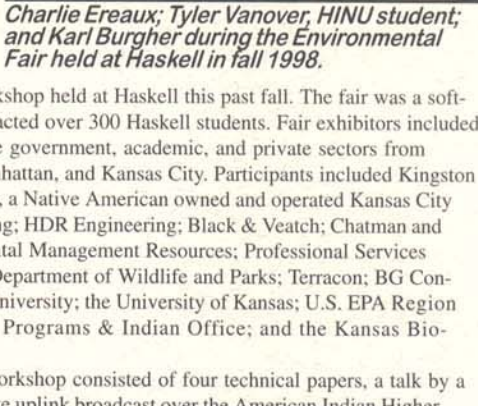




## Environmental planning initiative for Native communities underway

by Karl Burgher, Montana Tech of the University of Montana

Haskell Indian Nations University and Montana Tech of the University of Montana are involved in a project to enhance decision-making capacity and human resources in small, rural Native American communities that have environmental problems. The Environmental Planning in Small Native American Communities (EPSNAC) project will have an outreach component in at least two tribal communities. The project will also serve as a means to assess technical assistance needs in numerous small Native American communities providing information to other parallel projects.



Charlie Ereaux, Tyler Vanover, HINU student, and Karl Burgher during the Environmental Field held at Haskell in fall 1998.

The EPSNAC Project involves four phases. The first phase of the project included a fair and workshop held at Haskell this past fall. The fair was a soft-sell trade show that attracted over 300 Haskell students. Fair exhibitors included representatives from the government, academic, and private sectors from Lawrence, Topeka, Manhattan, and Kansas City. Participants included Kingston Environmental Services, a Native American owned and operated Kansas City firm; Starfire Engineering; HDR Engineering; Black & Veatch; Chatman and Associates; Environmental Management Resources; Professional Services Industries; the Kansas Department of Wildlife and Parks; Terracon; EPA Region 7—Office of External Programs & Indian Office; and the Kansas Biological Survey.

The format of the workshop consisted of four technical papers, a talk by a tribal elder, and a satellite uplink broadcast over the American Indian Higher Education Consortium (AIHEC) Telecommunications Network. Charlie Ereaux, an Assiniboin-Gros Ventre Elder from Fort Belknap, began the workshop. Ereaux spoke on how human beings should treat the environment to ensure a clean place to live for the next seven generations. Additional workshop participants included Gerald Wagner, Bill Allen, Sam Kitto, and Dan Wildcat. Gerald Wagner is the director of the Blackfeet Nation's Environmental Program and chair of the Haskell Environmental Research Studies (HERS) Center Advisory Board. He spoke about the Blackfeet Nation's solid waste program. Bill Allen,

■ continued on page 3

## On page...

- 2.....Director's Corner
- 3.....EPIC Course
- 4-5.....HERS Profile
- 6.....TOSNAC Update
- 7.....Available Videos
- 8.....Field Technology Course

2

## Knowledge transfer and tribal nations

by Daniel Wildcat, Haskell Indian Nations University

Knowledge Transfer in the Hazardous Substance Decision-Making Process: this was the title of a Hazardous Substance Research Center Technology Transfer Conference that Wendy Griswold and I attended last fall in Estes Park, Colorado. My hat is off to the planners and organizers of the conference. The issue they sought to address is too often never explicitly discussed: the implicit complexity of environmental problems. By definition, environmental problems are complex because most environmental problems are complex.

Nevertheless, for the most part engineers talk to engineers, scientists talk to scientists, community organizers talk to community organizers, etc.—you get the picture. It should not be surprising that when real problems emerge and require everyone's input to address the problem, i.e., the regulators, technology developers (entrepreneurs), site owners, environmental justice advocates, and other stakeholders, that each of these necessary participants in the decision-making process may not know how to communicate very effectively with the other participants.

Even more disturbing is the consequence of this failure to communicate: community stakeholders, engineers, the site owner(s)—everyone is convinced that the other parties in this decision-making process are not listening. The point is, they may indeed be listening but literally not hearing what each party "obviously" understands her/himself to be saying. Everyone accuses the others of just not understanding—this may in fact be true. This is a basic speech communication lesson, but one too often lost in the real world where the environment suggests there is some advantage to both 1) environmental specialists and professional niches with unique vocabularies and 2) our human attachment to communities with identity bound up in a strong sense of place.

