Request for Statements of Interest
Funding Opportunity Announcement

Federal Awarding Agency:
U.S. Army Corps of Engineers,
Engineer Research and Development Center
2902 Newmark Dr
Champaign, IL 61822

Funding Opportunity No: W81EWF-22--SOI-0014

CFDA No: 12.630

Statutory Authority: 10 USC 2358

Program Title: Installations of the Future (Proof of Concept for Smart Sensors to Reduce Solid Waste)

Announcement Type: Initial announcement

Issue Date: 14 April 2022

Statement of Interest/Qualifications Due Date: 16 May 2022 @ 1300 central time

Full Application Package Due Date, if Invited: 13 June 2022 @ 1300 central time

Estimated Award Ceiling: $200,000.00

Estimated Total Program Funding (optional): $200,000.00

Expected Number of Awards: The Government expects to issue a single award from this announcement.

Section I: Funding Opportunity Description

Background:

Solid waste generated in the U. S. has nearly tripled since 1960, according to EPA data. Although recycling and composting are increasingly employed to keep waste from landfill, the U.S. still sends more to landfill each year and landfill space is limited. Source reduction is the most preferred method of waste management in the EPA's Waste Management Hierarchy. Source reduction is also the most preferred method of waste management for the military (Office of the Assistant Secretary of Defense. Memorandum. "Revision to the Department of Defense Integrated Solid Waste Management Metrics." United States Army Regulations, March 16, 2020.), but there is no standard method to measure source reduction (DoDI 4715.23). Currently, Installations must report diversion, a measure of waste that is not landfilled or incinerated divided by all waste generated On-Post. In other words, diversion is the percentage of actual waste generated that is reused, donated, recycled, composted, or sent to a waste-to-energy facility. Source reduction is a measure of the amount of reduced waste generation. Diversion is a metric that does not include any source reduction.

Smart sensors would allow for consistent data collection of current trends in solid waste generation and disposal. The sensors would show changes over time. Initial data could be used as baseline data to measure changes over time, quantifying future source reduction. Furthermore, visual feedback could be used to nudge the Post population to waste less.

Brief Description of Anticipated Work:

The government seeks research and technical support for smart sensor design and fabrication of smart sensors to track real-time weights in interior waste containers at two (2) military Installations. Support is also sought for statistical analyses of data results. Study design and study sites will be decided based upon input from selected Installations, ERDC-CERL, Sponsoring Agency, and CESU partners.

Details of primary tasks for Year 1 are as follows:

Primary Task 1: Smart Sensor Design and Fabrication

Sensors shall be able to collect real-time data on solid waste weight generation in interior waste containers and send that data to a sequestered data repository accessible to CERL researchers. Due to variability in container dimensions, sensors need a flexible design that can be tailored to each container. Sensors shall be fabricated by the awardee.

Primary Task 2: Sensor Installation

Sensors shall be placed in all interior waste containers at two (2) military Installations. At each Installation, sensors will be installed in interior waste containers at up to two (2) dining facilities, the common areas of up to two (2) office buildings, and the common areas of up to two (2) barracks buildings. Installation of sensors shall take place in summer 2022 at the selected Installations.

Primary Task 3: Data Collection

Data collection shall take place over a period of up to three (3) months, with ten (10) to twelve (12) weeks anticipated.

Primary Task 4: Statistical Analyses

Using standard statistical methods, data shall be analyzed.

Potential Continuation Phase (Year 2)

Continuation Task 1: Add Feedback Visualization to existing Smart Sensors

Feedback visualization will show waste generation in a legible way and encourage proper segregation of materials (e.g. refuse, recycling, compost).

Continuation Task 2: Data Collection

Data collection shall take place over a period of one (1) to three (3) months.

