

Student Entrepreneurs Tackle Clean Water Challenge

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LivingWaters rainwater harvesting, filtration and storage systems in Rajasthan, India.

EDITOR'S NOTE: This is the third in a series of articles featuring past winners of e-Fest, EIX's undergraduate business plan competition, and their journey since then.

LivingWaters Systems is a social venture company founded by CEO Joshua Kao of Rutgers University and includes a team of capable, multidisciplinary students from the University of Chicago. The team believes that clean water is a fundamental human right, but that not every corner of the world shares this right equally. LivingWaters formed to meet the need for cleaner water supplies beginning in Rajasthan, India, an especially vulnerable state with over 17,000 villages in the area facing severe shortages of clean groundwater.

In their pilot program, the company introduced prototypes for a collapsible, portable system for harvesting, filtering and storing rainwater to impoverished families in seven of these villages. Each unit takes only 20 minutes to set up, and is easily accessible at the doorsteps of peoples' homes. LivingWaters units are also affordable: only \$15 in material and manufacturing costs per unit, with another \$5 in shipping, packaging and inventory.

"When we were preparing to pilot our first functional prototypes in India, as an undergraduate team then, getting first through the door funding was a challenge," Kao said. "Thankfully, within a matter of days before our planned operations there, the Robert Wood Johnson Foundation generously provided us \$10,000, which supplied our travel and logistics arrangements..."

Along with its founder, the team includes Rutgers University mechanical engineer Joseph Bajor, who became the CTO of LivingWaters, and a team of multidisciplinary Master's students from the University of Chicago, including Joshua's brother Caleb Kao. The results of the Rajasthan pilot made it clear that regional

water sources were not plentiful or clean enough to serve the people who needed it over the long term.

"Rajasthan India was a watershed moment for our venture," Joshua Kao said. "It introduced us to the common water and sanitation deficiencies faced by off-grid settlements in South Asia that are shared in many settlements that we came across in Latin America as well."

LivingWaters won the Social Impact award at e-Fest 2019 for its portable rainwater collection system, and with it the \$10,000 prize. Since then, LivingWaters Systems has also received additional honors, including first place prize at the 2020 Booth Social New Venture Challenge at the University of Chicago. The university's Rustandy Center for Social Sector Innovation and Polsky Center for Entrepreneurship and Innovation have also invested in LivingWaters and provided them with legal aid, mentorship and other services.

Latin America will serve as the company's next pilot, where it will focus on testing its water systems in Brazilian refugee settlements for displaced Venezuelans.

"This will help us get insightful information about the needs in these places and how to better adapt the product to these particular communities," said COO Gabriela Saade.

CEO Kao hopes the low-cost, compact and portable design of their systems also becomes standard use in situations of humanitarian crisis, where water instantly becomes the most valued resource, and LivingWaters Head of Research and Development Melis Ozkan envisions their units providing essential relief in cases of natural disasters.

"Although it is heartbreaking, climate change will push even more people out of their homes," Ozkan said. "If LivingWaters Systems is able to provide a device that helps maintain the health of populations in need easily,



this is a huge accomplishment."

Here's a look at the company's current status.

EIX STARTUP SNAPSHOT

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| The Product: | LivingWaters is a social venture company that provides a collapsible, portable system for harvesting, filtering and storing rainwater. The company has set up its rainwater collection units across seven villages in Rajasthan, India, where clean and renewable water is scarce. These units are installed on the roofs of the community members' homes. |
| Founding University: | Rutgers University |
| The Potential Market: | Tens of thousands of tents in refugee camps caught the attention of the team before they began their pilot program in Rajasthan. More than 17,000 villages in that area faced severe shortages of clean groundwater, so the company decided to target those families and reduce their dependencies on unsafe, polluted water. The team looks to bring their next pilot to Latin America, where hundreds of Venezuelan refugee settlements have formed in Brazil. |
| The Minimum Viable Product (MVP): | The company's portable system for harvesting, filtering and storing rainwater. LivingWaters units currently cost about \$20 in manufacturing costs, packaging, shipping and handling. "We've worked hard to reduce product expenses by negotiating with several manufacturers and local logistics companies," CFO Caleb Kao said. "Keeping our costs down allows us to pass most of the savings to NGOs and disaster relief organizations." |
| Stage of Development: | Having finished their first pilot in India, LivingWaters Systems is moving on to their second pilot program in Brazil involving Venezuelan refugee settlements. That has been delayed due to the pandemic, but the team still looks to have an outline for this pilot finished by late Fall, featuring at least 100 units distributed among tent cities in Brazil. LivingWaters is currently looking for U.S manufacturers to partner with them to build units for the Brazil pilot. They are also considering partnerships with Latin American manufacturers, which would allow them to save on transportation costs. Once the company has scaled up, the team may decide to diversify their manufacturers at that point. |
| Annual Sales: | Not disclosed. |

