the Agency, the Bureau for Resilience and Food Security (RFS) intends to provide $22 million in total USAID core funding over a five (5) year period. The ceiling for this program is up to $37 million. It is estimated that up to $4.4 million will be obligated to the Leader Award in the first year as core funding from RFS, and up to $4.4 million per year thereafter, for a total of up to $22 million in core funding from RFS. Actual funding amounts are subject to availability of funds.

Furthermore, pending demand and funds availability from USAID Missions and other Bureaus or OUs, USAID will allow up to an additional $15 million dollars as a pool for potential Associate Awards and buy-ins during the life of the project to the holder of the Leader Award. The competition under this NOFO covers both the Leader Award and all subsequent Associate Awards and buy-ins. USAID reserves the right to fund any one or none of the applications submitted.

For the purposes of this NOFO, applicants must prepare a budget for the $22 million core funding from RFS.

B.II. Start Date and Period of Performance for Federal Awards

The anticipated period of performance is five (5) years. The estimated start date will be on or about August 2023. The estimated end date will be on or about August 2028.

B.III. Substantial Involvement

USAID intends to award one (1) cooperative agreement for the Leader Award. A cooperative agreement is distinguished from a grant by virtue of USAID having substantial involvement (beyond that which is permitted under a grant) in the implementation of the program.

B.III.a. Leader Award

USAID will be substantially involved in the implementation of the core program of this NOFO under the Leader Award described in Section A. The intended purpose of the Agreement Officer's Representative (AOR) involvement during the implementation of the program is to assist the recipient in achieving the supported objectives. These approvals must be made by the Agreement Officer except where explicitly delegated to the AOR.

Substantial involvement will include:

1. Approval of Specified Key Personnel (i.e. Innovation Lab Director and Associate Innovation Lab Director).
2. Approval of the Recipient's overall Activity MEL Plan, including impact pathway and theory of change documentation, performance evaluation, indicator selection, and annual indicator reporting. This will be delegated to the AOR.
3. Approval of the Recipient's Data Management Plan. This will be delegated to the AOR.

4. Approval of the Recipient's IEE modifications, PURSUAPs, and Environmental Mitigation & Monitoring Plan. This will be delegated to the AOR.
5. Approval of Annual Implementation Plans, work plans, budgets, and semi-annual and annual reports. The work-plan must include a travel matrix of proposed international trips. This will be delegated to the AOR.
6. Concurrence and approval on the recipients of sub-awards. This will be reviewed and coordinated with the AOR. However, the AO will have final approval for sub-awards.
7. Concurrence on the substantive provisions of sub-award RFAs and contracts for research and capacity development activities.
8. Collaborative involvement in selection of members for any advisory body or bodies for oversight, such as oversight of the program's research and capacity development portfolio, and membership on such body/bodies. This will be delegated to the AOR.
9. Review and approval of Program Descriptions and Budgets for proposed Associate Awards and Buy-Ins. This will be reviewed and coordinated with the AOR. However, the AO will have final approval by issuing amendments to the Award to incorporate buy-ins or issuing new Associate Awards.

B.III.b. Associate Awards

An Associate Award may be a grant or a cooperative agreement. If an Associate Award will be a cooperative agreement, specific substantial involvement provisions will be identified for that Associate Award.

B.IV. Authorized Geographic Code

The geographic code for the procurement of commodities and services under this program is 937 (the United States, the recipient country, and developing countries other than advanced developing countries, but excluding any country that is a prohibited source). Geographic Codes are described in 22 CFR 228.03 and the Internal Mandatory References to Chapter 310 of USAID's Automated Directives System (ADS 310) entitled "List of Developing Countries," "List of Advanced Developing Countries," and "List of Prohibited Source Countries."

B.V. Nature of the Relationship between USAID and the Recipient

The principal purpose of the relationship with the Recipient and under the subject program is to transfer funds to accomplish a public purpose of support or stimulation of the Feed the Future Innovation Lab for Climate Resilient Cereals which is authorized by Federal statute. The successful Recipient will be responsible for ensuring the achievement of the program objectives and the efficient and effective administration of the award through the application of sound management practices. The Recipient will assume responsibility for administering Federal funds in a manner consistent with underlying agreements, program objectives, and the terms and conditions of the Federal award.

SECTION C: ELIGIBILITY INFORMATION

C.I. Eligible Applicants

Eligibility is restricted. The eligibility requirements below apply only to the principal Applicant.

This program is authorized under Title XII of the Foreign Assistance Act of 1961, as amended. Applications must only be submitted by eligible U.S. colleges and universities as defined under Section 296(d) of Title XII of the Foreign Assistance Act, as amended:

"... those colleges or universities in each State, territory, or possession of the United States, or the District of Columbia, now receiving, or which must hereafter receive, benefits under the Act of July 2, 1862 (known as the First Morrill Act) or the Act of August 30, 1890 (known as the Second Morrill Act), which are commonly known as 'land-grant' universities; institutions now designated or which must hereafter be designated as sea-grant colleges under the Act of October 5, 1966 (known as the National Sea Grant College and Program Act), which are commonly known as sea-grant colleges; Native American land-grant colleges as authorized under the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note); and other United States colleges and universities which— (1) have demonstrable capacity in teaching, research, and extension (including outreach) activities in the agricultural sciences; and (2) can contribute effectively to the attainment of the objectives of this title."

The Title XII university-led FTF IL programs involve multiple partners, principal of which are U.S. universities, working in collaboration with scientists in developing country universities, national and international research centers, the private sector, and non-governmental organizations (NGOs), to jointly pursue scientific investigations to overcome critical agricultural constraints facing today's global food systems. All types of U.S. and non-U.S. entities are eligible as collaborating partners (i.e. sub-recipients or contractors at various tiers), provided that they are not excluded from U.S. Government acquisition and assistance awards (this may be verified through SAM.gov). In preparing the application, it is the Applicant's responsibility to ensure that no individuals or organizations proposed for participation in the program are excluded by the U.S. Government. After award, it is the Recipient's responsibility to ensure that no transactions are conducted with excluded parties. USAID strongly encourages Applicants to include qualified Minority-Serving Institutions (MSIs) including, but not limited to, Historically Black Colleges and Universities, Predominantly Black Institutions, Hispanic-Serving Institutions, Tribal Colleges and Universities, and Asian American Native Alaskan and Pacific Islander Serving Institutions.

Collaborating partners may be contractors or sub-recipients, and Applicants must be aware of the distinction between procurement contracts (acquisition) and sub-awards (assistance). Contracts are subject to 2 CFR 200.318-326 and the USAID standard provision entitled "USAID Eligibility Rules for Goods and Services". Sub-awards are subject to 2 CFR 200, 2 CFR 700 and the USAID standard provision entitled "Applicability of 2 CFR 200 and 2 CFR 700." The recipient's and sub-recipients' contractors and subcontractors at all tiers must also meet USAID's supplier nationality requirements described in Section D.IV. below.

USAID welcomes applications from organizations that have not previously received financial assistance from USAID.

C.II. Cost Sharing or Matching

C.II.a. Leader Award

There is no mandatory level of cost-sharing (matching) for this program, but USAID nevertheless encourages cost sharing to the maximum practicable extent. A cost-share or match is that portion of project or program costs not borne by the U.S. Government. Cost sharing includes cash and in-kind contributions, and for U.S. organizations is subject to 2 CFR 200.306 and the USAID standard provision for U.S. NGOs entitled "Cost- Sharing (Matching)", which, among other things, requires that cost sharing be verifiable from the Recipient's records. Cost sharing or matching is normally associated with contributions from the same prime and sub-recipient sources that also receive USAID funds under an award, but can include contributions from third parties. Failure to meet a cost-sharing requirement can result in the Recipient having to make refunds to USAID or a reduction in future funding. Cost sharing will not have an impact on evaluation.

C.II.b. Associate Awards

Cost sharing requirements, if any, will be established for each Associate Award by the USAID Mission or Office that finances the Associate Award.

C.III. Other

There is a limit of one application per eligible institution. If two eligible institutions propose to share leadership of the CRCIL, only one of the two institutions can submit an application. The Applicant must include a letter of support and commitment from the partner institution that will not count toward the Application page limit. USAID does not require and does not encourage exclusivity contracts between proposed key personnel and the applying institution. As such, the proposed key personnel may be listed on more than one application.

C.IV. Risk Assessment

In order for an award to be made, the USAID AO must evaluate the risks posed by Applicants as outlined in 2 CFR 200.205 and ADS 303.3.9. This means that the Applicant must possess, or must have the ability to obtain, the necessary management and technical competence to conduct the proposed program, and must agree to practice mutually agreed-upon methods of accountability for funds and other assets provided or funded by USAID.

In evaluating the risks posed by Applicants, the Federal Awarding Agency uses a risk-based approach and must consider:

1. Financial stability;
2. Quality of management systems and ability to meet the management standards prescribed in this part;
3. History of performance. The Applicant's record in managing Federal awards, if it is a prior recipient of Federal awards, including timeliness of compliance with applicable reporting requirements, conformance to the terms and conditions of previous Federal awards, and if applicable, the extent to which any previously awarded amounts will be expended prior to future awards;

4. Reports and findings from audits performed under Subpart F—Audit Requirements of this part or the reports and findings of any other available audits;
5. The Applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities; and
6. That Applicant is otherwise qualified to receive an award under applicable laws and regulations (i.e. Nondiscrimination, Lobbying, Debarment/Suspension, Terrorist Financing, etc.).

In the absence of a positive risk assessment, an award can ordinarily not be made. Awards to potential new partners may be significantly delayed if USAID must undertake necessary pre- award reviews of these organizations to make an adequate risk assessment. These organizations must take this into account and plan their implementation dates and activities accordingly.

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SECTION D: APPLICATION AND SUBMISSION INFORMATION

D.I. Agency Point of Contact

Name: Leah Leach
Title: Agreement Specialist
Email: lleach@usaid.gov

D.II. Questions and Answers

Questions regarding this NOFO should be submitted in writing to the Agency Point of Contact at the email address above no later than the date and time indicated on the cover letter, as amended. Any information given to a prospective applicant concerning this NOFO will be furnished promptly to all other prospective applicants as an amendment to this NOFO, if that information is necessary in submitting applications or if the lack of it would be prejudicial to any other prospective applicant. In order to maintain the integrity of the competitive process, USAID staff, to include Mission staff, will be unable to advise or provide information to potential Applicants that would be used in preparation of the application. Therefore, Applicants are advised not to contact USAID Missions or any other USAID staff members regarding this NOFO. Information on Mission strategies and programs can be accessed from http://feedthefuture.gov/ and Mission websites (http://www.usaid.gov/where-we-work).

D.III. Amendments to the NOFO

If this NOFO is amended, all terms and conditions that are not amended remain unchanged. The AO will do their best to alert Applicants that have already submitted applications that an amendment to the NOFO has been published; however, it is ultimately the responsibility of the Applicants to be aware of published amendments to the NOFO through Grants.gov.

D.IV. General Content and Form of Application

D.IV.a. Preparation of Applications

Each applicant must furnish the information required by this NOFO. Applications must be submitted in two separate parts: the Technical Application and the Business (Cost) Application. This subsection addresses general content requirements applying to the full application. Please see subsections 5 and 6, below, for information on the content specific to the Technical and Business (Cost) applications. The Technical application must address technical aspects only while the Business (Cost) Application must present the costs, and address risk and other related issues.

