



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

## Feed the Future Climate Resilient Cereals Innovation Lab (CRCIL) Request for Full Proposal

### Key Dates:

Request for Concept Notes Issued	August 13, 2024
Notification of Selected Concept Notes	October 30, 2024
Final Deadline for Submission of Full Proposal	December 16, 2024, 3PM CST
Notification of Funded Proposals	January 17, 2025
Hold the Date: anticipated kick-off meeting	TBD May 2025

To submit full application visit: <https://tinyurl.com/CRCILFULL>

# Background

Kansas State University serves as the Management Entity for the United States Agency for International Development (USAID) funded Feed the Future Innovation Lab for Climate Resilient Cereals (CRCIL, USAID Cooperative Agreement Number 200AA23LE00003). The program targets enhancement of germplasm for millet, rice, sorghum, and wheat. The CRCIL Consortium includes National Agricultural Research Institutes (NARIs) from partner Feed the Future countries. NARI priority climate-resilience traits within key market segment-oriented Target Product Profiles (TPPs) have guided targeting of the CRCIL research program. CRCIL works in upstream germplasm enhancement for applied research for development, focusing on three research Areas of Inquiry (AoI) including:

**Area of Inquiry 1.** Novel investigations into the discovery/identification of alleles for traits important in climate adaptation in cereal crops.

**Area of Inquiry 2.** Validation of these newly discovered alleles and/or existing alleles discovered by the global research community through leverage, and

**Area of Inquiry 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.

These three Areas of Inquiry form the basis of CRCIL's Theory of Change.

CRCIL fills an upstream role in the USAID Bureau for Resilience, Environment and Food Security Center for Agriculture Led Growth's Climate Resilient Cereals Strategic Framework. Given CRCIL's prescribed role in the upstream germplasm enhancement space (CRCIL does not support research under the variety development and/or release/scaling phases), proposals should carefully consider how CRCIL can impact germplasm enhancement and influence product development through the Product Life Cycle (Figure 1). This evaluation may include partnerships with variety developers and public private partnerships within the seed system to ensure that CRCIL Areas of Inquiry move through the Product Life Cycles through partnerships with relevant seed system actors (Figure 1).

<b>Product Life Cycle Stages</b>	Stage 1 Product Profile	Stage 2 Discovery	Stage 3 Proof of Concept	Stage 4 Validation	Stage 5 Selection	Stage 6 Release
Outcome Achieved	Target product profile (TPP) developed (based upon market research and segmentation)	Identification and selection of product components based upon TPP	Development of pre-products or prototypes	Superior candidates screened through small plot trials	Final candidate selection based on demonstrated value-add	Regulatory approval, variety release and registration
<b>Product Life Cycle Stages</b>	Stage 7 (Commercial) Introduction	Stage 8 Growth	Stage 9 Maturity	Stage 10 Decline	Stage 11 Phase Out	
Outcome Achieved	Resources, commitment and incentives for widespread adoption identified	Confirmation of widespread adoption	Adoption has plateaued	Data demonstrates significant multi-year decline	Improved replacement technology exists	

Figure 1. Schematic of Product Life Cycle, highlighted to show areas of main CRCIL research activity (Modified from USAID CRCIL Notice of Funding Opportunity).

While research for development results in new knowledge, improved practices and technologies, it also engages stakeholders so research outputs can be context-appropriate and result in impact. Validation of existing alleles or newly discovered alleles of prioritized traits involves testing of the allele source genetic materials in a target environment in collaboration with local partner breeding programs. CRCIL currently includes partner Feed the Future countries of Bangladesh, Ethiopia and Senegal, representing South Asia, East and Southern Africa and West Africa. This request for applications is for projects within these three focus countries.

## Award Information and Eligibility

The CRCIL Management Entity is inviting full proposals for competitive research sub-awards addressing one or more of the Areas of Inquiry described and focusing on one or more of the target cereals within Bangladesh (rice), Ethiopia (sorghum and wheat), and Senegal (pearl millet, rice, sorghum, and wheat). Proposals should be up to 3.5 years (project must end by July 31, 2028), and the maximum funding level for each project is \$700,000 USD. The Management Entity is seeking to create a diverse portfolio of projects across the Areas of Inquiry and proposals between US\$200,000-\$500,000 are strongly encouraged.

Applications led by in-country NARIs are encouraged, as well as US universities as defined under Section 296(d) of Title XII of the FAA which are also eligible to apply. CRCIL strongly encourages applications from, or for applicants to include, qualified Minority Serving Institutions 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, primarily undergraduate institutions, and emerging research institutes.

