



J-WAFS Food & Water News

December 2016

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J-WAFS News

J-WAFS call for proposals for 2017 seed grants

The J-WAFS 2017 call for proposals for its next round of seed grant funding is currently open. We are seeking proposals that further the overall J-WAFS mission. Only proposals from eligible applicants will be considered: *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). Some specific areas of interest are outlined in the RFP, but proposals on other water & food sector needs are also welcome. Interdisciplinary proposals and proposals with international reach are particularly welcome.

Proposals are due by 5 pm on Tuesday, January 17.

As part of this RFP process, J-WAFS will hold a "Research Speed Dating" event. 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.

The Research Speed Dating event is intended for eligible applicants only. The event is not open to a general audience, to students, or to researchers from other institutions. Further details including sign-up information can be found in the RFP, which is available on the [J-WAFS website](#).

Xylem, leading global water technology company, signs agreement to become first J-WAFS Research Affiliate

J-WAFS announced the signing of its first corporate research affiliate agreement with [Xylem Inc.](#), a leading global water technology company. From its headquarters in Rye Brook, New York, and operating in more than 150 countries, Xylem works globally to foster innovative solutions to meet the world's water needs through its base of industry-leading brands and water solutions. Xylem seeks to develop new technologies that will improve the way water is used, conserved, and re-used in the future, and this signing represents a significant step up from their recent engagement with the MIT community through the MIT Industrial Liaison Program (ILP).

With coordination and guidance by J-WAFS, Xylem will start out by identifying and refining two to three research projects to sponsor. Additional projects will be undertaken over the duration of the three-year agreement. Potential research topics include sensors for water contaminants, distributed energy management, sustainability, and data analytics.

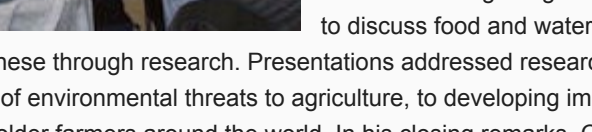


Funding will also be directed to support the MIT Water Club. Interacting with MIT students is a priority for Xylem and beneficial for the students, allowing for valuable mentorship, networking, and career opportunities. Additional funds will support J-WAFS seed research grants and broad integrative J-WAFS activities such as studies, workshops, and conferences that engage industry, government agencies, and other research institutions around critical water issues.

See the full MIT News story [here](#).

MIT researchers develop new desalination "batch" system that improves upon industry standard

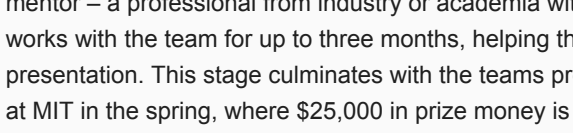
Two MIT mechanical engineers, PhD candidate Emily Tow and postdoc David Warsinger, are leading a team of MIT researchers in creating new designs for reverse osmosis desalination (RO) that could substantially reduce the energy use of future desalination systems. Both are researchers in the lab of J-WAFS director John Lienhard.



Their proposed full batch design provides desalination in batches using very precise timing, and offers the promise of improving energy efficiency by up to 64% over traditional RO systems, and 20% over semi-batch closed circuit reverse osmosis (CCRO) systems. The design presents a huge potential for industry in the near future, not only for saving energy in large facilities but also for smaller-scale off-grid systems. The team's research was recently published in *Water Research* and presented at the 9th International Desalination Workshop held in Abu Dhabi in November, where Warsinger won the Best Oral Presentation Award for his talk on the team's work.

See the full MIT News story [here](#).

MIT Water and Food Security Student Symposium



Seven graduate engineering students seeking to solve global water and food security problems presented their research and preliminary findings at the MIT Water and Food Security Student Symposium held on November 21. The symposium was hosted by the MIT Department of Civil and Environmental Engineering (CEE) and J-WAFS, and moderated by CEE visiting professor and J-WAFS visiting scholar Chandra Madramootoo, who spoke briefly about competing demands on finite water resources, and the interdependence of water and food security.

The event brought together professors and students to discuss food and water challenges and opportunities to address these through research. Presentations addressed research as varied as understanding the impact of environmental threats to agriculture, to developing improved irrigation technology to help smallholder farmers around the world. In his closing remarks, CEE professor Dennis McLaughlin noted that although most of the research shared at the symposium centered on India, other developing areas around the world are dealing with similar issues.

Be on the lookout for the full story, to be posted on the [Department of Mechanical Engineering](#) website.