Both the Technical and Business (Cost) Applications must include a cover page containing the following information:

- Name of the organization(s) submitting the application;
- Identification and signature of the primary contact person (by name, title, organization, mailing address, telephone number and email address) and the identification of the alternate contact person (by name, title, organization, mailing address, telephone number and email address);

- Program name;
- Notice of Funding Opportunity number;
- Name of any proposed sub-recipients or partnerships (identify if any of the organizations are local organizations, per USAID's definition of 'local entity' under ADS 303; and
- A Unique Entity Identifier (UEI) number shall be included for each organization listed on the cover page.

Any erasures or other changes to the application must be initialed by the person signing the application. Applications signed by an agent on behalf of the applicant must be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

Applications must comply with the following:

- USAID will not review any pages in excess of the page limits noted in the subsequent sections. Please ensure that applications comply with the page limitations.
- Applications must be written in English.
- Use standard 8 ½" x 11", single sided, single-spaced, 12 point Times New Roman font, 1" margins, left justification and headers and/or footers on each page including consecutive page numbers, date of submission, and applicant's name.
- 10 point font can be used for graphs and charts. Tables however, must comply with the 12 point Times New Roman requirement.
- Applications must be submitted via Microsoft Word or PDF formats, except budget files which must be submitted in Microsoft Excel.
- The estimated start date identified in Section B of this NOFO must be used in the cost application.
- The technical application must be a searchable and editable Word or PDF format as appropriate.
- The Cost Schedule must include an Excel spreadsheet with all cells unlocked and no hidden formulas or sheets. A PDF version of the Excel spreadsheet may be submitted in addition to the Excel version at the applicant's discretion, however, the official cost application submission is the unlocked Excel version.

Applicants must review, understand, and comply with all aspects of this NOFO. Failure to do so may be considered as being non-responsive and may be evaluated accordingly. Applicants should retain a copy of the application and all enclosures for their records.

D.IV.b. Application Submission Procedures

It is the Applicant's responsibility to ensure that all necessary documentation is complete and received on time no later than the closing date and time indicated on the cover letter, as amended. Late applications may be considered at the discretion of the Agreement Officer. Applicants must retain proof of timely delivery in the form of a system generated document (i.e. delivery receipt). Applications **must** be submitted by email to lleach@usaid.gov. Applications **must not** be submitted through www.grants.gov. USAID cannot accept emails over 25MB in size. If Application attachments are in excess of that size, then the Applicant must submit over multiple emails. For an application sent by multiple emails, please indicate in the subject line of the email whether the email relates to the 1) technical application or 2) cost/business application. For example, if your cost

application is being sent in two emails, the first email should have the subject line which says: "[organization name], Cost/Business Application, Part 1 of 2".

USAID's preference is that the Technical Application and the Business (Cost) Application be submitted as single email attachments, e.g., that the Applicant consolidates the various parts of a Technical Application into a single document before sending. If this is not possible, please provide instructions on how to collate the attachments. USAID will not be responsible for errors in compiling electronic applications if instructions are not provided or are unclear. All applications received by the submission deadline will be reviewed for responsiveness to the NOFO and the application format. No additions or modifications will be accepted after the submission date.

After submitting applications electronically, the Applicant should immediately check for email confirmation that the attachments sent were indeed sent. If there is an error in transmission, please send the material again and note in the subject line of the email that it is a "corrected" submission. Do not send the same email more than once unless there has been a change, and if so, please note that it is a "corrected" email.

D.IV.c. Technical Application Format

The Technical Application should be specific, complete, and concise. The application must demonstrate the Applicant's capabilities and expertise with respect to achieving the goals of this program. The application should take into account the requirements of the program and merit review criteria found in this NOFO.

The Technical Application must not exceed 30 pages, excluding table of contents, attachments, and annexes. Only information specifically requested to be included as an annex will be considered during review for technical merit. Unless otherwise indicated, a page in the Technical Application that contains a table, chart, graph, etc. will be counted as a page within the page limitation. Information that exceeds page limitations will not be furnished to the USAID Merit Review Committee.

All material and information necessary to support the application must be submitted within or annexed to the application. Hyperlinks and references to websites will not be considered part of the submission. Applicants must only reference information on the internet that is of general background knowledge, publicly available, and considered a reliable source of research information; USAID does not guarantee that reviewers on the Merit Review Committee will review such information.

All information that the Applicant thinks is necessary for a reviewer to accurately understand the proposal must be submitted with the application and submitted through the appropriate process as directed in Section D. In addition, the Technical Application must be divided into sections corresponding to, and following the order of, the evaluation criteria set forth in Section E of this NOFO and as described below. Each section of the Technical Application must be clearly identified, using the title of the appropriate merit review criterion and divided by sub-criteria. This requirement is not intended to prohibit or discourage applicants from submitting technical data in addition to what is required herein and by the evaluation criteria.

1. Cover Page (See Section D.IV.a. above for requirements)
2. Table of Contents that follows the Technical Application format outlined herein.

3. Executive Summary (one page) must provide a high-level overview of key elements of the Technical Application.
4. Technical Application that follows the outline below:

a. Background and Context which includes a discussion of the following:

i. How climate resilient cereals research outputs contribute to the three GFSS objectives;

ii. The role that research investments have in supporting global, regional and national food security.

b. Management Approach

i. *Results Framework and Theory of Change* - This section must include a theory of change and results framework with impact pathways that acknowledge what is and is not within the spheres of control and influence of the Climate Resilient Cereals Innovation Lab as well as critical assumptions.

ii. *Approach to Ensure Accountability* - This section should outline how the Applicant will provide program accountability and financial oversight.

1. Staffing Plan - This should include the qualifications and capabilities of proposed Key Personnel. An organizational chart is required as part of the main body of the application. Applicants must discuss the various types of financial oversight as part of the duties of the appropriate staff member(s) and the composition and responsibilities of the External Advisory Committee.
2. Monitoring, Evaluation and Learning - This should outline plans for program monitoring and evaluation, knowledge sharing and learning, communications and outreach, and integrating a CLA approach.
3. Management of Associate Awards - This should discuss how the Applicant will be able to accommodate additional funding through Associate Awards and include a plan for expansion of the Climate Resilient Cereals Innovation Lab to adequately monitor and manage such potential new activities.
4. Sub-awardee Engagement Plan (SEP) - The SEP, as described in Section A.III.e.5., should be included as an annex, which will not count against the Application page limitation. The SEP should address steps, procedures, and approaches to identify and partner with a diverse range of institutions, with attention to the Title XII interest, including MSIs, civil society, the private sector and local partners.

c. Technical Approach

i. *Approach to ensure Scientific quality* - Extent to which the development, selection, and management of the research portfolio and the draft solicitation ensures high scientific quality of the Climate Resilient Cereals Innovation Lab.

1. Areas of Inquiry - This should provide the Applicant's overall vision and approach for implementing a global research program that includes a portfolio of high-quality, innovative research activities designed to achieve long-term development impact among host country beneficiaries.
2. Portfolio Selection - The Applicant should outline a process for selecting a high impact, diverse portfolio (diverse in all aspects with representation across the Areas of Inquiry, PIs, countries, institutions, and cross-cutting issues) to include a strategy for which threats to

prioritize, with appropriate conflict of interest safeguards and scientific quality. The draft RFA (as described in section A.IV.c.3.(ii)) should be included as an annex. See (i) General Instructions for the Technical Application below for more detail on the RFA content.

ii. *Approach to ensure relevance of the program portfolio* - This includes linkages with other donors, research institutions, producer representatives and the private sector entities to ensure the relevance of the program portfolio.

1. Global Engagement of the Innovation Lab Director - This should discuss the extent to which the qualifications of the proposed Innovation Lab Director meet the requirements of the position described in Section A.IV.d.1 and the Applicant's proposed approach to engage global donors and research organizations (e.g. One-CGIAR centers, regional research oversight bodies, and NARS).
2. Incorporation of Cross-Cutting Issues - This should discuss the Applicant's approach to integrating meaningful attention to gender, youth and inclusion into the research program.
3. Addressing Climate Change and Natural Resource Management - This should discuss the proposed approach to addressing a) climate change impacts on cereal crops production and related food security and economic outcomes, b) cereal crop's impacts on the climate, and c) natural resource management, ensuring sustainability and risk management.
4. Agricultural Innovation Systems Approach (including Private Sector Engagement, Local System Capacity strengthening) - This should include a plan for a) strengthening critical capacities and relationships among public research and extension programs, using market-based approaches and target product profiles (see A.IV.d.7), and b) engaging private and public sector actors, and end users throughout the program to strengthen relevance, commercialization, adoption, scaling and equitable benefits.
5. RFS's Product Life Cycle Framework - Approach to a) develop target product profiles (TPPs) drawing on market segmentation research, b) show product life cycle (PLC) stages from initial stage of research to commercialization, adoption and eventual phase out, and c) specify stage gate criteria in advancing innovations from one stage to the next in the PLC.
6. Private Sector Engagement – Applicants are expected to include private sector partners in their applications. Applicants must discuss how linkages with the private sector will facilitate research and development and must include a plan for ensuring that these linkages do not solely remain on paper. Applicants must discuss what strengths in the private sector will be sought after and leveraged and what strengths the IL will contribute.
7. Geographic Focus - This should outline how target countries will be selected and justified.

(i) General Instructions for the Technical Application

It is anticipated that the successful application (as may be revised) will become the Program Description for the award resulting from this NOFO. Thus, applications submitted in response to this NOFO must, in addition to being responsive hereto, be written in the active voice and in results-oriented terms in order to address what is proposed to be done, why it is proposed to be done, how it is proposed to be done, who will do it, where it will be done, when it will be done, and the anticipated results and impact.

The Program Description set forth in Section A.IV. of this NOFO describes a range of issues that must be addressed in technical applications which includes both the Applicant's Management Approach and Technical Approach to the CRCIL. It is not meant to describe how those issues must be addressed because USAID seeks the expertise of the Applicant, who must describe in their technical applications how they propose to address such issues. In addition, the Program Description should not be interpreted as restrictive. Applicants are encouraged to raise and justify other technical issues that may not appear in the Program Description but are, nevertheless, related. As FTF ILs are mandated to benefit both host countries and U.S. agriculture, applicants are urged to link potential benefits to U.S. agriculture with any proposed research activities and Areas of Inquiry.

The Technical Application must have a definitive strategy and plan, and must set forth in detail the Applicant's approach, methodology, procedures, and techniques for design, management, implementation, and monitoring of the proposed program. The application must also demonstrate the Applicant's capabilities and expertise to successfully implement, manage, and monitor the proposed program. The application must define technical resources, capabilities, and expertise of the applicant's organization and other institution(s) involved, and of the professional personnel proposed. The information presenting capabilities of the implementing organization(s) and of individuals to be assigned must spell-out clearly the pertinent work experience and accomplishments in developing and conducting activities of the type being proposed, as well as the specialized skills, professional competence, academic training, and relevant achievements of the personnel. It is important that the Technical Application furnish verifiable, objective supporting evidence of successful program management, implementation, and monitoring. The Technical Application must be specific, detailed, and include appropriate benchmarks or milestones.

The Application must include, in an annex that will not count against the page limitation, a draft RFA pertaining to one of the geographic or technical foci described in Section A.IV. as best illustrates the organization and focus of the proposed program. This must include a one-page introduction, describe the overall solicitation and pre-award process envisioned by the ME, and illustrate how the ME would organize the area of inquiry and cross-cutting issues to ensure the research portfolio within each proposed country is effectively coordinated and integrated across Areas of Inquiry, cross-cutting issues and regional activities, as applicable. It must also indicate how the ME will inform prospective sub-awardees (i.e. transparency and openness) about requirements for training, capacity-strengthening, host-country involvement, and development impact and to promote USAID Mission and developing country decision-maker engagement in project planning. The draft RFA must include cost formats and evaluation criteria, including how the research applicant will work with the ME to meet the requirement of providing benefit to U.S. agriculture.

