ROSEBUD SIOUX TRIBE
RESOLUTION NO. 2016-166

WHEREAS, the Rosebud Sioux Tribe is a federally recognized Indian tribe organized pursuant to the Indian Reorganization Act of 1934 and all pertinent amendments thereof; and

WHEREAS, the Rosebud Sioux Tribe is governed by the Tribal Council made up of elected representatives who act in accordance with the powers granted to it by its Constitution and By-Laws: and

WHEREAS, BIA is seeking applications - proposals from Indian tribes on Tribal Climate Adaptation Planning Program; and

WHEREAS, Climate Change - drought unusual weather activities, health issues, etc., can impact Rosebud Reservation and health and welfare of the tribal population; and

WHEREAS, RST Water Resources program in conjunction with ICOUP has developed an application - proposal (copy attached) on Tribal Climate Adaptation Skills Development Trainings & workshops Category 1 grant; and

WHEREAS, the grant will be managed by Rosebud Sioux Tribe under Water Resources Program; and

WHEREAS, the application/proposal was reviewed by the RST Land and Natural Resources Committee and they have recommended approval to the Tribal Council; now

THEREFORE BE IT RESOLVED, that the Tribal Council approved the committee's recommendation and direct the Tribal President and Director Water Resources for securing grant funds from BA on climate adaptation skills development and for the project implementation.

CERTIFICATION

This is to certify that the above Resolution No. 2016-166 was duly passed by the Rosebud Sioux Tribal Council in session on June 14, 2016, by a vote of fifteen (15) in favor, zero (0) opposed and zero (0) not voting. The said resolution was adopted pursuant to authority vested in the Council. A quorum was present.

ATTEST:

Julia M. Peneaux, Secretary
Rosebud Sioux Tribe

William Kindle, President
Rosebud Sioux Tribe

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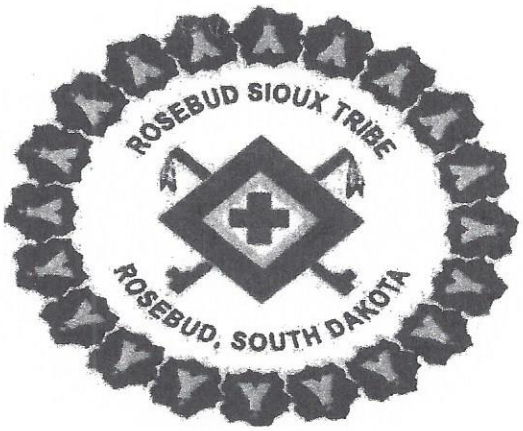


Rosebud Sioux Tribe
11 Legion Avenue
Rosebud, SD 57570
Phone: (605) 747-2381

Full name(s) of the Indian tribe(s) proposed to be served:

The Rosebud Sioux Indian Reservation is the home of the Sicangu Oyate.

Name, title, and signature of the authorized representative
of the Indian Tribe submitting the contract proposal:

President William J. Kindle, President, Rosebud Sioux Tribe
Tribal Contact: Mr. Syed Huq, Water Resources Director,
Rosebud Sioux Tribe
(605) 747-2559

Date of proposal submission:
May 23, 2016

Proposed Project dates:
January 1, 2017 to December 31, 2017

'Tribal Climate Adaptation Planning Program'

(TCAPP)

The Rosebud Sioux Tribe Proposal
for a BIA CLIMATE ADAPTATION PLANNING
Category 1 GRANT
Contract Proposal Content Per 25 CFR 900.8

Rosebud Sioux Tribe
Sicangu Oyate
P O Box 660
Rosebud, SD 57570
Phone: (605) 747-2381

William Kindle
President
Scott Herman
Vice President
Wayne Boyd
Treasurer
Julie Provencher
Secretary
Lil Chairman
Sergeant-At-Arms

May 23, 2016

Helen Riggs, Attn: Climate Change
Deputy Bureau Director, Trust Services
Bureau of Indian Affairs
1849 C St. NW, MS-4620-MIB
Washington, D.C. 20240
climate.funding@bia.gov

Dear Deputy Bureau Director Helen Riggs:

It is with great pleasure I provide the **"Skills for Building Climate Adaptation Scenarios"** grant proposal on behalf of Rosebud Sioux Tribe in response to the recent BIA request for proposals entitled: Climate Change Adaptation Planning, Category 1-Trainings and Workshops.

As the President of the Rosebud Sioux Tribe, I am very much aware of the responsibility tribal governments have with regard to providing the information, opportunities and skills necessary to better prepare our tribe in the protection of our people and our physical, cultural, economic and spiritual assets in the face of accelerating climate change and increasing severe and more frequent natural disasters. Our people, especially our more vulnerable young and elderly, and our water, our agriculture, forests, housing, roads and energy infrastructure are all at risk to the threats and impact of extreme weather events increasing likely to come our way in the years ahead.

We appreciate this opportunity to work with our tribal partners, the Intertribal Council On Utility Policy, SGU and the GPTCA, to provide direct awareness trainings and infrastructure workshops, through federal partners such as FEMA, NIDIS and NDPTC, for our tribal and community leaders, and our program planners and resource managers to be more aware of the nature and extent of the risks we now face and the actions we can take to keep us more resilient.

If you have any questions with regard to this proposal, please direct them to Mr. Syed Huq, who is the Water Resources Director for the Rosebud Sioux Tribe, who will be our tribal contact on this grant. (605.747.2559 and 888.778.5253)

Sincerely,

President William J. Kindle
Rosebud Sioux Tribe
11 Legion Avenue
Rosebud, SD 57570
Phone: 605 747 -2381

(g) *statement of programs, functions, services, and activities the tribal organization proposes to perform:*

BIA CLIMATE ADAPTATION PLANNING
Category 1 GRANT

Tribal Climate Adaption Skills Development Trainings & Workshops

Proposal - The Rosebud Sioux Tribe is applying for a Category 1 award designed to support tribes and tribal organizations to design and host tribal trainings and workshops to assist tribal leaders, climate change coordinators, planners, and program managers in developing the skills necessary to develop tribal climate adaptation plans, and management options, through in-person and webinar trainings and workshops.

Goal – The goal of this proposal is to have local tribal officials, planners, program managers and community leaders acquire the relevant skills and capacity necessary to develop tribal adaptation plans and management options for implementation in the face of climate change through scenario building around tribal infrastructure vulnerability in the areas of agriculture, energy, forestry, housing and most especially water.

The Rosebud Sioux Tribe seeks to accomplish this goal, through our Water Resources Office and other partners, by: 1) hosting and delivering a year-long series of one-day, in-person and webinar trainings designed to make us more aware of the nature and extent of the risks facing our reservation through natural disasters and extreme weather events; 2) coordinating a series of two-day in-depth workshops specifically designed to build, enhance and develop the skills and capacity of tribal government and community leaders, program and resource managers and planners throughout the Rosebud Sioux Indian Reservation; 3) utilizing the faculty and students of the Computer and Science departments of Sinte Gleska University, the reservation tribal college, in collecting and presenting infrastructure and resource information for the scenario planning that will be presented and discussed in the workshops.

The Project Team working with over the course of the project year with the faculty and students will develop rich, real world asset inventories and infrastructure information that will allow the workshops to produce detailed case study scenarios, upon which climate adaptation plans and resource management options can be developed and implemented.

