“LEADERS UNITED FOR POSITIVE ENERGY (LUPE)”: OCTOBER 2019

- Nine-day experiential learning course in Arizona surrounding sustainable practices for the mining industry supported by 100,000 Strong in the Americas 2018 Innovation Fund

For more, visit: https://nau.edu/cie/leaders-united-for-positive-energy/

- Five Participating institutions:
  - Northern Arizona University (Flagstaff, Arizona)
  - Universidad Tecnológica de Hermosillo (Hermosillo, México)
  - Universidad Nacional de Tucumán (Tucumán, Argentina)
  - Centro Austral de Investigaciones Científicas (Ushuaia, Argentina)
  - Universidad Nacional de Tierra del Fuego (Ushuaia, Argentina)

- The program explored the following as related to mining:
  - Science: resources of the regions represented
  - Policy: development of policy in diverse countries
  - Social Justice: the impacts of mining on local communities
  - Industry: operations, services & corporate social responsibility

Funded by: ExxonMobil
PROGRAM OBJECTIVE:

CREATE A PARTNER NETWORK THAT FOSTERS AND PROMOTES SUSTAINABILITY

Institutional Connections (pre-program)
Solid blue line = existing partners
Orange dash line = desired partnerships
<table>
<thead>
<tr>
<th>Partner</th>
<th>Agreement</th>
<th>Activities / Interactions</th>
<th>Students Involved</th>
<th>Strategic Interests/Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universidad Nacional de Tucuman (UNT)</td>
<td>YES</td>
<td>2:1 Exchange Agreement, 2015</td>
<td>8 – field course</td>
<td>Interest in connecting with UTH (Hermosillo) specifically in the area of mining (lithium).</td>
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<tr>
<td>Tucuman, Argentina</td>
<td></td>
<td>2014 100k grant-funded field course &amp; exchange</td>
<td>7 – exchange</td>
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<td>2014 100k grant-funded field course &amp; exchange</td>
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<tr>
<td>Universidad Tecnológica de Hermosillo (UTH)</td>
<td>YES</td>
<td>Collaborative Academic Agreement, 2017</td>
<td>Approx. 14</td>
<td>Mutual connection with Arizona-Mexico Commission</td>
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<tr>
<td>Hermosillo, Mexico</td>
<td></td>
<td>(short-term exchange/mobility activities)</td>
<td>students</td>
<td></td>
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<td></td>
<td></td>
<td>Approx. 17 faculty</td>
<td></td>
<td></td>
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<tr>
<td>Centro Austral de Investigaciones Científicas</td>
<td>YES</td>
<td>Research-based, 2013</td>
<td>23</td>
<td>NAU faculty based at CADIC</td>
</tr>
<tr>
<td>(CADIC) Ushuaia, Argentina</td>
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<td>NAU research internships abroad 2013-2018 via NSF IRES grant</td>
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<td></td>
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<td>2013-2018 via NSF IRES grant</td>
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<tr>
<td>Universidad Nacional de Tierra del Fuego (UNTDF)</td>
<td>NO</td>
<td>0</td>
<td>0</td>
<td>Interest: Connect NAU research students to academic coursework at UNTDF</td>
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<tr>
<td>Ushuaia, Argentina</td>
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# Rooting Around Common Themes: The Land & Its People