## Proposal Requirements:

Research conducted by CRCIL must be *interdisciplinary, integrated, collaborative* and involve at least one PI or co-PI from a CRCIL partner country (Bangladesh, Ethiopia or Senegal). CRCIL is enhancing lead NARI partners in each country as a Germplasm Enhancement Hubs. Applicants are strongly encouraged to link with those within their collaborations (Bangladesh Rice Research Institute, Ethiopian Institute of Agricultural Research, ISRA-CERAAS in Senegal). Applicants are required to provide evidence of the engagement of the target country or countries in the proposal development process, and strong roles for Feed the Future country partners must be clearly articulated.

In a broad sense, the CRCIL program has the following 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 target product profiles in the Target Product Profile Annex which can be found here ([https://www.k-state.edu/crcil/files/concept-notes/Target\\_Product\\_Profiles.pdf](https://www.k-state.edu/crcil/files/concept-notes/Target_Product_Profiles.pdf)).
- 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 private sector, US 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 Feed the Future cereal crops improvement portfolio with both upstream market demand and downstream seed-system and scaling efforts.

Given that CRCIL's priorities are aligned with Feed the Future partner country needs, proposals aligned with the NARI-prioritized climate resilience traits are strongly encouraged. CRCIL is interested in projects that align with the USAID Climate Strategy<sup>1</sup> for each country that include developing crops that can adapt and withstand climate variability, mitigate risk associated with water scarcity and heat stress, and promote sustainable agricultural practices. CRCIL Management Entity consultations with partner countries have identified the following areas of particular interest:

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<sup>1</sup> See USAID Climate Strategy <https://www.usaid.gov/sites/default/files/2022-11/USAID-Climate-Strategy-2022-2030.pdf>

## Bangladesh:

- a. Identification of alleles providing increased yield in high temperature stress in rice including evaluation, identification, or utilization of early-morning flowering, and other related traits for high temperature stress. Other abiotic stresses could be considered under this call as well, with proper justification for impact.
- b. Methods to speed the breeding cycle when working with photosensitive rice.
- c. Identification, validation, and introduction of genes for rice blast resistance as well as characterization of blast isolates within Bangladesh.
- d. Genetic characterization and phenotypic evaluation of landrace rice aus varieties for climate resilient traits such as salinity tolerance or anaerobic seed germination tolerance.
- e. Enhancement of climate resilient traits through the application and capacity building of novel breeding and scientific methods such as omics approaches and crop modeling.

## Ethiopia:

- a. Identification and introgression of climate resilient alleles for drought stress aiding in the development of short/medium duration sorghum varieties for the dry lowlands. Projects could also include grain quality with focus on consumer acceptance and dual use characteristics such as stover forage quality.
- b. Evaluation of genetic diversity of physiological traits such as transpiration efficiency that may provide key climate resilient traits in sorghum.
- c. Climate-related striga resistance in sorghum.
- d. Genetic characterization of terminal heat stress in wheat for the medium and low altitude zones as well as introgression of climate resilient alleles into elite breeding material.
- e. Enhancement of climate resilient traits through the application and capacity building of novel breeding and scientific methods such as omics approaches and crop modeling.

## Senegal:

- a. Salinity tolerance for the rice producing region in northern Senegal.
- b. Identification of heat tolerance alleles and genetic characterization of heat tolerant wheat lines for use in the Senegal river basin.
- c. Identification, validation, and application of heat and drought tolerant alleles/haplotypes as well as genetic characterization for specific droughts including terminal abiotic stress or early season abiotic stress for sorghum and millet.
- d. Enhancement of climate resilient traits through the application and capacity building of novel breeding and scientific methods such as omics approaches and crop modeling.

All proposals should incorporate activities from at least a subset of the five cross-cutting themes including 1) Gender Equality, Equity, and Participation; 2) Youth Inclusion; 3) Nutrition and Food Safety; 4) Resilience and Risk Management; and 5) Inclusion<sup>2</sup>. CRCIL aims to incorporate cross-cutting themes including gender and youth to support the long-term success of NARI breeding pipelines. Applicants may consider including graduate students in project proposals and reciprocal exchanges to facilitate knowledge sharing. Proposals which include graduate students should exhibit gender-parity in

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<sup>2</sup> See Cross-Cutting Annex for further information about cross-cutting descriptions and initiatives. [https://www.k-state.edu/crcil/files/concept-notes/Cross\\_Cutting\\_Annex.pdf](https://www.k-state.edu/crcil/files/concept-notes/Cross_Cutting_Annex.pdf)

their selection of students. Women who are selected as students will be invited to participate in African Women in Agriculture Research and Development's (AWARD) mentorship program. In line with USAID's Local Capacity Strengthening Policy<sup>3</sup>, it is highly encouraged that graduate students are trained and work from a local university within each country.