Continuation Task 3: Statistical Analyses

Data and analyses from the primary tasks shall be used as a baseline to compare against when analyzing

Public Benefit:
Solid waste includes food waste, plastics, and other materials that can contaminate the environment. Solid waste is a leading contributor to water pollution and can result in non-compliance with the Clean Water Act. Solid waste pollution directly impacts the health of our streams, lakes, and oceans and results in fish and wildlife decline. Solid waste contaminates our sources of drinking water, recreational waters, and can lead to significant impacts to the general public and industries. Having smart sensors would give public facing business and organizations real time information to mitigate the potential for solid waste to contaminate the environment. National and State Parks are one place where this has been a concern. During government and pandemic shutdowns, entire landscapes were decimated by overflowing dumpsters and trash cans, leading to significant pollution and wildlife impacts as a result. This has also been a result for when staffing is not disrupted, in areas that are remote or otherwise inaccessible. Smart sensors would allow staff to see which containers need attention without an in-person site visit. This would allow better protection of waterways in accordance with the Clean Water Act and better protection of wildlife resources in accordance with the Sikes Act. Smart Sensors also allow institutions to know where excess waste is generated in order to encourage waste mitigation efforts such as composting and recycling, lowering economic costs and benefiting the environment.

Section II: Award Information

Responses to this Request for Statements of Interest will be used to identify potential investigators for studies to be sponsored by the Engineer Research and Development Center to provide Smart Sensors and data analyses. The estimated level of funding for FY22 is approximately $100,000. Additional funds of $100,000/year for 1 additional year

may be available, providing the potential funding of $200,000 over 2 years to the successful Recipient/Awardee. Depending on findings in the early years of this effort, funding needs may increase above the anticipated $100,000/year in subsequent years of this project; however, total funding will not exceed $200,000 over the life of this cooperative agreement.

Government Involvement:

The Government will select appropriate locations for the smart sensors, provide the work site, and work collaboratively with the awardee on smart sensor design, installation, and data analyses.

Section III: Eligibility Information

1. Eligible Applicants – This opportunity is restricted to non-federal partners of the South Florida – Caribbean Cooperative Ecosystems Studies Unit (CESU) and the Pacific Northwest Cooperative Ecosystems Studies Unit (CESU).

2. Cost Sharing – This action will be 100% funded by USACE.

Section IV: Application and Submission Information – Two Phase Process

Phase I: Submission of a Statement of Interest/Qualifications.

1. Materials Requested for Statement of Interest/Qualifications:

    a. Please provide the following via e-mail attachment to: phoebe.v.fuller@usace.army.mil
    (Maximum length: 2 pages, single-spaced 12 pt. font).

        1. Name, Organization and Contact Information

        2. Brief Statement of Qualifications (including):

            - Biographical Sketch,
            - Relevant past projects and clients with brief descriptions of these projects,
            - Staff, faculty or students available to work on this project and their areas of expertise,
            - Any brief description of capabilities to successfully complete the project you may wish to add (e.g. equipment, laboratory facilities, greenhouse facilities, field facilities, etc.).

        Note: A proposed budget is NOT requested at this time.

The administrative point of contact is Specialist, phone number; phoebe.v.fuller@usace.army.mil

2. Statement of Interest/Qualifications shall be submitted NO LATER THAN 16 May 2022 @ 1300 central time.

Based on a review of the Statements of Interest received, an investigator or investigators will be invited to move to Phase II which is to prepare a full study proposal. Statements will be evaluated based on the investigator's specific experience and capabilities in areas related to the study requirements.

Phase II: Submission of a complete application package to include a full technical proposal including budget, if invited.

1. Address to Request Application Package

The complete funding opportunity announcement, application forms, and instructions are available for download at Grants.gov.

The administrative point of contact is Specialist, phone number; phoebe.v.fuller@usace.army.mil

2. Content and Form of Application Submission

All mandatory forms and any applicable optional forms must be completed in accordance with the instructions on the forms and the additional instructions below.

a. SF 424 R&R - Application for Federal Assistance
b. Full Technical Proposal – Discussion of the nature and scope of the research and technical approach. Additional information on prior work in this area, descriptions of available equipment, data and facilities, and resumes of personnel who will be participating in this effort should also be included.
c. Cost Proposal/Budget – Clear, concise, and accurate cost proposals reflect the offeror's financial plan for accomplishing the effort contained in the technical proposal. As part of its cost proposal, the offeror shall submit cost element breakdowns in sufficient detail so that a reasonableness determination can be made. The SF 424 Research & Related Budget Form can be used as a guide but is required if the sub-recipient uses it. The cost breakdown should include the following, if applicable:
    1. Direct Labor: Direct labor should be detailed by level of effort (i.e. numbers of hours, etc.) of each labor category and the applicable labor rate. The source of labor rates shall be identified

and verified. If rates are estimated, please provide the historical based used and clearly identify all escalation applied to derive the proposed rates.