J-WAFS Highlight

Rabobank-MIT Food & Agribusiness Innovation Prize

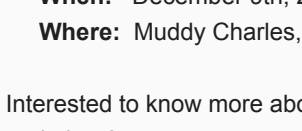
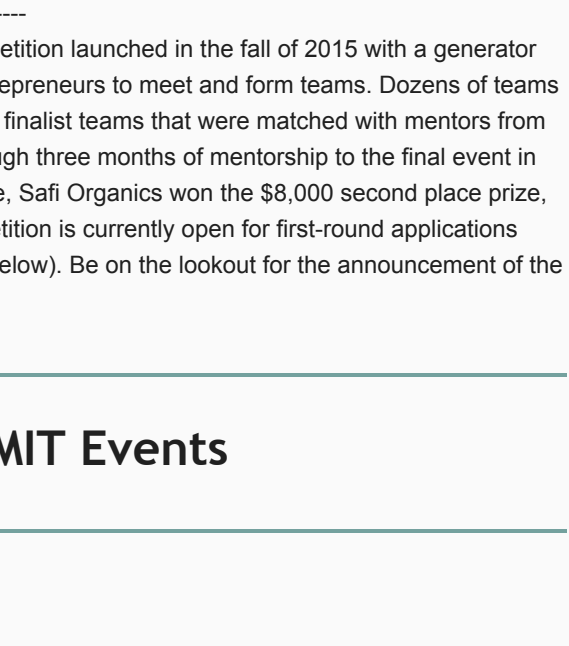
The MIT Food and Agriculture Club (MITFAC) recently held the "Generator Dinner" event for the 2nd annual Rabobank-MIT Food & Agribusiness Innovation Prize, a student-led food and agribusiness innovation competition first launched in the fall of 2015. The purpose of the Generator event is for students at all levels, including those looking for teams to participate on and those with ideas looking for teammates, to find each other and share ideas. It brings together students from MIT as well as other area universities.

Sponsored by Rabobank and supported by MIT J-WAFS and the MIT Food and Agriculture Club, the competition is focused on early-stage ideas, and provides valuable experience and mentorship to students and researchers. Rabobank is a premier bank to the food, agribusiness, and beverage industries, providing sector expertise, strategic counsel, and tailored financial solutions to clients across the entire food value chain, including crop input, industrial production, manufacturing and processing, trade, distribution, retail, and food service segments. Rabobank Group is one of the largest banks in the world.

The competition takes place in two stages. In the first stage, teams present their written ideas and finalist teams are selected by a committee of judges. In the second stage, each finalist team is matched with a mentor – a professional from industry or academia with relevant background and area of expertise – who works with the team for up to three months, helping them develop their final business plan submission and presentation. This stage culminates with the teams presenting their business plans at a public event hosted at MIT in the spring, where \$25,000 in prize money is distributed across three winning teams.

Last year, the first place winner was GoMango, which develops networks of modular, intelligent, refrigerated boxes to move perishable goods affordably and efficiently in any truck or train, in India.

The announcement of the then-new Rabobank-MIT Food and Agribusiness Prize motivated the GoMango team to turn a class project into a real startup. Led by Naren Tallapragada, a PhD student in systems biology at Harvard Medical School, the team crafted its business plan, pitch deck, and brand with help from two people the students got to know largely because of the competition – their mentor Zack Armen from Flagship Ventures, and a talented Sloan student, Juan Carrascosa. The other team member was Francesco Wiedemann. "Rabobank's presentation at last year's generator dinner also stuck with us," said Tallapragada, leading them to evaluate solutions in terms of their effects on production, access, nutrition, and viability. GoMango used this framework to structure its winning business plan and subsequent business decisions. They have also thought hard about how to create value for players at all steps in the supply chain, not just in distribution where they sit.