Vision - In order to develop, institute and implement a truly effective Tribal program and community climate adaptation plan, the input of Tribal leaders, program managers, planners and communities is required. Broad, coherent input requires the gathering and sharing of awareness, insight, information and understanding. This proposal is envisioned as a tool for getting reservation interests at least on the same page with regard to a shared awareness as to the concepts, information, hazards, impacts and options available, in order to determination the dimensions of the problems and options to be incorporated into the reservation wide climate adaptation plan.

Rationale - *This approach significantly grounds the relevant skills and capacity enhancements offered through this year-long process in local tribal program planners and managers, tribal government and community leadership, and tribal college faculty and students, as members of*

the Rosebud Sioux Tribe, 1) by leading participants through focus trainings designed to build awareness and knowledge in the general concepts around resilience and preparedness in the face of extreme weather events (the way climate change will be realized), then 2) by gathering and presenting the on-the-ground data describing the basic state of the knowledge about tribal resources, assets and infrastructure, 3) by building within the community the necessary skills for understanding, analyzing and developing scenarios incorporating the latest information on the future climate at Rosebud, and 4) by working through particular scenarios in the specific context areas of the resources and assets of the Rosebud Reservation identified as at risk or threatened, participants will be able to determine the extent of the risk or threat and then be able to intelligently consider the mitigating options and adaptive solutions which may be available.

Primary Hazards of Climate Change – The abstract concept of climate is basically the running average of weather events over three consecutive decades. While the climate may always be changing, it is the accelerating pace of the differences in those averages that signals the increase in weather extremes, which have increased, and often detrimental, impact upon the environment, people and property. Climate change is coming to the Great Plains through greater variability, intensity and duration of extreme weather events and so-called natural hazards, such as drought, heat waves, wildfires, floods, blizzards, ice storms, windstorms, tornadoes and hailstorms.

Examples of Climate Impact - Many of these natural or weather related events can have significant impact upon the physical environment or critical facilities and infrastructure of a reservation community (such as: roads and transportation, housing, power failure, water supply, dam failure), upon the local economies (such as: agriculture, ranching, tourism) through plant and animal pests, and livestock diseases, as well as upon the physical safety, health and well-being of vulnerable human populations and communities, whether in the form of physical threats from the extreme weather events listed above, or through other vectors bringing diseases (such as, temperature stresses, or biological hazards like West Nile Virus, Hantavirus and Avian Flu).

Internal Tribal Program and Community Focus – The key focus of this Category 1 grant is its single, local reservation focus. The Rosebud Sioux Tribe proposes to host a coordinated year-long sequence of one-day awareness and natural hazard trainings in a number of locations across the Rosebud Reservation, which will prepare participants in the language, concepts and information needed to participate in, and lead to, a series of two-day workshops focusing at the Tribal Leadership, Department/Program and Tribal community levels, in-person and webinar trainings designed to make us more aware of the nature and extent of the risks facing our reservation through natural disasters and extreme weather events. This series of trainings, enhanced by rich, real world asset inventories and infrastructure information and data sets that will be development by the SGU students, working with the tribal resources programs and resource managers, will allow the workshops to produce detailed case study scenarios, upon which climate adaptation plans and resource management options can be developed and implemented.

Participants in the Trainings and Workshop - Outreach and promotion for the trainings and workshops will be developed by the Project Team for delivery by the RST Water Resources Office to tribal officials, program and resources managers and planners, and for local community leaders and membership.

The one-day awareness and specific natural disaster event trainings will be coordinated by Intertribal COUP through their ongoing work with FEMA's National Disaster Preparedness Training Center in Honolulu, HI, and will be planned, organized and offered free of charge to groups of 25 or 30 during the first 2 to 8 months of the project. NIDIS also offers specific

Drought related training, which is currently not a FEMA focus 'natural disaster' due its long durational development and effects, rather than short-term emergency aspects.

Academic Credit - While participants in the trainings are eligible for FEMA/NDPTC certification through NDPTC, Intertribal COUP will also explore the option for a separate enrollment for academic credit issues by Sinte Gleska University, for those interested in a professional career in this area.

Trainings - The series of in-person and webinar awareness and natural hazard trainings will be offered across the reservation during months 2 through 8, selected from the following FEMA Trainings provided by the National Disaster Preparedness Training Center:

Tribal Community Resilience (AWR-228)
Natural Disaster Awareness for Tribal Community Leaders (AWR-310)
Building Resilient Food Networks
Climate Adaptation Strategies for Emergency Services
Coastal Flood Risk Reduction (PER-305)
Hazardous Weather Preparedness for Campuses (AWR-332)
Leveraging Tools for Conducting Damage Assessments (AWR-319)
Leveraging Tools for Coordinated Community Disaster Communications
Natural Disaster Awareness for Caregivers of Senior Citizens (AWR-308)
Social Media Engagement Strategies
Social Media for Natural Disaster Response and Recovery (PER-304)
Social Media Tools and Techniques
Tornado Awareness (AWR-326)
Winter Weather Hazards: Science and Preparedness (AWR-331)

The initial trainings will include the Tribal Community Resilience AWR-228 and Leadership Awareness AWR-310 as these courses offer an initial orientation to the topic of dealing with national disasters as a community and will serve to ground the participants a learning environment where the selection of the follow up courses can be made with full local input as to what trainings might be most needed within that community. Over six months, numerous course trainings can be offered across the reservation, so that as many people as possible can benefit from the NDPTC trainings, and be prepared for a fuller participation in the later infrastructure specific Workshops.

These trainings and workshops are designed to have offices and departments, programs and communities, to engage across the usual boundaries of their programs and routines to enable planning across boundaries geographic and bureaucratic. Perhaps, offices or departments, which have really never considered their interdependence or interrelationship with other offices or tribal agencies, may come to a better understanding of the potential overlap in their responsibilities and duties, and begin to see opportunities through the climate impact lens to engage in more collaborative approaches to solving problems and better adaptation response management.

Workshops - With this shared background coming from participating in the preparedness trainings in awareness of specific natural hazards and their impacts, tribal participants will then engage in a series of focused in-person workshops organized around the following topics:

Workshop #1: Climate Adaptation Scenario Building - The core scenario building skills training to be offered by Intertribal COUP in this first workshop will develop and enhance community problem solving techniques, insights and understanding around the concept of

holism and systems analysis, the ability to 'think across the boxes and outside of the present stovepipes and into future options,' in order to facilitate the critical conversations to be held in the tribal climate adaptation and infrastructure workshops that will be focused on building the capacity of the Rosebud Sioux Tribe to inventory, assess, plan for, and actively manage essential climate issues involving land, water, and people.

In the Climate Adaptation Scenario Building Workshop attention will be paid to prioritizing hazards likely to be faced (what extreme events?). Participants will be asked to identity assets and vulnerable populations; identify critical facilities and infrastructure; and consider future growth and land use trends. Participants will learn about the nature and variability of the likely climate future for the northern Great Plains. Hazard profiles can be established which include: Hazard frequency and probability of future events, assessing vulnerability, estimating potential losses, hazard magnitudes and risk calculations.

Intertribal COUP was provided leadership in the National Climate Assessment and especially getting a separate chapter devoted to the needs of Tribes and Indigenous Communities throughout America.

