
J-WAFS Water and Food Seed Grants 2022 Request for Proposals

1. About J-WAFS and this request for proposals

Population growth, climate change, urbanization, and development are bringing unprecedented challenges to the world's diverse needs for water and food. The Abdul Latif Jameel Water and Food Systems 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 new, innovative research that has the potential to have significant impact on issues and challenges related to the world's water and food supply. Proposals are sought from all parts of MIT.

J-WAFS funds 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, climate interactions and impact, urban design and infrastructure, and more—through seed grants and other funding mechanisms. We invite proposals for projects that can effect meaningful, perhaps even measurable, improvements to humankind's need for sustainable supplies of water and food.

Water and food issues are vast, and responses to many specific challenges require considerations that go beyond a single discipline. Further, problems of water and food take different forms in different parts of the world, and many solutions call for a regional focus addressing specific contextual considerations, whether geographic, economic, social, or other. Thus, interdisciplinary proposals and proposals with either an international reach or a specific geographic focus are also welcome.

2. General information for proposers

J-WAFS anticipates funding roughly eight seed grants of up to \$75,000 per year for one to two years, free of overhead charges. We are open to eligible proposals that further J-WAFS' mission, from all MIT schools and departments.

3. Timing

November 10, 2021: J-WAFS RFP announced

November 16, 2021: J-WAFS WizeHive online submission portal open for submissions

5 pm, Tuesday, January 18, 2022: Proposals due

Spring, 2022: Announcement of funded projects

September 1, 2022: Start of funded projects

4. Funding and eligibility

The Principal Investigator submitting the proposal must meet one of these two eligibility criteria:

- MIT professor
- Member of the MIT 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 on the research supported by the grant. Applicants may participate in up to two proposals.

Proposals in all areas related to water and food security, safety, and sustainability are eligible for funding.

While this RFP has no designated priority areas, areas of high interest are detailed in the next section.

Proposals should be for new, innovative projects that are distinct from ongoing or prior research. Requests for funding to supplement existing research, or for course or curriculum development, will not be considered.

Seed grant funding is available up to a maximum of \$75,000 per year for two years. 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. 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.

5. Areas of interest

J-WAFS is interested in supporting all areas related to the humankind's water and food systems. The topics detailed below are examples of some of the most significant water and food challenges that seem to align with MIT strengths, and these examples provide an indication of the variety of research topics that J-WAFS is interested in funding. However, proposals in other areas related to water and food not explicitly detailed below will also be considered. We are open to research relevant to both developed and developing countries.

1. Water

- **Technologies for advanced water treatment and delivery systems:** 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, low-cost sensors for the developing world, and data analytics for water distribution networks
- **“Contaminants of Emerging Concern” (CECs):** in drinking water, including PFAS
- **Solutions for rural communities’ water needs:** globally, but especially for Native American and other underserved communities in the U.S.
- **Economic and policy incentives:** to reduce water consumption and promote overall water conservation

2. Food Science and Safety

- **Food science/biotechnology:** biotechnology for improved nutrition, climate resilience, crop productivity, reduction in fertilizer demand
- **Food safety:** science, technologies, or policy to improve food safety and contaminant detection
- **Food demand:** strategies to shift food demand to climate-protective diets

3. Food Waste

- **Technologies:** particularly to improve food storage, transport, preservation, and loss reduction, as well as technologies to improve market access for small and medium-scale producers in developing countries
- **Business innovations and processes:** to support waste reduction across the supply chain, including for smallholder farmers, food processors, distributors, and consumers

4. Agriculture/Crop Productivity

- **Climate/agriculture nexus:** Characterizing greenhouse gas emissions from agriculture; ways to mitigate the agriculture sector’s impact on climate; climate resilience of our food systems including science, technologies, policies, demand-side management, or locally adaptive practices for agriculture that address the need for climate change adaptation and resilience, including genetic engineering and other biotechnologies
- **Soil quality:** including soil sampling and monitoring, soil chemistry, nitrogen cycling, and solutions to restore and build agricultural soil
- **Fertilization:** improvements or alternatives for fertilizer and fertilizer application; reduction of environmental impacts of fertilizer and pesticide use
- **Technological and business innovations:** especially for smallholder farmers in the US and internationally

- **Sensors and data analytics:** sensors for soil health, data analytics to improve agricultural productivity or reduce greenhouse gas emissions from farming activities; precision agriculture
- **Solutions for rural communities' food needs:** globally, but especially for Native American and other underserved communities in the U.S.

5. Other challenges or strategies generally related to water supply and water quality, agriculture, food supply, and food safety

Please note: Proposals that indicate policy guidance as a primary outcome should identify specific decision makers who are able to act upon it and should include a well-defined timeline and process by which this guidance will be discussed with them. Policy-related proposals will be strengthened by specific evidence that policy makers need answers to the questions addressed by the research (Also see below for info on the MIT Policy Lab at the Center for International Studies.)