Proposals should articulate where projects fit within the Product Life Cycle (PLC, Figure 1) schematic as well as how the projects will align with private sector, government actors, or other food system players to demonstrate utility beyond the life of the project, as possible. We encourage applicants to visit <https://usaid.s4prod.com/#/home> and take the learning on Feed the Future Innovation to Impact (i2i) pathway as a technology manager to learn more about the Product Life Cycle approach and how it can be incorporated into the proposal.

CRCIL is aware that different crops and research pipelines may target different Areas of Inquiry and plans to award a portfolio across Areas of Inquiry, as well as considering a balance of projects across target crops and countries. Within the target countries, the following individuals may serve as a point of information for applicants to explore potential projects with the CRCIL Germplasm Enhancement Hubs:

- Bangladesh, Dr. Khandakar Md. Iftekharuddaula, [kiftekhar1969@gmail.com](mailto:kiftekhar1969@gmail.com), Chief Scientific Officer and CRCIL NARI PI for the Bangladesh Rice Research Institute.
- Ethiopia, Dr. Negash Geleta, [negash.geleta2020@gmail.com](mailto:negash.geleta2020@gmail.com), CRCIL NARI PI for Ethiopian Institute for Agriculture Research, and national program coordinator (Wheat) or Tokuma Guta, [tokumaLguta@gmail.com](mailto:tokumaLguta@gmail.com), CRCIL NARI Co-PI, national program coordinator (Sorghum).
- Senegal, Dr. Ndjido Kane, [ndjidokane@gmail.com](mailto:ndjidokane@gmail.com), CRCIL NARI PI and Director of Senegalese Institutes for Agriculture Research Center for Study of Drought Adaptation and Improvement (ISRA-CERAAS).

To speed up research development and support capacity strengthening for NARI's, CRCIL has dedicated resources with several US university partners. These universities provide a backbone of a science engine for cutting edge plant breeding applications. While this is an open call, interested applicants could leverage these resources through collaboration with these partners within their Concept Notes. While not required, those applicants interested in identifying and leveraging existing CRCIL resources should reach out to [crcil@ksu.edu](mailto:crcil@ksu.edu) and the following engine leads to explore collaborations:

- Bioinformatics, Genomics, and Genome Editing—Eduard Akhunov, Kansas State University, [eakhunov@ksu.edu](mailto:eakhunov@ksu.edu)
- Crop modeling and Simulation—Charlie Messina, University of Florida, [cmessina@ufl.edu](mailto:cmessina@ufl.edu)
- Experimental Design and Data Analysis and Management—Moirra Sheehan, Breeding Insight Cornell University, [moirasheehan@cornell.edu](mailto:moirasheehan@cornell.edu)
- Molecular breeding—Latha Melmaiee, Delaware State University, [kmelmaiee@desu.edu](mailto:kmelmaiee@desu.edu)
- Nutritional Genomics—Jenna Hershberger, Clemson University, [jmhersh@clemson.edu](mailto:jmhersh@clemson.edu)
- Phenotyping and Phenomics—Trevor Rife, Clemson University, [twrife@clemson.edu](mailto:twrife@clemson.edu)
- Product profile development and synthesis—Rick Boyles, Clemson University, [rboyles@clemson.edu](mailto:rboyles@clemson.edu)

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<sup>3</sup> Local Capacity Strengthening overview provided. <https://www.k-state.edu/crcil/files/cn-usaid/LCS-Policy-2022-10-17.pdf>

# Submission of Application and Review

## Timeline of Application Process

The anticipated timeline for the proposal process is provided in the following table.

Request for Concept Notes Issued	August 13, 2024
Webinar Announcing Country Priorities and Target Product Profiles	August 30, 2024
Concept Notes Due	October 1, 2024 3:00 pm CDT
Notification of Selected Concept Notes	October 30, 2024
Final Deadline for Submission of Full Proposal	December 16, 2024 3:00 pm CST
Notification of Funded Proposals	January 17, 2025
Hold the Date: anticipated kick-off meeting	TBD May 2025

While the Management Entity will work to ensure this timeline stays accurate, any adjustments to deadlines will be announced.