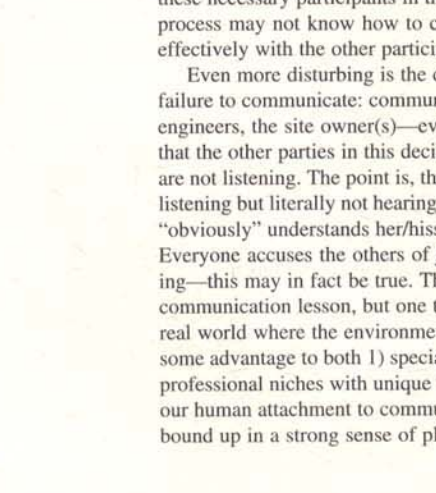
Understanding is difficult to attain, but it is the sense of place, I believe, ultimately in the big picture and in our everyday activities, which creates literally the common ground on which we can build a democratic communicative discourse for Knowledge Transfer in the Hazardous Substance Decision-Making Process (KT-HS-DMP). One additional point must be made: understanding does not always mean agreement. The implication of this point for our ideas of consensus is of critical importance and deserves its own treatment. KT-HS-DMP is not easy; we must work at it.

What I was reminded of at the Estes Park meeting is that we spend very little time working on this problem. Why? Because until very recently the only time everyone got together was when we had a problem to solve. I applauded the efforts of the EPA, tribal governments, and other agencies to remedy this situation. The Point/Counterpoint exercise at Estes Park set up a problem and simulated a problem-solving process that explicitly asked the players (technology developers, federal and state regulators, site owners, environmental justice advocates, and community stakeholders) to explain where they were coming from—those everyday places of workplace (widely varying of itself), education, home, and governmental rules and regulations (a world unto itself, it often seems).

I was also reminded that solutions to environmental problems are always social, technological, and economic in character. The Point/Counterpoint exercise at Estes Park reaffirmed for me that it is the "obvious" aspects of each of our little places and spaces in the world that others have not experienced that makes it difficult for us to effectively communicate. Our assumptions about the obvious are usually problematic. As the late great baseball player Satchel Paige once told a young player seeking advice, "It ain't what you don't know that causes you problems. It's what you know that just ain't so that gets you in trouble."

As I think about the Haskell Environmental Research Studies (HERS) Center and its mission, I hope we can continue to cooperate, partner, and generally support the efforts of all parties in the KT-HS-DMP. I hope the Hazardous Substance Research Centers will have other meetings and several simulations of the KT-HS-DMP. I know several Indian Nations that would participate.

■ continued on page 5



Dan Wildcat, co-director of HERS, is also an instructor of American Indian Studies at Haskell.

3

## Course offerings expand as Haskell grows

by Wendy Griswold, Kansas State University

As Haskell Indian Nations University continues to grow as a baccalaureate degree-granting institution, new course offerings are being developed. One of these courses is Environmental Protection in Indian Country (EPIC), which is being taught for the first time this spring. This course is designed to explore the nature and scope of tribal sovereignty and its interplay with environmental protection and tribal culture.

This course was developed as a result of Haskell faculty being involved in local environmental justice issues. Exposure to the National Environmental Policy Act (NEPA) implementation process led Bill Welton, Natural Resource Instructor, and Venida Chenault, Director of the American Indian Studies Program, to recognize the need for a course that helped students explore the language, concepts, and jargon associated with environmental laws and policies. Emphasizing on cultural and spiritual dimensions in applying environmental policies is a key element of the course.

Students currently enrolled in the course represent such disciplines as American Indian Studies, business administration, and environmental science. The EPIC course partially fulfills a requirement at Haskell for Alaska Native/Native American courses focusing on philosophy, literature, government, and culture. It is also a recommended course for environmental science majors.

