

Development Engineering awarded \$3 million from National Science Foundation

By **Brett Israel**, Media relations | OCTOBER 19, 2016



The National Science Foundation has awarded \$3 million to UC Berkeley's Development Engineering program to create new models for training graduate students to find innovative solutions to food, energy and water challenges in developing countries.



The new NSF award will facilitate interdisciplinary research with classroom teaching. Graduate students will learn to tackle tough global challenges, such as how to solve the environmental health crisis of smoke from mud stoves, which kills 4 million people every year. The Kalahandi family, seen here in their one-room home in Orissa, India, gathers around their mud stove. (Photo by Daniel Wilson).

The grant will go to a STEM Training for Actionable Research and Global Impact program with a focus on Innovations at the Nexus of Food, Energy and Water Systems (InFEWS). Berkeley's Alice Agogino, the Roscoe and Elizabeth Hughes Professor of Mechanical Engineering and education director of the Blum Center for Developing Economies, will lead the project.

"We are thrilled to be supporting a new generation of students working at building sustainable and resilient food, energy and water systems under the threat of climate change," Agogino said. "Students will master the interdisciplinary skills needed to create actionable and impactful research that is transferable from the lab to the field at scale and to ultimately make real lives better."

Development Engineering, a first-of-its-kind academic discipline launched in 2014 with support from the U.S. Agency for International Development's Higher Education Solutions Network, is helping shape the next generation of problem solvers to take an integrated approach to creating sustainable solutions that benefit people and societies and drive economic development around the world. With the new NSF award, UC Berkeley will accelerate research and foster partnerships to meet these goals.

The funding will support graduate students in engineering, sciences, business, economics, social sciences, natural resources and public health who are conducting actionable, interdisciplinary research to address grand challenges in food, energy and water systems.

Trainees will research topics such as capturing and reusing nutrients and water in organic waste products or the development of small-scale water and energy technologies necessary for agriculture and developing infrastructures.

“This is the essence of what we do here at Berkeley,” said Shankar Sastry, dean of the College of Engineering and faculty director of the Blum Center, where the program will be housed. “We work across disciplines to make an impact on social and environmental challenges while creating and scaling new knowledge and technologies for under-resourced areas.”

The Blum Center is an interdisciplinary center focusing the energy and talent of UC Berkeley on science, technology and scholarship to tackle the world’s most pressing challenges. Launched 10 years ago at Berkeley, and now present on the other eight UC campuses, the center enables problem-solving in key areas such as energy, health, education, financial services, food, water and sanitation.

“Berkeley students have tremendous desire and initiative to develop innovative solutions to these grand challenges,” said project co-leader Kara Nelson, a professor of civil and environmental engineering. “This program will provide critical support and training for them to pursue their ideas.”

In addition to the faculty within the **Development Engineering Graduate Group**, other Berkeley faculty involved in the program include Daniel Kammen, a professor in the Energy and Resources Group, the Goldman School of Public Policy and the Department of Nuclear Engineering; David Levine, a professor in the Haas School of Business; Kara Nelson, a professor in the Department of Civil and Environmental Engineering; Matthew Potts, an associate professor in the Department of Environmental Science, Policy and Management; Clair Brown, a professor in the Department of Economics; John Colford, a professor in the School of Public Health; Isha Ray, an associate professor in the Energy and Resources Group; and David Zilberman, a professor in the Department of Agricultural and Resource Economics. Paz Gutierrez, an associate professor in the College of Environmental Design, serves as the equity adviser.

“In the 21st century, humanity faces a grand challenge in maintaining and improving human well-being on a hotter, more crowded and less natural planet,” said project co-leader Matthew Potts. “This program will train a new generation of scientists to meet this challenge by catalyzing technological innovation as well as the more sustainable use of Earth’s finite natural resources.”

Read more about the NSF award at **https://www.nsf.gov/news/news_summ.jsp?cntn_id=190074**



WeCareSolar, managed by Laura Stachel, focuses on bringing power sources that can save lives to Africa. The project is another example of the kind of multidisciplinary work that the NSF award will support (Photo by Rob Beecham).