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| Source of Idea: | Founder and CEO Joshua Kao conceived the idea for his product while working on a solution for refugee settlements involving indoor horticulture gardening. |
| Traction: | LivingWaters Systems won the Hult Prize Shanghai Regionals competition in March 2018, the Social Impact award in the Schulze Entrepreneurship Challenge (April 2019), and the University of Chicago's grand prize at this year's John Edwardson, '72, Social New Venture Challenge. |
| Biggest Challenge: | <p>Planning their first pilot within refugee settlements has been the team's biggest challenge yet, and the pandemic has made logistics and partnerships more challenging recently.</p> <p>With Brazil declared the new epicenter of the coronavirus by the World Health Organization, CFO Caleb Kao also acknowledged that every humanitarian organization is being stretched to their limits, LivingWaters included.</p> <p>"This pandemic is hurting people across every part of society, but it has been especially frustrating to observe the additional challenges faced by the most vulnerable — refugees and low-income families who lack access to even basic water and sanitation," CFO Caleb Kao said. "We will continue working towards making all the necessary preparations to begin operating in the region."</p> |
| How they're dealing with the challenge: | <p>LivingWaters expects to have an outline detailing the Brazil program by late Fall, one with at least 100 units to be distributed between tent cities. They hope to deploy their rainwater systems rapidly once their partner NGOs have recovered from the pandemic, and look to have all manufacturing, partnership and logistical variables in place by that time.</p> <p>"We run a pretty lean business, with just a few core team members and a relatively low-cost product, so we have the luxury of patience when it comes to Covid-19," Caleb Kao said.</p> |
| Teammates: | Founder, Inventor, and CEO Joshua Kao, CFO Caleb Kao, COO Gabriela Saade, CTO Joseph Bajor, Head of Latin American Operations William Garcia, Head of Global Partnerships Peter Tang, and Head of Research and Development Melis Ozkan. |
| Mentors and Advisors: | Dr. Laura Dunham and Senior Associate Director Steve Lehmann of the George Shultz Innovation Fund. |

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| Resources at college that helped: | Though the company conducted all its research and testing outside of academic work, the Rustandy and Polsky Centers (University of Chicago) and Center for Common Good (University of St. Thomas) all offered invaluable support towards the most formative phase of testing and development. |
| Honors and Accolades: | In June, LivingWaters was named the grand prize winner of the 2020 John Edwardson Social New Venture Challenge (SNVC). That same month, the team was also accepted into the Polsky Accelerator program, a 10-week summer program offering entrepreneur mentorship, advice and resources for overcoming general business challenges. The team also received investments from both the Polsky Center and the Chicago Booth School of Business' Rustandy Center. Finally, in November 2019, an interview with LivingWaters was featured on the Twin Cities Weather Channel. |
| Advice for aspiring Student Entrepreneurs: | CEO Joshua Kao recommends focusing first on building a minimum viable product (MVP) before meeting with teammates, advisors, and investors to introduce it. "Once you can prove that you have something that is functional and marketable, then as a student, you already have intuitive access to a whole host of competitions, incubators, and grant opportunities which you can then leverage to gain exposure and capital to bootstrap your venture," Kao said. COO Gabriela Saade also suggests students take advantage of the network of professors, field experts and classmates around them by reaching out to these people. "Universities are the perfect ecosystems for innovation since they bring together a diverse pool of students, academics, and staff that promote the creation of student ventures," Saade said. "That is the best place to start!" |

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