It must be noted that the majority of research activities will not be selected until after the Management Entity is selected. Thus, USAID seeks to identify the ME best capable to perform the

management and oversight of the eventual research portfolio while being able to provide substantial input and guidance to such research.

(ii) Business (Cost) Application Format

The Business (Cost) Application must be submitted separately from the Technical Application. While no page limit exists for the full cost application, applicants are encouraged to be as concise as possible while still providing necessary details. The business (cost) application must illustrate the entire period of performance, using the budget format shown in the SF-424A.
Prior to award, applicants may be required to submit additional documentation deemed necessary for the Agreement Officer to assess the applicant's risk in accordance with 2 CFR 200.206. Applicants should not submit any additional information with their initial application.

The Cost Application must contain the following sections (which are further elaborated below this listing with the letters for each requirement):

1. Cover Page (See Section D.IV.a. above for requirements)
2. SF 424 Form(s) The Applicant must sign and submit the cost application using the SF-424 series Standard Forms (SF) listed below. They can be accessed electronically through www.grants.gov, with direct links as follows:

Instructions for SF-424	http://www.grants.gov/web/grants/form-instructions/sf-424-instructions.html
Application for Federal Assistance (SF-424)	https://www.grants.gov/web/grants/forms/sf-424-family.html
Instructions for SF-424A	http://www.grants.gov/web/grants/form-instructions/sf-424a-instructions.html
Budget Information (SF-424A)	https://www.grants.gov/web/grants/forms/sf-424-family.html
Instructions for SF-424B	http://www.grants.gov/web/grants/form-instructions/sf-424b-instructions.html
Assurances (SF-424B)	https://www.grants.gov/web/grants/forms/sf-424-family.html

Failure to accurately complete these forms could result in the rejection of the application.

D.IV.d. Required Certifications and Assurances

The applicant must complete the following documents and submit a signed copy with their application:

a) "Certifications, Assurances, Representations, and Other Statements of the Recipient" document found at http://www.usaid.gov/sites/default/files/documents/1868/303mav.pdf
b) Assurances for Non-Construction Programs (SF-424B)
c) Certificate of Compliance: Please submit a copy of your Certificate of Compliance if your organization's systems have been certified by USAID/Washington's Office of Acquisition and Assistance (M/OAA)

D.IV.e. Budget and Budget Narrative

The Budget must be submitted as one unprotected Excel file (MS Office 2000 or later versions) with visible formulas and references and must be broken out by project year, including itemization of the federal and non-federal (cost share) amount. Files must not contain any hidden or otherwise inaccessible cells. Budgets with hidden cells lengthen the cost analysis time required to make an award, and may result in a rejection of the cost application. The Budget Narrative must contain sufficient detail to allow USAID to understand proposed costs. The Applicant must ensure budgeted costs address any additional requirements identified in Section F, such as Branding and Marking. The Budget Narrative must be thorough, including sources for costs to support USAID's determination that proposed costs are fair and reasonable.

The Budget must include the following worksheets or tabs, and contents, at a minimum:

- Summary Budget, inclusive of all program costs (federal and non-federal), broken out by major budget category and by year for activities implemented by the applicant and any potential sub-applicants for the entire period of the program.
- Detailed Budget, including a breakdown by year, sufficient to allow the Agency to determine that the costs represent a realistic and efficient use of funding to implement the applicant's program and are allowable in accordance with the cost principles found in 2 CFR 200 Subpart E.
- Detailed Budgets for each sub-recipient, for all federal funding and cost share, broken out by budget category and by year, for the entire implementation period of the project.

The Detailed Budget must contain the following budget categories and information, at a minimum:

1. **Salaries and Allowances** – Must be proposed consistent with 2 CFR 200.430 Compensation - Personal Services. The applicant's budget must include position title, salary rate, level of effort, and salary escalation factors for each position. Allowances, when proposed, must be broken down by specific type and by position. Applicants must explain all assumptions in the Budget Narrative. The Budget Narrative must demonstrate that the proposed compensation is reasonable for the services rendered and consistent with what is paid for similar work in other activities of the applicant. Applicants must provide their established written policies on personnel compensation. If the Applicant's written policies do not address a specific element of compensation that is being proposed, the Budget Narrative must describe the rationale used and supporting market research.
2. **Fringe Benefits** – (if applicable) If the Applicant has a fringe benefit rate approved by an agency of the U.S. Government, the Applicant must use such rate and provide evidence of its approval. If an Applicant does not have a fringe benefit rate approved, the Applicant must propose a rate and explain how the Applicant determined the rate. In this case, the Budget Narrative must include a detailed breakdown comprised of all items of fringe benefits (e.g., superannuation, gratuity, etc.) and the costs of each, expressed in U.S. dollars and as a percentage of salaries.
3. **Travel and Transportation** – Provide details to explain the purpose of the trips, the number of trips, the origin and destination, the number of individuals traveling, and the duration of the trips. Per Diem and associated travel costs must be based on the applicant's normal travel policies. When appropriate please provide supporting documentation as an attachment, such as company travel policy, and explain assumptions in the Budget Narrative.

4. **Procurement or Rental of Goods (Equipment & Supplies), Services, and Real Property** – Must include information on estimated types of equipment, models, supplies and the cost per unit and quantity. The Budget Narrative must include the purpose of the equipment and supplies and the basis for the estimates. The Budget Narrative must support the necessity of any rental costs and reasonableness in light of such factors as: rental costs of comparable property, if any; market conditions in the area; alternatives available; and the type, life expectancy, condition, and value of the property leased.
5. **Subawards** – Specify the budget for the portion of the program to be passed through to any subrecipients. See 2 CFR 200.331 for assistance in determining whether the sub-tier entity is a subrecipient or contractor. The subrecipient budgets must align with the same requirements as the applicant's budget, including those related to fringe and indirect costs.
6. **Other Direct Costs** – This may include other costs not elsewhere specified, such as report preparation costs, passports and visas fees, medical exams and inoculations, as well as any other miscellaneous costs which directly benefit the program proposed by the applicant. The Applicant should indicate the subject, venue and duration of any proposed conferences and seminars, and their relationship to the objectives of the program, along with estimates of costs. Otherwise, the narrative should be minimal.
7. **Indirect Costs** – Applicants must indicate whether they are proposing indirect costs or will charge all costs directly. In order to better understand indirect costs please see Subpart E of 2 CFR 200.414. The application must identify which approach they are requesting and provide the applicable supporting information. Below are the most commonly used Indirect Cost Rate methods:

   Method 1 - Direct Charge Only
   Eligibility: Any Applicant. Initial Application Requirements: See above on direct costs.

   Method 2 - Negotiated Indirect Cost Rate Agreement (NICRA)
   Eligibility: Any Applicant with a NICRA issued by a USG Agency must use that NICRA. Initial Application Requirements: If the Applicant has a current NICRA, submit your approved NICRA and the associated disclosed practices. If your NICRA was issued by an Agency other than USAID, provide the contact information for the approving Agency. Additionally, at the Agency's discretion, a provisional rate may be set forth in the award subject to audit and finalization. See USAID's Indirect Cost Rate Guide for Non Profit Organizations for further guidance.

   Method 3 - De minimis rate of 10% of modified total direct costs (MTDC)
   Eligibility: Any Applicant that has never received a NICRA. Initial Application Requirements: Costs must be consistently charged as either indirect or direct costs, but may not be double charged or inconsistently charged as both. If chosen, this methodology once elected must be used consistently for all Federal awards until such time as a non-Federal entity chooses to negotiate an indirect rate, which the non-Federal entity may apply to do at any time. The Applicant must describe which cost elements it charges indirectly vs. directly. See 2 CFR 200.414(f) for further information.

   Method 4 - Indirect Costs Charged As A Fixed Amount
   Eligibility: Non U.S. non-profit organizations without a NICRA may request, but approval is at the discretion of the AO.

Initial Application Requirements: Provide the proposed fixed amount and a worksheet that includes the following:

- Total costs incurred by the organization for the previous fiscal year and estimates for the current year.
- Indirect costs (common costs that benefit the day-to-day operations of the organization, including categories such as salaries and expenses of executive officers, personnel administration, and accounting, or that benefit and are identifiable to more than one program or activity, such as depreciation, rental costs, operations and maintenance of facilities, and telephone expenses) for the previous fiscal year and estimates for the current year.
- Proposed method for prorating the indirect costs equitably and consistently across all programs and activities of using a base that measures the benefits of that particular cost to each program or activity to which the cost applies.

If the Applicant does not have an approved NICRA and does not elect to utilize the 10% de minimis rate, the Agreement Officer will provide further instructions and may request additional supporting information, including financial statements and audits, should the application still be under consideration after the merit review. USAID is under no obligation to approve the Applicant's requested method.

8. **Prior Approvals in accordance with 2 CFR 200.407** - Inclusion of an item of cost in the detailed application budget does not satisfy any requirements for prior approval by the Agency. If the Applicant would like the award to reflect approval of any cost elements for which prior written approval is specifically required for allowability, the Applicant must specify and justify that cost. See 2 CFR 200.407 for information regarding which cost elements require prior written approval.
9. **Approval of Subawards** - The Applicant must submit information for all subawards that it wishes to have approved at the time of award. For each proposed subaward, the Applicant must provide the following:

    - Name of organization,
    - Unique Entity Identifier (UEI) Number,
    - Confirmation that the subrecipient does not appear on the Treasury Department's Office of Foreign Assets Control (OFAC) list,
    - Confirmation that the subrecipient does not have active exclusions in the System for Award Management (SAM),
    - Confirmation that the subrecipient is not listed in the United Nations Security designation list,
    - Confirmation that the subrecipient is not suspended or debarred,
    - Confirmation that the Applicant has completed a risk assessment of the subrecipient, in accordance with 2 CFR 200.332, and
    - Any negative findings as a result of the risk assessment and the applicant's plan for mitigation.

D.IV.f. Unique Entity Identifier (UEI) Number and SAM Requirements

USAID may not award to an applicant unless the applicant has complied with all applicable unique entity identifier (UEI number) and System for Award Management (SAM) requirements. Each applicant (unless the applicant is an individual or Federal awarding agency that is exempted from requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the Federal awarding agency under 2 CFR 25.110(d)) is required to:

1. Provide a valid Unique Entity Identifier (UEI) number for the applicant and all proposed sub-recipients;
2. Be registered in SAM before submitting its application. SAM is streamlining processes, eliminating the need to enter the same data multiple times, and consolidating hosting to make the process of doing business with the government more efficient (www.sam.gov).
3. Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.

The registration process may take many weeks to complete. Therefore, applicants are encouraged to begin the process early. If an applicant has not fully complied with the requirements above by the time USAID is ready to make an award, USAID may determine that the applicant is not qualified to receive an award and use that determination as a basis for making an award to another applicant.

UEI Number & SAM registration: http://www.sam.gov

Non-U.S. applicants can find additional resources for registering in SAM, including a Quick Start Guide and a video on how to obtain an NCAGE code, on www.sam.gov, navigate to Help, then to International Registrants.

D.IV.g. History of Performance and Evidence of Positive Risk Assessment

The Applicant must provide information in order to permit the Agreement Officer to make a risk assessment. Specifically, the Applicant must provide statements and evidence in support of the categories outlined in Section C.IV.

Additionally, the Applicant must provide information regarding its recent history of performance for all its cost-reimbursement contracts, grants, or cooperative agreements involving similar or related programs, not to exceed five projects as follows:

- Name of the awarding organization;
- Award number;
- Activity title;
- A brief description of the activity;
- Period of performance;
- Award amount;
- Reports and findings from any audits performed in the last three years; and
- Name of at least two (2) updated professional contacts who most directly observed the work at the organization for which the service was performed with complete current contact information including telephone number, and e-mail address for each proposed individual.