2. Fringe Benefit Rates: The source of fringe benefit rate shall be identified and verified.
3. Travel: Travel costs must include a purpose and breakdown per trip to include destination, number of travelers, and duration.
4. Materials/Equipment: List all material/equipment items by type and kind with associated costs and advise if the costs are based on vendor quotes and/or engineering estimates; provide copies of vendor quotes and/or catalog pricing data.
5. Subrecipient costs: Submit all subrecipient proposals and analyses. Provide the method of selection used to determine the subrecipient.
6. Tuition: Provide details and verification for any tuition amounts proposed.
7. Indirect Costs: Currently the negotiated indirect rate for awards through the CESU is 17.5%.
8. Any other proposed costs: The source should be identified and verified.

3. Application package shall be submitted NO LATER THAN 13 June 2022 @ 1300 central time.

4. Submission Instructions

Applications may be submitted by e-mail, or Grants.gov. Choose ONE of the following submission methods:

a. E-mail:

Format all documents to print on Letter (8 ½ x 11") paper. E-mail proposal to phoebe.v.fuller@usace.army.mil

b. Grants.gov: https://www.grants.gov/:

Applicants are not required to submit proposals through Grants.gov. However, if applications are submitted via the internet, applicants are responsible for ensuring that their Grants.gov proposal submission is received in its entirety.

All applicants choosing to use Grants.gov to submit proposals must be registered and have and account with Grants.gov. It may take up to three weeks to complete Grants.gov registration. For more information

on registration, go to https://www.grants.gov/web/grants/applicants.html.

Section V: Application Review Information

1. **Peer or Scientific Review Criteria:** In accordance with DoDGARs 22.315(c), an impartial peer review will be conducted. Subject to funding availability, all proposals will be reviewed using the criteria listed below (technical and cost/price). All proposals will be evaluated under the following two criteria which are of descending importance.

   a. **Technical (items i. and ii. are of equal importance):**

      i. Technical merits of proposed R&D.

      ii. Potential relationship of proposed R&D to DoD missions.

   b. **Cost/Price:** Overall realism of the proposed costs will be evaluated.

2. **Review and Selection Process**

   a. **Categories:** Based on the Peer or Scientific Review, proposals will be categorized as Selectable or Not Selectable (see definitions below). The selection of the source for award will be based on the Peer or Scientific Review, as well as importance to agency programs and funding availability.

   i. **Selectable:** Proposals are recommended for acceptance if sufficient funding is available.

   ii. **Not Selectable:** Even if sufficient funding existed, the proposal should not be funded.

   Note: The Government reserves the right to award some, all, or none of proposals. When the Government elects to award only a part of a proposal, the selected part may be categorized as Selectable, though the proposal as a whole may not merit such a categorization.

   b. No other criteria will be used.

   c. Prior to award of a potentially successful offer, the Grants Officer will make a determination regarding price reasonableness.

Section VI: Award Administration Information

1. Award Notices

Written notice of award will be given in conjunction with issuance of a cooperative agreement signed by a Grants Officer. The cooperative agreement will contain the effective date of the agreement, the period of performance, funding information, and all terms and conditions. The recipient is required to sign and return the document before work under the agreement commences. **Work described in this announcement SHALL NOT begin without prior authorization from a Grants Officer.**

2. Administrative Requirements
   The cooperative agreement issued as a result of this announcement is subject to the administrative requirements in 2 CFR Subtitle A; 2 CFR Subtitle B, Ch. XI, Part 1103; and 32 CFR Subchapter C, except Parts 32 and 33.

3. Reporting
   See 2 CFR Sections 200.327 for financial reporting requirements,

   200.328 for performance reporting requirements, and 200.329 for real property reporting requirements.

Section VII: Agency Contact

Phoebe Fuller, Grants Specialist

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