

LA-SUB--96-22

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APR 12 1996

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ENVIRONMENTAL TRAINING RESEARCH PROJECT

Final Report

Santa Fe Community College

Subcontract with Los Alamos National Laboratory
6839V0015-3G

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SFCC Environmental Training/Education Needs Assessment Final Report

Background

Santa Fe Community College serves an area including the city and county of Santa Fe. The population has a high percentage of Hispanics and a Native American population of about 3%. The student body at the college generally reflects that of the service district. The college strives to recruit students from all segments of the population so there is representation among all ethnic and economic groups. The college strives to serve students and the community by offering educational opportunities that meet the needs of both elements and which will lead to gainful employment. Instruction is also offered to meet needs for retraining, upgrades, and personal enlightenment.

The college started a hazardous materials management program in the fall of 1991 which has since been renamed environmental management. The purpose of this program is to prepare students for environmental careers, to provide required training such as OSHA HAZWOPER and refresher courses, and to provide educational opportunities that would make the public more environmentally aware. The program content needs to be studied to ensure we're meeting the needs of the students and the business community. There had not been a significant opportunity to conduct this research.

Problem Identification

The Santa Fe area has traditionally had a large population of Hispanics and is in close proximity to a number of Indian Pueblos. The demographic makeup of the area is changing, however, becoming more Anglo than Hispanic for the first time in centuries. This is occurring at the same time that the Hispanic population is on the rise in other areas. Most indices seem to point to the decline in the Hispanic population as a reflection of economic factors that have forced many lower income Hispanics to leave the Santa Fe area. They have had to leave in order to find affordable housing and also to find employment that offers a living wage. Santa Fe housing costs are high, many jobs are in the hospitality industry and are traditionally low paying, and many Hispanics have few skills that would lead to higher paying jobs.

Program Description

The objectives of the research project were to

1. Define environmental training needs in the Santa Fe area in government (federal, state, and local), business and industry, education, and in the private non-profit sector.

2. Define the jobs available in the environmental field in the Santa Fe area, the skills/educational levels needed for those jobs.
3. Explore possibilities for expanding environmental job opportunities based on regulatory requirements, local conditions, and trends that may point to emerging opportunities for entrepreneurial efforts.
4. Identify the skills necessary for existing and potential jobs.
5. Develop partnerships between the community college and existing environmental employers for training new employees and upgrading existing employees.
6. Develop strategies for recruiting minorities into environmental programs.

The project was directed by Mary Ann Walz, a faculty member of Santa Fe Community College's Environmental Management Program. Students, Donnie Anderson and Judy Pino, were used as assistants in completing the project objectives.

The methodology used included the development of two survey instruments that served as the basic outline for gathering information from businesses and for interviewing individuals about environmental training needs, jobs, skills, and future growth in environmental areas. Results from the interview and information gathering process have been used to compile this report that addresses the above objectives.

The analysis of the Santa Fe area environmental market and demands made possible by the needs assessment will allow for a more responsive program in environmental studies at Santa Fe Community College. It will also make it possible to design a program that is attractive to recent high school graduates, allowing them to gain skills that will make them employable in their own communities and which will provide wages that are higher than in the hospitality industry.

Survey Results

During the interview process, it was found that many businesses were not eager to provide information. Individuals were much more cooperative. The findings will be broken down into responses from individuals and from the businesses since there were different instruments used to conduct the interviews.

Survey/Interview Responses From Individuals

Surveys indicated an overwhelming concern with water quality issues. Other major areas of environmental concern in the Santa Fe areas were population growth and the effects human populations have had on the environment. Some of those effects included work that LANL has done in the past and currently, how development has impacted the environment, and the loss of biodiversity as populations grow and the amount of open land shrinks. Concerns about activities at Los Alamos National Laboratory were mentioned by just a few of the respondents. Most felt that human populations were to blame for the loss of environmental quality.

Respondents felt that unmet environmental needs in the Santa Fe area included increased

development without adequate restrictions which leads to other problems including depletion of the aquifer, overuse of natural resources, traffic problems, and pollution issues related to human activities. Respondents also said that solid waste issues need more emphasis such as recycling and the reuse of graywater.

Suggestions for education and/or training needs included starting with children, teaching them to prevent pollution as opposed to many of our efforts to clean up after past mistakes; training individual to conduct community meetings on environmental issues; establishing an information clearing house for environmental questions; more public awareness of issues was needed, especially on how to influence the political arena to be concerned about environmental issues and then actually do something about those concerns. The prevailing thought seemed to be that education for all ages was important if we are to maintain and improve the environment.

