



REQUEST FOR APPLICATION

This Request for Applications (RFA) is issued by the **Long-term Assistance and Services for Research: Partners for University-Led Solutions Engine (LASER PULSE)** at Purdue University. LASER PULSE is a five-year program implemented by a consortium comprising Purdue University (lead institution), the University of Notre Dame, Indiana University, Makerere University, and Catholic Relief Services. LASER PULSE is funded by the U.S. Agency for International Development (USAID) under Cooperative Agreement 7200AA18CA00009.

Development Sectors of Interest: Basic Education, Food Security, and Water Security

Region/Countries of Interest: East Africa (Kenya, Uganda, and Tanzania)

- Note that Basic Education is limited to Kenya and Uganda only

Award Number and Size: 4 to 6 awards for a period of 12 to 24 months of research and translation; for this RFA we expect to award \$1,000,000 in total funding across all awards.

Application Submission Process and Timeline:

Issuance of Request for Application:	27 September 2019
Deadline for submission of questions on the RFA:	11 October 2019 at 2:00 pm GMT
Webinars (2) to address questions regarding RFA:	17 and 18 October 2019
Deadline for receipt of Concept Notes:	15 November 2019 at 2:00 pm GMT
Request for full application sent to selected PIs:	13 December 2019
Deadline for submission of full application:	17 January 2020 at 2:00pm GMT
Expected award status notification:	21 February 2020

2:00pm GMT /5:00 pm EAT/ 10:00am EDT/ 8:00 am MDT/ 7:00 am PDT

Contact Information:

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LIST OF ACRONYMS

AOR	Agreement Officer Representative (USAID)
BFS	Bureau for Food Security (USAID)
CASEL	Collaborative for Academic, Social, and Emotional Learning
CDCS	Country Development Cooperation Strategies (USAID)
CDR	Center for Development Research (USAID)
Co-PI	Co-Principal Investigator
CSF	Comprehensive Success Factors
GIS	Geographic Information System
GFSS	Global Food Security Strategy
GRACE	Gravity Recovery and Climate Experiment
HEI	Higher Education Institution
HESN	Higher Education Solutions Network (USAID)
LASER PULSE	Long-term Assistance and Services for Research Partners for University-Led Solutions Engine
MEL	Monitoring, Evaluation, and Learning
MTDC	Modified Total Direct Cost
NCSEAD	National Commission on Social, Emotional, and Academic Development
NGO	Non-Governmental Organization
NICRA	Negotiated Indirect Cost Rate Agreement
PI	Principal Investigator
R4D	Research for Development
SES	Social and Emotional Skills
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USD	United States Dollar
USAID	United States Agency for International Development

1. LASER PULSE BACKGROUND AND CONTEXT

1.1 Higher Education Solutions Network 2.0

[LASER PULSE](#) (Long-term Assistance and SErvices for Research Partner University-Led Solutions Engine) is part of the Higher Education Solutions Network (HESN) 2.0 portfolio of programs from the Center for Development Research (CDR) in the U.S. Global Development Lab (Lab) of the U.S. Agency for International Development (USAID). HESN 2.0 leverages a vast network of higher education institutions, local stakeholders, private enterprise, and other development actors to increase the use of scientific research for development, refine and translate complex data, build local scientific potential, and test new and innovative development approaches.

1.2 Research for Development (R4D)

The goal of LASER PULSE is to catalyze evidence-based research that can be readily translated into useful products, policies, and practices that better address development goals. This goal is accomplished through participatory research question identification (i.e., bringing researchers and development practitioners together), through improved capacity to conduct research, and by ensuring that research is accessible to decision makers. For this Request for Applications (RFA), LASER PULSE is focusing on three global development sectors, namely: basic education, food security, and water security for the region of East Africa. These sectors were identified and prioritized, primarily through a process called Comprehensive Success Factors (CSF) (formerly Comprehensive Issue Analysis), which included interactive sessions at [LASER's Uganda Research for Development \(R4D\) Conference](#) (May 6-8, 2019). Details about the CSF process are provided in [Appendix 1](#).

1.3 Research Translation

A key consideration for the LASER PULSE program is to ensure that *Research Translation* (Figure 1) is incorporated into development focused research. LASER PULSE defines research translation as:

An iterative co-design process among academics, practitioners, and other stakeholders in which research is adapted for use and intentionally applied to a development challenge.

The process requires researchers to identify, from the outset, research translation partner(s) such as non-governmental organizations (NGOs), civil society, the private sector, and/or local government entities. These collaborations aim for final research products that are useful to, and usable for the translation/development partner, and any other development stakeholders working to address the development challenge. Thus, all submissions to this RFA are required to describe how the proposed research will result in usable and appropriate research translation product, policy, or practice.

Specifically, a **tangible product** is a required output of research translation. This could be a tool/device, report or document, multimedia product, or IT platform. This product should contain a **policy brief or recommendation** that leads to changes in legal, constitutional, funding, accountability, feasibility, or implementation mechanisms or a **practice recommendation**, such

as new agricultural production or processing methods, education curriculum, guidebooks, technical manuals, training modules, and planning tools.