6. J-WAFS Solutions

The J-WAFS Solutions program 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 in winter 2022. *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 in section #11.*

7. Additional related resource and funding opportunities:

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 details.

8. Proposal process

8.1. Application instructions

Proposals should be submitted online through J-WAFS' web-based proposal portal,

<https://jwafs.mit.edu/seedgrantportal>. The portal will be open for submissions as of December 1, 2021.

Applications must be complete and submitted by the deadline, 5 pm, Tuesday, January 18, 2022.

Instructions for the proposal are below, and templates and forms can be obtained from the portal. RAS review is not required and the "five-day rule" does not apply.

8.2. Submission checklist

1. Proposal Information Form (webform on application site)
2. Excel budget file, with file name "PILastName-JWAFS2022budget.xlsx" (using template provided)
3. Single PDF with file name "PILastName-JWAFS2022.pdf," containing:
 - a. Abstract (using template)
 - b. Proposal narrative (see below)
 - c. Formatted budget (generated by "Print to PDF" from Excel template)
 - d. Appendices

8.3. Budget

Seed grants are available up to a maximum of \$75,000 per year for two years. There is no F&A or fund fee. Graduate student Ras supported on the grant will receive the new 53% Institute tuition match. Other personnel should have appropriate salary, EB, and vacation accrual covered. Faculty summer salary should be limited to one summer month per PI over the entire grant period, and total faculty salary (for all PIs and including EB) may not exceed 15% of the award. Total equipment costs are 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*; this funding is intended to support MIT research.¹

Budgets should be submitted as an Excel document using the J-WAFS budget template. In addition, a formatted version should be included in the single PDF proposal narrative. Note that peer reviewers will see the formatted version but not the Excel budget. (See further instructions below.)

The J-WAFS budget template along with instructions will be available via the WizeHive web-based application portal. Budgets do not need to be submitted in KC.

¹ Special consideration may be given to Whitehead Institute research for PIs who also hold appointments at MIT. Please contact J-WAFS to discuss funding, OH, and IP issues before applying.

8.4. Abstract

Please use the 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 this abstract is made available on the J-WAFS website.

8.5. 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.* Longer narratives may be returned to the PI for revision.

1. **Statement of purpose** – This section should 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** – This section must include (1) research approach/methods; (2) tasks and research timeline, including milestones or deliverables; and (3) 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** – Your proposal should 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, please describe the potential for concurrent or follow-on work through those collaborations. (If you have submitted or plan to submit a proposal to other MIT funding sources as indicated in the WizeHive submission form, please include this on your CPS form.)
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. (Note as stated above under “Budget” that no sub-awards are allowed and the seed grant only covers MIT effort – see also footnote in the budget section.)
5. **Cost narrative** – brief explanation of each line item in the budget.

8.6. Formatted budget

This can be generated from the budget template using print-to-pdf. The template is pre-formatted to print just the yearly budget columns. If you are using the multi-PI template, please include the one-page PDF for each tab.

8.7. Appendices

- A. Technical appendix (graphs and tables)
- B. References
- C. CVs for PI and other senior personnel (*No more than two pages each. We will return proposals with longer CVs for revision.*)
- D. List of acronyms if needed
- E. Current and Pending Support form (you may use the new or former NSF template, both available on the seed grant submission portal), 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, MIT Climate Grand Challenge, etc.*
- F. Letters supporting collaborative efforts, if appropriate

9. Evaluation process and review criteria

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 or past research
- 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.

10. If your project is funded

10.1. Reporting

J-WAFS will assess the success of funded projects in meeting the stated objectives. Each funded project will be required to submit six-month progress reports that detail project activities and research outcomes during the reporting period, and a final report that summarizes all project outcomes and follow-on activities. Reports also identify students supported by the grant, and dissertations, papers, or presentations arising from the work supported by the grant. The “highlights” section of the report will be made public. Due dates will

be noted at the award of the grant, and reporting instructions and specific contents will be provided approximately four to five weeks before their due date.

10.1. J-WAFS Information Session for New PIs

J-WAFS will hold an information session for new project teams during the last few weeks of August. PIs are encouraged to attend, and funded projects must have at least one representative (PI, funded staff member, AA, and/or FA)

10.2. J-WAFS Research Workshop

J-WAFS research workshops, typically held in the fall, provide the opportunity for funded PIs to present to one another on their research aims and progress. These workshops are by invitation and are generally limited to the MIT community in order to protect prepublication research results. PIs are required to attend, and students and other lab members are welcome.