## Full Application Proposal

Full proposals will include an enhanced narrative along with more in-depth discussion of anticipated results, expected impact, and activity plan. Information should be provided about how the proposed research fills unique research gaps or needs and overall alignment with other (i.e. CGIAR, BMGF) funding initiatives. Full proposals should follow the example below and are limited to a maximum of 15 pages for background, hypothesis, project justification and approach, staffing and management plan, capacity strengthening and cross-cutting engagement, anticipated results, and expected impact.

# Full Proposal Information

## Framework for Full Proposals

Each full proposal should cover the following areas and are limited to no more than 15 pages; Sections 4 – 10 will count towards the 15-page max. The evaluation weights are specified in parentheses.

Full Proposals should be submitted by clicking here <https://tinyurl.com/CRCILFULL>

The final proposal should incorporate the following.

1. **Title Page:** Please include a complete title page using the template that can be found on the website below under Submission Templates. [https://www.k-state.edu/crcil/files/concept-notes/RFA\\_Title\\_Page\\_Form\\_Fillable.pdf](https://www.k-state.edu/crcil/files/concept-notes/RFA_Title_Page_Form_Fillable.pdf)
2. **Authorized Institutional Submission Sheet:** A completed and signed Authorized Institutional Submission Sheet must be completed. This form can be found on the website below under Submission Templates. <https://www.k-state.edu/crcil/files/Authorized%20Institutional%20Submission.pdf>
3. **Executive Summary:** One page or less- Provide an overall summary of the proposed project topic and potential outcome.
4. **Background (15%):**
  - a. Summarize the body of knowledge or past activities that clearly articulates the gap(s) in knowledge and research.
  - b. Describe recently completed activities and preliminary data/information in the targeted knowledge gap.
  - c. State the project's objective(s) and describe its relationship to one or more of the outcomes described in this RFA, as well as to Target Product Profiles prioritized by NARI partners.
5. **Hypotheses (10%):** State explicit testable hypotheses driving your research.
6. **Project Justification and Approach (25%):**
  - a. Describe project activities, experiments including data collection, and the methodological approaches employed to test your hypotheses.
  - b. Include a clear statement of the anticipated goal(s) and results/outcomes that will be accomplished during the project period and how these outcomes address CRCIL's Areas of Inquiry. Explain how these outcomes support your hypothesis testing.
  - c. Describe contingencies and strategies to overcome potential obstacles.
7. **Staffing and Management Plan (10%)**
  - a. Provide the management and staffing plan, the names of key personnel, and expertise areas. Describe the relevance of key personnel to the project.



- b. Describe specific roles for Feed the Future partner country team members, which have been discussed and agreed with them, and for which associated sufficient resources have been allocated.
  - c. Describe any private sector partnerships and roles, if applicable
  - d. Describe outreach activities to stakeholders
- 8. Capacity Strengthening and Cross-cutting Engagement (5%)**
- a. Describe capacity strengthening, knowledge and data sharing activities and strategies.
  - b. Describe how gender will be addressed and other strategies for addressing cross-cutting issues across the project team
- 9. Anticipated Results (10%):** Describe your anticipated results.
- 10. Expected Impact (10%):** Describe expected impact and how progress towards it will be measured. The product life cycle (PLC) approach should be included to indicate how the project will be developed beyond the grant's life.
- 11. Budget and Budget Justification (10%):** Provide a budget for the project and budget narrative justification for the lead institution and all participants that will receive funding. The budget must include institutional overhead/facilities and administration costs. Recent USAID guidance has increased the minimum for all institutions to 15%. Budgets should reflect non-federal resource leveraging. There are no matching requirements, although USAID and CRCIL will consider budget proposals that leverage funding. A significant amount of the proposed budget should be spent to support in-country activities, commensurate with strong or leading roles for in-country partners. The budget template can be found under Submission Templates on the website below. <https://www.k-state.edu/crcil/files/concept-notes/Budget%20Template.xlsx>
- 12. Operational Summary (5%):** Provide a draft timeline of activities over the life of the project, maximum 42 months (3.5 years, completed by July 31, 2028); this should include significant roles (and associated resources) for the Feed the Future partner country project team members – This template can be found on the website below under Submission Templates. <https://www.k-state.edu/crcil/files/Operational%20Summary.xlsx>
- 13. Qualifications Summary:** In one page, provide a description of the qualifications of the PI and Co-PIs and all relevant participants.
- 14. References:** Provide a list of references used within the technical application.
- 15. Curricula and Vita:** Provide a 2-page CV for each PI and Co-PI whose qualifications are described in the proposal.
- 16. Current and Pending Support for PI and Co-PI:** Provide a list of all current and pending funding support, dates and indicate FTE time allocation

**Sections 4 – 10 will count towards the 15-page max.**

**Note:** only requested material will be reviewed. Do not attach additional appendices, annexes, or supplementary materials outside of requested documents as they will not be reviewed.