RESEARCH TRANSLATION

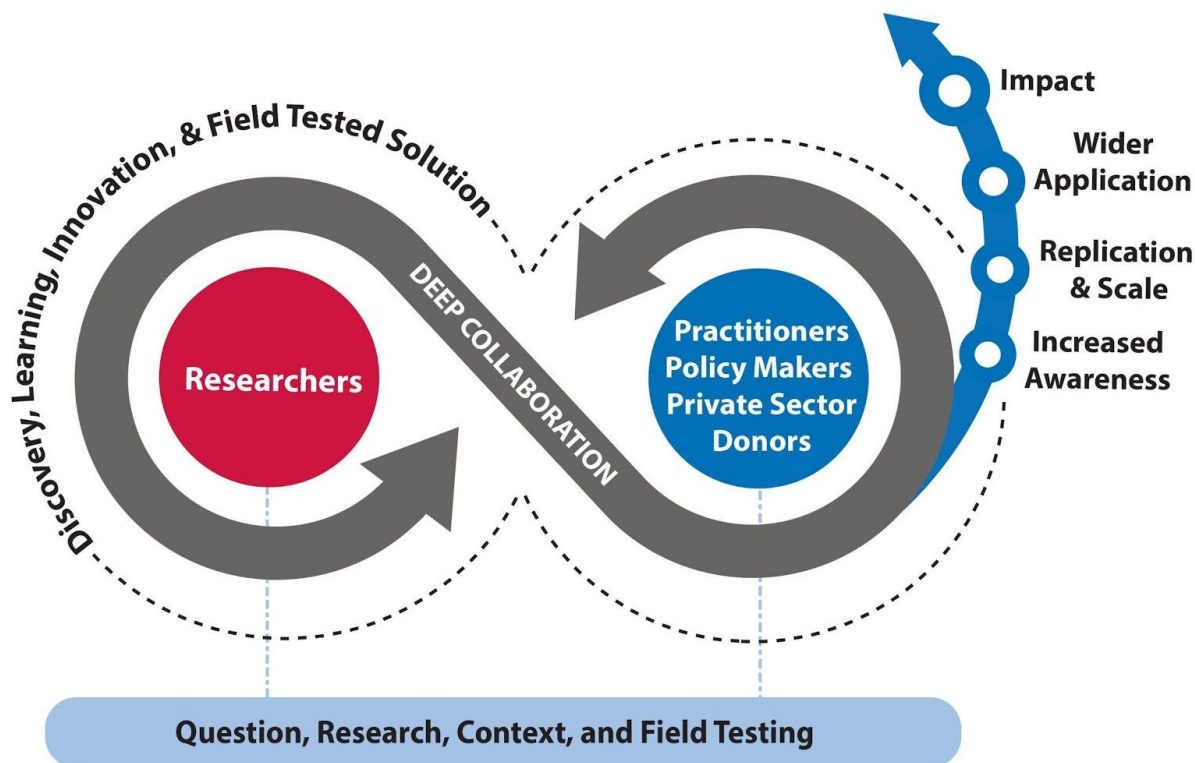


Figure 1. LASER PULSE research translation model

2. FUNDING OPPORTUNITY DESCRIPTION

This two-stage RFA consists of a Concept Note and Full Application (by invitation only for successful concept notes). The RFA calls for innovative research – and associated research translation – focused on development challenges within three development sectors: Basic Education (specifically social and emotional skills); Food Security (specifically youth engagement in agriculture); and Water Security (specifically data and forecasting for water resources) in the context of the three East African countries of Kenya, Tanzania, and Uganda. Note that research on Basic Education is limited to Kenya and Uganda only; Basic Education applications in Tanzania will not be considered. The proposed focal areas for this call reflect outputs of the LASER PULSE Uganda R4D Conference as derived from the CSF process and its related sessions, and subsequently validated by researchers, practitioners, literature reviews, and USAID consultations.

Successful applications in any of the three development sectors will:

1. Incorporate collaboration between researchers and development practitioners (as research translation partners) to ensure that the proposed research can, and will be, applied as a solution to the development challenge.
2. Outline anticipated intermediate and long-term policy or practice change(s) resulting from the research. This includes a strategy or plan for *Research Translation* that describes how outputs of the research will be translated and perhaps adapted into usable and appropriate products, policies, and practices.
3. Address considerations and impacts of gender in all aspects of the application (see [Appendix 2](#)). Both Concept Notes and Full Applications (by invitation only) will be evaluated, in part, based on the integration of gendered considerations in the proposed research. Applications that do not address gender integration will not be considered, unless the applicant can demonstrate that the research does not focus on humans and that the results of the research do not need to consider the needs of male and female individuals differently in the application of the results.

The following sections define the scope of research to be funded by LASER PULSE. Please take special note of the country restrictions for each development sector.

2.1 Basic Education (eligible countries for fieldwork/research: Kenya and Uganda)

2.1.1 Context

The efforts to promote universal access to quality primary education for all children and youth have generated positive outcomes such as increased enrollment and access to education in Kenya [1,2] and Uganda [3,4]. However, challenges related to lack of continuous teacher involvement and teacher professional development [1,2], low literacy, school-completion, and transition to post-primary level [3,4,5] persist and are eroding the efforts to continue the delivery of broader and inclusive education. In addition, the region faces a shortage of qualified teachers, resources, and infrastructure needed to support the implementation of existing national curricula [6]. In the current regional education landscape, the emerging focus on developing learners' social and emotional skills (SES) creates an added demand for effective policy implementation especially given time and financial trade-offs in social and emotional skills (SES) programming.

USAID Education Policy defines “social and emotional skills” as a “set of cognitive, social, and emotional competencies that children, youth, and adults learn through explicit, active, focused, and sequenced instruction that allows them to understand and manage their emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions” [7]. Social and emotional skills comprise a diverse range of competencies that are widely acknowledged across many educational systems, but not fully implemented due to limited resources in teaching and learning environments. These competencies are usually classified along distinct categories and subcategories of skills domains, which include (but are not limited to): self-awareness, self-management, social awareness, relationship-skills, and responsible-decision making [7]. A recent (2018) study examining the status of adoption and integration of 21st century skills into national education systems found that 117 countries identified specific 21st century skills in their policy documents [8].

Enhancing learners' SES is a predominant agenda in the current education policy reforms in the region and a priority in the USAID Education Policy [7]. However, few professional development programs for teachers address these competencies for teachers or how teachers can support their students [1,2,9]. Additionally, research that could inform improvement and refinement of existing competency assessment frameworks is sparse. This is especially true for learning pathways attempting to target unique populations and student experiences. Coherent learning progression that is equitable across sub-groups ensures that all students regardless of socio-economic, physical, and emotional status benefit from imparted SES for enhanced self-efficacy and agency [10]. Given the pace of shifting needs in industry and society [11,12], there is a need to develop, implement, and scale evidence-based curricula and assessment constructs for SES competencies of students at all grade levels in primary schools.

Focused support and promotion of social and emotional competencies is rooted in the notion that SES programming has substantive implications for student learning and success [13]. Multiple practitioner and policy audiences have echoed the critical role of social and emotional skills to student learning and well-being outcomes. Indeed, the impact of SES competencies go beyond the classroom setting into workplace and community environs [14,15,16,17,4]. Addressing the stated needs necessitates an understanding of the learning domains that generate and increase competencies for each of the social and emotional skills. A holistic understanding of assessment tools, programs, and outcomes is vital to improve the experiences of teachers and learners.

2.1.2 Research Focus Areas

LASER seeks research applications that identify, evaluate, or inform the design of cost-effective interventions that build social and emotional skills of students in primary schools in Kenya and Uganda. The research outputs should inform policy making and enhance uptake in the education sector including training teachers to integrate SES into their existing curriculum. To this end, research applications should reflect an understanding of key considerations linked to cost-efficiency, cost-effectiveness, scale, sustainability, and equity.

