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## Request for Water & Food Related Proposals

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### 1. About J-WAFS and this request for proposals

Population growth, climate change, urbanization, and development are bringing unprecedented challenges to meeting the world's diverse needs for water and food. The Abdul Latif Jameel World Water and Food Security Lab, J-WAFS, was established in 2014 as an Institute-wide effort to bring MIT's unique strengths to bear on these problems. J-WAFS is seeking proposals from MIT PIs for innovative research that has the potential to have significant impact on issues of water and food supply. Proposals are sought from all parts of MIT.

MIT today has a diverse portfolio of research relevant to water and food, spanning fundamental science, engineering and technology, supply chains, big data, business models, development efforts, economics, urban design and infrastructure, and more. J-WAFS invites proposals through which these efforts can effect meaningful, perhaps even measurable, changes on the world at large.

Water and food issues are vast, and solutions for any aspect of them generally require considerations that go beyond one discipline. Further, problems of water and food take different forms in different parts of the world, and solutions must often be crafted on a regional basis. Thus, interdisciplinary proposals and proposals with international reach are particularly welcome.

### 2. General information for proposers

J-WAFS anticipates funding six to eight projects with grants of up to \$100,000 per year for one to two years, free of overhead charges. We are open to all eligible proposals that further the overall J-WAFS mission.

#### 2.1. Research Speed Dating

As part of this RFP process, J-WAFS will hold a **"Research Speed Dating" event on Thursday, December 15<sup>th</sup>**, specific timing to be announced. The purpose of this session is to introduce prospective applicants to other water- and food-related research efforts around the Institute so as to broaden general knowledge of water- and food-related research at MIT and facilitate potential new collaborations, particularly collaborations across disciplines. Attendance is not required for proposal submission but we encourage participation.

Each attendee will make a very brief presentation (3-4 minutes, with 1-2 minutes for Q&A) describing his or her broad research interests and activities, and possibly outlining an aspect of water and food in which he or she might like to engage with other PIs. Time limits will be strict in order to accommodate all presenters. Coffee

breaks and lunch will allow for informal conversation. Participants are strongly encouraged to stay for the entire session.

*The Research Speed Dating event is intended for eligible applicants (see Section 4) only.* The event is not open to a general audience, to students, or to researchers from other institutions. All attendees should participate in a presentation. If you have a schedule conflict and would like to send a designee, please write to rrobins@mit.edu.

**Please sign up by sending an email by Monday, December 12th to rrobins@mit.edu,** including a very brief (e.g. a phrase or single sentence) description of your research interest to be included in the agenda distributed to participants.

### 3. Timing

**Thursday, December 15:** J-WAFS “Research Speed Dating” for MIT PIs (sign up required; details above)

**January 2017:** J-WAFS Fluid Review website open for submissions

**5 pm, Tuesday, January 17:** Proposals due

**Early April:** Announcement of funded projects

**Friday, September 1:** Start of funded projects

### 4. Eligibility

*The Principal Investigator submitting the proposal may be an MIT professor or a member of the research staff with principal investigator privileges (generally senior or principal research scientist, or senior or principal engineer).* The lead PI will have full responsibility for conducting and reporting the research supported by the grant. Applicants may submit up to two proposals.

If you are an eligible PI (as above) and did not receive this RFP directly from J-WAFS, please send your contact information to rrobins@mit.edu to be included on the distribution list for future RFPs.

### 5. Funding Criteria

Research proposals in all areas related to water and food security are eligible for funding. While this RFP has no designated priority areas, areas of interest are detailed in the next section. Proposals should be for new, innovative projects that are sufficiently distinct from prior research. Requests for funding to supplement existing sponsored research, or for course or curriculum development, will not be considered.

Funding is available up to a maximum of \$100,000 per year for two years, overhead free. We are looking for innovative early-stage projects that can benefit from one to two years of funding in order to (1) establish proof of concept or gather critical data that will position the project to qualify for other future sources of funding, or (2) have a clear and significant outcome without subsequent awards. Projects that are intended to have real-world impact are favored. Multidisciplinary projects and projects that have well defined regional or international reach

are also invited. New collaborations including team members in different schools of MIT are encouraged, as are proposals from junior faculty. Relevant interactions with industry are also encouraged.

Proposals that are primarily for equipment purchase will not be considered; equipment should be limited to no more than 20% of the total budget. Equipment purchases are expected to directly support the proposed research and should occur early in the project.