The remaining workshops will focus on building climate adaptation scenarios around the specific resource and infrastructure concerns identified by tribal leadership already and focused on by the faculty/student research with specific tribal resource programs planners and managers. The research, framed by the Project Team and conducted by the faculty/students in collaboration with the resource and program managers, will serve as the basis for the facilitate workshop scenario planning. The pertinent data and information will enrich the group discussion, and provide a deep and accurate understanding of the current conditions, against which their future status and conditions can be appreciated under a changing climate. Effective management is based on realistic situational knowledge and collaborative communications. With this kind of outside the box of business as usual appreciation, a broad sampling of the tribal community members participating in the workshops can begin to better comprehend the risks and threats facing the status quo and may be better able to visualize both future prospects and adaptive solutions.

The following Workshop descriptions are tentative, based upon surveying the Tribe and holding the trainings and the student research conducted prior to the workshops. The questions included are representative of what might be included under these topic areas.

Workshop #2: Surface and Ground Water Resources – What are the complete current conditions of our Tribal water resources; and how might these be affected by climate change? How are the ground water sources / aquifers on the Reservation, which are currently undergoing depletion by water withdrawal being affected? Will this depletion be further aggravated by climate change / drought?

Workshop #3: Agro-Forestry Resources - What is the state of our agroforestry production land and native species habitat lands, and how could these be affected under the likely climate scenarios?

Workshop #4: Housing and Built Environment - How can we improve our Tribe's ability to cope with increasingly extreme climate-driven events such as flash floods, blizzards, wildfires, and tornadoes and their impact on local housing and energy infrastructure?

Workshop #5: Energy Infrastructure - What are the risks presented by climate change to the reservation's current energy infrastructure, including electricity, propane, gas and oil facilities? What are the energy options for the Rosebud Sioux Tribe and what are the strategies to obtain those options?

Effective management is based on realistic situational knowledge and collaborative communication, hence delivery of the Tribal Climate Adaptation Planning Program (TCAPP) will be live streamed and recorded in seminar / webinar format for members of the RST unable to attend. TCAPP content will also be available to neighboring Tribes as from Pine Ridge and Lower Brule, and regional stakeholders as appropriate.

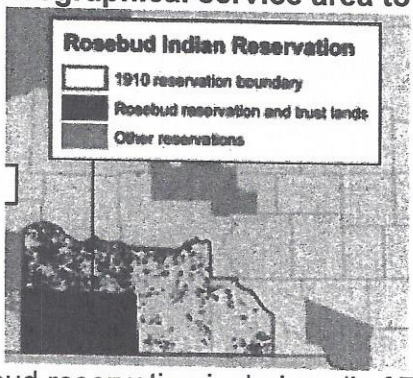
Given vast distances involved in Indian Country and the depth of knowledge and skill needed for effective engagement in climate adaptation planning, skills being developed by our subject matter experts (SME's) addressing the specific needs of the Rosebud Sioux Tribe will be made available online for 24x7x365 access via a most basic web connection or smart phone.

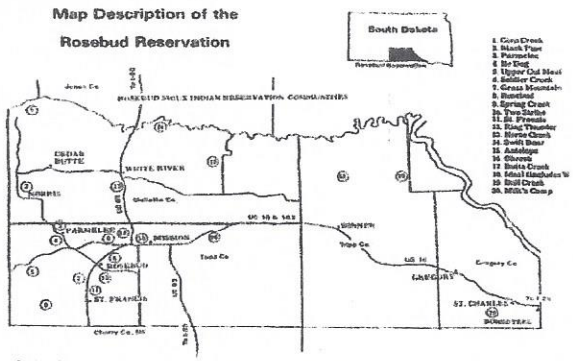
Skills development training being an ongoing process, TCAPP will also provide training follow-up on developments in environmental information needed for climate adaptation management as new data becomes available via a moderated online forum related to the process of developing Tribe-specific climate adaptation plans.

[the above sections conclude the overall program description called for in section (g)]

(g)

(1) **Geographical service area to be served:**





The Rosebud reservation includes all of Todd County, South Dakota and communities and lands in the four adjacent counties. Tripp, Lyman, Mellette, and Gregory Counties, all in South Dakota. Mellette County includes extensive off-reservation trust land where 40.23 percent of the population lives, and comprises 33.35 percent of the Tribe's total 882,416-acre land area.

(2) **The estimated number of Indian people who will receive the benefits or services under the proposed contract:**

The Rosebud Tribal Climate Adaptation Planning Program (TCAPP) is intended for the long-term sustainability of the entire Tribe, whose enrolled members living on the reservation number 21,245. Direct in-person training of Tribal community leaders representing this constituency on the campus of Rosebud's Sinte Gleska Tribal College is projected to be two or three hundred total among the four workshops being provided.

Further, the online Tribal Climate Adaptation Planning Program based upon this training will be

made available to all 21,245 members of the Rosebud Sioux Tribes, and will be informed by a community-wide survey to most fully address priority needs and concerns.

(3) Local, Area, regional, or national level departmental programs, functions, services, or activities to be contracted, including administrative functions.

Key Partners - The Rosebud Sioux Tribe will partner in conducting this proposal with the Intertribal Council On Utility Policy, Sinte Gleska University, the Great Plains Tribal Chairman's Association and the National Disaster Preparedness Training Center, along critical resources of a number of federal agencies identified such as NIDIS/NOAA and NASA.

Intertribal Council On Utility Policy (COUP) - Intertribal COUP was formed by fifteen federally recognized Indian tribes in North and South Dakota, Nebraska and Wyoming, with affiliates throughout the northern Great Plains and Great Lakes. Members include some of the largest land based tribes in the country and a significant portion of tribal populations. Organized in 1994, it is chartered on the Rosebud Sioux Reservation initially to provide a tribal forum for policy issues dealing with telecommunications and energy utility operations and services. Low-cost federal hydroelectric power has been generated from tribal lands and waters along the Missouri River for decades without proper allocations provided to the tribes in the region. Intertribal COUP grew out of the unified efforts of the Missouri River Tribes (The MniSose Intertribal Water Rights Coalition) seeking a fair share of the federal power distributed by the Western Area Power Administration. We have worked directly with DOE's Western Area Power Administration on the integration of Tribal wind and Federal hydropower to help realize this potential in the WAPA Wind Hydro Feasibility Study. From those issues, COUP has grown to be a leader in the national tribal and indigenous voice on climate change and weather extremes through chairing national tribal climate workshops, and submitting both content and policy recommendations to the National Climate Assessment and the White House CEQ.

The Mission of Intertribal COUP strongly adheres to the principles of tribal self-determination and ecological sustainability, supporting the development of sustainable homeland economies built upon renewable energy resources. Intertribal COUP is a vehicle for educating Tribal governments about economic development opportunities available through public and private partnerships to provide reservation utility services. Intertribal COUP seeks to assure that the benefits of tribal partnerships with the federal government, as envisioned in our treaties, are promoted in federal legislation and policy.

COUP sees that the accelerating climatic changes and weather extremes in store for the coming millennia are largely a result of our industrially based energy/economic systems, and require a systematic transition to more Sustainable, Affordable, Future-proofed, Energy efficient and Renewable systems (SAFER Systems) of cleaner, more locally generated energy to power a more resilient built environment, which can transform tribal economies and the built reservation environments for greater preparedness and resilience.

Sinte Gleska University (SGU) - Sinte Gleska University provides a model for Indian-controlled education. It is an institution governed by people rooted to the reservation and culture, concerned about the future, and willing to work to see the institution grow. It provides each Lakota person the opportunity to pursue an education and does so in a way that is relevant to career and personal needs. Sinte Gleska University graduates will help determine the future development and direction of the Tribe and its institutions. The mission of Sinte Gleska University is to plan, design, implement and assess post-secondary programs and other educational resources uniquely appropriate to the Lakota people in order to facilitate individual development and tribal autonomy.