Areas of interest to LASER:

1. Applications that focus on identifying the domains of social and emotional skills (SES) that are most effective at improving learning outcomes (literacy, numeracy, and behavioral). Applicants may examine learning outcomes achieved at various grade levels in primary schools, student categories (e.g. vulnerable student populations), or learning environments (e.g. conflict settings) in East Africa. Specific themes for this solicitation may include, but are not limited to:
 - Examination of how social and emotional skills manifest among different sub-populations in the learning continua.
 - Demonstration of how teachers' support and varied learning environments mediates between targeted interventions and learning outcomes.
 - Investigation of the core strategies germane to interventions that are implemented to impart SES competencies among different target populations that comprise students at all grade levels in primary schools, primary school teachers, and/or caregivers.Further, demonstrating the SES outcomes for different types of learners, teachers, and

caregivers of these interventions across multiple sub-groups is required, including on marginalized populations and/or students in crisis settings.

- Exploration and demonstration of effectiveness of interventions in developing and improving SES competencies among different sub-populations and settings, including learners of different genders, learners affected by conflict or crisis, or learners with a disability.
- Exploration of how SES interventions enhance education attainment for outcomes such as persistence, retention, and completion.

2. Applications that investigate advancements in the measurement of SES. Specific themes for this solicitation may include, but are not limited to:

- Investigation of effective and cost-effective ways to measure SES skills for different types of learners, including for marginalized populations. Investigation of effective and cost-effective ways to measure implementation of interventions, specifically the way they are sequenced.
- Applications that investigate the external reliability and validity (e.g. predictive ability) of SES-related measurement instruments.

2.2 Food Security (eligible countries for fieldwork/research: Kenya, Uganda, Tanzania)

2.2.1 Context

Significant research has been conducted in the East Africa region on various aspects of food security and nutrition. Notable work has been funded by USAID Bureau for Food Security through the Feed the Future Initiative (2011-2016) via the various innovation labs and subsidiary projects [18] and currently under the Global Food Security Research Strategy [19]. Despite progress made towards enhancing regional food security in, for example, small-scale irrigation, climate-resilient crops, and integrated pest management, various constraints persist that require additional research attention.

The Comprehensive Success Factors (CSF) process ([Appendix 1](#)) was used to identify food security challenges. The challenges were grouped into three categories (listed below) and used to inform the two research focus areas outlined in this RFA.

1. Limited access to: agricultural inputs (as well as their quality); financing mechanisms (pre- and post- production); infrastructure (digital and physical); markets/means for distribution; and consumer purchasing power.
2. Lack of mechanisms to apply or enforce existing policies/regulations, especially around land tenure and usage, subsidies, standards, and extension services.
3. Limited knowledge of consumer behavior, attitudes, and awareness towards nutrition, food availability, food safety, and food diversification.

Youth engagement in agriculture, including both young men and young women, was further identified by LASER PULSE as a key cross-cutting theme that needs to be addressed to help alleviate the challenges associated with food security. These themes align with high-level USAID priorities under the Global Food Security Research Strategy, which recognizes the critical role women, youth, and other marginalized groups play in global stability, economic

growth, and development [19]. The Global Food Security Strategy further identifies youth, especially in developing countries, as being critical to achieving its overarching goal of sustainably reducing global hunger, malnutrition, and poverty [20]. Additionally, the Global Food Security Strategy, has provided technical guidance targeting youth in the agriculture-food system [21].

Youth under the age of 29 years of age [22] make up more than 60% of the population in sub-Saharan Africa, and the majority of them face critical employment challenges (high unemployment, underemployment, precarious work) and economic stagnation [23]. Proactive programming, innovations, and investments that meet food security goals and support job creation have the potential to enable the youth population to transform entire regions towards increased prosperity, stability and security [24,25].

2.2.2 Research Focus

Based on the identified research challenges listed above, LASER seeks research applications on scalable practices and solutions that empower current market actors and potential entrepreneurs to increase productivity and/or improve market efficiency and reliability in the region. Research should target and support youth engagement in agricultural market systems. Applications may address one or more of the challenges listed above. The research outputs should enable diverse actors within the agricultural market system to enhance food security, as well as inform policy making decisions across the agriculture sector. Ability to be scaled is expected to be built into the Concept Notes and full applications (by invitation only) to guarantee widespread replicability in local and/or regional markets throughout Eastern Africa.

Specific areas of interest to LASER:

1. Applications that identify and/or assess effective strategies that ensure youths (female and male) can take advantage of emerging opportunities in agricultural market systems by engaging them through capacity development, technological solutions, market intelligence, and entrepreneurship in agribusiness (e.g., as farmers, processors, local service providers).

Thematic examples of research may include, but are not limited to:

- Opportunities for youth to be engaged in specific entry points within the agricultural market system, through mechanisms such as local food hubs [25-28].
 - Context-specific approaches that could increase land ownership, leasing, or renting among the youth, especially young women.
 - Behavior change practices, and risk-mitigating strategies that facilitate the adoption of appropriate technologies that are new to local and/or regional markets.
 - Application of context-appropriate digital solutions to improve awareness/access for producers and consumers of markets (e.g. market information such as prices and inventories).
2. Applications that investigate innovative financial models and products tailored to small-scale producers and potential agribusiness entrepreneurs, particularly youth. Research should build upon the work of the Feed the Future Innovation Lab for Assets and Market Access (<https://basis.ucdavis.edu/>). Models should be inclusive and scalable/sustainable regionally

(i.e., beyond just a few communities) and address key market actors such as local service providers, input dealers, and processors.

Thematic examples of research may include, but are not limited to:

- Suitable financial mechanisms, delivery platforms, and/or implementation strategies, that are scalable to a wide base of clients (e.g., index-based savings accounts, emergency credit, digital services platforms).
- Cost-sharing solutions and other collective-action mechanisms (e.g., producer associations, cooperatives, warehouse receipt systems).
- Quality insurance mechanisms that increase access to risk-transferring financial technologies at various points throughout the market system, encourage investment, and therefore increase productivity.
- Non-insurance risk management technologies, including innovations to increase access to weather and market information, risk-mapping, resilient agriculture, and risk-informed diversified livelihoods.

2.3 Water Security (eligible countries for fieldwork/research: Kenya, Uganda, Tanzania)

2.3.1 Context

Hydrologic and meteorological data for East Africa have historically been limited spatially and temporally [29,30]. If such data currently exist, they are generally available in the form of local reports that are undocumented and/or inaccessible (or with very limited accessibility) to most potential users. In order for policy makers, technicians, and other key stakeholders to optimally manage future challenges related to water supply and burgeoning demands in the East Africa region, they will require accurate sets of data and predictive models of sufficient granularity and coverage. It is therefore incumbent that realistic and viable regional policies covering the water resources of East Africa are grounded in access and analysis of quality data and models that have both depth and breadth.

