



CAL POLY

Irrigation Training & Research Center

Cal Poly's Irrigation Training and Research Center (ITRC) has been providing professional services for more than eight years to Native American tribes through an agreement between the research center and the Bureau of Indian Affairs (BIA). The agreement covers lands contained in the federal congressionally authorized Indian Irrigation Projects through the Central Office of the BIA.

The project is led by Professor Daniel Howes in the BioResource and Agricultural Engineering (BRAE) Department. In 2022, the agreement between the ITRC and BIA was modified to include other tasks and an additional \$750,000, bringing the funding to over \$5.3 million since the contract was first signed by Cal Poly.

The ITRC has completed or is working to complete modernization plans for 15 of the 17 congressionally authorized irrigation projects. In most cases, these irrigation projects were constructed over 100 years ago and for a variety of reasons, have not been properly maintained.

The ITRC modernization plans provide a detailed strategy of where and how money should be invested, when it becomes available, to improve district operations, water use efficiency, and meet Tribal water needs, both for irrigation and environmental purposes. Through the Water Infrastructure Improvements for

the Nation Act and other federal and state programs, funding is finally reaching these projects so that modernization construction can begin. The ITRC is supporting the modernization implementation at most of the 15 project sites. This includes design reviews to ensure that the structural designs provided by engineering firms meet the hydraulic design requirements provided by ITRC engineers.

The ITRC-BIA cooperative agreement contract is designed to help improve the operations, safety and effectiveness of BIA irrigation projects. Tasks include:

- Providing irrigation-related training on site at Cal Poly.
- Providing follow-up support to BIA Irrigation Safety Guidelines.
- Supporting the development of a student recruiting and mentoring program targeted toward Native American engineering and water technician programs.
- Conducting modernization studies at BIA irrigation projects.
- Providing general technical support related to technical irrigation issues.

Staff engineers from the BIA's central office sought out the ITRC to conduct this work because of the center's 30 years of experience in irrigation project modernization and worldwide reputation. This technical assistance related to irrigation project modernization



has covered over 780,000 acres of agricultural land that generates over \$1 billion annually in tribal areas throughout the Western U.S.

BRAE Professor Emeritus Charles Burt, chairman and founder of the ITRC, supervises several BIA projects. He recently completed a modernization plan for the Crow Irrigation Project in Montana that gives the tribe direction on how to best utilize available funds and provides an overall strategy for improving the irrigation project, including important hydraulic designs for sites throughout the system. The ITRC's plan features details aimed at improving safety, making the system easier to operate and providing better service to the water users. The independent technical assistance was well received by Crow Tribe management. For a graphic of what sorts of services are provided, see www.itrc.org/projects/fiip.htm. This important contract between the ITRC and BIA has helped spread

the Cal Poly brand throughout the Western U.S., expanding awareness of the expertise of graduates from the College of Agriculture, Food and Environmental Sciences and specifically the BRAE program. Just this past year, DOWL Engineering, a firm that works throughout the Northwest on many BIA irrigation projects, hired a BRAE graduate for a water engineering position in a Montana office and has requested a BRAE intern over the summer.

Financial benefits to Cal Poly have included significant funding to cover the costs of research administration through the Cal Poly Research, Economic Development and Graduate Education (R-EDGE) unit, which provides critical support to university centers through services such as managing the campus proposal approval process, approving awards, invoicing and managing personnel issues. The contract also supports the work of ITRC student employees, who are

supervised by registered engineers who work on ITRC staff. The students gain valuable professional experience to add to their resumes. A key benefit to the BRAE Department is additional critical funding to maintain training and teaching facilities at Cal Poly.



Dr. Dan Howes of Cal Poly ITRC (back, third from left) with tribal staff at Blackfeet Irrigation Project in Browning, Montana.