

**STATEMENT OF THE AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM
PREPARED FOR THE U.S. HOUSE OF REPRESENTATIVES - COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON COMMERCE, JUSTICE, SCIENCE, AND RELATED AGENCIES**

April 29, 2021

On behalf of the nation's Tribal Colleges and Universities (TCUs), which are the American Indian Higher Education Consortium (AIHEC), we are pleased to present our Fiscal Year 2022 (FY2022) recommendations regarding the National Science Foundation's TCU Program (NSF-TCUP), Louis Stokes Alliance for Minority Participation (LSAMP), and the National Aeronautics and Space Administration's Minority University Research and Education Project (NASA-MUREP). We respectfully recommend the following funding levels:

National Science Foundation (NSF)

Education and Human Resources Directorate (EHR):

- **Tribal Colleges and Universities Program (TCUP):** *TCUs urge the Subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$20,000,000 for FY2022.*
- **Louis Stokes Alliance for Minority Participation (LSAMP):** *TCUs urge the Subcommittee to support the NSF- LSAMP program with an added emphasis for American Indian, Alaska Native, and TCU students.*
- **TCUs support President Biden's \$100 million request to advance racial equity in science and engineering.**

National Aeronautics and Space Administration (NASA)

- **NASA Headquarters, Office of Education - Minority University Research and Education Project (MUREP):** *TCUs urge the Subcommittee to expand the NASA MUREP program with robust funding and establish a TCU-specific program within MUREP at \$5,000,000 for FY2022*
- **TCUs support President Biden's \$20 million request to expand initiatives to attract and retain underserved and underrepresented students in engineering and other STEM fields.**

Tribal Colleges and Universities: Raising and Training the Nation's Native STEM Workforce

TCUs are an essential component of American Indian and Alaska Native STEM education, research, and workforce. Currently, 37 TCUs operate more than 75 campuses and sites in 16 states. TCU geographic boundaries encompass 80 percent of American Indian reservations and federal Indian trust lands. American Indian and Alaska Native (AI/AN) TCU students represent more than 230 federally recognized tribes and hail from more than 30 states. Nearly 80 percent receive federal financial aid and more than half are first generation students. In total, TCUs serve more than 160,000 AI/ANs and other rural residents each year through a wide variety of academic and community-based programs. TCUs are public institutions accredited by independent, regional accreditation agencies and, like all U.S. institutions of higher education, must regularly undergo stringent performance reviews to retain their accreditation status.

The federal government, despite its direct trust responsibility and binding treaty obligations, has never fully funded TCU institutional operations as authorized under federal law. Yet despite funding challenges, TCUs are responding to the STEM workforce needs across the country. In fall 2020, 1,733 TCU students were enrolled in one of 191 STEM program at TCUs. TCUs have established programs in high-demand fields: 11 TCUs offer pre-engineering programs, two TCU offers bachelor's degrees in industrial and electrical engineering, five TCUs offer STEM teacher education programs, and 14 TCUs offer nursing programs.

These efforts are preparing AI/AN nurses, engineers, and science and math teachers who contribute to a robust pipeline of STEM professionals in Indian Country. TCUs also train professionals in other high-demand STEM fields, including agriculture, information technology, and natural resource management.

TCUs know that to break the cycle of generational poverty and end the culture of dependency that grips much of Indian Country, TCUs must bring industry partners and STEM jobs to Indian Country. TCUs and tribes must promote new Native-owned and operated STEM-based businesses, create public-private partnerships, and build a culture of self-sufficiency and innovation. NSF and NASA funding is essential in supporting this effort to promote STEM-enabled economic development in Indian Country and throughout rural America.

Each of the following federal grant programs has invested in the development of STEM-centered instruction, research, and job creation across Indian country.

NATIONAL SCIENCE FOUNDATION (NSF)

Education and Human Resources Directorate (EHR) – Tribal Colleges and Universities Program

(TCUP): TCUs urge the Subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$20,000,000. The NSF-TCUP, administered by the NSF Education and Human Resources Directorate, is a competitive grant program that enables TCUs and Alaska Native Serving/Native Hawaiian Serving Institutions (AN/NHs) to develop and expand critically needed STEM education and research programs relevant to their indigenous communities.