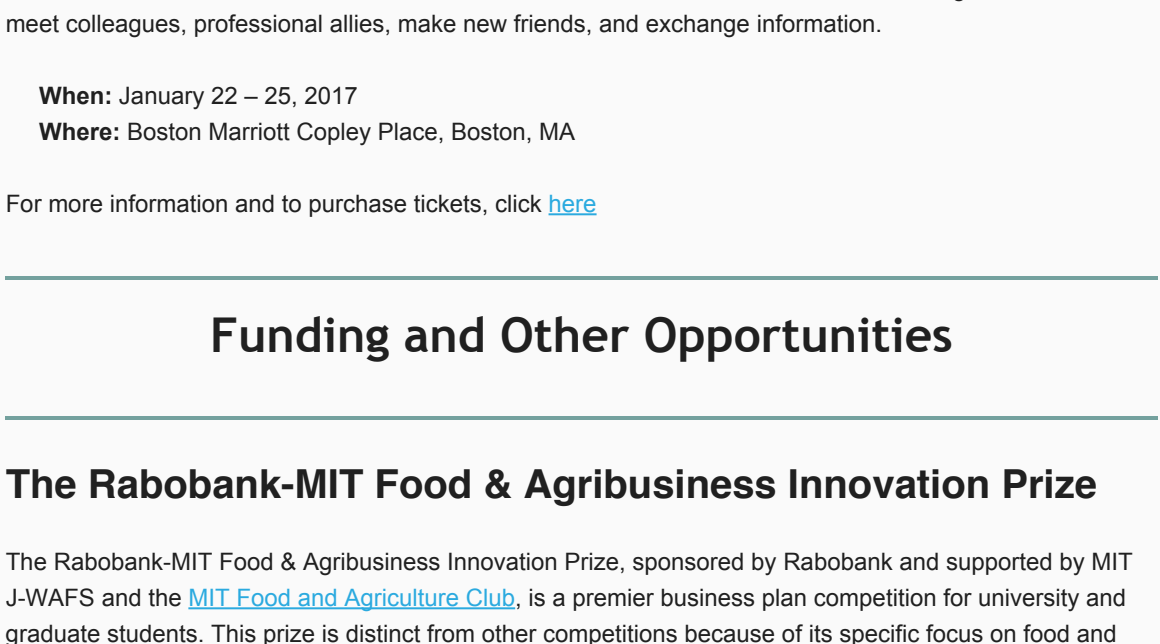


The \$12,000 winning prize has helped the team realize its vision by covering the cost of equipment and travel to India. But they also received invaluable mentorship and assistance from, Rabobank, who continued to support them after their win. Shortly following the final event, Rabobank generously sponsored a trip to F&ANext in the Netherlands, the first Dutch platform for start-ups in food and agriculture. There, they gained valuable insight into the startup scene beyond America's borders and met seasoned entrepreneurs who shared advice on working in developing countries including India. GoMango was also invited to Rabobank's annual meeting in Boston, where they had the honor of addressing and meeting leaders in food and agriculture and being introduced to more opportunities.

Since winning the prize in May, and the past half year GoMango has sourced refrigerated boxes and in parallel filed for IP on their designs and improvements. They also built relationships with potential employees and pilot partners who will help them get their business off the ground in India. The GoMango team is now headed to India to test their ideas in the field.

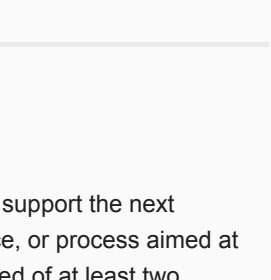
GoMango also competed in several other competitions, winning a prize in the Harvard South Asia Institute Seed for Change Program. In addition, they were a finalist in the Harvard President's Challenge as well as in the MIT \$100K Accelerate, and a semi-finalist in the MIT \$100K Launch.

Safi Organics was another winning team last May, taking home the \$8,000 second place prize of the competition's inaugural year.

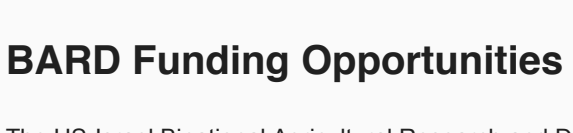


From left: Shelly Xu, Food Prize team leader, Sarah Niolet, president of MITFAC, Kevin Kung, Safi Organics project lead, John Lienhard, director of J-WAFS, and Paul Piorz, Managing Director, Strategic Finance Advisor at Rabobank.

Led by Kevin Kung, MIT PhD student in industrial engineering and management, the team took a project to turn waste into fuel and transformed it into an innovative organic fertilizer product for rural farmers.



The ultimate mission of Safi Organics is to enable farmers in Kenya to make their own fertilizer in 30 minutes, thus saving them 40% of the cost of traditional fertilizers while countering soil acidity. Kevin says he benefited greatly from the competition, finding both the organizers and Rabobank to be very supportive.



When asked how they got involved with the competition, Kung said that they were at the stage where they were looking both for some money to move forward as well as feedback about their business plan. Said Kung: "I never thought MIT had a significant food and agriculture presence. But this all changed with this competition. Participating, whether winning or not, has opened the conversation with many helpful people in our business."

Since their second place win last spring, Safi Organics has upgraded their production to 0.5 tons/day in capacity, and improved their sales by 40% in the last planting season. Safi Organics also won a \$7,500 prize in the MIT IDEAS Global Challenge, and cash prizes in the Total Startupper and Tony Elumelu Foundation competitions. In addition, Kung won prizes in the Factor(E) Energy for Development Prize and the MIT Clean Energy Prize for his work developing the core technology to turn agricultural waste into biochar that companies can then use toward various purposes.