Over the past two decades, research has increasingly focused on methods to extrapolate meteorological and hydrologic information for East Africa based on historical, though incomplete, direct measures of rainfall, lake levels, and groundwater levels [31]. More commonly, indirect estimates of data are derived via satellite-based strategies, mostly reflected through applications of Gravity Recovery and Climate Experiment (GRACE) [32-37]. LASER-funded research on water security is intended to extend and improve upon these efforts, with particular focus on providing appropriate characterizations of availability of water resources [38] at multiple temporal scales (seasonal to decadal), and for multiple sub-sectoral contexts (e.g., irrigation, drinking water/domestic use, sanitation and health).

2.3.2 Research Focus

LASER seeks applications for research that identifies and generates a comprehensive set of present and forecasted data for water availability (examining quantity and quality) that spans the core East African countries of Kenya, Tanzania, and Uganda. Specifically, we envision the acquisition and compilation of surface water and groundwater data at the basin and sub-basin level, augmented with extrapolations where data is lacking, to develop a unified water budget for

the region [38]. Such data-informed estimates of water resources should reflect regional variations within a transboundary context, while considering short- and intermediate-term shocks (e.g., drought, floods, war and/or population migration) that affect the availability and use of water supplies [39]. As the primary output, data and models must be of a form and quality to enable adaptive decision-making practices across the water security sector, both contemporary and in support of the planning and implementation of future water-based development initiatives [38].

Key considerations:

- This research is meant to inform and motivate policy, as well as improve user ability to understand, access, and apply relevant data in various aspects of water security programming. Thus, research applications should be designed such that the results/outputs can be easily integrated into future efforts (i.e., not part of this RFA) that generate data and risk assessments/profiles and evaluate effective management strategies for water security at multiple spatial scales (sub-national, national, regional, other) and under the threat of natural and anthropogenic shocks.
- Data and methods may include, but are not limited to: hydrologic and meteorological data (and collection thereof), secondary data collection, desk review, geospatial imaging, Geographic Information Systems (GIS), key informant interviews, and other field-based efforts.
- An essential aspect of the proposed work will be research translation of the resulting water availability data and analysis via products (e.g., water budgets, forecasting models) that are readily accessible in terms of language, formats, and platforms that facilitate dissemination of results to broad audiences – from local to transnational levels – so as to encourage availability, understanding, and use.

3. APPLICATION INFORMATION AND PROCESS

This section provides specific information on the RFA including three appendices that support the document. The RFA process consists of two stages: Concept Note and Full Application (by invitation only).

3.1 Stage One: Concept Note

Applicants must clearly identify and justify the research question(s) that they are addressing within the identified themes in the technical sectors for the Concept Note. Given that the research question(s) and Concept Note are applicants intellectual property, LASER PULSE is asking applicants to “opt-out” if they do not want their Concept Note to be shared with LASER PULSE and USAID for research purposes and other opportunities.

3.1.1 Submission Instructions

Researchers interested in applying for an award in response to this RFA are encouraged to submit a Concept Note via [this link](#) (or go to <https://stemedhub.org/groups/laserpulse/funding/rfa-eastafrika>) on the LASER PULSE website. If the applicant is unable to access the website, please send your Concept Note and all associated documentation to this email, applicationsubmit@laserpulse.org. The deadline for Concept Note submission is 15 November 2019 at 2:00 pm GMT.

Late Concept Notes will not be reviewed. Additions or modifications will not be accepted after the submission date. LASER PULSE is not responsible for late or incomplete submissions.

3.1.2 Format

Concept Notes are limited to three (3) typed pages of core content. This limit excludes the cover page and supplemental materials (e.g., workplan, budget, references). Content details are provided in a Concept Note summary table at the end of this section (Section 3.1.9). The Concept Note summary must include the research question being addressed.

Applications must be in English, with narrative portions prepared using Times New Roman font, size 11, or similar typeset in single line spacing in the [provided template](#) (or go to the link to download <https://stemedhub.org/groups/laserpulse/File:/uploads/ConceptNoteTemplate.pdf>). The template for the budget (Section 3.1.10), workplan (Sections 3.1.9), and translation partner Letter of Intent (Section 3.1.3) are provided below. Concept Notes exceeding the 3-page core limit will not be evaluated.

3.1.3 Eligibility and Leadership

Only academic researchers based at [Higher Education Institutions](#), HEIs (see definition of HEI in [Appendix 3](#)) in [USAID Interest Countries](#) (or go to <https://www.usaid.gov/where-we-work>) and the United States are eligible to submit a Concept Note. Lead researchers (PI) from institutions outside of East Africa **must** partner with a researcher in the region (East Africa). Preference will be given to lead researchers from HEIs in the East Africa region. All researchers **must** be registered in the LASER PULSE Network. Please [click here](#) (or go to <https://stemedhub.org/groups/laserpulse/connect>) to register in the LASER PULSE Network.

Researchers **must** collaborate with a research translation partner/development practitioner (e.g., a non-governmental organization (NGO), civil society, private sector actor, or a local government entity). The lead researcher coordinating the research team and submitting the Concept Note will be considered the Principal Investigator (PI). Other researchers and research translation experts representing partner institutions, other than the PI's institution, may be considered as Co-PIs on a research team. For the purposes of this RFA, a Co-Principal Investigator (Co-PI) is defined as a key member of the research team (who is not the PI) that also serves as the point of contact for their institution. An institution having more than one team member will specify their designated Co-PI. Co-PI(s) and research translation partner(s) are not geographically restricted but must demonstrate their experience in and/or knowledge of the East Africa region.

The Principal Investigator (PI) is required to provide a Letter of Intent in their response to this RFA from the research translation partner describing past collaboration experience, if any, and interest for partnership on the [provided template](#). The letter must be signed by an authorized official from the organization.

3.1.4 On-line Training Requirement

LASER PULSE provides on-line training modules on research translation and gender inclusion into research. These training modules are part of technical assistance tailored to provide guidance and information for effective application that aligns with the RFA requirements.

The PI must complete two LASER PULSE on-line trainings (gender and research translation), which can be accessed at [this link](#) (or go to <https://stemedhub.org/groups/laserpulse/courses>) (see details in section 3.2.3) prior to submitting the Concept Note.

If a Concept Note is selected to advance to Full Application stage, every member of the research team will be required to complete the online LASER PULSE training. Researchers will receive a certificate of completion via email for each training module.