## 6. Areas of Interest

In the current cycle, J-WAFS is requesting proposals in the following areas, although proposals in other areas related to water and food will also be accepted. *Proposals for the same or similar work submitted this winter to the MIT Tata Center or to the MIT Environmental Solutions Initiative may be considered for joint funding.*

### 1. Water

- **Technologies:** particularly purification, disinfection, wastewater reuse, and desalination, including energy efficiency, environmental protection, and novel processes, in municipal, industrial, and agriculture sectors.
- **Sensors and data analytics:** sensors for contaminants in recycled water, sensors for contaminants in water generally, sensors for the developing world, and data analytics for water distribution and networks.
- **“Contaminants of Emerging Concern” (CECs)** in water.
- **Solutions for rural communities’ water needs:** globally, but also for Native American and other impoverished communities in the US.
- **Pricing strategies** and other economic and policy incentives to reduce water consumption and promote overall water conservation  
→ *Please note that for this area, J-WAFS is partnering with the Abdul Latif Jameel Poverty Action Lab (J-PAL) at MIT and is interested in proposals for projects with the potential for joint funding. J-PAL is a leader in impact evaluation, with a global network of researchers who use randomized evaluations to assess the effectiveness of programs and policies that aim to reduce poverty. Please refer to the supplemental information in the addendum to this request for proposals for more detail.*

### 2. Food Science and Safety

- **Food Science/Biotechnology:** biotechnology for improved nutrition and crop productivity
- **Food Safety:** science, technologies, or policy to improve food safety and contaminant detection

### 3. Agriculture/Crop Productivity

- **Soil quality and fertilization,** including soil sampling and monitoring, soil chemistry, precision agriculture; improvements or alternatives for fertilizer and fertilizer application; reduction of environmental impacts of fertilizer and pesticide use
- **Technological and business innovations for smallholder farmers**

Please note: proposals that indicate policy guidance as a primary outcome should identify decision makers who are able to act upon it and include a well-defined timeline and process by which this guidance will be conveyed to them.

## 7. Proposal process

### 7.1. Application Instructions

**Proposals should be submitted on line through fluidreview.com.** The URL is <http://jwafs.fluidreview.com>, and should be active by mid December. Applications must be completed by the deadline, 5 pm on Tuesday, January 17. Explicit directions and forms will be provided on the website. OSP review is not required.

### 7.2. Submission checklist

- Cover sheet (webform)
- Single PDF with file name "PlastnameJWAFS2016.pdf", containing:
  - Reviewer abstract (using template)
  - Proposal narrative
- Budget (Excel document using template provided – NOT pdf)

### 7.3. Abstract (public, reviewer)

Please use the general format provided in the reviewer abstract template, which includes a "Confidential—Do not distribute" watermark. Abstracts should be limited to one page in length, and should follow the general format provided in the template. Successful applicants will have an opportunity to replace the reviewer abstract with a public version before it is made available on the J-WAFS website.

### 7.4. Proposal narrative

The narrative should be single spaced, 11 point font with 1" margins and numbered pages, and it should include the sections described below. Sections 1-5 should together be no longer than five pages exclusive of graphs and tables.

1. **Statement of purpose** – explicitly address background/problem being addressed; relevance to water and/or food and significance of the proposed work; prior work and relevant preliminary results; innovative aspects of proposed work; objectives including expected follow-on research.
2. **Technical section** – describe research approach/methods; tasks and research timeline, including milestones or deliverables; and metrics for evaluating success. Proposals that indicate policy guidance as a primary outcome should identify decision makers who are able to act upon it, and include a well-defined timeline and process by which this guidance will be conveyed to them.
3. **Post-funding potential** – describe potential future research and funding, technology deployment, scale-up, etc., that will be enabled by the work supported by J-WAFS. Please be as specific as possible when discussing potential future funding sources. Alternatively, if the funded work will have an impact without subsequent awards, please clearly describe this. If you checked the box indicating interest in J-PAL collaboration, please describe the status of these plans.
4. **Research team** – identify by name the members of the research team with a brief summary of research responsibilities and/or roles. Include names of RAs and post-docs if known. If applicable, describe any partnerships external to MIT (and include letters of support in the appendix).
5. **Cost narrative** – brief explanation of each line item in the budget.