Since the program began in 2001, NSF-TCUP has become the primary federal program for building STEM programmatic and research capacity at TCUs. For example, NSF-TCUP funding supported Navajo Technical University (Crownpoint, NM) in the development of its electrical and industrial engineering programs, which received accreditation from the Accreditation Board of Engineering and Technology (ABET) in 2018. This marks a significant milestone, with NTU leading the way as the first TCU to receive ABET accreditation.

There are many success stories at the TCUs. In 2014, Cankdeska Cikana Community College, Sitting Bull College, Nueta Hidatsa Sahnish College, and Turtle Mountain Community College established an engineering education partnership with North Dakota State University (NDSU) through funding from NSF TCUP's Pre-engineering Education Collaborative (PEEC). The TCUs and NDSU developed a formal curriculum and support system for students to obtain a bachelor's degree in engineering, beginning with pre-engineering coursework offered collaboratively by TCU and NDSU engineering faculty; then students transition to NDSU to complete their bachelor's degree. The first graduate of the program, Ryan Brown, was a pre-engineering student at CCCC who went on to earn his bachelor of science degree in civil engineering at NDSU in 2018. Brown returned to the Spirit Lake Reservation and currently serves as a project manager for the Spirit Lake Tribal Planning Department.

Growing up in rural Montana, Cody Natoni Sifford (Diné)¹ pursued a degree in environmental science at Salish Kootenai College (SKC) (Pablo, MT), participating in several internships with federal agencies, and completing a master's degree in forest resources at the University of Washington Seattle. Sifford has since

¹ Cody Natoni Sifford, Winds of Change, American Indian Science and Engineering Society, April 2017.
<https://woc.aises.org/content/cody-natoni-sifford-navajo-confederated-tribes-salish-and-kootenai-geographic-information>

returned to Montana to serve as an adjunct professor at SKC and work as a geographic information systems analyst for the Confederated Tribes of Salish and Kootenai forest department.

These success stories notwithstanding, AI/AN students are disadvantaged from pursuing STEM-centered career from an early age. AI/AN youth have the highest high school drop-out rate of any ethnic or racial group in the country. Those who do pursue postsecondary education often require developmental classes before taking on a full load of college-level courses. Placement tests administered at TCUs to first-time entering students in academic year 2018-19 showed that 36 percent required remedial math. Our data indicates that while 51 percent will successfully complete the course, many will take more than one year to do so.

Through NSF-TCUP grants, TCUs and AN/NHs are actively working to address this problem by developing strong partnerships with their K-12 feeder schools to engage students in culturally appropriate STEM education and outreach programs. Salish Kootenai College, located on the Flathead Indian Reservation, created a two-year STEM Academy to prepare junior and senior high school students for college. Participating high school students engage in collaborative work with STEM researchers, conduct culturally relevant research, and take courses to earn college credit.

TCUs use NSF-TCUP funding to provide students with valuable research experience in STEM fields. Through these opportunities, students conduct place-based research that serves their communities and can have national and international impacts. At Northwest Indian College (NWIC) (Bellingham, WA), students are conducting complex research related to food security focused on salmon, shellfish, and indigenous sea cucumbers. Through a partnership with Western Washington University, NWIC graduates continue to pursue their academic and career goals through WWU's master's degree programs. Aaniiih Nakoda College (Harlem, MT) faculty and students monitor streams for contaminants and are investigating West Nile virus vectors; and Sitting Bull College (SBC) (Fort Yates, ND) has established a water quality monitoring laboratory serving the Standing Rock Sioux and surrounding communities. SBC studies show that students participating in the college's research have retention rates that are double the rate of students who are not engaged in research.