The Rabobank-MIT Food and Agribusiness Innovation Prize was launched in the fall of 2015 with a generator event that brought together more than 100 student entrepreneurs to meet and form teams. Dozens of teams then submitted ideas and were winnowed down to nine finalist teams that were matched with mentors from academia and industry. Six finalist teams made it through three months of mentorship to the final event in April, where GoMango won the \$12,000 first place prize, Safi Organics won the \$8,000 second place prize, and Ricutt won the \$5,000 third place prize. The competition is currently open for first-round applications (see details under "Funding and Other Opportunities" below). Be on the lookout for the announcement of the 2017 prize final event.

Upcoming MIT Events

Muddy Water Social

When: December 9th, 2016 | 5:30-7:00pm
Where: Muddy Charles, Walker Memorial (Bldg 50), MIT

Interested to know more about the MIT Water Club and its activities? Join them at Muddy Charles for beer and pizza!

Boston-area Water and Food Events

NEWIN - Future of Water: 2017

Join the New England Water Innovation Network on January 12th for a panel discussion with leaders from water investment, water policy, water technology and water services to discuss "The Future of Water: 2017." President-elect Donald Trump has outlined a twenty-eight point 100-day action plan that includes items directly related to the future of investment in water innovation and water infrastructure. Join NEWIN as they discuss the details of what, who, how, and when.

When: January 12, 2017, 5:00-7:30pm
Where: CIC, 50 Milk Street, Boston, MA 02109

For more information and to purchase tickets, click [here](#)

NEWEA 2017 Annual Conference & Exhibit

The New England Water Environment Association is an organization of over 2100 water and wastewater professionals located throughout New England that works to promote education and collaboration with advanced knowledge, innovation, and sound public policy for the protection of the water environment and our quality of life. Their annual conference attracts over 2000 engineers, consultants, scientists, operators, and students, and features a variety of technical sessions and over 200 exhibitor displays. The conference provides an opportunity for professional exchange of information and state-of-the-art concepts in wastewater treatment and other water and environment issues. The NEWEA Annual Conference is a great forum to meet colleagues, professional allies, make new friends, and exchange information.

When: January 22 – 25, 2017
Where: Boston Marriott Cooper Place, Boston, MA

For more information and to purchase tickets, click [here](#)

Funding and Other Opportunities

The Rabobank-MIT Food & Agribusiness Innovation Prize

The Rabobank-MIT Food & Agribusiness Innovation Prize, sponsored by Rabobank and supported by MIT J-WAFS and the [MIT Food and Agriculture Club](#), is a premier business plan competition for university and graduate students. This prize is distinct from other competitions because of its specific focus on food and agribusiness and the access it will provide successful entrants to the broad business community.

The competition will take place in two stages. **First round applications are due by December 23, 2016 11:59 PM EST**, from which the finalists will be selected for stage two. Finalists will then be paired with mentors to refine their ideas and develop their business plans. Mentors will be leading experts in industry and academia, with experience relevant to finalist submissions. At the final award ceremony in spring 2017, finalists will present their business plans. \$25,000 in total prize money will be awarded, \$12k, \$8k, and \$5k for first through third place, respectively.

[Click here](#) to apply.

MIT Water Innovation Prize

The MIT Water Innovation Prize is a solutions-to-market competition aiming to help support the next breakthrough in the water sector. Entries must involve a technology, product, service, or process aimed at solving a problem related to the world's water challenges. A team must be comprised of at least two individuals and at least one student who is fully enrolled at any college or university. The Water Innovation Prize is managed by the MIT Water Club. Please see [here](#) for the full rules and timeline

Registration for the prize will be open until December 31st. Selected finalists will receive mentorship from seasoned professionals in the water space and a chance to pitch their refined idea to win prizes from a \$30k pool at the culminating Pitch Night in April.

Learn more and register [here](#).

BARD Funding Opportunities

The US-Israel Binational Agricultural Research and Development (BARD) Fund is offering a few agriculture-related funding opportunities. The individual opportunities are detailed below. More information and the application guidelines can be found at [Bard-isus.com](#).

- **Postdoctoral Fellowship Program Award** *Duration: 1-2 years. Submission date: Jan. 16, 2017*
 - Funds postdoctoral fellowships for US citizens to perform agricultural research with established Israeli scientists. Recipients travel to Israel to carry out their research.
- **Senior Research Fellowship Program Award** *Duration: 2-12 months. Submission date: Jan. 16, 2017*
 - The program promotes joint agricultural research between established scientists from the US and their Israeli hosts.
- **Graduate Fellowship Student Program Award** *Duration: 3-6 months. Submission date: Jan. 16, 2017*
 - The program enables PhD students in one country (US or Israel) to travel to the other country to acquire new skills and techniques in their field of study.
- **Workshop Award** *Submission date: Jan 16, 2017*
 - Funds workshops whose purpose is to identify research needs and to promote increased contact between scientists throughout the world in areas related to the binational and agricultural interests of the US and Israel.