The course uses two textbooks, *Ecocide of Native America*, by Donald Grinde and Bruce Johansen; and *Environmental Planning for Small Communities*, published by the U.S. Environmental Protection Agency. Welton, the course instructor, uses *Ecocide of Native America* to help students explore the cultural and spiritual aspects of environmental policy and protection in Indian Country. *Environmental Planning for Small Communities* provides students with a basic understanding of environmental planning and how to find solutions to problems such as wastewater, solid waste, and non-point source pollution. In addition to lectures and assigned readings, Welton uses guest presenters and case study evaluations to encourage students to explore environmental issues pertinent to tribal communities. Guest presentations used during this course include health professionals, community activists, and environmental scientists and consultants. Topics covered in the course include tribal sovereignty and self-determination; environmental justice; environmental regulations and policies such as NEPA, and the Clean Air and Clean Water Acts; risk assessment; and perspectives on sustainability.

Welton intends to offer Environmental Protection in Indian Country each semester. For more information on Haskell's Environmental Science and American Indian Studies programs, please visit its web site at <http://www.nass.haskell.edu/NASS/NASS.html>.

## Tribal environmental programs focus of workshop

■ continued from page 1

from the Kickapoo Nation's environmental program, discussed his tribe's wastewater solutions. Sam Kitto, wetland coordinator for the Sante Sioux Tribe, spoke to the crowd about his wetlands successes. Dan Wildcat, co-director of the HERS Center, shared information on the Pesticide Technology Curriculum for Native Americans that is being developed at Haskell. The individual speakers came together at the end of the workshop to discuss tribal environmental issues as a group. This discussion was broadcast via satellite to the AIHEC community.

Phases two through four of the EPSNAC project include a semester class, a short course, and technical assistance and outcome assessment. The

workshop was offered as part of the Environmental Protection in Indian Country course at Haskell (see related article on page 3). The short course is also based on this manual and is being prepared by Butch Gerbrandt, an environmental engineering professor at Montana Tech. The short course will be delivered to at least two tribal communities and may be broadcast via the AIHEC Tribal Telecommunications Network. As Dr. Gerbrandt delivers the short course, he will assess the technical assistance needs of the local area and provide this information to Haskell's Technical Assistance for Native American Communities program.

For more information on the EPSNAC program,

4

## HERS profile: Steve Semken, geology professor at Diné College

by Patterson T. Yazzie, Haskell Indian Nations University

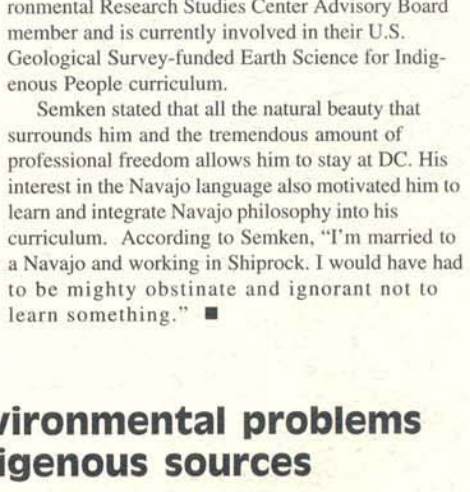
Steve Semken heard about Diné College (DC), formerly Navajo Community College (NCC), at a campus pub where he bartended when he was a doctoral student at Massachusetts Institute of Technology (MIT). One of his most-valued faculty mentors at MIT, Gretchen Kalonji, was asking him about his career plans in late 1986. A school that produces highly sought-after research scientists steered Semken's interests to teach at a small college. He was interested in getting back to the Southwest, where he had done his master's degree research for UCLA. Kalonji had traveled extensively in the Southwest and had Navajo friends, and she recommended NCC.

Semken received his bachelor of science degree in earth and planetary sciences (mostly geology) from MIT in 1980. He went directly to graduate school at UCLA and received his M.S. in geochemistry in 1982 where he did his research in the Mojave Desert. He then moved from the study of rocks to synthetic materials and finished a Ph.D. in materials science at MIT in 1989. Semken said, "Materials science was and still is one of the most exciting areas in all of science, but I miss the fieldwork and close contact with nature inherent in geology."

"I came to DC in large measure because it is a Navajo college. I completely support, and in fact delight in, DC's explicit mission to sustain and promote Navajo culture and language, and my work is my effort to contribute to this." He integrates Navajo philosophy and traditional knowledge into his curriculum. Semken said that the students strongly appreciate and support it. The incremental changes to the curriculum are significant and valued by the administration and the Navajo people. "The research, planning, and design that go into such integration are bona fide scholarly activities that have lately (at least in the area of geoscience education) received considerable attention from the 'mainstream' scientific community," said Semken.