If the Applicant encountered problems on any of the referenced Awards, they may provide a short explanation and the corrective action taken. The Applicant should not provide general information on its performance. USAID reserves the right to obtain relevant information concerning an Applicant's history of performance from any sources and may consider such information in its review of the applicant's risk. The Agency may request additional information and conduct a pre-award survey if it determines that it is necessary to inform the risk assessment.

D.IV.h. Branding Strategy and Marking Plan

The applicant is required to comply (and ensure compliance by partners) with USAID's branding and marking requirements set forth in 2 CFR 700.16 with Feed the Future specific guidance located at feed future.gov. This NOFO incorporates the clauses: "Branding Strategy – Assistance (June 2012)" and "Marking Plan – Assistance (June 2012)" in their entirety and located at: https://www.usaid.gov/sites/default/files/documents/1868/303mba.pdf.

D.IV.i. Funding Restrictions

USAID policy is not to award profit under assistance instruments. In accordance with 2 CFR 200.400(g) and 2 CFR 700.13, no funds under the award resulting from this NOFO will be paid as profit to any recipient or sub recipient. Profit is any amount in excess of allowable direct and indirect costs. This does not preclude payment of profit to the recipient's or sub-recipients' vendors (contractors) under procurement contracts and subcontracts for the acquisition of goods and services, which are subject to 2 CFR 200 and 2 CFR 700, as well as the USAID standard provision entitled "USAID Eligibility Rules for Goods and Services." Also see http://www.usaid.gov/ads/policy/300/303sai.

However, all reasonable, allocable and allowable expenses, both direct and indirect, which are related to the agreement program and are in accordance with applicable cost principle under 2 CFR 200 Subpart E of the Uniform Administrative Requirements must be paid under the anticipated award. Construction is not authorized under this award.

USAID will not allow the reimbursement of pre-award costs under this award without the explicit written approval of the Agreement Officer.

At the time of award and throughout implementation, funding restrictions may be placed on particular types of work and/or in particular geographies. Such restrictions are currently in effect for Ethiopia, Mali and Myanmar.

Except as may be specifically approved in advance by the AO, all commodities and services that will be reimbursed by USAID under this award must be from the authorized geographic code specified in Section B.IV. of this NOFO and must meet the source and nationality requirements set forth in 22 CFR 228.

D.IV.j. Conflict of Interest Pre-Award Term

Personal Conflict of Interest

An actual or appearance of a conflict of interest exists when an applicant organization or an employee of the organization has a relationship with an Agency official involved in the competitive award

decision-making process that could affect that Agency official's impartiality. The term "conflict of interest" includes situations in which financial or other personal considerations may compromise, or have the appearance of compromising, the obligations and duties of a USAID employee or recipient employee.

The applicant must provide conflict of interest disclosures when it submits an SF-424. Should the applicant discover a previously undisclosed conflict of interest after submitting the application, the applicant must disclose the conflict of interest to the AO no later than ten (10) calendar days following discovery.

Organizational Conflict of Interest

The applicant must notify USAID of any actual or potential conflict of interest that they are aware of that may provide the applicant with an unfair competitive advantage in competing for this financial assistance award. Examples of an unfair competitive advantage include but are not limited to situations in which an applicant or the applicant's employee gained access to non-public information regarding a federal assistance funding opportunity, or an applicant or applicant's employee was substantially involved in the preparation of a federal assistance funding opportunity. USAID will promptly take appropriate action upon receiving any such notification from the applicant.

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SECTION E: APPLICATION REVIEW INFORMATION

E.I. Review and Selection Process

E.I.a. Merit Review

Applications will be evaluated in accordance with the criteria set forth in Section E. After evaluation of the applications, either: (1) award(s) will be made without negotiations; or (2) if deemed necessary or desirable by USAID, written and/or verbal negotiations will be conducted with applicants that submit the most highly rated applications. USAID hopes to evaluate applications and award a grant(s) or cooperative agreement(s) without negotiations with applicants. Therefore, the Applicant's initial application should contain the Applicant's best terms.

After the conclusion of any such negotiations, Applicants with whom negotiations were conducted will, unless otherwise advised, be required to submit a revised application or addendum to the initial application, which will be re-evaluated against the criteria set forth in Section E. It is expected that award will ordinarily be made after the first round of any such discussions and revised applications/addenda; however, USAID reserves the right to conduct subsequent rounds of discussions and revised applications/addenda, and to further limit the number of Applicants with which such subsequent discussions would be conducted and from which a subsequent round of revised applications/addenda would be requested.

USAID intends to award a cooperative agreement(s) resulting from this NOFO to the responsible Applicant whose application, application modification(s), and/or revised application(s)/addendum(s) represents the greatest value to USAID based on the evaluation of applications in accordance with the evaluation criteria set forth in Section E.

The AO will make the final decision as to which institution(s), if any, will be awarded a cooperative agreement based on the determination of the Selection Committee, the cost/management evaluation, and whether the applying institutions are eligible to receive the award.

E.I.b. Business/Cost Review

The Agency will evaluate the cost application of the applicant(s) under consideration for an award as a result of the merit criteria review to determine whether the costs are allowable in accordance with the cost principles found in 2 CFR 200 Subpart E.

The Agency will also consider (1) the extent of the applicant's understanding of the financial aspects of the program and the applicant's ability to perform the activities within the amount requested; (2) whether the applicant's plans will achieve the program objectives with reasonable economy and efficiency; and (3) whether any special conditions relating to costs should be included in the award. Proposed cost share, if provided, will be reviewed for compliance with the standards set forth in 2 CFR 200.306, 2 CFR 700.10, and the Standard Provision "Cost Sharing (Matching)" for U.S. entities, or the Standard Provision "Cost Share" for non-U.S. entities.

The AO will perform a risk assessment (2 CFR 200.206). The AO may determine that a pre-award survey is required to inform the risk assessment in determining whether the prospective recipient has the necessary organizational, experience, accounting and operational controls, financial resources,

and technical skills – or ability to obtain them – in order to achieve the objectives of the program and comply with the terms and conditions of the award. Depending on the result of the risk assessment, the AO will decide to execute the award, not execute the award, or award with "specific conditions" (2 CFR 200.207).

E.II. Review Criteria

USAID will conduct a merit review of all applications received that comply with the instructions in this NOFO. Applicants must note that these criteria serve to: (a) identify the significant matters which applicants must address in their applications; and (b) set the standard against which all applications will be evaluated. To facilitate the review of the applications, Applicants must organize their narrative sections of the application in the same order as the selection criteria. Applications will be reviewed and evaluated in accordance with the following criteria. Factors 3 has more weight followed by 2. Factor 1 is of lesser weight. All sub-factors are weighted equally, i.e. sub-factor 1(a) equals sub-factor 1(b), 2(a) equals 2(b), etc.

Factor 1	**Background and Context**
Sub-factor 1(a)	Contribution of research outputs to GFSS and USAID objectives
Sub-factor 1(b)	Relationship of research investment to food security
Factor 2	**Management Approach**
Sub-factor 2(a)	Suitability of Results Framework and Theory of Change
Sub-factor 2(b)	Approach to ensure accountability
Factor 3	**Technical Approach**
Sub-factor 3(a)	Approach to ensure scientific quality
Sub-factor 3(b)	Approach to ensure relevance of portfolio

E.II.a. Evaluation Factor Descriptions

The Applicant's Technical Application will be evaluated on the effectiveness of addressing the following Factors, as described below.

Factor 1: Background and Context - The Applicant's demonstrated understanding of:

- Sub-factor 1(a) - Contribution of research outputs to GFSS objectives - How the proposed research and local capacity strengthening program contributes to agriculture-led economic development, strengthen resilience among people and systems, and a well nourished population, especially among women and children.
- Sub-factor 1(b) - Relationship of research investments to food security - The role that research investments have in the management of cereal crops in supporting FTF countries national food security.

Factor 2: Management Approach - The Applicant's demonstrated understanding of the overall vision and approach for implementing a global research program that includes the following:

- *Sub-factor 2(a) - Suitability of Results Framework and Theory of Change* - Relevant theory of change which describes impact pathways with an accompanying results framework or logic model, with performance indicators. Theory of change and results framework must include impact pathways that acknowledge what is and is not within the spheres of control and influence of the Climate Resilient Cereals Innovation Lab as well as critical assumptions.
- *Sub-factor 2(b) - Approach to ensure accountability* - The adequacy of the following to provide program accountability and financial oversight:
    - Staffing Plan - Qualifications and capabilities of proposed Key Personnel; adequacy of organizational chart and duties of appropriate staff to include financial oversight; and composition and responsibilities of the Advisory Committee.
    - Monitoring, Evaluation and Learning - Plans for program monitoring and evaluation, knowledge sharing and learning, and communications and outreach, including CLA approach.
    - Management of Associate Awards - Process for accommodating additional funding through Associate Awards and the plan for expansion of the Climate Resilient Cereals Innovation Lab to adequately monitor and manage such potential new activities.
    - Sub-Awardee Engagement Plan (SEP). The SEP, as described in Section A.IV.e.5., should be included as an annex and should address steps, procedures, and approaches to identify and partner with a diverse range of institutions, with attention to the Title XII interest, including MSIs, civil society, the private sector and local partners.

Factor 3: Technical Approach - The Applicant's demonstrated understanding of:

- *Sub-factor 3(a) - Approach to ensure scientific quality* - Extent to which the development and selection of the research portfolio and the draft RFA ensures high scientific quality of the cereal crops (wheat, rice, sorghum and millet) under the CRCIL. This is based on:
    - Areas of Inquiry - Overall vision and approach for implementing a global research program that includes a portfolio of high-quality, innovative activities that achieve long-term development impact for host country beneficiaries/end users, and have high potential for sustainability and scaling
    - Portfolio Selection - Process for selecting a high impact, diverse portfolio (in Areas of Inquiry, PIs, countries, institutions, and cross-cutting issues), including a strategy for which needs and opportunities to prioritize, with appropriate conflict of interest safeguards and scientific quality.
        - A draft RFA, as described in Section A.IV.c.3. (ii), should be included as an annex.
- *Sub-factor 3(b) - Approach to ensure relevance of portfolio* - Extent to which linkages with other donors, research institutions, and relevant private and public sector entities (inclusive of smallholder representatives) ensure the relevance of the program portfolio.
    - Global Engagement of the Innovation Lab Director - Qualifications of the proposed Innovation Lab Director meet the requirements of the position; proposed approach to engage global donors and research organizations.
    - Incorporation of Cross-Cutting Issues - Approach to integrating meaningful attention to gender, youth and inclusion into the research program.
    - Addressing Climate Change and Natural Resource Management: Proposed approach to addressing a) climate change impacts on cereal crops, b) cereal crops impacts on the climate, and c) natural resource management

- Agricultural Innovation Systems Approach - Approach to a) strengthening critical local system capacities and relationships among public research and extension programs, using market-based approaches, and b) engaging private and public sector actors, and end users throughout the program to strengthen relevance, commercialization, adoption, scaling, sustainability and equitable benefits.
- RFS's Product Life Cycle Framework - Approach to a) develop target product profiles (TPPs) drawing on market segmentation research, b) show product life cycle (PLC) stages from initial stage of research to commercialization, adoption and eventual phase out, and c) specify stage gate criteria in advancing innovations from one stage to the next in the PLC.
- Private Sector Engagement – Approach to a) meaningful engagement of the private sector, b) how linkages with the private sector will facilitate research and development, and c) what strengths in the private sector will be sought after and leveraged.
- Geographic Focus - How target countries will be selected and justified.