## Compliance with USAID Regulations

All successful applicants must comply with all USAID compliances including branding and marketing, procurement of goods and services and environmental stewardship. The Management Entity will provide guidance on these topics with those projects selected for funding.

### Environmental Compliance

Projects must be in compliance with USAID's Environmental Compliance Procedures described in Title 22 of the Code of Federal Regulations, Part 216 (22 CFR 216) ([https://www.usaid.gov/sites/default/files/2022-05/22CFR216\\_Booklet.pdf](https://www.usaid.gov/sites/default/files/2022-05/22CFR216_Booklet.pdf)) and provide evidence of compliance with all relevant financial accounting procedures, regulatory compliance, responsible conduct of research, and the US Agricultural Terrorism Act of 2002. Prior to receiving funding, all selected projects must submit an environmental compliance statement.

### Localization Policy

Proposals should align with and articulate concordance with USAID's localization policy <https://www.usaid.gov/localization>. The policy as developed by USAID is<sup>4</sup>

“USAID’s approach to localization is informed by over a decade of experience showing that local leadership is critical for greater equity, effectiveness, and sustainability. The widespread consensus that development and humanitarian assistance must enable local actors to set their own agendas, develop solutions, and bring their leadership and resources to make those solutions a reality is why we have prioritized advancing localization by:

- Adapting our policies and programs to foster locally led development that is tied to each country’s unique political, social, cultural, economic, and environmental conditions, including through local systems practice and local capacity strengthening;
- Shifting power to local actors, including, with an inclusive development lens, those from marginalized and underrepresented groups, and promoting space for them to influence and exercise leadership over priority setting, activity design and implementation, and measuring and evaluating results;
- Channeling a larger portion of funding directly to local partners while ensuring accountability for the appropriate use of funds and achievement of development and humanitarian results; and
- Serving as a global advocate and thought leader, using our convening power, partnerships, voice, and other tools of development diplomacy to catalyze a broader shift toward locally led development<sup>5</sup>.”

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<sup>4</sup> Local Capacity Strengthening overview provided in annex as LCS\_Policy\_Overview.pdf.

<sup>5</sup> <https://www.usaid.gov/localization>

## Monitoring Evaluation and Learning (MEL)

As CRCIL is an upstream project, Monitoring, Evaluation, and Learning (MEL) is a key assessment tool to evaluate project impact. CRCIL has partnered with RTI international to provide MEL support. Selected full proposals will articulate how their proposals are aligned with the CRCIL MEL plan as well as indicate MEL indicators and targets that will be accomplished within the proposal. The MEL plan is available on the following website under Additional Documents <https://www.k-state.edu/crcil/files/MEL%20Plan.pdf>

## Open Data Policy

USAID's Open Data Policy requires all implementing partners to submit datasets generated with USAID funding to the Development Data Library (DDL) in machine-readable, non-proprietary formats. All project proposals submitted to CRCIL funding therefore must include a section on research data management. Applicants must provide a short, general outline of their policy for data management, including the following issues: 1) What types of data will the project generate/collect? 2) What standards will be used to assess the quality of the data? 3) How will this data be exploited and/or shared/made accessible for verification and reuse? 4) If data cannot be made available, explain why; and 5) How will this data be curated and preserved? Successful applicants are required to submit a detailed Data Management Plan (DMP) to the CRCIL ME within 6 months of receiving the sub-award.

## Project Reporting

An annual work plan, budget, activity report summarizing results, impact analysis and results, trip reports, and research reports and summaries will be part of the reporting requirements for the approved projects. The CRCIL ME staff, USAID staff, and CRCIL EAC will review and provide feedback. Amendments or changes may be suggested during the annual review process.

## Questions:

The CRCIL Program team will answer questions through December 1, 2024, and can be contacted at [crcil@k-state.edu](mailto:crcil@k-state.edu) . All questions and responses will be posted.

**Full Proposal Review:** A panel of experts will serve as the review committee for the full proposals. Applications will be evaluated according to the following rubric with highest ranking applications receiving the best consideration for funding.