Semken said that it is difficult work and he never has enough time to study and think as deeply as he would like on the subject. He figures he still needs at least 20 more years to get most of the important things down and to be more fluent in the Navajo language. "I still consider my grasp of traditional Navajo knowledge to be extremely superficial, and as a scholar, I am troubled by that," said Semken.

"I think it depends on how well the indigenous knowledge is valued," stated Semken when asked if integrating indigenous traditional knowledge will work at other institutions. He concluded that there is no need to justify this work to one's colleagues at tribal colleges such as DC, or other schools that serve predominantly minority or specific ethnic populations. "In some scientific fields, such as geology and ethnobotany, study of indigenous knowledge is nothing new. It would certainly be



Steve Semken teaches geology at DC's Shiprock campus.

appropriate to apply indigenous methods of teaching to the material," said Semken.

In 1991, Semken founded the Navajo Dryland Environments Laboratory (NDEL), a research and educational institute within Diné College-Shiprock. NDEL focuses on the study and teaching of earth and environmental sciences with grant support from the Waste-management Education and Research Consortium (WERC). WERC is part of a statewide consortium of universities and national laboratories, funded principally by the Department of Energy (DOE). NDEL provides logistical and technical support for research and teaching; this includes a research laboratory, two teaching laboratories, and a comprehensive library.

Semken is still involved with the study, and hopefully soon the remediation, of groundwater and soil contamination at the former Shiprock uranium-mill site. DC students are involved in this work and have assisted with the M.S. thesis research of Bernadette Tossie (now with U.S. EPA) at the site.

■ continued on page 5

## Semken's work aids college, community education

■ continued from page 4

Semken said that DOE has increased its monitoring of the site and they are collaborating with them. Semken and his students assist the Uranium Education Program at Diné College in educating community members about environmental hazards related to past uranium mining and processing. NDEL is part of the LA RISTRA project, which is a two-year geophysical study of the structure of the crust and mantle beneath the Colorado Plateau and Rio Grande Valley, directed by New Mexico State University, New Mexico Tech, and Los Alamos National Laboratory.

Most of what NDEL has done thus far is through their own programs: enhancing the environmental content of the undergraduate curricula, offering workshops for teachers and other community members, and conducting faculty-student research in a few areas such as uranium and groundwater. In the near future, Semken would like to tailor some of this activity more specifically to help Navajo agencies with their missions. He said that NDEL might offer continuing education programs for environmental professionals, student internships at various agencies, help with community education programs, or collect and provide needed environmental data.

Semken said that some of the environmental concerns facing the Navajo Nation are water quality and quantity, domestic and commercial waste management (landfills, etc.); land use and land degradation, air quality, environmental and health hazards from old mines and mills, and community education. He believes the capability is there, involving both traditional approaches to environmental management and knowledge of new technologies, to address the environmental concerns. He said that many well-educated, intelligent, motivated, and highly capable people work for the various Navajo

environmental and resource agencies. They have accomplished projects such as reclamation of many abandoned mines, cleanup of dumps and establishment of transfer stations, and tighter monitoring and regulation of air and water quality. Semken said the chronic problem is funding for environmental programs.

Semken recently became co-principal investigator for the National Science Foundation-funded Navajo Nation Rural Systemic Initiative where he is helping develop culturally integrated K-12 science and math education standards for the Nation's schools. He said that the work they have been doing at DC is a foundation for this much broader effort.

Semken is also involved in geoscience education reform nationally, as vice-president of the National Association of Geoscience Teachers and an education advisor to the American Geophysical Union. Both of these organizations are national professional societies. Semken spent 1998 as a visiting professor of geochemistry at the U.S. Air Force Academy in Colorado Springs, Colorado. During his time there, he had the opportunity to work with Native American cadets. Semken also serves as Haskell Environmental Research Studies Center Advisory Board member and is currently involved in their U.S. Geological Survey-funded Earth Science for Indigenous People curriculum.

Semken stated that all the natural beauty that surrounds him and the tremendous amount of professional freedom allows him to stay at DC. His interest in the Navajo language also motivated him to learn and integrate Navajo philosophy into his curriculum. According to Semken, "I'm married to a Navajo and working in Shiprock. I would have had to be mighty obstinate and ignorant not to learn something."

