Environmental Venture Projects

Stanford WOODS INSTITUTE for the ENVIRONMENT

Finding practical solutions to major environmental and sustainability challenges often requires innovative approaches to science, technology, resource management and public policy.

To catalyze transformative research around the world, the Stanford Woods Institute for the Environment has awarded millions of dollars in seed grants to Environmental Venture Projects (EVPs) to support interdisciplinary research teams from all seven of Stanford's schools and 34 of its departments.

Environmental Venture Projects focus on one or more of the Stanford Woods Institute's focal areas (climate, ecosystem services and conservation, food security, freshwater, oceans, public health and sustainable development) and have led to breakthroughs such as technology for producing clean energy from wastewater and software that measures the value of nature.

Each project receives funding of up to $100,000 per year for one or two years. Since the annual EVP program began in 2004, it has awarded $7.2 million in seed grants to more than 50 projects. Those initial grants have led to $39 million in follow-on funding from other sources.

Of that funding, nearly $20 million has gone to Stanford faculty for additional research, while $19 million has been used to launch new research centers spawned from EVP projects and Uncommon Dialogues.

PROGRAM PRIORITIES

The Environmental Venture Projects program seeks to support research that:

- Produces high-risk, transformative projects that have the potential to develop solutions to major environmental challenges
- Represents new, interdisciplinary collaborations among faculty who have not previously worked together
- Is directly relevant to the environment and/or challenges within seven focal areas: climate, ecosystem services and conservation, food security, freshwater, oceans, public health and sustainable development
- Addresses cross-cutting issues, such as environmental ethics, incentive systems, risk perception, and analysis and valuation of natural systems

Environmental Venture Projects
SUCCESS STORIES

Environmental Venture Projects focus on solutions to challenges ranging from the protection of endangered species in California to the delivery of clean drinking water in Africa. Here are some examples:

Pumping Water With Sunlight

Roz Naylor found that solar irrigation pumps used for growing crops during the dry season in Northern Benin, Africa, substantially increased incomes and improved nutritional intake in poor, rural communities.

National Geographic called her EVP "a solution in the developing world" and named it to its list of Five Most Hopeful Energy Stories of 2012.

Recently, Naylor's work helped the nongovernmental organization that introduced the pumps, the Solar Electrification Light Fund, receive additional funding that will allow the project to expand to eight more villages. (EVP 2007)

Putting a Value on Nature

Gretchen Daily created a methodology and a tool that illustrate how much ecological resources are worth to society and calculate benefits from investments in nature.

Her work led to the creation of the Natural Capital Center, whose InVEST software enables decision-makers to quantify nature's values and assess trade-offs associated with land- and water-use choices. (EVP 2004)

Water for Cities and Suburbs

An EVP grant, along with an Uncommon Dialogue, helped Dick Luthy secure an $18.5 million National Science Foundation (NSF) grant for a center on urban water infrastructure and water reuse.

The NSF Engineering Research Center on Reinventing the Nation's Urban Water Infrastructure (ReNUWIt) looks at ways to improve the delivery of water to cities and suburbs, including ecosystem enhancement and habitat creation using recycled water.

Luthy, the center's director, and his team also engage regional policymakers and managers to spur implementation of these types of projects. (EVP 2008)

Turning Wastewater Into Power

Wastewater treatment in the U.S. is energy intensive. A 2009 EVP led by Craig Criddle developed a low-cost technique that removes nitrogen from wastewater and produces oxygen as a byproduct instead of nitrous oxide, a potent greenhouse gas.

The waste nitrogen is converted into nitrous oxide that can be used to burn biogas, a clean power source that results from the recovery of methane from organic waste. It can also power a small rocket thruster that converts nitrous oxide into clean, hot air.

Researchers working on the project won a $100,000 U.S. Department of Energy award in 2012, and one member of the team was named to *Forbes* magazine's "30 Under 30" list of rising energy-sector stars. (EVP 2009)

EVP Locations

American Samoa
Australia
Bangladesh
Benin (West Africa)
Cambodia
Canada
Chile
China
Costa Rica
Ecuador
India
Indonesia (Borneo)
Israel (Gulf of Aqaba)
Japan
Kenya
Kiribati, Republic of
Mozambique
Netherlands
New Zealand
Tanzania
USA
Venezuela

For more information:

woods.stanford.edu/research/environmental-venture-projects

Brian Sharbono, Program Manager
(650) 721-2916
sharbono@stanford.edu

Stanford WOODS INSTITUTE *for the* ENVIRONMENT