3.1.5 Strategy for Gender Inclusion

Prior to developing the Concept Note, please review the gender analysis guidelines in [Appendix 2](#). Concept Notes should clearly reflect that the research team is aware of the gender considerations that are relevant for the sectoral focus, and specifically those that have shaped the proposed research study.

3.1.6 Strategy for Research Translation

Concept Notes must provide a concise summary of how the research team will translate the research findings into products, practices, and/or policy changes. Translated products may include, but are not limited to: policy briefs, information briefs, guidebooks, trainings, multimedia products, and technical manuals (which could include text, audio, images, animations, video, and interactive content).

The summary shall include brief explanations on: 1) the collaborative process by which the researcher(s) and practitioner(s) will work together; 2) the intended research translation product to be developed; and 3) a plan for its dissemination for wider application. The role of partners in implementing this practice or policy change strategy should be explicitly defined.

3.1.7 RFA Question Period and Informational Webinar

For this RFA, prospective applicants are encouraged to thoroughly review the [frequently asked questions](#) (FAQs) document before submitting an application. This document is provided as part of the RFA package.

Additionally, LASER PULSE will allow two weeks for prospective applicants to submit any questions concerning the RFA. Questions should be sent to Dr. Jane Okwako at jokwako@purdue.edu. Questions should be received no later than 11, October 2019 at 2:00 pm GMT.

LASER PULSE will organize two webinars on 17 October and 18 October 2019 in different time zones to address questions submitted by applicants. Specific details will be announced on the LASER PULSE website and other relevant avenues, at least one week prior to the webinar date. Notification of this event will also be sent to all members of the Network via e-mail. The purpose of the webinar is to discuss questions received (without attribution to the organization that sent the questions). The questions and answers (Q&A) will be posted on the LASER PULSE application website as an amendment to this RFA. Similarly, responses to questions received during the webinar will be transcribed and made available as part of the Q&A. Additionally, the webinar will be recorded and will be available on the LASER PULSE website.

3.1.8 Project Duration and Funding

LASER PULSE will fund 4 to 6 awards for a period of 12 to 24 months of research and translation. For this RFA we expect to award a total of \$1,000,000 in total funding across all awards.

3.1.9 Concept Note Summary Table

Section	Description
Concept Note checklist	Completed Concept Note checklist
Cover Page (<i>1 page maximum - does not count against the page limit</i>)	<ul style="list-style-type: none"> • Project Title • Lead Institution submitting the concept note • PI and collaborators: names, titles, addresses, email addresses, and phone numbers • Sector of Inquiry • Research focus country (where research will be conducted) • Project length (years, months) • Total budget requested (USD) • Contact information for authorized official from the Lead Institution • Contact information for the person to contact for application questions • Contact information for the person responsible for negotiating final contract

Project Summary (½ page)	<ul style="list-style-type: none"> Project summary (Include a clear statement of your Research Question(s))
Research Plan (2 pages)	<ul style="list-style-type: none"> Brief background/context, including a concise description of the state of research for issue(s) being addressed Research methods/approaches, incl. hypotheses and objectives Strategy for research translation (partnership, process, [research translation product], and a dissemination plan) Expected outputs, and potential for scaling
Proposed Project Team (½ page)	PI, Co-PIs, and other collaborators; roles and responsibilities
Workplan (1 page max. - does not count against the page limit)	Timeline of activities (e.g. Gantt chart) using provided workplan template
Preliminary budget (1 page max. - does not count against the page limit)	Budget summary table detailing major anticipated program expenses and stating the total requested from LASER PULSE as well as cost share. Budget is to be in US dollars (US\$).
Citations/references (do not count against the page limit)	
PI Qualifications (does not count against the page limit)	Resume of the PI (maximum 2 pages)
Letter of Support (does not count against the page limit)	Non-binding documentation of collaborators' intent, willingness, and ability to commit to conducting research together if the proposed team receives the award.

3.1.10 Budget Preparation for Concept Note

The project budget must be submitted using the LASER budget template in Excel with all formulas accessible and cells unlocked. Cost sharing is required at 10% of the total federal funds requested (see details in Section 3.2.10 item #7). For examples of allowable types of cost share, please review the Code for Federal Regulation [22 CFR 226.23](#) but could include costs such as office or laboratory space, salary, equipment access, or other costs. If Excel is not available please contact us at applicationsubmit@laserpulse.org. The link to the budget is at: [Concept Note Budget Template](#).

3.1.11 Evaluation of Concept Notes

For a detailed description of Concept Note evaluation please see Section 4 (Evaluation Criteria for Concept Notes and Full Applications) and specifically Section 4.3.

3.2 Stage Two: Full Application (Invitation only)

Only PIs of selected Concept Notes will be invited to submit a Full Application on behalf of the research team they established to develop the Concept Note. LASER PULSE currently anticipates requesting Full Applications from approximately 9 to 12 Concept Note submissions.

Full Applications (see Section 3.2.1 for format details) should be submitted via [this link](#) (or go to <https://stemedhub.org/groups/laserpulse/funding/rfa-eastafrica>) on the LASER PULSE website. If the applicant is unable to access the website, please send your application and all associated documentation to applicationsubmit@laserpulse.org.

The deadline for submission of Full Application is 17 January 2020 at 2:00 pm GMT. Late applications will not be reviewed. Any additions or modifications will not be accepted after the submission date. LASER PULSE is not responsible for late or incomplete submissions.

3.2.1 Format and Review Process

Full Applications have a limit of 12 typed pages of core content, excluding the cover page and supplemental materials (e.g., workplan, budget, references). Content details are provided in the Full Application summary table at the end of this section.

Full Applications must be in English, with narrative portions prepared in MS Word or Open Office format, using Times New Roman font, size 11, or similar typeset in single line spacing.

Applications exceeding the 12-page limit of core content will not be evaluated. There is no template for the Full Application, but all Full Applications must meet the specifications listed in the RFA.

Full Applications will be reviewed by the LASER PULSE Management team, USAID personnel, and selected external reviewers, who will be solicited worldwide and have relevant experience on the topical and geographic focal areas. Reviewers will score the applications based upon specifications listed later in the Evaluation Criteria section (Section 4). Successful applications are subject to final approval by USAID before notification of award.

3.2.2 Eligibility and Leadership

Only successful applicants from the Concept Note phase (approximately 9 to 12 applications anticipated), will receive the request to submit a Full Application. A request for a Full Application does not constitute a promise of funding.

All members of the proposed research team must be registered in the LASER PULSE Network. Please [click here](#) to register (or go to https://purdue.ca1.qualtrics.com/jfe/form/SV_8AhZcWIGps5kyjP).