<table>
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<tr>
<th>Indigenous Communities</th>
<th>Natural Resources</th>
<th>Social Impacts of Mining</th>
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<tbody>
<tr>
<td><strong>Northern Arizona</strong></td>
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</table>
| Navajo, Hopi           | Uranium, Coal, Power Plants | - Water contamination (uranium, arsenic) & water allocations (coal plant instead of people)  
  - Livestock (food supply)  
  - Sulphur and carbon emissions from coal burning  
  - Providing jobs in a limited job market |
| **Northern Argentina** |                   |                          |
| Atacama, Toba/Gom, Guarani, Chané, Quechua, Wichí | Lithium, Oil, Natural Gas | - Mercury and heavy metal contamination in surface water from mining (Agriculture/food)  
  - Soil contamination (Agriculture/food)  
  - State development plans for mining take away indigenous lands without consultation  
  - Water table contaminated from oil pumping (Drinking water)  
    • High levels of hydrocarbons  
    • High levels of lead and mercury |
| **Southern Patagonia** |                   |                          |
| Mapuche, Oña, Tehuelche, Yamana | Oil, Coal, Natural Gas, Hydroelectric power (dams) | - Water table contaminated from oil pumping (Drinking water)  
  • High levels of hydrocarbons  
  • High levels of lead and mercury  
  • Fracking from oil extraction waste dumping on indigenous lands  
  • Oil companies violating the right of the indigenous people to participate in natural resource management on their lands |
| **Sonora, Mexico**     |                   |                          |
| Mayo, Yaqui, Pima, Seri, Cuapa, Papago, Guarijo | Copper, Graphite, Silver, Gold, Lead, Tungsten, Fisheries | - Copper sulfate contaminating surface water (rivers)  
  - Other mining spills causing severe contamination in other rivers of Sonora  
  - Wells used for livestock and crops shut down due to contamination |
How To...

- Identify the Right Partner(s)
- Manage Partner Relations throughout Proposal & Program Development
- Maintain Partnerships after Programs
IDENTIFYING THE RIGHT PARTNER(S)

• What is the opportunity?
  – Target research areas or disciplines
  – Make connections, be curious, root around a common cause or theme
  – Envision the bigger picture

• Who are my existing partners?
  – Strength of institutional contacts
  – Alignment of academic strengths and goals

• How do I find a new partner?
  – Network through campus and existing partner contacts
  – Attend conferences and fairs
  – Research institutions that fit areas of interest
  – Share information with potential partners

Michael Ort (NAU) and Robert Lencina (UNT) in Jujuy, Argentina in 1987 at the Panizos volcano.


PARTNER RELATIONS THROUGHOUT PROPOSAL/PROGRAM DEVELOPMENT

• Share the idea
  – Invite open discussion
• Identify and articulate the proposal/program vision, goals and LIST OF NEEDS from your partner
  – Send clear, concise communications
  – Set clear and attainable deadlines
• Involve your partner in the program planning process, but also…
• Be prepared to take the lead and do a lot of the heavy lifting!

The rich natural resources of the western hemisphere in particular have propelled the development of expansive energy industries, the exploration of new frontiers, the teaching of valuable lessons, and the application of best practices for supplying energy. Looking ahead, it is important for higher education institutions of the Americas to collaborate on the preparation of innovative workforces who can respond to the rising energy demands of our global society while considering the added pressures these demands place on our climate and communities.

In order to prepare future leaders and professionals in the complexities of global energy, Leaders United for Positive Energy (LUPE) is a collaborative educational learning initiative among five higher education and research institutions from three countries of the Americas: the United States, Argentina and Mexico. To take place in October 2018, the structure of LUPE will bring 20 students, faculty and investigators northbound from Argentina and Mexico to Arizona to participate in a nine-day interdisciplinary field course to exchange knowledge in science, social justice and industry by studying (1) the geology of each region represented and its natural energy resources, (2) the role and perspective of communities influenced by the power industry, and (3) the operations of industry and the services they provide.
MAINTAINING PARTNERSHIPS AFTER PROGRAMS

• Routine communication
  – Check-ins
    • Email, WhatsApp
  – Periodic video calls
  – Holiday greetings
  – Add to institutional mailing lists

• Proactively engage with your partner to find new ways to collaborate

• Share what you and your partners are doing!
  – Via conferences, social media

Above: Screenshot of current planning efforts for LUPE presentation at Sonora’s Mining Cluster Virtual Global Conference: MINNOVACIÓN
November 25th | 9 am-12 pm (MST)

More info:
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