

A Threat So Big, Academics Try Collaboration

By CLAUDIA H. DEUTSCH

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It is a basic tenet of university research: Economists conduct joint studies, chemists join forces in the laboratory, political scientists share ideas about other cultures — but rarely do the researchers cross disciplinary lines.

The political landscape of academia, combined with the fight for grant money, has always fostered competition far more than collaboration. But the threat of global warming may just change all that.

Take what's happening at the Rochester Institute of Technology. In September the school established the Golisano Institute for Sustainability, aimed at getting students and professors from different disciplines to collaborate in studying the environmental ramifications of production and consumption.

“The academic tradition is to let one discipline dominate new programs,” said Nabil Nasr, the institute's director. “But the problem of sustainability cuts across economics, social elements, engineering, everything. It simply cannot be solved by one discipline, or even by coupling two disciplines.”

Neil Hawkins, Dow Chemical's vice president for sustainability, sees it that way, too. Thus, Dow is giving \$10 million, spread over five years, to the University of California, Berkeley, to set up a sustainability center.

“Berkeley has one of the strongest chemical engineering schools in the world, but it will be the M.B.A.'s who understand areas like microfinance solutions to drinking water problems,” Mr. Hawkins said.

That realization is spreading throughout academia. So more universities are setting up stand-alone centers that offer neutral ground on which engineering students can work on alternative fuels while business students calculate the economics of those fuels and political science majors figure how to make the fuels palatable to governments in both developing nations and America's states.

“We give professors a chance to step beyond their usual areas of expertise, and we give students exposure to the worlds of science and business,” said Daniel C. Esty, director of the year-old Yale Center for Business and the Environment, a joint effort between the School of Management and the School of Forestry and Environmental Studies.

Similar setups are getting easier to find. Last year, the University of Tennessee consolidated all of its environmental research programs under a new Institute for a Secure and Sustainable Environment. Arizona State University did the same in 2004, when it inaugurated its Global Institute of Sustainability. The Arizona institute reports directly to the university president and is run by Jonathan Fink, who is also the university's sustainability officer.

“We want all the departments to contribute without thinking they own the initiative themselves,” Mr. Fink said. Already, experts in biogeochemistry — the study of the scientific underpinnings of earth’s origins and existing biosystems — are working with social scientists to study the impact of rapid urbanization on plants and animals.

It is impossible to quantify the growth of stand-alone centers. There is no naming convention — some are sustainability centers, some are environmental institutes and some are global warming initiatives. And many do not stand alone at all, but are neatly tucked inside an existing school. For example, in 2003 the University of Pittsburgh School of Engineering dedicated the Mascaro Sustainability Initiative, which studies green construction and sustainable water use.

Nor do the environmentally themed names necessarily convey an enviro-centric agenda. Many sustainability centers — the Kenan-Flagler Center for Sustainable Enterprise at the University of North Carolina is a good example — address global cultures, business ethics and corporate social responsibility along with environmental issues.

The Aspen Institute’s Center for Business Education compiled a list of more than 600 academic centers that, at first blush, sound as if they would be stand-alone environmental facilities. Rich Leimsider, its director, figures only a handful really are.

“We are seeing more centers framed as sustainability, but they may not be qualitatively different from the ethics, innovation or globalization centers of 15 years ago,” he said. “Universities realize that you can discuss sustainability with a C.E.O. and not get laughed out of the room.”

But Mr. Leimsider said he does see more stand-alone centers that are devoted primarily to analyzing environmental problems, influencing environmental policy and preparing students to think collaboratively when they try to solve those problems outside the academic world.

Many of the centers have one foot set squarely outside the ivory tower. Mr. Esty said the Yale center was developing an “eco-services clinic” that would help companies address various environmental issues. Duke’s Corporate Sustainability Initiative, which is a joint venture of its earth sciences, business and environmental policy schools, is also a founding member of the Chicago Sustainable Business Alliance. Its faculty and students have already developed a small wind turbine for private use, and have helped local businesses reduce their carbon footprints.

Nor does the money for the centers necessarily come from university coffers. Often, it comes from individuals who are passionate about the environment. More than 10 years ago, Frederick A. and Barbara M. Erb gave \$5 million to the University of Michigan to found the Erb Institute for Global Sustainable Enterprise. They have given an additional \$15 million since.

Thomas P. Lyon, the institute’s director, said much of the money goes to defray third-year costs for graduate students who pursue a dual degree in business and natural sciences. But the institute is now talking to venture capitalists about teaching students to invest in green technologies, and is setting up projects for students in China and elsewhere. It also gives small research grants to professors who affiliate with the institute; most recently, it awarded money for a study of botanical gardens.

“We provide a community where students and professors can discuss research with different disciplines,” Mr. Lyon said.

Similarly, Julie A. Wrigley, who has a home in Arizona, provided \$15 million for Arizona State's institute, and this year gave an additional \$10 million to create a degree-granting School of Sustainability within the institute.

The vast majority of the money for the Golisano Institute in Rochester came from B. Thomas Golisano, the founder of Paychex and one of the underwriters of the Clinton Global Initiative.

Mr. Golisano, who donated \$10 million, said he expected the institute to "produce the first generation of professionals with the vision and know-how to deliver on the promise of sustainability." Indeed, Mr. Nasr said the institute already offers courses on sustainability to all freshman and is asking students to submit ideas for projects.

Sometimes, government chips in. Mr. Fink notes that Phoenix is "the poster child" for the so-called urban heat island effect — the phenomenon in which big cities absorb heat during the day and release it at night, causing temperatures to rise. So his institute has amassed funds from the Environmental Protection Agency, the State of Arizona and some local businesses for a project to see if certain construction materials can alleviate the problem.

Companies are getting into the financing act as well. Unlike traditional partnerships between business and academia, in which companies that provide funds have the right to commercialize any breakthroughs, most of these funds come with no strings attached.

Several years ago Enterprise Rent-a-Car donated \$10 million to the Donald Danforth Plant Science Center in St. Louis for research on growing crops for food. This year it gave \$25 million to create the Enterprise Institute in conjunction with Danforth, to do research into biobased fuels.

"Danforth understands cellulosic research, so they are best positioned to figure out how to make fuel from soy and corn," said Patrick T. Farrell, vice president for corporate responsibility at Enterprise.

Four companies — ExxonMobil, General Electric, Schlumberger and Toyota — have anted up for the Stanford University Global Climate and Energy Project, which explores new energy technologies. The Shell Oil Foundation has been financing Rice University's Shell Center for Sustainability since 2002. Wal-Mart has promised money for an Applied Sustainability Center at the University of Arkansas.

Berkeley, meanwhile, is using Dow's gift to set up a Sustainable Products and Solutions Program within its existing Center for Responsible Business. That is in the Haas Business School, but Kellie A. McElhaney, the center's director, insists the program will draw on Berkeley's chemists, biologists, financial analysts, policy specialists, even lawyers.

The program is now taking applications for grants from Berkeley students and professors who want to conduct collaborative research into topics like providing clean drinking water or more efficient fuels. And Ms. McElhaney said other companies have expressed willingness to kick in funds.

“Commercialization takes forever if the chemical engineers and the business types do not coordinate,” she said. “So think how much easier it will be for chemistry graduates to work inside a company if they already know how to interact with the business side.”

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