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SECTION F: FEDERAL AWARD ADMINISTRATION INFORMATION

F.I. Federal Award Notices

The Leader Award is anticipated to be made by August 2023.

Award of the agreement contemplated by this NOFO cannot be made until funds have been appropriated, allocated and committed through internal USAID procedures. While USAID anticipates that these procedures will be successfully completed, potential applicants are hereby notified of these requirements and conditions for the award. The AO is the only individual who may legally commit the U.S. Government to the expenditure of public funds. No costs chargeable to the proposed Agreement may be incurred before receipt of either a fully executed Agreement or a specific, written authorization from the AO.

Although an earlier notification may be provided to Applicants regarding their recommended selection for an award, only an award signed by the USAID AO will constitute the USAID commitment of the selection of the Applicant. USAID may, at its sole discretion, provide the award to the Successful Applicant's designated point of contact in hardcopy originals, by fax, or electronically. The signed award will authorize the selected Applicant to begin implementation of the activities described in their Technical Applications or revised Technical Applications/Addenda, and will obligate funds for payment to the recipient of the award for costs incurred in such implementation. The AO may authorize the selected Applicant(s), at its sole risk, to begin implementation and the incurrence of costs prior to a signed award as of a specified date, with no commitment to reimburse costs in the event that the award is not subsequently signed.

Unsuccessful Applicants will be notified of their non-selection after the award has been made. Within 10 working days after an Applicant receives notice that USAID will not fund its application, the unsuccessful Applicant may send a written request for additional information to the AO. This information may be provided at the discretion of the AO orally or in writing. To the maximum extent practicable, the AO will respond to the request within 30 days or inform the Applicant that more time is necessary. If a response is granted, it will be limited to the Agency's interest in supporting the Applicant's program as described in the application without comparison of one Applicant to another. Only additional information that would be useful to the Applicant in future application preparation must be provided.

F.II. Administrative and National Policy Requirements

The resulting award from this NOFO will be administered in accordance with the following policies and regulations.

For US organizations: ADS 303, 2 CFR 700, 2 CFR 200, and Standard Provisions for U.S. Non-governmental organizations.

For Non US organizations: Standard Provisions for Non-U.S. Non-governmental Organizations.See Annex 3, for a list of the Standard Provisions that will be applicable to any awards resulting from this NOFO.

F.III. Reporting Requirements

F.III.a. Financial Reporting

Financial reporting requirements will depend on the method of payment. In accordance with 2 CFR 700, advance payments will be provided if the recipient meets the standards for financial management systems in 2 CFR 700. Recipients will comply with the financial reporting requirements set forth in 2 CFR 200 and 2 CFR 700. If advance payments are provided, reporting periods are calendar quarters or parts thereof. Quarterly financial reports are due not later than 30 days after the end of each calendar quarter. The final financial report is due not later than 90 days after the estimated completion date of the award. If payment is on a reimbursement basis, financial reports may be submitted monthly, but not less frequently than 30 days after the end of each calendar quarter. The final financial report is due not later than 90 days after the estimated completion date of the award. The Recipient shall also comply with the USAID standard provision entitled "Reporting Host Government Taxes." For more information, please see ADS 303.

The Recipient must submit to the AOR an estimate of quarterly accruals at least 2 weeks prior to the end of each financial quarter. The Recipient must submit a completed Standard Form SF-425 to the AOR no later than 30 days after the end of each financial quarter.

In the additional comments section of the SF-425, the Recipient must include the total funds to date distributed to non-US institutions, including to private contractors in foreign countries, by country. This will allow the AOR to inform any requests on funding provided to beneficiary countries. These amounts should not include funds used for temporary travel of US-based staff to foreign countries. Often, U.S. Government funding has different restricted countries for each year of funding; the Recipient's accounting system should be able to keep each year's funding obligation separate and allocable based upon any such restrictions.

F.III.b. Performance Reporting

The Recipient must electronically submit all performance reports to the AOR. Once approved by the AOR, all reports must be submitted to the USAID Development Experience Clearinghouse (DEC) at http://dec.usaid.gov. Occasionally, a report will contain sensitive information such as data not yet ready for release to the general public or otherwise embargoed information. In such an event, the AOR will work with the Recipient to either 1) approve an interim, edited version that can be submitted to the DEC until the full report can be released publicly or 2) approve a delay of a reasonable amount of time for submission to the DEC. Evaluations, whether conducted by the Recipient, USAID, or other entity contracted to perform the evaluation, must also be submitted to the DEC.

All country-level and global research activities implemented under the Leader Award must be included in the performance reports. The AOR will send a draft template of the performance reports near the end of each designated reporting period, but in general, the performance reports will consist of Semi-Annual Reports, Annual Reports, the Final Report, data entry of reported results into the Development Information Solution[65] (DIS) portal, and more detailed reporting on FTF EG. 3.2-7

[65] https://www.usaid.gov/work-usaid/resources-for-partners/development-information-solution

indicator in the Research Rack Up. Regardless of the program start date, the program is requested to align to reporting periods in the sections below unless the period is less than two months in which case the first required report is waived and the information added to the following report.

(i) Semi-Annual Reports

Semi-Annual Reports covering the period October 1 through March 31 must be submitted not later than 30 days after the end of the reporting period. The reports are to follow the draft template sent by the AOR but generally include the following sections: Research Progress Summary, Local Capacity Development, Innovation Transfer and Scaling Partnerships, and Future Work.
In accordance with 2 CFR 200.328, the semi-annual reports must be concise and also present the following information:

- A comparison of actual accomplishments with the goals and objectives established for the period, the findings of the investigator, or both. Whenever appropriate, and when the output of programs or projects can be readily quantified, such quantitative data must be related to cost data for computation of unit costs.
- Progress made toward established benchmarks and result indicators of development impact, as discussed in the program description of this NOFO and detailed in the Recipient's Activity MEL Plan.
- Progress made on each discrete research activity.
- Reasons why established goals were not met, if appropriate.
- Other pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit costs.
- In addition, qualitative descriptions of success stories and achievements to illustrate impacts of the program must be included when possible. At the conclusion of each research activity, at least one success story and achievements must be submitted for that activity. Efforts must be made to continue following the results of the achievements each reporting period until the end of the IL.
- Summary information on capacity training investments to include, but not limited to, number of Ph.D. candidates and M.Sc. candidates, candidates' countries of origin, and institutional affiliations during training (U.S. host institution and host country partner institution(s) involved in student training).
- A list of all peer reviewed journal articles published during the reporting period.

(ii) Annual Reports

Annual Reports covering the period October 1 through September 30 must be submitted not later than 60 days after the end of the reporting period. The reports are to follow the draft outline sent by the AOR but generally will include the following sections: Title Page, Management Entity (ME) Information, Technical and/or Advisory Committee Information, Map or List of Countries Where the Lab Works, List of Program Partners, Acronyms, Glossary, Table of Contents, Executive Summary, Program Activities and Highlights, Focus Country(ies) Key Accomplishments, Research Program Overview and Structure, Theory of Change and Impact Pathways(s), Research Project Reports, Associate Award Research Project Reports, Human and Institutional Capacity Development, Innovation Transfer and Scaling Partnerships, Environmental Management and Mitigation Plan (EMMP), Open Data Management Plan, Governance and ME Activities, Other Topics, Issues, three Success Stories, and any required Appendices. A copy of the Annual Report shall also be submitted to the USAID Development Experience Clearinghouse. Please reference the web site https://dec.usaid.gov/dec/home/Default.aspx for instructions on submission and any questions your

organization may have on the reporting requirements. Ensure that the AOR receives a copy of any reports submitted to the DEC.

(iii) Partnership and Short-Term Surveys
Partnership Surveys (https://docs.google.com/forms/d/1tq3dvBOx490Eys8DWkShugqfhwghkK9eFmCsAVSTaLI/edit) covering the period October 1 through September 30, or the equivalent time period as per the award date, shall be submitted no later than 30 days after the end of the reporting period. The Partnership Surveys provide more detailed information on Innovation Lab U.S.-based partnerships with colleges and universities, NGOs, companies, USDA, and other partners.

(iv) Short-Term Training Surveys
Short-Term Training Surveys (https://docs.google.com/forms/d/1nHHSz3stS7Q9zizA5u8hXFg_rnzP1l5obHT1cuDio94/edit) covering the period October 1 through September 30, or the equivalent time period as per the award date, shall be submitted no later than 30 days after the end of the reporting period. The Short-Term Training Surveys collect more detailed information about each training opportunity, reporting on the location (country), purpose, and category of trainee (sex, type [educator, extension agent, farmer, etc.]).

(v) Research Rack Up
Research Rack Up data covering the period October 1 through September 30, or the equivalent time period as per the award date, shall be submitted via the Research Rack Up data collection tool. The Research Rack Up provides more detailed data on the Feed the Future indicator EG.3.2-7 (Technologies and Practices under Research, Development, and Dissemination)[66] and curates descriptive information on research outputs to: a) report progress and impact; b) facilitate uptake by key technology scaling partners; and, c) create the evidence needed to inform innovation-related strategies and priorities in alignment with the goals of the Global Food Security Strategy. Data counts reported into the Research Rack Up[67] should align with data reported into DIS.

(vi) Notifications
The Recipient will be required to immediately notify the AOR and the Agreement Officer of developments that have a significant impact on the award-supported activities. Also, notification shall be given in the case of problems, delays, or adverse conditions which materially impair the ability to meet the objectives of the award. This notification shall include a statement of the action taken or contemplated, and any assistance needed to resolve the situation.

(vii) Final Report
The final performance report, which does not replace the last annual report, shall cover the life of award or the first five years, whichever is shorter. In the event that the award is extended for up to two years, the final report shall cover the additional time period, and shall be due following the end of the extension unless specified otherwise, in writing, by the AOR. If the award is extended for more than two years, a second final report is required that covers only the

[66] Feed the Future Indicator Handbook, https://www.agrilinks.org/sites/default/files/ftf-indicator-handbook-march-2018-508.pdf
[67] Feed the Future Research Rack Up Data Collection Tool Manual, https://drive.google.com/file/d/1eeDSu7PPoWsq76gt2l-aPaDFc0vgosAq/view

extension time period. The final report shall include the following sections: Title Page, Executive Summary, Program Partners, Program Goals and Objectives, Overview of Activities, Accomplishments, Utilization of Research Outputs, Further Challenges and Opportunities. The exact format and page limit will be determined by the AOR. The final report shall incorporate the findings and results that were included in previous annual reports, and is due no later than 90 days after the completion, extension, expiration, or termination of the award. The final report shall be submitted to the AOR for approval. Once approved, a copy of the final report shall also be submitted to the USAID Development Experience Clearinghouse.

(viii) Associate Awards
Reporting requirements and evaluation plans for Associate Awards will be specified in such awards. The Recipient will be required to provide an electronic copy of all reports produced under Associate Awards to the AOR with the Leader Award.

(ix) Final Performance Report
The Final Performance Report will replace the last Semi-Annual or Annual Report and must include the information described in Section F.III.b.(i) & (ii) above. The Final Performance Report must include the following sections: Title Page, Executive Summary, Program Partners, Program Goals and Objectives, Overview of Activities, Accomplishments, Utilization of Research Outputs, Future Challenges and Opportunities. The exact format and page limit will be determined by the AOR. The Final Performance Report must incorporate the findings and results that were included in previous Annual Reports and is due no later than 90 days after the completion, expiration, or termination of the award. The AOR may provide additional or alternative instructions as to the format and content requested of the Final Performance Report.