Researchers *must* collaborate with a development practitioner (e.g., a non-governmental organization (NGO), civil society, the private sector, or a local government entity). The PI is required to provide a [Letter of Commitment](#) from the partner describing past collaboration experience (if any), role in the proposed research, and budget, if applicable. The letter must be signed by an authorized official from the institution.

3.2.3 On-line Training Requirement

LASER PULSE provides on-line training modules on research translation and gender inclusion into research. These trainings are part of the technical assistance available from LASER PULSE and tailored to provide guidance and information for effective applications that align with the RFA requirements.

Note: All members of the research team must have taken and passed the on-line training before submitting the Full Application, therefore, if there are any additional team members at

the Full Application phase, these new members also need to take the training before the Full Application is submitted. Please click [here](#) to take the on-line training (or go to <https://stemedhub.org/groups/laserpulse/courses>).

3.2.4 Strategy for Gender Inclusion

Please review the gender analysis guidelines in [Appendix 2](#). Full Applications should reflect that the research team is fully aware of the gender considerations building on the awareness described at the Concept Note stage. This elaboration must show how these considerations will influence research design, the development of tools, the research subject selection, the collection and analysis of data, and the proposed translation of the research.

3.2.5 Strategy for Research Translation

Applications must provide a concise summary of how the research team will translate the research findings into products, practices, and/or policy changes. Translated products may include, but are not limited to: policy briefs, information briefs, guidebooks, trainings, multimedia products, and technical manuals (as these include text, audio, images, animations, video and interactive content).

The summary shall include brief explanations on: 1) the collaborative process by which the researcher(s) and practitioner(s) will work together; 2) the intended research translation product to be developed; and 3) a plan for its dissemination for wider application. The responsibility of development practitioners in applying the translated research into a product, practice, or policy change strategy should be explicitly defined.

Specifically, a tangible product is a required output of research translation. This could be a tool/device, report or document, multimedia product, or IT platform. This product should contain a policy brief or recommendation that leads to changes in legal, constitutional, funding, accountability, feasibility, or implementation mechanisms or a practice recommendation, such as new agricultural production or processing methods, education curriculum, guidebooks, technical manuals, training modules, and planning tools.

3.2.6 Project Duration and Funding

LASER PULSE will fund 4-6 awards for a period of 12 to 24 months of research and translation. For this RFA we expect to award a total of \$1,000,000 in total funding across all awards. While award(s) are anticipated as a result of this notice of funding opportunity, LASER PULSE reserves the right to fund any or none of the applications submitted.

3.2.7 Research Output Reporting

Full Applications must include a brief narrative describing the expected outputs of the proposed award. The research team will identify the various outputs, including the translated research products identified in Section 3.2.5 above, and provide an associated timeline for delivery for each item. These items can be listed as bullet points within the text, with an estimated delivery date placed in parentheses after a given item's description. Note that traditional academic outputs such as journal articles, technical reports, posters, etc. should also be listed.

The PI of each successful applicant team that is awarded a grant will receive an Output Reporting Guidelines document describing procedures on curation and submission of award

information, research products, and research datasets. It will also contain a template for the research team to develop a brief data management plan that will be required as part of the post-award process. Once research efforts have commenced, output data compiled and reported by the PI shall consist of, but not be limited to: (1) the names and selected information of the PI and Co-PIs; (2) research products such as technical manuals, policy briefs, guidebooks, peer-reviewed publications, technical reports, and relevant datasets; and (3) presentations at convenings where translated research is disseminated to various practitioners. PIs will receive from LASER PULSE a Research Output Reporting Form (an online Qualtrics survey) to facilitate the submission required data and information for reporting.

3.2.8 Full Application Summary Table

Section	Description
Cover Page (<i>1 page maximum; does not count against the page limit</i>)	<ul style="list-style-type: none"> • Project title • Lead institution applying for the Award • PI, Co-PI(s): names, titles, addresses, email addresses, and phone numbers • Sector of inquiry • Country or list of countries where project will take place • Project length (years, months) • Total budget requested (USD) • Signature and contact information for authorized official from the lead institution • Contact information for lead PI • Contact information for the person responsible for negotiating the final contract
Project Summary (<i>1 page max.</i>)	<ul style="list-style-type: none"> • Abstract to describe project
Research Plan (<i>6 pages</i>)	<ul style="list-style-type: none"> • Brief background and context, including a concise description of the status of research and gaps for issue(s) being addressed • Justification for country focus • Research methods and approaches, including objectives and hypotheses • Strategy for research translation [partnership, process, research translation product(s), and a dissemination plan] • Integration of gender considerations into the research plan
Project Management (<i>1 page</i>)	Qualifications, roles and responsibilities of team members, including technical and administrative staff
WorkPlan (<i>1 page</i>)	Timeline for the entire project period by activity, indicating what, when, by whom and where, using the provided workplan template

Research Output Reporting (<i>1 page</i>)	<ul style="list-style-type: none"> • Link research activities to output/deliverables. • Describe proposed research outputs as progress markers (e.g. translated products covered journal articles and/or technical reports, white papers, and conference posters). • Brief description of output curation and management strategy.
Budget	Use Excel Full Application Budget Template (see template and details in Sections 3.2.9 and 3.2.10)
Budget Narrative	Detailed budget narrative that explains each cost
Appendices	
References	
PI Qualifications	Curriculum vitae (CV) of the PI (<i>maximum 2 pages each</i>)
Collaborator qualifications	Curriculum vitae (CV) of any Co-PIs (<i>maximum 2 pages each</i>)
Letter of Commitment	Signed letter(s) of commitment from each applicable sub-awardee for each research sub-award. If supporting partners (not the PI's institution) will be supporting the cost share total, this should be detailed in the Letter of Commitment (signed by authorized institutional representatives).

3.2.9 Budget Preparation for Full Application

The project budget must be submitted using the [LASER Budget Template](#) in Excel. If Excel is not available please contact us via email, applicationsubmit@laserpulse.org. Please follow the directions in the workbook when entering your budget numbers.

3.2.10 Budget and Cost Share Justification

The budget and cost share narratives should provide, in detail, the total costs for implementation of the program that your institution is proposing.