10.3. Publications/Statement of support

All publications arising from work supported by J-WAFS funding should acknowledge support from “The Abdul Latif Jameel Water and Food Systems Lab at the Massachusetts Institute of Technology.” Publications arising from the funded work should be sent to Carolyn Blais, J-WAFS’ communications and program manager, (cblais@mit.edu).

In addition, J-WAFS has adopted an open-access (OA) policy for research awarded by J-WAFS and funded through MIT’s endowment and other gifts to the Institute. We ask J-WAFS researchers to familiarize themselves with this policy and consider it when selecting journals in which to publish J-WAFS-funded research. J-WAFS OA policy has two elements:

- 1) All J-WAFS funded papers must be available open-access as soon as possible and no later than one year after publication;
- 2) If authors choose to pay for open access, the use of J-WAFS funds for article processing charges is capped.

10.4. Financial auditing

All funded projects will be subject to financial auditing, including requests for documentation of salaries and any expense listed on the account. The PI is responsible for reviewing salaries charged to projects, and for validating and certifying percentages of salary charged to a project. Salary certification is expected to be completed in a timely manner. 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. J-WAFS actively monitors all project accounts. PIs are responsible to cover any cost overruns in a timely manner.

10.5. Changes to ongoing projects

Any change in the budget, work plan, deliverables, personnel, and requests for no-cost extensions should be directed in a timely manner to J-WAFS staff 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.

11. Inquiries

Please direct general questions to:

Carolyn Blais, Communications and Program Manager, J-WAFS, cblais@mit.edu

Please direct budget or financial questions to:

Nicholas Pasinella, Financial and Project Coordinator, J-WAFS, bpnas@mit.edu

Please direct questions about eligibility for seed grants or Solutions grants to:

John Lienhard, Director, J-WAFS, lienhard@mit.edu

Renee Robins, Executive Director, J-WAFS, rrobins@mit.edu

Addendum: Related Collaboration and Funding Opportunities

J-WAFS is interested in opportunities to augment our seed grants through additional financial and non-financial resources that could be beneficial to some proposals we may fund. One such opportunity is explained here, and the cover form for your proposal will ask you to designate interest you may have in pursuing this. Discussion with J-PAL in advance of submitting your proposal to J-WAFS would be beneficial but is not required unless your proposed project depends on the additional resources they may provide.

Co-funding by the Abdul Latif Jameel Poverty Action Lab for an associated evaluation of the impact of programs and policies

About J-PAL

Founded in the MIT Economics Department in 2003, [J-PAL](#) is a network of over 262 affiliated professors based at top universities around the world (including 23 MIT professors) who specialize in measuring the impact of programs and policies using randomized evaluations. J-PAL partners directly with governments, NGOs, and businesses to conduct evaluations in both developed and developing countries. J-PAL co-founders Abhijit Banerjee and Esther Duflo were recently awarded the Nobel Prize in Economics.

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*)

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 technology, program, or policy targeting the water, food, or agriculture sectors, particularly if they are intended to benefit low-income households, small holder farmers, etc. If you are interested in being jointly supported by J-WAFS and J-PAL in order to conduct research that will include

an impact evaluation, 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 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.
- 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, program, 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 J-WAFS-funded projects, including J-PAL's King Climate Action Initiative ([K-CAI](#)) and Agricultural Technology Adoption Initiative ([ATAI](#)).
- 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, program, or policy, although affiliates and offices are also typically open to conducting an evaluation with an existing partner of a J-WAFS applicant.

Review and funding of J-WAFS/J-PAL collaboration proposals

J-WAFS and J-PAL have distinct sources of funding, proposal processes and timelines, and review committees. In the interest of stimulating and supporting collaborations that could be jointly funded, the programs will work to align the timing of their respective review processes and decisions to the extent possible. J-PAL's King Climate Action Initiative ([K-CAI](#)) runs bi-annual competitive research competitions in the spring and fall of each year with expressions of interest usually requested by February and September, respectively. 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 dependent on a J-PAL randomized evaluation component will only be funded if they are approved by both programs.

Potential areas of interest for joint J-WAFS/J-PAL funding

Pricing and behavioral interventions aimed at water conservation: Recognizing the importance of piloting and measuring the impact of potential solutions before they are widely scaled up,

Water technologies aimed at addressing needs of low-income communities that are low-cost and scalable (purification, contamination, sanitation, etc.): low-cost filters and desalination technologies, sanitation technologies to protect local water supplies, monitoring technologies to prioritize purification and decontamination needs, etc.

Technologies, programs, economic incentives, and policies to improve economic outcomes for smallholder farmers: including irrigation, fertilizer, other policies to improve crop productivity, technologies to improve access to markets, resilience to drought/flood, etc.

For questions or if you are interested in learning more about J-PAL evaluations before submitting the proposal, **please contact Andrea Cristina Ruiz** (acruis@povertyactionlab.org) from J-PAL's Environment, Energy, & Climate Change sector team.