

FACULTY

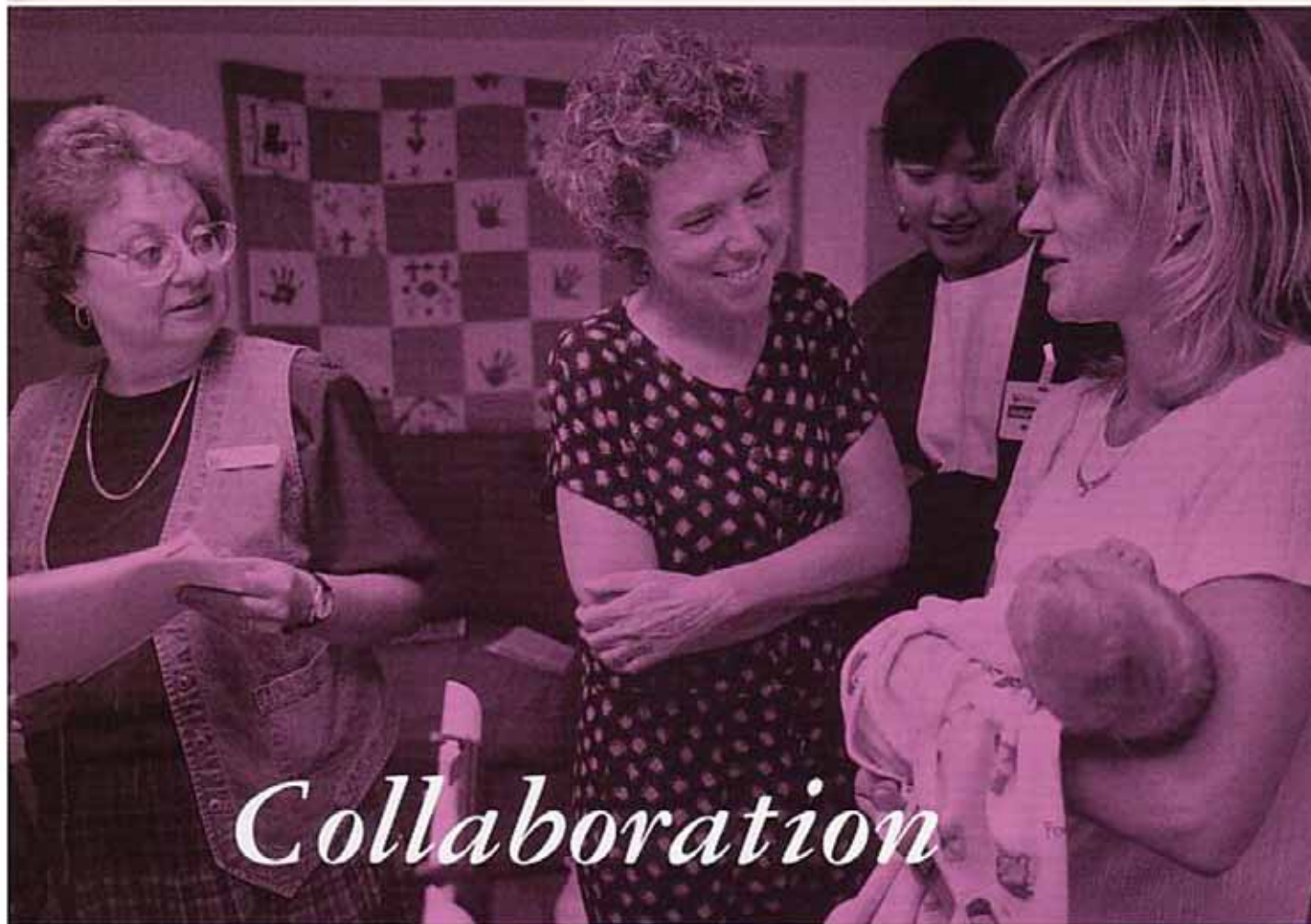
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at Work



Collaboration

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Avoiding a disaster like the Exxon *Valdez* spill is the motive for one CU/business collaboration. Faculty and graduate students from CU-Denver's Facility for Advanced and Spatial Analysis and Teaching (FAST) are helping Conoco Oil Corporation's Technical Response Planning Corporation develop an emergency response system (ERS) for Conoco's nearly 3,000 miles of pipelines in the Northwest.

The Oil Pollution Act of 1990 requires all oil companies to develop emergency response plans for potential incidents along their pipelines, but Conoco has decided to exceed the Act's requirements by developing and maintaining an ERS. The company's collaboration with CU developed because a former CU student working at Conoco knew about the geographical information system (GIS) work being done on the Denver campus. (A GIS is a computerized mapping tool that allows the integration of database information with the traditional geographic information provided by maps.)

Much of the GIS work centers on the year-old FAST, which developed when colleagues in three departments needed a facility in which they could work together on their mutual interests. Lynn Johnson, professor of civil engineering, leads the Conoco project. John Wyckoff, associate professor of geography, and Marianne MacDonald, assistant professor of urban and regional planning, also serve on the faculty team that provides project management and quality control. An interdisciplinary group of graduate students in engineering, planning, and environmental science conduct most of the research.

The collaboration amounts to a win-win-win situation. Conoco gets fresh ideas and new perspectives on a challenging problem; high-quality, unbiased information about natural, social, and economic features' vulnerability to a potential oil spill; and advice on spatial database design, implementation, and management. Students gain valuable experience in solving a real-world problem by applying their knowledge and research skills to the design, implementation, and management of a GIS database. They also develop interdisciplinary teamwork skills and potential job contacts. Faculty enjoy the opportunity to teach students in a way that the classroom doesn't allow and, as Wyckoff notes, "It also gives us projects that help us develop in the profession."

Conoco's goal is to have easy access to all the data concerning potential effects of a spill at locations throughout its pipeline system, contact information for each location, and details about where and how they could stage remediation efforts if a spill occurred. The graduate students (or "ERPS," as the faculty sometimes call them—for "emergency response preparedness students") began by identifying 30 sites in the northwest United States. Then they collected the necessary data by contacting site owners and gathering information from national and state agencies' Internet sites and Yellow Page directories. Once they completed their sleuthing, they entered the data into physical data sheets, a digital database, and an icon-based map created through a GIS program. The data sheets identify the contact person and pertinent impact features for each site. Conoco has committed to two more years of the project, during which time participants will continue to add more sites to the ERS.

During the fall semester, students are conducting field work, which requires them to take the data they collected by distance mode and test it against the actual, physical sites. They'll test the logistics of getting emergency equipment and crews to potential remediation staging areas, gather additional details about each site, take photographs, and create directions for drivers who may need to access the sites.

For the most part, faculty and students work on this project in a nondescript, windowless computer lab whose walls are papered with topographic maps. The results of their collaborative labor, however, affect a far more picturesque setting, for their work is designed to protect the spectacular natural environments throughout the Northwest as well as the lives and livelihoods of those who live along Conoco's pipelines.



Susan Perkins, data coordinator for Conoco, assists UCD students conducting field work.