F.III.c. Other Reports and Required Submissions

F.III.c.1. Branding Strategy and Marking Plan

The Applicant is required to comply (and ensure compliance by partners) with USAID's branding and marking requirements set forth in 2 CFR 700.16 with Feed the Future specific guidance located at https://www.feedthefuture.gov/.

Applicants are encouraged, but are not required, to submit their Branding Strategy and Marking Plan with their initial Cost/Management Applications. Applicants who choose not to include their Branding Strategy and Marking Plan with their initial Cost/Management Application will not be penalized during the evaluation process but must be aware that, if the Applicant is the Apparently Successful Applicant, the Applicant will be required to submit an acceptable Branding Strategy and Marking Plan as a prerequisite for any resulting award. This would delay any such award, pending receipt, review, and, if necessary, negotiation of the Applicant's Branding Strategy and Marking Plan, with failure to submit or negotiate a Branding Strategy and Marking Plan within the time specified by the AO making the Apparently Successful Applicant ineligible for award. Moreover, because USAID's branding and marking requirements have cost implications, such costs must be included in the detailed budget (see Section D.IV.e.), even if the applicant does not submit its Branding Strategy and Marking Plan with the initial cost/management application.

Failure to submit or negotiate a Branding Strategy and Marking Plan within the time specified by the AO will make the Apparently Successful Applicant ineligible for award.

The proposed Branding Strategy and Marking Plan will not be evaluated competitively. The AO will review for adequacy the proposed Branding Strategy and Marking Plan, and will negotiate, approve, and include the Branding Strategy and Marking Plan in the award.

F.III.c.2. Annual Work Plans

The Recipient will be required to submit annual work plans, covering the period October 1 through September 30 (or parts thereof), which describe all activities planned for the year, including activities planned under Associate Awards to the extent known at the time; the site(s) where they will be conducted, benchmarks/milestones and annual performance targets; the outputs/outcomes which the Recipient expects to achieve; and the input/support planned to be provided by the Recipient, during the work plan period. Included must be an explanation of how those inputs are expected to achieve the outputs/outcomes and benchmarks/milestones. The Recipient must describe and use appropriate methodologies to integrate and address all cross-cutting issues, local capacity development, and private sector engagement. The work plans must include geographic data collection, geographic analysis, and data submission methods as a separate section.

The first-year work plan will include the environmental documentation that must be required by the approved Regulation 216 environmental documentation (see Section F.V. Environmental Compliance). An Environmental Mitigation and Monitoring Plan (EMMP), Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP), or other document which is approved by USAID as a requirement of the approved Regulation 216 environmental documentation will be integrated into subsequent-year annual work plans, making any necessary adjustments to activity implementation in order to minimize adverse impacts to the environment.

The annual work plan for the first year will be submitted no later than 60 days after the effective date of the award. Annual work plans for subsequent years must be submitted no later than 60 days prior to the start of that year. As indicated in Section B.III. of this NOFO annual work plans and significant revisions thereto are subject to USAID approval.

A first year Data Management Plan is also required at the time of the submission of the first year work plan. The work plans will describe activities to be conducted at a greater level of detail than the Program Description of the award, but must be cross-referenced with the applicable sections in the Program Description. All work plan activities must be within the scope and objectives of the award. work plans must not change such scope and objectives or any other terms and conditions of the award in any way; such changes must only be approved by the AO, in advance and in writing. Thereafter, if there are inconsistencies between the work plan and the Program Description or other terms and conditions of the award, the latter will take precedence over the work plan.

Additional information on the annual work plans, Activity MEL Plan, and periodic reports will be provided to the ME after award.

F.III.c.3. Evaluation

The Climate Resilient Cereals Innovation Lab will be subject to a performance evaluation, typically during the fourth year of the program, per USAID's evaluation policy. USAID will arrange for and support the cost of the external evaluation outside of the award resulting from this NOFO. The ME and individual sub-award activities must support the evaluation efforts by coordinating access to

project researchers and facilities, arranging (but not paying for) local transportation and hotels for external evaluators (if needed), continued salary support of researchers and staff during the evaluation, and travel and per diem costs of activity researchers and staff during the evaluation. If any sub-award activity to be evaluated has already closed, the ME must arrange logistics associated with a site visit, and as agreed by the evaluation team, the ME must support the participation of the Primary Investigator and any appropriate collaborators to participate in the evaluation, such as covering the cost of transportation. Similarly, if any staff member from the ME is a part of the evaluation team, the ME must support the travel and per diem costs from the ME budget. The evaluation will assess the following: (1) the research program performance, (2) the capacity strengthening efforts, and (3) overall management.

The performance evaluation will evaluate the implementation of the global research program, including incorporation of the core program components; the quality and progress of the research; the achievement of development targets; the degree to which the research activities achieve integration and are relevant to development in the host countries and more broadly; and overall progress on agreed-upon measurable research, training, outreach/dissemination, knowledge and technology hand-off, and institutional strengthening results of the program.

It will also evaluate the administrative and management effectiveness of the ME, including the relationship between the ME and sub-recipients/partners; the relationship and communication with USAID Washington and Missions; and the outreach and intellectual leadership activities undertaken by the ME.

The performance evaluation is distinct from, but will complement, any impact assessment activities undertaken by USAID that examine the CRCIL's impact.

F.III.c.4. Comprehensive Activity Monitoring Evaluation and Learning Plan

The Recipient will be required to submit a comprehensive Activity MEL Plan within 60 days after the award is made. The Activity MEL Plan, which describes the program over the life of the project, will be submitted at the same time as the first-year work plan. As indicated in Section B.III., the Activity MEL Plan and significant revisions thereto are subject to USAID approval. More detail on the Activity MEL Plan is available in Annex 1.

F.IV. Program Income

Any program income generated under the award will be added to USAID funding (and any cost sharing that will be provided) and used for program purposes. Program income will be subject to 2 CFR 200.307.

F.V. Environmental Compliance

Section 117 of the Foreign Assistance Act of 1961, as amended, requires that the impact of USAID's activities on the environment be considered and that USAID include environmental sustainability as a central consideration in designing and carrying out its development programs. This mandate is codified in 22 CFR 216 (sometimes referred to as "Reg 216") and in USAID's Automated Directives System (ADS) Parts 201.5.10g and 204, which, in part, require that the potential environmental impacts of USAID-financed activities are identified prior to a final decision to proceed and that

appropriate environmental safeguards are adopted for all activities. The environmental compliance obligations of the Recipient of the award resulting from this NOFO under these regulations and procedures are specified in the following paragraphs.

1) In addition to following U.S. federal environmental regulations and restrictions, the Recipient must comply with host country environmental regulations unless otherwise directed in writing by USAID. In case of conflict between host country and USAID regulations, the latter will govern.
2) No activity funded under the award resulting from this NOFO must be implemented unless an environmental threshold determination, as defined by 22 CFR 216, has been reached for that activity, as documented in a Request for Categorical Exclusion (RCE), Initial Environmental Examination (IEE), or Environmental Assessment (EA) duly signed by the Bureau Environmental Officer (BEO). (Such documents are hereinafter described as "approved Regulation 216 environmental documentation.")
3) To this end, the Technical Application and any environmental analysis therein will be reviewed by USAID for the purpose of conducting an IEE of the proposed program. Depending on the results of the IEE, USAID may:

    a) Approve a Request for Categorical Exclusion.
    b) Determine that a Negative Determination with Conditions applies to one or more of the proposed activities. This indicates that if these activities are implemented subject to the specified conditions, they are expected to have no significant adverse effect on the environment. Such conditions must be stipulated in the award, and the Recipient will be responsible for implementing all IEE conditions pertaining to activities to be funded under the award. Because the exact nature and location of many activities will only be fully known after sub-awardees are selected, which will take place after award, the initial IEE may require further environmental review and an IEE amendment to be completed post-award, before sub-award activities may proceed.
    c) Determine that a Positive Determination applies to one or more of the proposed activities. This indicates that these activities have the potential for significant adverse effects on the environment. In such cases, the Recipient must be required to prepare and submit an EA addressing the environmental concerns raised by such activities. No activity identified under a Positive Determination can proceed until Scoping (as described in 22 CFR 216.3[a][4]) and an EA (as described in 22 CFR 216.6) are completed and approved by USAID. (Note: The completed Scoping Statement is normally submitted by the Mission Environmental Office [MEO] to the BEO when the project originates in a Mission. The Statement must be circulated outside the Agency by the BEO with a request for written comments within 30 days and approved by the BEO subsequently. Approval of the Scoping Statement must be provided by the BEO before the EA can be initiated.) Accordingly, the Technical and Cost Applications would need to reflect IEE or EA preparation costs and approaches.

4) As part of its annual work plans, the Recipient, in collaboration with the AOR and MEO/BEO, will review all ongoing and planned activities under the award to determine if they are within the scope of the approved Regulation 216 environmental documentation. If the Recipient plans any new activities outside the scope of the approved Regulation 216 environmental documentation, it must prepare an amendment to the documentation for

USAID review and approval. No such new activities will be undertaken prior to receiving written USAID approval of environmental documentation amendments. Any activities found to be outside the scope of the approved Regulation 216 environmental documentation will be halted until an amendment to the documentation is submitted and written approval is received.

5) Unless the approved Regulation 216 documentation contains a complete Environmental Mitigation and Monitoring Plan (EMMP) or a Project Mitigation and Monitoring (M&M) Plan, the Recipient will need to prepare and submit an EMMP or M&M Plan for USAID approval. The EMMP or Project M&M Plan will describe how the Recipient will, in specific terms, implement all IEE and/or EA conditions that apply to proposed project activities within the scope of the award. The EMMP or M&M Plan must include monitoring the implementation of the conditions and their effectiveness. Unless included in the successful Technical Application or revisions/addenda thereto, the completed EMMP or M&M Plan will be integrated into the initial work plan. The approved EMMP or M&M Plan will be integrated into subsequent annual work plans, making any necessary adjustments to activity implementation in order to minimize adverse impacts to the environment.
6) The Recipient will be required to use an Environmental Review Form (ERF) or Environmental Review (ER) checklist using impact assessment tools to screen sub-award and contract proposals to ensure the funded proposals will result in no adverse environmental impact, to develop mitigation measures, as necessary, and to specify monitoring and reporting. Use of the ERF or ER checklist is required when the nature of the proposals to be funded is not well enough known to make an informed decision about their potential environmental impacts; yet, due to the type and extent of activities to be funded, any adverse impacts are expected to be easily mitigated. Implementation of these activities cannot proceed until the ERF or ER checklist is completed and approved by USAID. The Recipient is responsible for ensuring that mitigation measures specified by the ERF or ER checklist process are implemented. The Recipient will also be responsible for periodic reporting to the AOR, as specified in the award.
7) The costs of environmental compliance will be reimbursable under the award resulting from this NOFO provided that they are otherwise in accordance with the terms and conditions of the award.

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SECTION G: FEDERAL AWARDING AGENCY CONTACT

All questions and application submissions regarding this NOFO must reference "7200AA23RFA00TBD" in the subject line when directed to:

Leah Leach
Agreement Specialist
USAID M/OAA/RFS
Email: lleach@usaid.gov

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SECTION H: OTHER INFORMATION

USAID reserves the right to fund any or none of the applications submitted. The Agreement Officer is the only individual who may legally commit the Government to the expenditure of public funds. Any award and subsequent incremental funding will be subject to the availability of funds and continued relevance to Agency programming.