1. The budget must be submitted in Excel format using [provided template](#) with unlocked cells and all formulas available to enable LASER PULSE to check the formulas and calculations included. This must be completed for each applicable institution included in the application.
2. The following major line items with a budget narrative must be included. When available, each major line item must be supported by detailed breakdowns of each expected sub-expense under that line:
 - a. Personnel (positions and/or names, rates, etc.)
 - b. Fringe Benefits
 - c. Anticipated Travel (if trips are known, please provide details, if not yet known, then overall estimates and number of proposed trips would be helpful)

- d. Equipment and Supplies- LASER PULSE will not allow funding to the following categories/items:
 - i. Procurement of commodities listed below, but not limited to
 1. Agricultural commodities,
 2. Motor vehicles,
 3. Pharmaceuticals,
 4. Pesticides,
 5. Used equipment,
 6. U.S. Government-owned excess property, or
 7. Fertilizer
 - ii. Construction (e.g. alteration, or repair (including dredging and excavation) of buildings, structures, or other real property and includes, without limitation, improvements, renovation, alteration and refurbishment. The term includes, without limitation, roads, power plants, buildings, bridges, water treatment facilities, and vertical structures.
 - e. Other Direct Costs (see information in #5 below)
 - f. Indirect Costs
3. Further, please provide a breakdown of costs associated with the program for any identified partners.
 4. An estimate of the percentage of effort relative to their role must be included for all personnel. This estimates should be based on the number of full-time and part-time staff needed to successfully enable the applicant to complete the major technical needs.
 5. Please provide a breakdown of all anticipated other direct costs (i.e. the amount, type, and unit cost with as much detail as possible).
 6. Cost sharing is required at 10% of the total federal funds requested. The cost share must consist of non-US Government federally funded contributions that meet the criteria detailed in [22 CFR 226.23](#). Cost sharing may include, but is not limited to: 1) principal investigator/senior personnel effort; 2) in-kind contributions (such as office or laboratory space, access to equipment, etc.); 3) cash contributions; 4) indirect costs on principal investigator/senior personnel effort. Cost-sharing documentation from the contributing entity must be provided at the time of application submission (in most cases, this will be in the form of a letter signed by the authorized organizational representative). Within the budget narrative described above, please provide additional details outlining the cost-share expectations of the prime institution and any partner institution(s) (if applicable) with details, including dollar amounts and descriptions. The cost share (total 10%) can come from any of the partner organizations. It is the Applicant's responsibility to ensure that all necessary documentation is complete and received on time.
 7. Note: Purdue University may request additional detailed budget information following notification to an applicant that it is under consideration for an award. If necessary,



Purdue may conduct discussions to verify cost data, evaluate specific elements of costs, and examine data to determine the necessity, reasonableness and allocability of the costs reflected in the budget and their allowability pursuant to the applicable cost principles.

4. EVALUATION CRITERIA FOR CONCEPT NOTES AND FULL APPLICATIONS

LASER PULSE will conduct a peer review for both the Concept Notes and Full Applications based on the criteria outlined below. Applicants are highly encouraged to develop their Concept Notes and Full Applications with these criteria in mind.

Both Concept Notes and Full Applications will be rated based on the two criteria of Broader Impacts and Research Merit. In each criteria area, the application will be rated on a 5-level scale of “Excellent”, “Very Good”, “Good”, “Fair” and “Poor” according to how best it meets the evaluation criteria set forth. Based on the rating of the applications on both the research merit and broader impact criteria (with criteria in order to influence), the review panel will determine an overall ranking of the applications, and select the highest ranked applications for funding.

4.1 Research Merit

This criterion encompasses the potential to advance knowledge in the field, as well as the soundness of the methodology. The application will be judged on the following elements:

1. Is the technical plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? To what extent do the proposed activities appropriately build on existing, completed research or learning projects?
2. To what extent do the proposed activities explore creative, original, or potentially transformative concepts that will advance knowledge, understanding, and practice? To what extent do the proposed activities avoid duplication with on-going research or learning projects?
3. Are there adequate resources and capacities for the PI (at the prime institution and through partnering/collaborations) to carry out the proposed research activities? Are the qualifications of the individuals, and the institutional experience, appropriate for the proposed activities? Is the budget for the proposed work sufficient?

4.2 Broader Impacts

This criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired outcomes for LASER PULSE; and will be judged based on these questions:

1. If successful, to what extent does the project have the potential to provide significant impact with respect to the development challenge in East Africa?
2. What is the likelihood that the research findings are translated into practice, policy, or products in East Africa?
3. How well does the proposed research project identify relevant gender issues for the specific context and how has consideration of these contributed to the overall research design?

4.3 Concept Note Evaluation

LASER PULSE staff will conduct a preliminary screening of Concept Notes to ensure they are complete and conform to instructions and requirements.

The selected Concept Notes will be separated into three groups by technical sector and reviewed by a panel consisting of technical experts formed by LASER PULSE in consultation with



USAID. The Review Panel will evaluate the Concept Notes using the criteria outlined above. In consultation with USAID's Agreement Officer's Representative (AOR), LASER PULSE will make a final selection of successful Concept Notes to advance to the Full Application stage.

4.4 Full Application Evaluation

LASER PULSE anticipates requesting Full Applications from approximately 9 to 12 Concept Note submitters. A panel of technical experts formed by LASER-PULSE in consultation with USAID will evaluate the full applications based on the criteria outlined above. LASER PULSE, in consultation with USAID, will make final selection of successful applicants. USAID will provide final approval for the selected awards. While 4 to 6 awards are anticipated as a result of this request for applications, LASER PULSE reserves the right to fund any or none of the applications submitted.

5. APPENDICES

5.1 Appendix 1 – Comprehensive Success Factors (formerly Comprehensive Issue Analysis)

Developed at Purdue University, [Comprehensive Success Factors](#) (CSF) identifies key interrelated factors that define complex, multi-dimensional problems – such as those encountered in the field of global development – by applying a systems approach to delineate a set of conditions, termed “success factors”, which must be present in a given system (e.g., Basic Education sector) in order to enable large-scale impact. In addition to identifying priority technical areas, LASER PULSE employed CSF to frame participant input into the RFA design during the inaugural LASER PULSE [Research for Development](#) (R4D) conference, held in Uganda in May 2019.

The overall process is briefly summarized as follows: three priority technical areas (basic education, food security, water security) were chosen based upon the systematic review of 25 key documents (e.g., Country Development Cooperation Strategies, National Development Plans) and input from 19 development researchers and practitioners. Subsequently for each technical area, a multi-round automated search employing natural language processing was conducted using pattern recognition to organize and synthesize large amounts of qualitative information gleaned from 160,000 – 480,000 documents (depending upon the technical area) accessed from the internet. This yielded a “success factor tree” for each technical area, which is essentially a list of all conditions noted as required for the sector to function successfully. Prior to being presented to R4D conference participants, the trees required streamlining via further search and refinement (1,000 Google searches per tree, plus manual mining of approximately 1,500 on-line articles and 200 academic articles).