In this project, the Project Team will work with Professor Dana Gehring, Department Chair at Sinte Gleska University and Biology Faculty at Sinte Gleska University, who will oversee up to 5 students doing directed research in collecting information from tribal programs for use in scenario building exercises in water resources, agriculture, forestry, housing and energy infrastructure on the Rosebud Reservation, and with Professor Rodney James Bordeaux, head of the Computer Department, who will oversee up to 5 students doing directed research on developing, inputting and handling the resource data sets and infrastructure information for use in the workshop scenario building exercises.

Great Plains Tribal Chairman's Association (GPTCA) - The Great Plains Tribal Chairman's Association (GPTCA) is made up of the 16 Tribal Chairmen, Presidents and Chairpersons in the states of North Dakota, South Dakota and Nebraska. The Tribal Leaders of the Sovereign Indian Nations meet quarterly to take action on various matters affecting the Tribes. The primary purpose of the GPTCA is to unify to defend the Tribes inherent rights under our Treaties, to come together in a forum to promote the welfare of the People, take up matters affecting the Tribes and to protect the Sovereignty of each Tribe. GPTCA will be invited to participate in discussions with the Project Team in preparation for the regional intertribal networking workshops they are planning for Category 2 in developing climate adaptation plans, vulnerability assessments, and in data analysis efforts, including supplementary monitoring.

National Disaster Preparedness Training Center (NDPTC) – NDPTC is uniquely positioned geographically and culturally, the NDPTC works collaboratively to develop and deliver training and education in the areas of disaster preparedness, response, and recovery to governmental, private, tribal, and non-profit entities, and under-represented/under-served communities. It incorporates urban planning and environmental management, emphasizing community preparedness and addressing the needs of vulnerable at-risk populations.

The NDPTC is a member of the National Domestic Preparedness Consortium (NDPC), which was expanded in 2007 to address all-hazards capabilities by the addition of the University of Hawai`i.

The NDPTC is authorized to develop and deliver training and educational programs related to homeland security and disaster management, with a specific focus on natural hazards, coastal communities, and the special needs and opportunities of islands and territories. The NDPTC actively engages internally with FEMA and the University of Hawai`i, as well as with external partners across the region to integrate the delivery of its trainings, products, and services.

The Whole Community Concept is central to NDPTC's training and education programs. As recent events in the region have demonstrated, cascading disasters link natural, technological, and social systems requiring consideration of "maximum of maximums" scenarios, and understanding and meeting the true needs of the entire affected community.

Federal expertise contracted for COUP training will include Subject Matter Experts (SME's) from Federal agencies that include:

FEMA
https://www.fema.gov/media-library/resources-documents#{"type":["DocumentContainerAsset"],"sort":"taken_on","direction":"desc"}

FEMA/NDPTC

https://ndptc.hawaii.edu/about/
https://ndptc.hawaii.edu/training/catalog

NASA
http://eol.jsc.nasa.gov/ESRS/Regional_Remote_Sensing/
https://earthdata.nasa.gov/user-resources/remote-sensors

USGS
http://www2.usgs.gov/climate_landuse/CLU_rd/nccv.asp
http://www.umesc.usgs.gov/overview/directors_overview.html

US Army Corps of Engineers
http://www.nwd-mr.usace.army.mil/rcc/index.html
http://www.nwd-mr.usace.army.mil/rcc/gageMap/gagemap.html

NOAA / NIDIS
http://cpo.noaa.gov/
https://www.drought.gov/drought/resources

The above SME climate adaptation expertise will augment best practices shared with other Tribal climate adaptation leaders as from the North Central Climate Science Center based at Colorado State and neighboring Southwest Tribes as those in EPA Region 9

https://www.epa.gov/tribal/region-9-tribal-program
https://www3.epa.gov/climatechange/science/

Further including as appropriate stakeholders affiliated with the Northern Arizona University Institute for Tribal Environmental Professionals (ITEP)
http://www7.nau.edu/itep/main/Home/

(4) Description of the proposed program standards:

The SME colleagues, data sets and tools being contracted by COUP on behalf of the Rosebud Sioux Tribe comprise the highest national standards of professional excellence available. For example, a primary requirement of managing climate adaptation is the ability to possess thorough understanding of where Tribal areas are most at risk. Toward training in this essential decision management area COUP will provide Tribe-specific GIS expertise in collaboration with world foremost geo-spatial information company ESRI of San Diego, CA.
http://www.esri.com/

Toward being able to understand the implications of such data being gathered the Project will further avail itself of climate Subject Matter Experts at the Washington, DC-based Climate Institute, including those responsible for directing the US Global Change Research Program, setting global standards related to reducing climate impacts of warming emissions, and developing national climate change adaptation programs.

Secondly, being able to interpret geo-spatial data in terms of specific impacts on critical areas such as hydrology is another essential step in effective climate adaptation. Toward this goal COUP will engage Rosebud watershed-specific risk assessment training by Subject Matter Experts as from the nation's first and only Tribal Hydrology program based at Salish Kootenai.
http://skc.edu/hydrology/

and the North Central Climate Science Center
http://revampclimate.colostate.edu/

Thirdly, toward essential steps needed for community safety during extreme and climate driven events Tribal Climate Adaptation Planning Program training will include means to work with the latest advances in safe building construction for schools, community centers, and housing by providing the skill necessary to develop and modify plans using a Google-developed 3D design program called SketchUp.
http://www.sketchup.com/

(5) **Identification of the program reports, data and financial reports that the Indian tribe will provide, including their frequency.**

The Rosebud Sioux Tribe will provide quarterly reports based upon the status submitted by the project contractors.

(6) Description of any proposed redesign of the programs, services, functions, or activities to be contracted:

The data sets and tools available for this Project have been well established after years of massive investments in public and private R&D; however, they have yet to be customized toward the specific climate adaptation needs of the Rosebud Sioux inhabiting almost a million acres of increasingly drought-stressed lands of South Dakota.

The goal of training provided by COUP through this Project is to redesign these general purpose data sets from federal agencies along with GIS and modeling tools from private industry to create planning and adaptation scenarios entirely tailored to and based upon actual, self-determined community needs.

(7) **Minimum staff qualifications proposed by the Indian tribe and tribal organization**

As referenced in Section G (3), staff selected for providing this program are selected from nationally and globally prominent organizations (such as COUP and The Climate Institute) who have worked on sustainable development and climate analysis issues for decades and have made pioneering national achievements; faculty members of Tribal Colleges and Universities (Sinte Gleska, Salish Kootenai); and staff of federal agencies such as NOAA and NASA. The minimum qualifications include having verified Subject Matter Expert status via faculty / staff accomplishments with these partner organizations, and to have program-specific training skills and knowledge required to successfully design, provide.

(8) **Statement that the Indian tribe or tribal organization will meet the minimum procurement, property and financial management standards set forth in subpart F, subject to any waiver that may have been granted under subpart K.**

The Rosebud Sioux Tribe (RST) understands and respects the full scope of federal, state and local standards regarding procurement, property and financial management, and will execute its management responsibilities in accordance with these standards throughout the entire life cycle of this project.