## Wildcat: solutions to environmental problems aided by input from indigenous sources

■ restated from page 2

Let's restate the obvious: environmental problems are complex with many dimensions. Consequently, the solutions have many dimensions that can only be incorporated through a process. I think indigenous people have insights that might be helpful in developing models of knowledge transfer. Central among these is the recognition that environmental issues are

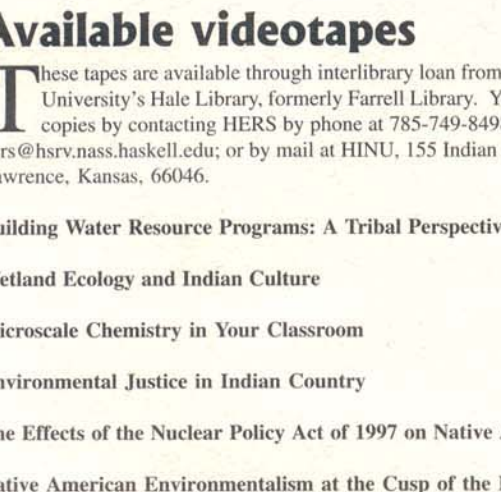
primarily about places and the significance attached to places by many persons. Let the HERS Center know if you have some ideas or activities that explore knowledge transfer. We need to get together before problems present themselves. Who knows? We actually might learn something about proactive environmental planning and action. ■

6

## Requests for tribal outreach increase

by Brenda Brandon, Haskell Indian Nations University

Recently the number of requests for Technical Outreach Services for Native American Communities (TOSNAC) assistance on Tribal Lands has increased. Due to this demand for technical assistance, other Hazardous Substance Research Center (HSRC) universities have developed a partnership with the Haskell Environmental Research Studies (HERS) center to address hazardous waste issues in Indian Country. TOSNAC is currently providing services to nine tribes and three Alaskan Villages. The HERS Center supports numerous other tribes through environmental research, education, and communication networking on a daily basis.



Michael Fernandez, Western Region HSRC; "Ricki" Ashby, IGAP/EPA director, Noatak Village; and Brenda Brandon at the Tribal Risk Assessment Conference.

Brenda Brandon, TOSNAC Coordinator, and Michael Fernandez of the Western Region HSRC, Oregon State, attended an EPA Region 9 conference on Tribal Risk Assessment in Las Vegas, Nevada, December 8-10, 1998. Environmental professionals representing six tribes gave presentations of the approaches used to address cultural issues revolving around the impact of hazardous substances on tribal lands. Tribal presentations focused on many interesting topics, including: consideration of tribal cultural values by Hazardous Ranking System, comprehensive evaluation of cultural impact at Superfund sites, development of Tribal Council-approved environmental quality standards, historical research and public participation in inventory processes of Tribal resources, and co-management of sustainable resources that accommodate traditional cultural value systems.

Approximately eighty participants from EPA, universities, and tribal organizational and professional fields were involved in the "listening and sharing sessions" in order to identify problems with and to refine the Superfund site assessment and risk assessment processes. The conference provided an excellent opportunity for Fernandez and Brandon to introduce the TOSNAC program and discuss issues with representatives from several tribal communities.

Environmental director of the Alaskan Noatak Village, "Ricki" Ashby, discussed the status of efforts to remediate environmental damage to village land and water. Since the conference, participants from the Alaskan Villages of Point Hope and Mekoryuk have initiated TOSNAC phone consultations to address mine waste and water sampling quality control issues, respectively.

As a result of the EPA Region 9 Tribal Risk Assessment Conference, the Elem community of Clear Lake, California, has made a request for technical assistance. A combination of hydraulic pressure and heat generated from the geothermal lake has pushed tailings and dissolved metals from a closed mercury mine through mine shafts, causing acidic conditions and high mercury levels in the water. As a result, water quality, fishery resources and associated wetlands have been grossly impacted at the Superfund site. The Elem community is requesting educational resources and training on the Superfund process in order to work closely with the EPA in decision-making processes and cleanup activities. Mary Masters of Stanford University, Western Region HSRC, has offered assistance and will be coordinating outreach with Brandon.