## 6. Appendices –

- A. Technical appendix (graphs and tables);
- B. References;
- C. CVs (no more than two pages each, for PI and other senior personnel);
- D. List of acronyms if needed;
- E. [NSF Form 1239](#) showing a complete list of existing and pending support. *Pending support must include any other MIT programs that you have submitted or plan to submit a proposal to, such as MITEI, Tata, etc.*
- F. Letters supporting collaborative efforts if appropriate.

## 7.5. Budget

Funding is available up to a maximum of \$100,000 per year for two years. There is no F&A or fund fee. Graduate student RAs supported on the grant will receive the normal 50% Institute tuition match. Other personnel should have appropriate salary, EB, and vacation covered. PI salaries should be limited to a maximum one month of summer salary for faculty. Equipment is limited to 20% of total budget. Other acceptable budget items include staff researchers or post-docs, technicians, M&S and other research expenses, and justifiable travel for MIT personnel or for outside collaborators. *No sub-awards or pass-throughs are allowed*; the funding is intended to support research at MIT.

Budgets should be submitted as an Excel document using the J-WAFS budget template. The J-WAFS budget template along with instructions will be available at <http://jwafs.fluidreview.com>.

## 8. Evaluation Process

The review process will evaluate and consider the following:

- Relevance to J-WAFS mission
- Technical merit and potential impact of research
- Innovativeness and differentiation from currently funded work
- Qualifications of research team for the work proposed
- Translational potential for future research funding or technology development/deployment

Following review, J-WAFS may request additional information or proposal modifications before final funding decisions are made. Requested modifications may include adjustments to the budget, schedule, tasks, or deliverables. Communications about any requested revisions will be directed to the lead PI.

## 9. If Your Project is Funded

### 9.1. Reporting

J-WAFS will assess the success of funded projects in meeting the stated objectives. Each funded project will be required to submit a report at the end of each year of funding that details project activities and research outcomes. Reports should also identify students supported by the grant and dissertations, papers, or presentations arising from the work supported by the grant. The executive summary section of the report will be

made public. Reporting formats and specific contents will be provided approximately two months before their due date.

### **9.2. Publications/Statement of support**

All publications arising from work supported by J-WAFS funding should acknowledge support from “The Abdul Latif Jameel World Water and Food Security Lab at the Massachusetts Institute of Technology.” Publications arising from the funded work should be sent to Renee Robins, executive director, J-WAFS (rrobins@mit.edu).

### **9.3. Biannual J-WAFS Research Workshop**

Twice-yearly J-WAFS workshops will be held, at which funded PIs will present to one another on their research aims and progress. These workshops will not be open to the public in order to protect prepublication research results.

### **9.4. Financial auditing**

All funded projects will be subject to financial auditing, including requests for documentation of salaries, and any expense listed on the account. Salaries for personnel or stipends for students on the project should be charged over the course of the project and not all at once at the end. No equipment expenditures will be allowed during the final six months of the funding period.

### **9.5. Changes to ongoing projects**

Any change in the budget, work plan, deliverables, personnel, and requests for no-cost extensions should be directed to Renee Robins, rrobins@mit.edu for consideration. In general, however, projects will be expected to conclude on scope, on time, and on budget. Unapproved cost overruns will be the responsibility of the PI(s) to cover. Unexpended funds will be returned to J-WAFS unless a no-cost extension is approved.

## **10. J-WAFS Solutions**

The J-WAFS Solutions program, managed through the MIT Deshpande Center for Technological Innovation, aims to help MIT faculty and students commercialize breakthrough technologies and inventions by transforming promising ideas at MIT into innovative products and cutting-edge spinout companies. J-WAFS Solutions has the mission of moving water and food technologies from labs at MIT into the commercial world, where they will improve the productivity, accessibility, and sustainability of the world's water and food systems.

The J-WAFS Solutions request for proposals will be issued around late winter. If your project involves technology near the commercialization stage, please consider whether a Solutions grant may be more appropriate than seed funding. Inquiries may be directed as indicated below.