RST Budget for BIA CLIMATE ADAPTATION SKILLS Category 1 Grant

			Days	Costs	In Kind	BIA Grant
PERSONNEL						
RST	Syed Huq	Rosebud Water Resources Liaison $70/hr x8x2days/mo =$1,120	2days/mo	$1,120 x 12/mos	13,440	
		Outreach and promotion	4days/mo	$100dayx 10 mos	4,000	
	RST Indirect Cost Rate: 20.79% of Grant			51,975		
CONTRACT SERVICES						
COUP	Bill Schumacher, Program Administrator	Training Coordinator $50/hr x8x5 days/mos =$2,000	5days/mo	1,600 x 12/mos	$9,600	19,200
	Bob Gough, Senior Project Advisor/Workshop Coordinator	$50/hr 8x5 days/mos=	5days/mo	$1600 x12/mos	$9,600	19,200
	Chris Philipp, Workshop Technical Manager	$50/hr 8x5 days/mos	5days/mo	$50/hr $1600 x 10/ mos	$8,000	$16,000
	COUP Travel	$1,000 x 12				$12,000
SGU	Rod Bordeaux: Computer Department		2.5days/month	$1,000/mo x 12		12,000
	Dana Gehring: Science Department		2.5days/mo	$1,000/mo x 12		12,000
	10 students @ $3,000 per year					30,000
PROJECT Trainings and Workshops Expenses						
	NDPTC/NIDIS Training Expenses		12	$460		5,520
	5 Workshop Honoraria x 2 x $1,000		10	1,000		10,000
	5 Workshops Expenses x 2 day		10	1,000		10,000
	Workshop Travel/lodging		10	$200 x16 people		$32,000
	Workshop Recording @ $200/day		10	$2,000		$2,000
	TOTAL Contract Costs					$179,920
	COUP Administrative Costs			10% Contract Services (rounded)		18,000
	Total Project Costs					197,920
	RST Indirect Costs					51,975
	TOTAL BIA Costs					249,895
		In-Kind			44,640	44640
TOTAL PROJECT						294,535

(h) The amount of funds requested, including: **$249,895.00**

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(1) An identification of the funds requested by programs, functions, services, or activities, under section 106(a)(1) of the Act, including the Indian tribe or tribal organization's share of funds related to such programs, functions, services, or activities, if any, from any Departmental local, area, regional, or national level.

(2) An identification of the amount of direct contract support costs, including one-time start-up or pre-award costs under section 106(a)(2) and related provisions of the Act, presented by major categories such as:

Personnel (differentiating between salary and fringe benefits);

Equipment;

Materials and supplies;

Travel;

Subcontracts; and

Other appropriate items of cost.

(3) An identification of funds the Indian tribe or tribal organization requests to recover for indirect contract support costs. This funding request must include either:

A copy of the most recent negotiated indirect cost rate agreement; or **$2079% IDR**

An estimated amount requested for indirect costs, pending timely establishment of a rate or negotiation of administrative overhead costs.

(4) To the extent not stated elsewhere in the budget or previously reported to the Secretary, any pre-award costs, including the amount and time period covered or to be covered; and

(5) At the option of the Indian tribe or tribal organization, an identification of programs, functions, services, or activities specified in the contract proposal which will be funded from sources other than the Secretary.

(i) The proposed starting date and term of the contract. Jan, 1, 2017 One year term.

(j) In the case of a cooperative agreement, the nature and degree of Federal programmatic involvement anticipated during the term of the agreement.

(k) The extent of any planned use of Federal personnel and Federal resources.

Coordinating use of no-cost training by FEMA/NDPTC and NOAA/NIDIS.

No funds will be used to support Federal personnel.

(l) Any proposed waiver(s) of the regulations in this part; and

(m) A statement that the Indian tribe or tribal organization will implement procedures appropriate to the programs, functions, services or activities proposed to be contracted, assuring the confidentiality of medical records and of information relating to the financial affairs of individual Indians obtained under the proposal contract, or as otherwise required by law.

PROJECT TEAM:

Syed Huq

Director Syed Huq, Rosebud Sioux Tribe, Office of Water Resources,
Project Position: Tribal Liaison

Capacity: Mr. Huq holds a B.S. (Honors) and M.S. Geology, University of Dhaka, and an M.S. in Geology, South Dakota School of Mines & Technology, Rapid City,
South Dakota, as well as the Groundwater Science Credential Program, Ohio State University. He has served as the Director, Water Resources and Environment, and the Mni Wiconi Rosebud Rural Water System for the Rosebud Sioux Tribe; and as a Part-Time Faculty Member at Sinte Gleska University, Mission, South Dakota on Watershed Management. 1988 – 2000.

Role: Mr. Huq will function as the Tribal Liaison between the Project Director and Team and the Rosebud Sioux Tribe and other Tribal project participants, bringing his experience with applied science in tribal programs to the training and tribal political arena where policies and practices intersect with present and future tribal issues around availability of water in the semi-arid west.

Robert P. Gough, Esq.
P.O. 25 Rosebud, SD 57570
Gough.bob@gmail.com
605-441-8316

Bob Gough (Irish, French and Lenape descent) is an attorney with graduate degrees in sociology and cultural anthropology, specializing in cultural ecology, working with Indian Tribes on cultural and natural resource issues over the past thirty years. In 1994 Bob was the first director of the Rosebud Sioux Tribal Utility Commission, overseeing the initiation of the Tribe's 750kW wind turbine project. He served as a consulting attorney to that commission, negotiating with WAPA for allocations of federal hydroelectric power to the MniSose Intertribal Water Rights Coalition of Tribes in the Missouri River basin. He was the 1997 Indian Law Fellow at the University of South Dakota, Vermillion, SD specializing in research on energy, telecommunications, utilities and tribal jurisdiction. In 2000, he was the El Paso Energy Research Fellow at the Natural Resources Law Center, University of Colorado, Boulder, CO, working on technical and policy issues involved in interconnecting reservation based renewable generation onto the federal transmission grid operated by WAPA.

Gough serves as the founding secretary of the Intertribal Council On Utility Policy (COUP), an organization created to provide information on rights and resources for utility services on tribal lands with respect to regulatory authority, legislation, policy, and economic opportunity through partnerships in telecommunica-tions and energy development. Intertribal COUP is composed of 15 federally recognized Indian tribes in North and South Dakota, Wyoming, Nebraska and Iowa and with affiliates through out the Great Plains, the Southwest and among Native Alaskan organizations. Intertribal COUP participated in the Inter-Tribal Energy Network, a collaboration of regional and sector tribal organizations across the West involved in the deliberation and preparation of federal Indian energy policy 1999 through 2005.

Gough co-chaired the USGCRP's "Native Peoples/Native Homelands Climate Change Workshop" (NPNH) held in 1998, served on the steering committee for NPNH2 (2009) and is on the NCAI Climate Change Steering Committee. He co-directed NativeWind, a non-profit organization supporting partnerships between ICLEI-Cities for Climate Protection and COUP tribes to build sustainable reservation economies based upon renewable energy. He has been a primary consultant to the Wind Powering America program's Native American Initiative at the National Renewable Energy Laboratory since 2001, where his work was recognized by USDOE with the Wind Energy Program Outstanding Technology Acceptance Award in 2004.