H.I. Applications with Proprietary Data

Applicants who include data that they do not want disclosed to the public for any purpose or used by the U.S. Government except for evaluation purpose, should mark the cover page with the following:

> "This application includes data that must not be disclosed, duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this application. If, however, an award is made as a result of – or in connection with – the submission of this data, the U.S. Government will have the right to duplicate, use, or disclose the data to the extent provided in the resulting award. This restriction does not limit the U.S. Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets {insert sheet numbers}."

Additionally, the applicant must mark each sheet of data it wishes to restrict with the following:

> "Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this application."

H.II. Demonstration of Eligibility

Applicants that are not "land-grant universities," "sea-grant colleges," or "Native American land-grant colleges" under the statutory definition of Title XII "universities" must submit with their application an additional statement relating to their eligibility under the statutory definition of Title XII institutions. This statement must contain references to other parts of the Technical and/or Cost Application and to references readily available on the Internet, and must not exceed two pages in length.

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ANNEX 1 - MONITORING, EVALUATION AND LEARNING

Within 60 days after the award is made, the Applicant must submit an Activity MEL plan[68] that includes a relevant theory of change describing impact pathways, an accompanying logic model or results framework, performance indicators and an illustrative plan for data collection and management, and a knowledge management plan, describing how learning and adaptive management will occur.

The theory of change must acknowledge what is and isn't within the spheres of control and influence of the Climate Resilient Cereals Innovation Lab, as well as critical assumptions. Impact pathways must also consider knowledge sharing and transfer of research outputs to relevant end users , to contribute to Innovation Lab objectives. Such end users may be smallholder and commercial farmers, researchers, government decision-makers, development professionals, and the private sector (micro and local to multinational).

The preliminary Activity MEL Plan should describe the activity's monitoring approach, including monitoring processes and systems and include the following:

- Performance indicators to measure progress toward achieving the desired results and outcomes and account for gender and youth and cross-cutting issues, as relevant. The Activity must use appropriate Feed the Future indicators[69] at a minimum. These mandatory indicators, required as appropriate, are defined under the Standard Program Structure (SPS) indicator categories in the most recent version of the Feed the Future Indicators Handbook: Definition Sheets.[70], [71] When research activities include issues around aspects of sustainable intensification, the "Sustainable Intensification Assessment Framework"[72] should be used to guide indicator selection. Information on performance indicators should include:
    - A baseline year and value for indicators.
    - Annual and Life of Project targets. Appropriate benchmarks and milestones of progress can be included.
    - Disaggregation of all people-level performance indicators by sex and age cohort.
    - Documentation of known data limitations of each performance indicator by explaining any data quality limitations and what steps will be taken to address them.
    - Description of the data quality assessment procedures that will be used to verify and validate the measured values of all the performance indicators reported to USAID.
- Custom indicators are also encouraged to be included to better report on activity-specific outcomes. These can include quantitative data (e.g. individuals receiving training) or qualitative information (e.g. description of technology adoption and reported barriers).
- Incorporate the measurement and reporting of cross-cutting issues throughout the impact pathways.
- Plans for monitoring context and emerging risks that could affect the achievement of the activity's results.

[68] See ADS 201.3.4.10 (https://www.usaid.gov/ads/policy/200/201) for USAID requirements on Activity MEL Plans. Note that "Activity" in this sense means the entire soybean Innovation Lab.
[69] https://www.agrilinks.org/sites/default/files/revised_ftf_indicator_handbook_clean_version_20190926.pdf
[70] https://www.feedthefuture.gov/resource/feed-the-future-performance-indicators-under-the-global-food-security- strategy/
[71] Indicator definitions and required disaggregation categories can change from year to year. At times, Feed the Future may designate additional mandatory indicators or drop mandatory designations.
[72] https://sitoolkit.com/

- Description of the approach for establishing effective procedures for collecting and responding to feedback from beneficiaries, and reporting to USAID a summary of beneficiary feedback and how it was addressed.
- Designation of the individuals or contractors responsible for any or all parts of performance monitoring, including data collection, data aggregation, review, approval, and entry into the Development Information System (DIS).
- The estimated costs of performance monitoring, including collecting, analyzing, reporting and dissemination of lessons learned in the budget.
- A calendar of performance management tasks (i.e. carrying out surveys, reviewing performance reports, conducting site visits, updating and revising the Activity MEL Plan as will be necessary, etc.) that must be conducted over the expected duration of the Innovation Lab, with approximate timeline for the completion of each task, recognizing there will be modifications necessary based on the sub-award portfolio.
- An Evaluation Plan that includes possible evaluation questions, ideas for evaluation design, and methodologies to be used. This plan can include planned internal evaluations or assessments and will be utilized by the external evaluation team to design the external evaluation that may take place in year 4. Also see Section F.III.

The ME must ensure that a clear knowledge management plan is in place that links explicitly with the objectives of the award and which supports achieving and sustaining those objectives. It must include, at minimum:

1. At least one implementer's technical brief for each Area of Inquiry (no more than three pages maximum), and;
2. Provision of annual key messages and conclusions from work completed to date to all internal program participants and to RFS Monitoring, Evaluation, and Learning (MEL) staff.

A clear and compelling plan to adapt and apply generic best practices of performance monitoring for impact-oriented research in the context of the proposed technical approach is required to provide evidence of the Climate Resilient Cereals Innovation Lab's successes. The ME will adaptively manage the portfolio of sub-awards (contracts or grants) to ensure optimal implementation of all activities. The ME will institute procedures that provide sub-awardees with appropriate technical guidance and feedback, to ensure that planned research and local capacity development targets are met, to assure compliance and accountability, and to address unexpected challenges and opportunities. The ME will also ensure that sub-awardees are accountable for progress along their impact pathway. Furthermore, an approach to achieving development impacts must also address opportunities for the Innovation Lab to implement or support technology-scaling activities, if funding becomes available through Associate Awards or buy-ins. Performance management requires access to useful and timely quantitative and qualitative data on a broad range of factors throughout the life of a program. Without planning how and when this data will be obtained, it will be difficult or impossible, once activities start, to put systems in place to ensure timely data collection and analysis to enable ongoing decision-making and to meet performance reporting requirements (see Section F.III.). The ME must take adequate steps to plan and institutionalize a process for collecting performance data as part of everyday work. This performance information consists of the indicators that will measure progress toward intermediate and final results and includes baseline data, annual progress data, and final performance targets, and may include internal or external evaluations, assessments or other evaluative material.

The Activity MEL plan will assess project implementation and also progress toward intermediate results, higher level outcomes and strategic approaches, where relevant. The MEL plan also will include discussion on assessing demand and potential scalability of innovations to be developed, to ensure that focus remains on those innovations with the greatest potential for farmer up-take to expand productivity. USAID will work with the Implementing Partner on a dissemination plan to ensure that learning is shared with the Innovation Lab community, the broader Research Community of Practice, and other relevant stakeholders via the broadest distribution channels available.
Note: All of the aforementioned items will be refined after award and again after selection of the portfolio of activities.

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ANNEX 2 - CROSS-CUTTING ISSUES

(i) Gender Equality, Equity, and Participation

USAID policy requires that gender equality be addressed as appropriate in all USAID-funded activities and that programming contribute to the USAID Gender Equality and Female Empowerment Policy[73] objectives and the GFSS Cross-cutting Intermediate Result of advancing gender equity and female empowerment.[74]

The ME is expected to outline key research processes or questions to support gender integration in each objective and proposed Area of Inquiry. The Climate Resilient Cereals Innovation Lab (CRCIL) must develop knowledge, recommendations, tools, and strategies that recognize and account for the needs and multi-dimensional roles of both women and men in small-scale production and marketing systems. Gender sensitivity begins from initial innovation profiling and selection and continues through the agriculture innovation and market systems that support smallholder production, processing, and marketing. As the CRCIL develops technologies and methods to accelerate cereal crops development, it must ensure that such outputs reflect and contribute to the development and accessibility of innovations that meet women's and men's needs as farmers, processors, and consumers. Similarly, the CRCIL must ensure that research efforts and outputs meet the needs of women and men as researchers. Efforts that engage other actors further downstream in development and marketing must consider how factors such as access to agricultural information, cooperative/organization membership, and complementary inputs needed for innovation adoption; cost, and shifts in workload may differentially affect gendered uptake and impact of innovations. Because men and women are not homogenous groups, the CRCIL must, to the extent possible, be sensitive to this diversity, and explicitly recognize the specific needs among different communities. Gender-responsive agricultural research involves the identification of questions that are informed by and relevant to women's and men's roles, responsibilities, participation in, and benefits from agriculture innovation and market systems; the ability to collect and analyze data to answer those questions; and the ability to engage with and communicate findings to stakeholders. Gender analysis and integration must be implemented as a cross-cutting effort within all activities. Additional guidance on integrating gender can be found in the GFSS Gender Technical Guidance.[75]

(ii) Youth Opportunity

Similarly, yet distinct from the gender requirements noted above, the 2012 Youth in Development Policy[76] mandates the inclusion of critical priorities concerning youth (ages 10 – 29) across USAID's portfolio, and the GFSS has committed itself to mainstreaming youth in agriculture, food security, and nutrition whenever and wherever possible using a Positive Youth Development framework.[77] The CRCIL must be a youth-sensitive program that will develop knowledge, recommendations, tools, and strategies that recognize and account for the needs and multi-dimensional roles of youth in small-scale production, processing, distribution, and the innovation and market systems in which small-scale production is embedded.

[73] https://www.usaid.gov/sites/default/files/documents/1865/GenderEqualityPolicy_0.pdf
[74] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-advancing-gender- equality-and-female-empowerment/
[75] https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-advancing-gender- equality-and-female-empowerment/
[76] https://www.usaid.gov/policy/youth
[77] http://www.youthpower.org/

Because young people are not homogenous groups, the CRCIL must, to the extent possible, be sensitive to this diversity, and explicitly recognize the specific needs of various groups and economic roles within the broader category of youth. In some instances, it may be necessary to conduct an analysis that improves the evidence base and allows for better targeting to advantage youth in livelihoods generation. Youth analysis must be integrated within all activities.

(iii) Nutrition and Food Safety

A well-nourished population, especially among women and children, is a high-level goal of the GFSS. While multiple types of activities in several sectors are needed to meet this outcome, the CRCIL must focus research efforts on researching, creating, and upgrading tools, technologies, and methods that identify and strengthen opportunities for smallholder farmers to develop and sustainably manage cereal crops production central to the Feed the Future Initiative, including through research and local capacity strengthening on 1) climate-resilient management practices for nutrient-dense foods and 2) inclusive cereal crops business development and commercialization, with a particular focus on youth and gender. As an example of downstream benefits, there is potential for households to adopt more cereal crops-based nutritious diets through local processing. There is also an opportunity for new tools that will lead to increased understanding of how to manage cereal crops production and handle cereal based products with greater intrinsic food safety (e.g., technologies and practices that minimize harmful pesticide residues mitigate the risk of foodborne pathogen contamination and toxic mold growth).

In response to these priorities, the ME will implement a coherent approach to ensure that nutrition and food safety are addressed in the context of cereal crops research and capacity strengthening at the program level, and within individual component activities as appropriate. Additionally, it is important to consider whether dietary changes result in new burdens placed on households, especially women. The USAID Multi-Sectoral Nutrition Strategy is a recommended resource.[78]

(iv) Resilience and Risk Management

The second objective of GFSS is strengthened resilience of people and systems.[79] Resilience is the ability of people, households, communities, and systems to reduce, mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth. It is an essential condition for sustainably reducing global hunger, malnutrition, and poverty as well as to reduce reliance upon emergency food assistance. Studies conducted during the 2016 El Niño Southern Oscillation event found that households in Ethiopia participating in increased resilience programs experienced just a four percent decline in food security while other households experienced a decline of 30 percent. Other studies have found that each $1 spent on resilience yields almost $3 in emergency food aid savings.[80] Resilience is as important for enabling people to escape and remain out of poverty, hunger, and malnutrition everywhere USAID works with countries on their journey to self-reliance as it is for reducing (averting) the need for humanitarian assistance in areas of recurrent crises, where the primary focus of USAID's resilience work takes place.