## **11. Inquiries**

*Please direct questions to:*

Renee Robins, Executive Director, J-WAFS

x4-6726; [rrobins@mit.edu](mailto:rrobins@mit.edu)

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## Addendum: Collaboration with J-PAL on an Evaluation of Pricing and/or Behavioral Interventions for Water Conservation

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J-WAFS has identified pricing and behavioral interventions aimed at water conservation as an area of interest in the 2017 Request for Proposals. Recognizing the importance of piloting and measuring the impact of potential solutions before they are widely scaled up, applicants interested in pursuing research in this area are encouraged to explore a joint proposal between J-WAFS and the Abdul Latif Jameel Poverty Action Lab ([J-PAL](#)) at MIT to incorporate an impact evaluation in their proposed work. Funding for the evaluation component of the project may be available from one of J-PAL's many research initiatives if a J-WAFS applicant partners with a J-PAL-affiliated researcher to conduct it. This addendum provides basic information about this process and about J-PAL and the many services they are happy to provide J-WAFS applicants interested in exploring collaboration on an impact evaluation.

### 1. About J-PAL

Founded in the MIT Economics Department in 2003, J-PAL is a network of over [140 economists](#) based at top universities (including 10 MIT professors) who specialize in measuring the impact of programs and policies using randomized controlled trials. J-PAL partners directly with governments, NGOs, and businesses to conduct evaluations in both developed and developing countries. Examples of past work by J-PAL affiliates in water and food include evaluations of:

- An innovative financing scheme for a [rainwater harvesting technology](#) in Kenya that improved dairy farmers' milk production, reduced time spent collecting water, and increased girls' school enrollment. *(Research by Tavneet Suri, Michael Kremer, Joost De Laat, and William Jack)*
- A [flood-tolerant rice variety](#) in India that increased farmers' yields in both flood and non-flood years. The use of this rice variety is currently being scaled up in flood-prone parts of India. *(Research by Alain de Janvry, Elisabeth Sadoulet, Manzoor Dar, and Kyle Emerick)*

### 2. Partnering with J-PAL to develop an evaluation

A collaboration between J-WAFS and J-PAL could support the development, evaluation, and potentially the scale-up of a water-conserving technology, management system, or policy. If you are interested in being jointly supported by J-WAFS and J-PAL in order to conduct research that will include an evaluation of your project, please check the box indicating this interest on your proposal cover sheet. In order to support the development of an evaluation component of a project, J-PAL can provide the following assistance to researchers applying to the J-WAFS 2017 seed fund RFP as they prepare their proposals:

- J-PAL staff can help applicants determine if and how a randomized evaluation could potentially be integrated into the proposed research. This conversation can happen as early as the proposal development stage, through the submission of the proposal.
- J-PAL representatives will present on partnering with J-PAL at the **J-WAFS Speed Research Dating Event** on December 15, 2016 at MIT, and participate in any subsequent evaluation and partnership discussions.
- If a randomized evaluation is feasible and desirable, J-PAL staff can connect J-WAFS applicants to J-PAL-affiliated researchers who may be interested in evaluating their technology or policy.
- If a J-WAFS applicant partners with a J-PAL-affiliated researcher, funding for the randomized evaluation component of his/her technology or policy may be available from one of J-PAL's many research initiatives that fund randomized evaluations through competitive RFPs. Several initiatives could be a good fit for a project on water conservation, including J-PAL's Agricultural Technology Adoption Initiative ([ATAI](#)), Urban Services Initiative ([USI](#)), and Government Partnership Initiative ([GPI](#)).
- J-PAL's existing ties to governments, NGOs, and other implementers through their network of researchers and six regional offices could help J-WAFS applicants identify implementing partners for their technology or policy, although affiliates and offices are also typically open to conducting an evaluation with an existing partner of a J-WAFS applicant.

For questions or if you are interested in learning more about J-PAL evaluations before submitting the proposal, please contact **Rebecca Toole** ([rtoole@povertyactionlab.org](mailto:rtoole@povertyactionlab.org)) from J-PAL's Environment & Energy sector team.

### 3. Review and funding of J-WAFS/J-PAL collaboration proposals

J-WAFS and J-PAL have distinct sources of funding, proposal processes, and review committees. In the interest of stimulating and supporting collaborations that will be jointly funded, the programs will work to align the timing of their respective review processes and decisions to the extent possible. Proposals to each program should be developed making use of the support described above, and submitted jointly to the two program offices according to each program's instructions.

For the purpose of this call for proposals, please submit budgets for J-WAFS funding, with an indication of the amount to be sought for funding from J-PAL and corresponding work to be proposed. While the J-WAFS proposals should be submitted to J-WAFS by the due date for this call for proposals, the review timeline may be extended in order to accommodate J-PAL review of the evaluation component. Proposals in this area will only be funded if they are approved by both programs.