Gough sits on the Western Governors' Association's Clean and Diversified Energy Advisory Committee seeking to develop 30,000 MWs of clean energy by 2015 in 18 western states. He is a co-producer of "Wind Powering Native America" (2003) and the "Native Wind" PSA (2005), and is one of the architects of the Rosebud/COUP Intertribal Wind Energy Plan, which received the inaugural World Clean Energy Award in Basel, Switzerland (2007). In 2007, he was trained by Al Gore as a presenter for The Climate Project. In 2012, he was certified in Coastal Community Resilience and Leadership Awareness by the National Disaster Preparedness Training Center (NDPTC). He has written a variety of articles on cultural resource rights and protections, from wild rice and protecting the indigenous intellectual property rights of the Crazy Horse Estate, to tribal wind power and the federal hydropower transmission system. Gough has presented on a variety of legal issues in cultural and natural resource rights protection, and on renewable energy, sustainability, weather extremes, climate change and applying indigenuity at numerous professional conferences on 3 continents, in 6 countries, 31 states and the District of Columbia, 4 Canadian provinces, and 2 self-governing U.S. Flag Territories and over 60 American Indian Reservations, including three Earth Day conferences in New York City.

Most recently, he was a contributing author/editor to the special issue: "Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions"; a contributor on the Great Plains chapter and a lead author on the Tribal Chapter (12) of the National Climate Assessment; the PI on the COUP NOAA-NIDIS Tribal Engagement Project; introduced the Intertribal COUP Plan commitment at the Clinton Global Initiative for seven (7) South Dakota reservations to collaboratively develop 1,000 MWs of distributed tribally owned wind power, and PRiMO IKE Hui member and convener of the Rising Voice of Indigenous Peoples in the Global Climate Conversation sponsored by the UCAR/NCAR, in Boulder, CO and Big Island of Hawaii.

PROFESSIONAL EXPERIENCE

2012-16 Rising Voices of Indigenous Peoples in Global Climate Conversation Co-founder and convener, UCAR/NCAR, Boulder, CO.

2012-15 Contractor, NOAA/NIDIS Tribal engagement, Intertribal COUP, RST SD.

2011-16 NDPTC Coastal Community Resilience certified; Member PRiMO IKE Hui; Lead Author, Indigenous/Tribal Chapter, National Climate Assessment.

2010-16 Visitor at University Corporation for Atmospheric Research, Boulder, CO. 2008-16 Steering Committee, Second Native Peoples, Native Homelands Climate Change Workshop, Shakopee Mdewakanton Sioux Community, MN.

2010-13 COUP Intertribal Wind Plan announced at Clinton Global Initiative.

2005-16 Director of Native Wind, a non-profit promoting tribal wind.

2004-16 Contractor with Intertribal COUP, on DOE/IWG-EJ Intertribal Wind Demonstration Project and Tribal College straw bale training program.

2005-10 Member, Western Governors Association's Clean and Diversified Energy Advisory Committee, and Wind and Transmission Task Forces.

2001-10 Contractor with Wind Powering American Program, NREL, Boulder, CO

2000 El Paso Energy Fellow, Natural Resources Law Center, CU-Boulder, CO.

1998-00 Co-Chair, Native Peoples/Native Homelands Climate Change Workshop, organized indigenous workshop for U.S. Global Change Research Program's national climate assessment on change and variability in U.S.

1997 Indian Law Fellow, University of South Dakota Law School, teaching and research in telecommunications, utilities and Tribal jurisdictional issues.

1994-16 Secretary, Intertribal Council On Utility Policy.

1994-96 Tribal Attorney for Cultural & Natural Resources, and Rosebud Sioux Tribe Utility Commission, and private practice.

1993-95 Instructor, Sinte Gleska University. Courses: *Treaties, Law and Government*, and *Environmental Law & Tribal Resource Management*

1992-16 Attorney for Estate of Tasunke Witko (Crazy Horse).

1992-94 Public Defender, Rosebud Sioux Tribal Court.

1989-91 Consultant for specialized legal research in Tribal economic and resource development for Minnesota and Wisconsin Tribes.
Coordinator for the MN Historical Society organizing the Minnesota Historical Society's Indian Advisory Committee.

1988 Principal Investigator, Smithsonian Institution research on traditional wild rice practices of the Sokaogon Chippewa in northern Wisconsin.

1986-88 Director/Archivist, Lakota Archives & Historical Research Center, Sinte Gleska College, Rosebud Sioux Indian Reservation, Rosebud, S.D.

1984-85 Producer, *"Wisconsin Indian Craft Traditions"* with the Logan Museum, Beloit, WI, and U.W. Native American Studies Program; Consultant on *"Enduring Ways"*- a contemporary Chippewa documentary, Wisconsin Educational Television Network.

1981-85 Consultant to Wisconsin Judicare, research on matters of tribal resource use, tribal history and treaty rights, in particular wild rice gathering.

1981-85 Consultant to Brotherton Indian History Committee, documenting cultural/ historical identity for Federal Acknowledgement Project.

1982 Research Specialist, U.W. Extension and WHA-Radio Madison: *"Woodland Indians"*: Cultural programs for Corp. for Public Broadcasting.

1980-84	Consultant to law firm of Stafford, Rosenbaum, Rieser & Hansen, Madison, WI: Cultural and environmental impacts of mining
1980-82	Project Director, Sokaogon Chippewa Tribal Archives: NEH Special Projects & Society of American Archivists Training Workshop
1979-81	Consultant to Sokaogon Chippewa Community and COACT Research, Inc., assessing potential social, cultural, economic and environmental impacts of a proposed mineral development project. U.S. Dept of Commerce.
1977-78	Research Analyst, Bureau of Environmental Impact, WDNR, drafted social, cultural & economic impact assessment guidelines for mining. Research Analyst, Environmental Review and Compliance for Cultural Resources, Historic Preservation Division, State Historical Society.
1973-74	Adjunct Professor, EX/CEL Program, Fordham University, Lincoln Center Continuing Adult Education Program.

ACTIVE BOARDS/ADVISORY POSITIONS

National Center for Frontier Communities, Silver City, NM
National Adaptation Forum, Advisory Board
American Renewable Energy Institute (AREI), Aspen, CO
PRiMO IKE Hui (Indigenous Knowledge and Environment Hui), Honolulu, HI
Indigenous Peoples Climate Change Working Group (IPCCWG)
Borderlands Ranch and Education Center, Hill City, SD
Clinton Global Initiative-America, Renewable Energy Section, Chicago, IL
NativeEnergy, Burlington, VT
Honor The Earth, White Earth, MN
Wind On the Wires, St. Paul, MN
Wolakota Foundation, Greengrass, SD

BAR ADMISSIONS

1992-16	Admitted to United States Supreme Court, Federal Appeals Courts, U.S. District Court, South Dakota State Court, and Rosebud Sioux Sicangu and Crow Tribal Court Bars; South Dakota State, and Federal Indian Bar Associations.

DISTINCTIONS AND AWARDS

2012-13	Mel King Green Community Fellow, MIT, Cambridge, MA.
2007	The Inaugural World Clean Energy Award, Special Award for Courage, Facktor Four, Basel, Switzerland; Presenter Al Gore's Climate Project, TN
2004	DOE Wind Energy Program Outstanding Technology Acceptance Award
2000	El Paso Law Fellowship, Natural Resources Law Center, CU-Law School, Boulder
1997	Indian Law Fellow, Univ. of South Dakota, Law School, Vermillion, SD

EDUCATION

1991	J.D., University of Minnesota Law School, Minneapolis, MN.
1979	Ph.D. Candidate, (ABD) in cultural anthropology, Univ. of Wisconsin.
1977	M.A. in cultural anthropology (ecology), University of Wisconsin-Madison.
1975	M.A. in sociology, Fordham University, Bronx, New York.
1972	B.A. in anthropology/Open Curriculum, Fordham University, Bronx, NY.