Risk is the potential for an uncertain event or trend to have adverse consequences on lives; livelihoods; health; property; ecosystems and species; economic, social, and cultural assets; service

[78] The USAID Multi-Sectoral Nutrition Strategy addresses pathways to optimal nutrition. https://www.usaid.gov/nutrition-strategy
[79] https://www.usaid.gov/resilience/resources
[80] https://www.feedthefuture.gov/resource/global-food-security-strategy-guidance-on-resilience/

provision (including environmental services); and infrastructure. Notably, risk exposure, particularly weather risk exposure, impacts behavior and livelihood decisions ex ante, regardless of whether the shock actually occurs.[81] Risk management is the set of activities, behaviors, decisions, and policies that allow individuals, households, and communities to mitigate (reduce) the likelihood or severity of a shock and to transfer or positively cope (without employing negative coping strategies, such as productive asset depletion) with shocks, stress, and risk exposure, including adaptation strategies that help individuals, households, and communities manage longer-term trends and stresses.

The GFSS Resilience objective also shares GFSS Intermediate Result 4 – Increased sustainable productivity, particularly through climate-smart approaches. Addressing the role of cereal crops in increasing food security can improve resilience at household, community, and landscape levels and reinforce efforts to improve risk reduction, mitigation, and management amongst people and systems. Opportunities exist to examine which improvements need to be made to current cereal crops research programs, including in forecasting future research needs as a means of reducing future risks, to enable them to respond more quickly and effectively to the challenges of climate adaptation, farm enterprise diversification, improved soil fertility, natural resources management, integrated pest management, and input management. It is important to also understand burdens on households and potential changes in gender dynamics within them and how various stakeholders respond to transformation in agricultural and food systems. In response to these priorities, the ME will implement a coherent approach to ensure that resilience and risk management is addressed in the context of research and capacity strengthening efforts at the program level and incorporated within individual activities as appropriate.

(v) Inclusion

Key to inclusive agricultural and economic growth is the inclusion of those most marginalized. Whether building on prior women's economic empowerment theory and evidence or engaging youth or persons with disabilities in meaningful and creative ways, the technical products produced by the CRCIL will reflect considerations for inclusive agricultural development.[82] In addition, the ME's operations and methods on the ground will incorporate the capacity and tools to identify and address the factors that underlie marginalization related to the CRCIL's activities. USAID recognizes that sometimes this means direct engagement with marginalized groups, but other times inclusion impacts may be created indirectly, with care to monitor actual results – this is likely to be the point of concern for the ME. USAID takes a broad view to inclusion, and specific groups of interest can and should vary and intersect depending on context, including the extreme poor; women; youth; people with disabilities;[83] ethnic and religious minorities;[84] indigenous peoples;[85] LGBTQI+ (lesbian, gay, bisexual, transgender, queer, and intersex) persons;[86] widows and orphans; and other marginalized

[81] Please also see the GFSS Technical Guidance: Diversifying Livelihoods, Resilience, and Pathways Out of Poverty https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-diversifying-livelihoods-resilience-and-pathways-out-of-poverty/.
[82] Please see the GFSS technical guidance for Advancing Gender Equality and Female Empowerment https://www.feedthefuture.gov/resource/global-food-security-strategy-technical-guidance-on-advancing-gender-equality-and-female-empowerment/
[83] https://www.usaid.gov/what-we-do/democracy-human-rights-and-governance/protecting-human-rights/disability
[84] https://www.usaid.gov/democracy/religious-freedom
[85] https://www.usaid.gov/indigenous-peoples/usaid-policy-on-indigenous-peoples
[86] When working for the inclusion of LBGTQI persons, the concept of 'Do No Harm' is critical to their safety. See USAID LBGT Vision for Action, p. 8 for more. https://www.usaid.gov/sites/default/files/documents/1874/LGBT_Vision.pdf

groups. The ME will endeavor to include and not exclude these persons from benefiting from the associated research and activities of the CRCIL.

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ANNEX 3 - STANDARD PROVISIONS

(Note: the full text of these provisions may be found at: https://www.usaid.gov/ads/policy/300/303maa and https://www.usaid.gov/ads/policy/300/303mab). The actual Standard Provisions included in the award will be dependent on the organization that is selected. The award will include the latest Mandatory Provisions for either U.S. or non-U.S. Nongovernmental organizations**.** The award will also contain the following "required as applicable" Standard Provisions:

Please note that the resulting award will include all standard provisions (both mandatory and required as applicable) in full text.

REQUIRED AS APPLICABLE STANDARD PROVISIONS FOR U.S. NONGOVERNMENTAL ORGANIZATIONS

Required	Not Required	Standard Provision
TBD		RAA1. NEGOTIATED INDIRECT COST RATES - PREDETERMINED (NOVEMBER 2020)
		RAA2. NEGOTIATED INDIRECT COST RATES - PROVISIONAL (Nonprofit) (NOVEMBER 2020)
		RAA3. NEGOTIATED INDIRECT COST RATE - PROVISIONAL (Profit) (DECEMBER 20224)
		RAA4. INDIRECT COSTS – DE MINIMIS RATE (NOVEMBER 2020)
		RAA6. VOLUNTARY POPULATION PLANNING ACTIVITIES – SUPPLEMENTAL REQUIREMENTS (JANUARY 2009)
		RAA7. PROTECTION OF THE INDIVIDUAL AS A RESEARCH SUBJECT (APRIL 1998)
		RAA8. CARE OF LABORATORY ANIMALS (MARCH 2004)
		RAA9. TITLE TO AND CARE OF PROPERTY (COOPERATING COUNTRY TITLE) (DECEMBER 2022)
		RAA10. COST SHARING (MATCHING) (FEBRUARY 2012)
		RAA11. PROHIBITION OF ASSISTANCE TO DRUG TRAFFICKERS (JUNE 1999)
		RAA12. INVESTMENT PROMOTION (DECEMBER 2022)
		RAA13. REPORTING HOST GOVERNMENT TAXES (DECEMBER 2022)
		RAA14. FOREIGN GOVERNMENT DELEGATIONS TO INTERNATIONAL CONFERENCES (JUNE 2012)
		RAA15. CONSCIENCE CLAUSE IMPLEMENTATION (ASSISTANCE) (FEBRUARY 2012)
		RAA16. CONDOMS (ASSISTANCE) (SEPTEMBER 2014)
		RAA17. PROHIBITION ON THE PROMOTION OR ADVOCACY OF THE LEGALIZATION OR PRACTICE OF PROSTITUTION OR SEX TRAFFICKING (ASSISTANCE) (SEPTEMBER 2014)
		RAA19. STANDARDS FOR ACCESSIBILITY FOR THE DISABLED IN USAID ASSISTANCE AWARDS INVOLVING CONSTRUCTION (SEPTEMBER 2004)
		RAA23. UNIVERSAL IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT (DECEMBER 2022)
		RAA24. REPORTING SUBAWARDS AND EXECUTIVE COMPENSATION (DECEMBER 2022)
		RAA25. PATENT REPORTING PROCEDURES (DECEMBER 2022)

		RAA26. ACCESS TO USAID FACILITIES AND USAID'S INFORMATION SYSTEMS (AUGUST 2013)
		RAA27. CONTRACT PROVISION FOR DBA INSURANCE UNDER RECIPIENT PROCUREMENTS (DECEMBER 2022)
		RAA28. [RESERVED]
		RAA29. RESERVED
		RAA30. PROGRAM INCOME (AUGUST 2020)
		RAA31. NEVER CONTRACT WITH THE ENEMY (NOVEMBER 2020)

REQUIRED AS APPLICABLE STANDARD PROVISIONS FOR NON-U.S. NONGOVERNMENTAL ORGANIZATIONS

Required	Not Required	Standard Provision
TBD		RAA1. ADVANCE PAYMENT AND REFUNDS (NOVEMBER 2020)
		RAA2. REIMBURSEMENT PAYMENT AND REFUNDS (DECEMBER 2014)
TBD		RAA3. INDIRECT COSTS – NEGOTIATED INDIRECT COST RATE AGREEMENT (NICRA) (NOVEMBER 2020)
		RAA4. INDIRECT COSTS – CHARGED AS A FIXED AMOUNT (NONPROFIT) (JUNE 2012)
		RAA5. INDIRECT COSTS – DE MINIMIS RATE (NOVEMBER 2020)
		RAA6. UNIVERSAL IDENTIFIER AND SYSTEM OF AWARD MANAGEMENT (DECEMBER 2022)
		RAA7. REPORTING SUBAWARDS AND EXECUTIVE COMPENSATION (DECEMBER 2022)
		RAA8. SUBAWARDS (DECEMBER 2014)
		RAA9. TRAVEL AND INTERNATIONAL AIR TRANSPORTATION (DECEMBER 2014)
		RAA10. OCEAN SHIPMENT OF GOODS (JUNE 2012)
		RAA11. REPORTING HOST GOVERNMENT TAXES (DECEMBER 2022)
		RAA12. PATENT RIGHTS (DECEMBER 2022)
		RAA13. [RESERVED]
		RAA14. INVESTMENT PROMOTION (DECEMBER 2022)
		RAA15. COST SHARE (JUNE 2012)
		RAA16. PROGRAM INCOME (AUGUST 2020)
		RAA17. FOREIGN GOVERNMENT DELEGATIONS TO INTERNATIONAL CONFERENCES (JUNE 2012)
		RAA18. STANDARDS FOR ACCESSIBILITY FOR THE DISABLED IN USAID ASSISTANCE AWARDS INVOLVING CONSTRUCTION (SEPTEMBER 2004)
		RAA19. PROTECTION OF HUMAN RESEARCH SUBJECTS (JUNE 2012)
		RAA20. STATEMENT FOR IMPLEMENTERS OF ANTI-TRAFFICKING ACTIVITIES ON LACK OF SUPPORT FOR PROSTITUTION (JUNE 2012)
		RAA21. ELIGIBILITY OF SUBRECIPIENTS OF ANTI-TRAFFICKING FUNDS (JUNE 2012)
		RAA22. PROHIBITION ON THE USE OF ANTI-TRAFFICKING FUNDS TO PROMOTE, SUPPORT, OR ADVOCATE FOR THE LEGALIZATION OR PRACTICE OF PROSTITUTION (JUNE 2012)
		RAA23. VOLUNTARY POPULATION PLANNING ACTIVITIES – SUPPLEMENTAL REQUIREMENTS (JANUARY 2009)
		RAA24. CONSCIENCE CLAUSE IMPLEMENTATION (ASSISTANCE) (FEBRUARY 2012)

		RAA25. CONDOMS (ASSISTANCE) (SEPTEMBER 2014)
		RAA26. PROHIBITION ON THE PROMOTION OR ADVOCACY OF THE LEGALIZATION OR PRACTICE OF PROSTITUTION OR SEX TRAFFICKING(ASSISTANCE) (SEPTEMBER 2014)
		RAA27. LIMITATION ON SUBAWARDS TO NON-LOCAL ENTITIES (JULY 2014)
		RAA28. CONTRACT PROVISION FOR DBA INSURANCE UNDER RECIPIENT PROCUREMENTS (DECEMBER 2022)
		RAA29. [RESERVED]
		RAA30. RESERVED
		RAA31. NEVER CONTRACT WITH THE ENEMY (NOVEMBER 2020)

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