At the conference, participants (researchers and practitioners) reviewed the trees to identify priority areas for development research based upon missing success factors, or those currently not being addressed adequately, for which research could contribute to potential solutions. This was done in technical area based themed workshops comprised of 30 participants for Food Security, and 22 participants for each of Basic Education and Water Security; each technical area was further broken down into 4-6 people teams to facilitate roundtable discussions and help avoid “groupthink” at the plenary level. Once priorities were identified, tables were asked to: delineate a suite of success factors (tied to an identified priority) required for the system to function properly, highlight limiting constraints and information/knowledge gaps that can be addressed through research, and specify other considerations (e.g., key stakeholders) that would be necessary to develop an RFA on the topic.

Immediately following the conference, personnel from LASER (13 core staff, 14 affiliated persons), and USAID (4 persons) aggregated/synthesized the individual group priorities into one overarching draft RFA per development technical area. Upon return to the United States, LASER personnel further refined these areas in advance of presenting them for review by USAID and selected experts at Purdue. At least a dozen people from USAID, and several Purdue personnel, contributed comments and suggestions that LASER staff considered while generating the final versions of the three technical area sections of this RFA.

5.2 Appendix 2 – LASER PULSE Gender Analysis Considerations

Researchers responding to this RFA must consider the questions below when designing Concept Notes and Full Applications. *Please do not answer these questions as written in this Appendix. Instead, show in the research application (focus, tools, analysis, recommendations, and translation plan) that these questions have been considered to the extent possible and relevant.*

Note that gender does not mean women. Gender refers to socially constructed norms and concepts about masculinity and femininity. These norms cut across all other aspects of an individual, as relates to his or her race, class, religion, ethnicity, ability, and age. Research has shown that gender norms are remarkably resilient across cultures [40].

The LASER PULSE research grant application will require applicants to apply a ‘gendered lens’ to the research translation that they propose, so that LASER PULSE does not fund work that reinforces harmful gender norms, or fails to take advantage of opportunities to address gender norms to promote development and human rights goals.

Research Considerations¹

In formulating your proposal, please ensure that you have:

- 1) Discussed the relevant social inequalities and/or gender gaps.
- 2) Identified any direct and indirect problem impacts and how they vary by gender.
- 3) Described how these differential impacts inform the research project design.
- 4) Described the relevance of gender considerations to any human subjects research.
- 5) Reviewed literature relating to gender differences and implications of gender to the research field.
- 6) Show that sex and gender-differentiated data will be collected and analyzed throughout the research cycle, and included in the final publication and research translation products.
- 7) Demonstrate how differentiated outcomes and impacts on women and men are considered.
- 8) Ensure that all questionnaires, surveys, focus groups, etc. (when included) are also designed to unravel potentially relevant sex and/or gender differences in your data. Particularly,
 - a) Describe how translation products, including policy recommendations, physical products, or practices, provide sex or gender differentiated applications.
 - b) Describe how you will consider specific forums for disseminating your gender-related findings.

Resources for Gender Analysis

¹ Adapted from <https://www.genderportal.eu/projects/gender-eu-funded-research-toolkit-and-training>

- [USAID's Gender Equality and Female Empowerment Policy](#)
- [USAID Country Development and Cooperation Strategies \(CDCSs\)](#)
- [World Bank Gender Data Portal](#)
- <https://www.feedthefuture.gov/the-womens-empowerment-in-agriculture-index/>
- <http://genderstandards.org>

5.3 Appendix 3 – Glossary of Selected Key Words

Comprehensive Success Factors (CSF)

CSF is a systems approach used to identify various crucial constraints in any given technical area that must be addressed to achieve impact. It examines a mutually-exclusive, collectively-exhaustive set of pattern-derived issues tied to outcomes to identify the many underlying aspects of a system that must be addressed to overcome an observed challenge. This innovation science approach focuses on the multiple linkages between stakeholders, resources, and context needed to resolve a problem and so comprehensively sorts ‘symptoms’ from ‘causes’.

Collaboration

Willingness to work together in an open and supportive manner to advance the work of LASER PULSE to achieve its goals and objectives; applies to LASER PULSE staff in their interactions with USAID and research teams (e.g. HEI researchers, development actors) that are recipients of LASER-funded awards. Also applies to HEI researchers and development practitioners involved in their funded research.

Co-Principal Investigator (Co-PI)

Each research team receiving an award will be composed of a Principal Investigator (PI) affiliated with the prime recipient, as well as one or more Co-PI(s). LASER PULSE defines Co-PI as a key member of the research team (who is not the PI) that also serves as the point of contact for their institution. If there is more than one team member from a given institution, said institution will inform LASER PULSE who will be their designated Co-PI.

Development Practitioners

Individual persons engaged in the design, planning, and/or implementation of local, regional, national, or international development programs/projects. This definition refers to personnel of NGOs and community-based organizations; but it can also include individuals representing governments or the private sector in an implementation capacity (e.g., extension agents) as opposed to a funding capacity. Under certain circumstances (e.g., co-creation of research questions), donor staff may also fall under this definition.

Development Stakeholders

Any entity involved in international development funding, promotion, and/or implementation, as well as the intended beneficiaries (e.g. local communities and their citizens).

Food Hub

USDA defines a food hub as a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products [26-28].

Higher Education Institution

Based upon USAID documents, LASER PULSE defines a Higher Education Institution (HEI) as a tertiary education institution that provides educational opportunities that build on secondary education, providing learning activities in specialized fields. It aims at learning at a high level of complexity and specialization. This may include public or private universities, colleges, and training institutes.

Research Translation

An iterative co-design process among academics, practitioners, and other stakeholders in which research is adapted for use and intentionally applied to a development challenge.

Success Factor Tree

An output of the Comprehensive Success Factors methodology employed by LASER PULSE; it is an extensive outline of the key factors that are likely needed to achieve commonly desirable outcomes when addressing a grand challenge within a given development sector. The tree is organized in a logic format that incorporates a hierarchy (e.g., leaves, twigs, branches, trunk) that conveys issue relatedness and/or dependence in and across categories.

Translation Partners

In this RFA, LASER PULSE uses the term “Translation Partners” to refer to Development Practitioners (see definition above) that are, or are intended to be paired with researchers as part of a team submitting a Concept Note and Full Application (if invited to apply).

Water Security

LASER PULSE uses the definition of water security proposed by Grey and Sadoff (2007): “the reliable availability of an acceptable quantity and quality of water for health, livelihoods and production, coupled with an acceptable level of water-related risks.” [39]

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6.4 Appendices

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