William Schumacher
606 S. Center St. #A108
Flandreau, SD 57028
605-280-3796
billschumacher.coup@gmail.com

Professional Summary

Professional with solid track record in: Tribal Renewable Energy, Housing Energy Efficiency, Native American Gaming, Financial Management, Federal Indian Law, Tribal Tax Management, Multi-Family Housing Management, Real Estate.

General Management qualifications: Project Management,, Strategic Planning, Organizational Re-engineering, Process productivity, quality improvement, Mediation and Alternative Dispute Resolution. Experienced Executive Leadership, liaison skills, and, Personnel training-development.

Native American Affairs: Past Tribal President Flandreau Santee Sioux Tribe; Tribal Representative Congress of American Indians; National Indian Gaming Association; Board of Directors United Sioux Tribes; Sioux Nation Film Commissioner; Northern Plains Gaming Alliance; Tribal Historic and Cultural Preservation; Tribal/State Gaming Compact and Tax Agreement negotiation team; Certified Tribal Court Advocate; Native American Advisor to the North Central Climate Science Center, Ft. Collins.

Gaming: Wide variety of gaming knowledge including critical analysis of management, marketing, budget development and control, analyzing financial statements and all aspects of human resources development. Extensive knowledge of state/tribal gaming commission rules and regulations.

Legal: Law Clerk to Judge Vivian Rhodes, Domestic Violence Court, Salt River Pima-Maricopa Indian Community; Member of the Native American Law Students Association ASU College of Law; Certified Tribal Court Advocate, representing tribal members and other Indians in all aspects of criminal, civil, and family law. Promulgated tribal resolutions, ordinances, regulations, petitions and completed studies in the Federal Indian Law Program at the ASU Sandra Day O'Connnor College of Law.

Housing: Managed 60 unit multi-family HUD apartment complex in Mesa Arizona, promoted to Field Supervisor of four large multi-family properties in Southern Orange and San Diego Counties in California, S.K. Management, Los Angeles, CA. Licensed Realtor for Tarbell Realtors in Laguna Hills, California.

Business: Owner of McCarthy's Knosher Deli, 2020 N. Halstead St. Chicago Ill.; Owner of Home Improvement Company, Evanston, Ill.; Sub-Contractor for roofing & drywall construction in Mesa, Chandler, Phoenix and Tempe Arizona.

PROFESSIONAL EXPERIENCE

NCCSC Native American Advisor, along with Gary Collins	2013 to 2014
NOAA/NIDIS Presenter/Organizer, Tribal Workshops	2012 to 2014
FEMA Disaster Preparedness classes	2012 to Present
Treasurer, Executive Council of Intertribal Council On Utility Policy	2005 to Present
Tribal Court Advocate, Flandreau Santee Sioux Tribal Court	2000 to 2005
Tribal Tax Commission Member Flandreau Santee Sioux Tribe	2000 to Present
Legal Assistant, Abourezk Law Firm, Sioux Falls SD	2002 to 2003
Legal Assistant, Lynn, Jackson, Schultz and LeBrun, Sioux Falls, SD	2001 to 2002
Law Clerk, Salt River Pima-Maricopa Community, AZ.	1997 to 1998
Accounting Auditor, Royal River Casino, FSST	1994 to 1996
Chairman, Flandreau Santee Sioux Tribe	1992 to 1994
Commissioner, South Dakota Commission on Indian Affairs	1992 to 1994
Construction Subcontractor, Phoenix, AZ area	1986 to 1991
Field Supervisor, HUD Multi-family complexes, S.K. Mgt. Los Angeles	1982 to 1985
Licensed Realtor, Tarbell Realtors, Laguna Hills, CA.	1983 to 1985

EDUCATION

Arizona Sate University College of Law – Federal Indian Law Program	1996 to 2000
University of Sioux Falls – BA Business Administration	1994 to 1995
Refrigeration School of Arizona, Phoenix AZ – Cert. HVAC	1990 to 1991
Oakton Community College, Morton Grove Ill. AA Econ. Of Ag. Future	1974 to 1975
Evanston Township High School – General Studies	1961 to 1965

Christopher A. H. Philipp

48 5th Avenue, Oakland, CA 94606

(510) 512-6600

christopher.philipp@gmail.com

Digital media producer for the Intertribal Council On Utility Policy including website creation (intertribalcoup.org) video production; mapping of tribal land energy projects; and program development on energy efficient building and renewable energy technology. (2003 – present)
The Climate Institute, Washington, DC. Project development centered on Arctic protection programs and US / Mexico climate network digital media production, and e•Learning Director for the Center for Environmental Leadership Training, Hanover, NH. Research and development in environmental science teaching and learning via simulation games.

Producer / content creator / videographer of PBS film 'Power Paths' documentary on American Indian efforts to develop renewable energy resources within tribal lands. (2008 - 2009)
Academic Project Concept Developer, University of Colorado Center for Visualization, Boulder, CO. Creator of projects involving visualization of wind energy development of tribal lands, climate change landscape impacts, and forest fire management strategies. (2005-2007)

Project developer for Colorado Mountain College Center for Innovation in Teaching and Learning. Created a new curriculum model centered on effective methods for three-dimensional immersive visualization of natural resource-related science disciplines. (2003-2004)
Content developer and location producer for the PBS film and web-DVD project 'Oil on Ice' dealing with potential impacts of fossil fuel extraction on the Arctic wilderness. (2002 – 2003.

Teacher of Environmental Science, Digital Media Technology, and Project Based Learning; Media Center Director for Beacon High School, Oakland, CA. Organized and led student teams in the development of computer/video media programs including 'Dreams and Challenges' –winner of the first Emmy given for multimedia. Innovated early use of live, interactive, WiFi video tele- education between the deck of a sailing NOAA research vessel and school classrooms. Created 3D immersive city planning simulations for Office of the Oakland Mayor. (1991-2002)

Developer of the sustainable technologies web site section of Rocky Mountain Institute, Snowmass. CO dealing with fuel cells and resource efficient 'HyperCar' systems. (1998)

Instructor of the first Animator computer-based animation classes at San Francisco State University. (SF, CA) Designed and demonstrated first uses of this Autodesk animation program and 3D Studio model program to support Project Based Learning curricula. (1990–1991).
National Science Foundation / New England Aquarium, Boston, MA— Lead producer,

concept developer and engineer of a marine sciences 'Thinking Gallery.' This pioneering computer media project was later duplicated by the National Science Foundation, and cited as key template for further Informal Science Education (ISE) exhibition media development (1987-1989)

GigaMos Systems, Cambridge, MA. Education/training developer of CD- ROM projects on artificial intelligence applications. Researcher on state of the art expert systems; engineering liaison with principal co-developers including NASA, Harvard, MIT and Apple. (1987-1989)

Lyle Brecht and Associates, Phoenix, MD. Co-writer and cordinator of an Agency for International Development grant proposal to create an international youth program using innovative collaborative environmental education to understand the state of the Mediterranean Sea. This program was successful after gaining $300,000 in AID grant support. (1985-1986) ABC Television-Special Products Division, New York, NY. Concept developer and writer for producer Adrian Malone (The Ascent of Man), visualized and executed storyboard concepts on the theory of relativity for Mr. Malone's 'Century of Einstein' documentary. (1984)