Even with its advances and successes, funding for the NSF-TCUP program has been stagnant for years. Therefore, not all of the TCUs have had an opportunity to benefit from this very important program. ***We urge the Subcommittee to expand the competitively awarded NSF-TCUP grants at a minimum of \$20,000,000.***

Louis Stokes Alliance for Minority Participation (LSAMP): TCUs urge the Subcommittee to support the NSF LSAMP program with an added emphasis for American Indian, Alaska Native, and TCU students. In FY2019, \$46 million was appropriated for the LSAMP program to support historically underrepresented students in STEM fields. However, only one TCU was awarded direct funding under this program. The All Nations LSAMP (ANLSAMP) program at Salish Kootenai College (Pablo, MT) has had tremendous success in increasing AI/AN degree attainment in STEM programs. Many small, underfunded TCU STEM programs consider ANLSAMP as an important resource for expanding AI/AN student research opportunities, sharing best practices, and student support. ANLSAMP scholars receive financial support for conference travel, internship opportunities, and research stipends, which would otherwise not be possible. Through the combined efforts of the 23 TCUs and 11 mainstream institutions, more than 2,000 AI/ANs and under-resourced minority students have graduated with bachelor's degrees in STEM. Additionally, a recent survey revealed that more than 80 percent of ANLSAMP participants contacted had either graduated with a

STEM major or bridged to an advanced degree program. Unfortunately, since the creation of the LSAMP program in 1991, NSF has neglected to prioritize AI/AN-serving programs, such as ANLSAMP, which are critically needed to support STEM degree attainment in Indian Country.

In 2018, after several years of *no* funding for a TCU-led grant proposal, \$1 million was awarded through an LSAMP grant and supplement to support TCU students over the next five years. However, it is alarming that less than one percent of the total \$46 million was awarded to TCUs in FY2019. (\$200,000 was provided in new funding, as a grant supplement, to TCUs in FY2019.) ***We ask that the Subcommittee specifically urge NSF to strengthen support for AI/AN students through the LSAMP grant program.***

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Minority University Research and Education Project (MUREP): ***TCUs urge the Subcommittee to expand the NASA MUREP program with robust funding and support a TCU specific program within MUREP at \$5,000,000 for FY2022.*** Under its current design, MUREP provides a range of competitive awards to Historically Black Colleges and Universities, Tribal Colleges and Universities, and other Minority Serving Institutions to recruit and retain underrepresented students in STEM fields. Due to the competitive aspect of current MUREP programs and limited funding, TCUs only receive funding from two MUREP grants: MUREP Institutional Research Opportunity (MIRO) and MUREP for American Indian and Alaska Native STEM Engagement (MAIANSE).

MUREP Institutional Research Opportunity (MIRO)

In October 2019, under the MUREP MIRO program, Sitting Bull College received \$1 million to further develop curriculum for an environmental science master's degree centered on air quality research on the Standing Rock Reservation. SBC students and faculty work with NASA's Langley Research Center, NASA's Goddard Space Flight Center, and the University of North Dakota to develop a regional research facility to monitor air quality on the Standing Rock Reservation. In the same MUREP MIRO award cycle, Navajo Technical University was selected to perform critical research and produce parts through its advanced manufacturing program for the Space Launch System at NASA's Marshall Space Flight Center. NTU's contributions through advanced manufacturing research and innovative parts production are advancing space exploration for the entire nation.

MUREP for American Indian and Alaska Native STEM Engagement (MAIANSE)

The MAIANSE program provides a unique opportunity for direct collaboration between TCUs and NASA to engage students in NASA STEM related activities. Despite its popularity and value, participation in the MAIANSE program has been limited to three TCU projects each grant cycles due to limited funding.

In order to support the past TCU investment, AIHEC supports President Biden's budget request to increase the Office of STEM engagement by \$20 million and ***requests that the Subcommittee expand the NASA MUREP program through robust funding and support a Tribal College and University-specific program within MUREP at \$5,000,000 for FY2022.***

CONCLUSION

Tribal Colleges and Universities provide access to high-quality, culturally appropriate postsecondary education opportunities, including STEM-focused programs, for thousands of AI/AN students. The modest federal investment in TCUs has paid great dividends in terms of employment, education, and economic development. We ask you to renew your commitment to help move our students and communities toward self-sufficiency by full considering our FY2022 appropriations requests. Thank you.