Respondents were personally interested in environmental education or training in the following areas:

- water quality, quantity, and wise use such as water harvesting, constructed wetlands
- seminar classes with different topics/speakers each week
- environmental restoration
- natural history, natural systems, forest ecology
- natural resource management, watershed management, soil health
- waste minimization
- hazardous materials, household hazardous waste
- low tech solutions to environmental problems
- permaculture
- landscaping
- botany

Some of the respondents were currently meeting their training and education needs through Santa Fe Community College classes. Others meet their needs through watching public television, reading, on-the-job training, and community services classes. Some felt they were not meeting their needs and asked for a wider variety of classes. Sixty-two percent of the respondents had taken classes at SFCC and a majority had taken one or more classes in environmental topics. Not all of those were in credit classes. Many had taken a combination of credit and community services classes. The respondents who hadn't taken classes at SFCC either met their needs elsewhere, didn't have enough free time, or they were not aware of the scope of classes available. Other comments included a suggestion to have a forum for teaching local environmental issues to public school teachers, have a wider variety of science classes such as botany and zoology, and have more science classes available in the evenings. Environmental education needs to include field trips and experiences outdoors.

Respondents were unanimously in favor of supplementing environmental classroom education with outdoor field experience. Some of the experiences suggested were field trips to nearby areas to observe and study natural phenomena in actual systems and to see how natural processes worked. The vast majority suggested that SFCC should have an outdoor area set

aside for a learning lab. Part of the area should be left undisturbed so students could observe the land in its natural state. A part of the land should be set aside for demonstration projects including a constructed wetland for wastewater treatment, demonstration gardens for xeriscape plantings, community gardens, permaculture display gardens, a botany lab for desert and mountain plants, a range science and soils lab, storm water purification system, one or several wells to teach monitoring techniques. Another suggestion was to have an area to study the transport of hazardous materials through water and soil sampling, but this should be in an area already contaminated.

Survey/Interview Responses From Businesses

Businesses, schools and government agencies in the Santa Fe community were asked to complete questionnaires, usually through an interview process. Businesses and government agencies were selected that were believed to have some involvement with environmental issues including the use of hazardous materials in their business. The results of the survey process were somewhat disappointing although not unexpected.

A number of the business representatives refused to participate in the needs assessment. Others indicated that they had no need for any kind of environmental training and/or they had no job classifications that required having any knowledge or experience in environmental areas. All businesses selected were believed to have need for training in OSHA's Hazard Communication Standard at a minimum because their enterprise involved the use or sale of hazardous chemicals. Based on comments received during the interview process, some businesses were afraid the needs assessment had something to do with a government audit of regulatory compliance and were therefore reluctant to answer questions.

Based on the survey results, it was clear that some organizations had no interest in any type of environmental issues, education, or concerns. For example, a school unit supervisor with forty-five employees responsible for maintenance marked "NA" on every question but did take the time and effort to have the survey responses typed. It seems highly unlikely that a large maintenance unit such as this would not have any hazardous chemicals such as refrigerants, paints, cleaning supplies, pesticides, or fertilizers.

Those businesses that did respond indicated that most of the education and/or training that was provided to employees was either done in-house, was provided by a distributor of chemicals, or was from a corporate headquarters. Government agencies were more favorable in using local educational institutions such as the community college for their employee training needs. One government agency indicated that most of their employees had bachelor's degrees and therefore could not benefit from classes at a community college.

Environmental issues of concern to businesses and organizations included the following:

- pesticide use
- water quality and quantity
- population growth and community planning
- wastewater treatment
- solid waste

emergency planning
environmental impacts of hazardous materials

A surprising result was that there was virtually no mention of any training needs or concerns related to employee exposure to hazardous chemicals, even in those businesses where exposure risk could be significant. It was not clear if this was a lack of knowledge about the hazards of exposure or if they simply didn't care.

Recommendations

Following are recommendations as a result of the comments from the questionnaires.

1. Some of the environmental concerns in the community are currently not being addressed in any classes in the Environmental Management Program. It is recommended that topics classes be developed in these areas to meet the apparent need. If enrollments in topics classes indicate popularity, then the class will be added to the catalog listing.
2. Information about environmental topics of concern to current students will continue to be solicited at least once a year in order to make sure we are offering classes that are of interest to students.
3. The assessment interviewees indicated the need for an outdoor study area in which to apply some of the learning. In many cases, field trips to local sites or facilities could meet this need. To the extent possible, classes in environmental subjects will include appropriate field trips. During the design stage for classes and in consultation with instructors, plans for field trip sites will be worked out and made a part of the curriculums of classes
4. The survey indicated a need for an outdoor study area on campus to demonstrate appropriate environmental management practices including created wetlands for wastewater treatment, water conservation, permaculture, and an area to demonstrate sampling methods. This concept had previously been presented to the SFCC administration as a request to seek grant funds for the planning and development of an outdoor class area. The administration at that time would not allow the solicitation of grant funds because a master plan for the campus had not been completed. Now that a needs assessment has indicated a need, the idea can be resubmitted to request permission to write a grant.
5. The survey indicated that jobs related to environmental issues needed employees with skills in sampling techniques, knowledge of water issues, landscaping skills, and knowledge of environmental concerns related to community planning. Classes can be planned to meet some of these needs but other classes would require some type of lab space. There is currently not a space to do this.

6. The survey didn't provide any significant feedback on how to better serve minority students. It will be necessary to continue work on this area of concern. A current project planning a summer environmental institute for teachers may help public school teachers stimulate an interest in environmental fields in the minority students in their classes. This would then lead to greater minority participation in environmental classes at SFCC.

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