Xavier Television Center, Cincinnati, OH. Producer/Educator. Responsibilities included working with students and professionals to produce television programming, developing a new management system for production data, and planning Xavier's participation in a national educational telecommunications collaborative of universities and industry. (1983-84)
New Jersey Institute of Technology, Newark, NJ. Computer systems technology contractor for Dr. Lawrence De Bivort. Developed a course on planning and systems research for the New Jersey Institute of Technology that was taught via the "Electronic Information Exchange System" (an early web application) to students throughout the country. (1982)

Arthur Young and Co, Reston, VA. Co-producer of a federal government contract that created interactive video discs demonstrating the basic principles of interactive multimedia, and applications for use in classroom education and skills training via simulated environments. (1981)
Michigan Media, Ann Arbor, MI. Television production on short subject documentaries for both the University of Michigan's campus-wide television network and PBS. (1979-1980)

Buckminster Fuller, Philadelphia, PA. In-house consultant to Dr. Fuller handling patent research pertaining to cartography, analysis of original drawings for translation to working blue prints. Performed the principal concept, design and production work for a natural resource mapping system used in interactive educational presentations. Created 'World Game' seminar resources to accompany Dr. Fuller's presentations in Washington, San Diego, and Toronto.(1977-1979)

The U.S. Department of Housing and Urban Development, Washington, DC. Staff researcher on the effectiveness of Community Development Block Grants (CDBG) undergoing the first year of review by the U.S. Congress.
Research was carried out under supervision of Don Dodge, Director, HUD Office of Evaluation. (1976)

Buckminster Fuller, Philadelphia, PA. In-house consultant to Dr. Fuller handling patent research pertaining to cartography, analysis of original drawings for translation to working blue prints. Performed the principal concept, design and production work for a natural resource mapping system used in interactive educational presentations. Created 'World Game' seminar resources to accompany Dr. Fuller's presentations in Washington, San Diego, and Toronto.(1977-1979)

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Research was carried out under supervision of Don Dodge, Director, HUD Office of Evaluation. (1976)

University Education

University of Michigan, Ann Arbor, MI: Center for Research on Learning and Teaching. Three graduate courses in educational strategy, film/video and computer communications and education (Computers in College Teaching and Scholarly Work) with Prof. Karl Zinn. (1979-80)
MIT: Three graduate courses at the Media Lab: Visualization Technologies (with Alan Kay) Symbolic Learning (with Seymour Papert) and Digital Technology Education Systems (Gant); Harvard University John F Kennedy School at Government: American Industrial Competitiveness (Louis Branscomb) – course audit status granted under university affiliate program for Computer Science Department / Artificial Intelligence contractors.

University of Pennsylvania, Philadelphia, PA. Successfully completed coursework in the Wharton Graduate School of Finance and Commerce (Dept. of Social Systems Science); admitted to graduate program after three years in architecture/planning program. (1974 - 1978).
Introduction of new digital media technology / education applications began project production rather than architecture/business dual major after three years of undergrad- grad study at Wharton. Admitted to U. Penn after being awarded a one-year academic scholarship for study in Sweden.

Professional Education

- Colorado Mountain College: 'Effective Collaborative Teaching'
- Foothill College, Center for Innovation in Learning: 'Global Project Based Learning'
- University of California Davis: 'Global Environmental Education Practices'

Honors and Awards

- National Academy of Television Arts and Sciences Emmy Award
- COMDEX Educational Media Innovation Envision Award
- International Documentary Association (IDA) Lorentz Award Languages:

(functional) French, Spanish; (basic) Swedish

Biographical Sketch
Dana Gehring, MA Professor

Sinte Gleska University, Arts & Sciences Department, Mission, SD 57555
Phone: 605-856-8233; email: dana.gehring@sintegleska.edu

(a) Professional Preparation

Jamestown College	Biology	B.A. 2002
University of South Dakota	Biology	M.A. 2005
Trident University International	Global Health Sciences	Ph.D. In Process

(b) Positions Held

Sinte Gleska University	Department Chairperson	2015-Present
Sinte Gleska University	Professor	2005-Present
University of South Dakota	Graduate Teaching Assistant	2003-2005
Jamestown College	Teaching Assistant/Lab Assistant	1998-2002

(c) Products

1) Environmental Science Curriculum Development and Course Design, Sinte Gleska University, 2013
2) Biology Curriculum Development and Course Design, Sinte Gleska University, 2014-Current
3) "The Willard Trivers' Hypothesis: Does it apply to *Bos taurus*?", Unpublished Grant Proposal, 2004.

(d) Awards/Fellowships/Grants

1) SD EPSCOR Grant, campus coordinator, 2015-2016
2) NASA EPSCOR Biotechnology Grant, PI, 2015-2016
3) NASA EPSCOR Travel Grant, 2015
4) SD BRIN Grant, 2006
5) Graduate Assistantship, 2003-2005

(e) Synergistic Activities

1) AISES Faculty Co-Advisor, 2015-Present
2) Currently serve an incorporating board member for the Indigenous Peoples Research Institute/Indigenouse Peoples Climate Change Working Group, 2015-Present
3) AICF Building Sustainable Pathways Faculty Advisor, 2015-Present
4) Taught 17+ different courses for undergraduates, 2005-Present
5) NASA Haskell ELO Faculty Mentor, 2015-2016
6) Served on the faculty council as either a representative or officer, 2011-2015
7) Local Science Fair Judge, 2008-2015
8) NASA/Kiksapa REU Faculty Mentor, 2014
9) National Disaster Preparedness Training, 6/2014
10) NAPIRE Home Faculty Mentor, 2014
11) AICF Building Sustainable Pathways Advisory Panel, 2014-2015

(f) Collaborators & Other Affiliations

Collaborators & Co-editors: **5**

- Dr. Bree Reynolds, Sanford Underground Mine, Lead, SD
- Dr. Cynthia Anderson, Black Hills State Univerity, Spearfish, SD
- Vanessa Wandersee, Sinte Gleska University, Biology, Mission, SD
- Rod Bordeaux, Sinte Gleska University, Computer Science, Mission, SD
- Melissa Bancroft, Sinte Gleska University, Mathematics, Mission, SD

Total undergraduate students advised: **95**

*Graduate and Postdoctoral Advisors:***2**

Dr. John Swallow	University of South Dakota, MA
Dr. Charles Ault	Jamestown College, BA

ROD J. BORDEAUX

Rod J. Bordeaux has more than 30 years of experience in the field of computers, communications and electronics teaching software applications, software development, and networking on the Rosebud Sioux (Sicangu Oyate) Reservation.

Rod is currently on faculty at Sinte Gleska University in the Arts and Sciences Department teaching Computer Science coursework and serves as Chairperson of the Faculty Council. He also consults with the Indian Health Service and Veterans Administration.

Among his public service positions, Rod served on the Rosebud Sioux Tribe's Council and various committees and commissions. He has served 10 years on the RST Utility Commission and served one 3-year term on the local Cherry-Todd Electric Cooperative.

Rod Bordeaux is a member of the Rosebud Sioux Tribe and holds a Bachelor of Science degree from The Evergreen State College and various certifications in computer hardware and software. He lives with his wife, children (when they are home) and grandchildren, in rural White River, SD.