Brandon also attended the February Former Badlands Bombing Range Restoration Advisory Board (BBR RAB) meeting at the Ogilala Lakota College (OLC) in Kyle, South Dakota, and met with archival researcher and data manager, Keena Clausen at the BBR Restoration Office in Pine Ridge. An investigative undertaking of the potential accumulation of toxic levels of metals in specific plants of interest to the Ogilala Community is being coordinated with the help of OLC students and staff and Dr. Michael Lambert of Kansas State University. Through coordination of the BBR Project Office, plans are underway to organize an informal meeting with tribal elders to establish TOSNAC relations and exchange information with key community members for future outreach. ■

8

## Field-based site characterization technologies course to be offered at Haskell

Haskell Indian Nations University will be the site of a new and exciting technology course to be offered June 21-25, 1999. The course, *Field-Based Site Characterization Technologies*, will be taught by the Environmental Protection Agency's (EPA) Technology Innovation Office (TIO).

The *Field-Based Site Characterization Technologies* course is designed for environmental professionals and regulators involved in the use or implementation of site characterization technologies or data interpretation. Participants should have a general science background; a general understanding of data quality; and an understanding of approaches to performing a site characterization and sampling methodology for soil, air, and water. The course includes an overview of several geophysical, organic chemical, and inorganic chemical characterization techniques, and data interpretation methodology.

Advantages and limitations of the different technologies will be discussed, along with sampling design and implementation for data quality control considerations. Participants will gain hands-on experience with common site characterization technologies and assistance with data interpretation. This is an excellent opportunity to provide tribal scientists, technicians, or environmental directors with an introduction to a wide array of technologies that can

be used on site to characterize the chemical and physical nature of a hazardous waste site.

To learn more about the course, read the description at [www.trainex.org](http://www.trainex.org). Registration can be completed on the Internet at this address or by calling the registrar at (301) 589-5318. The Haskell Environmental Research Studies Center will also provide registration forms upon request (call toll free: 1-877-4TOSNAC). Upon receiving the registration form, please note that it is actually listed as two courses, *Field-Based Site Characterization Technologies* course and *Field-Based Analytical & Sampling Technologies: Planning & Process*. Be sure to sign up for both sessions.

Because there is a limit to the number of participants, it is strongly recommended that tribes send the most qualified professional from each tribal environmental program. There is no registration fee. However, cost of travel, meals, and lodging must be provided at the participant's expense. A block of rooms has been reserved at government rates at the Ramada Inn of Lawrence (785-842-7030 or 800-2RAMADA).

For more information on this course, please contact Brenda Brandon, TOSNAC Coordinator, at 877-4TOSNAC or [bbrandon@ross1.cc.haskell.edu](mailto:bbrandon@ross1.cc.haskell.edu).

**Center Directors**  
George Godfrey  
and  
Dan Wildcat

**TOSNAC Coordinator**  
Brenda Brandon

**Supporting Faculty**  
Bill Curtis  
Dennis O'Malley  
Mike Tosee

**Wendy Griswold and Patterson T. Yazzie**

**Medicine Wheel Graphic**  
Leslie Evans

**Advisory Board Members**  
Don Aragon, Karl Burgher, Sharon Crowley, Ray Haner, Sadie Hoskie, Ella Mulford, Steve Semken, Charlie Shaifer, Gerald Wagner, Benjamin Whiting

Earth Medicine is published quarterly by the Haskell Environmental Research Studies Center to serve as a means of communication for members of the center's consortium and the public. The Office of Research and Development, U.S. EPA, under agreement #R-819653, through the Great Plains/Plains Mountain Hazardous Substance Research Center, provides \$1,101,757, or 70 percent of this publication does not necessarily represent the views of that agency. No official endorsement should be inferred.

Printed on recycled paper.

Haskell Indian Nations University  
KSTATE  
Kansas State University

Bluk Mail  
U.S. Postage  
Permit No. 187  
Lawrence, KS 66044

Please send a free subscription of Earth Medicine to:

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone and FAX \_\_\_\_\_

785-749-8198/FAX 785-832-6637  
t@haskell.edu  
Lawrence, KS 66046  
1551 Elmwood  
Haskell Environmental Research Studies Center