**PROJECT TITLE:**  Enriching natural resource knowledge for informed decision making

**I. PROJECT STATEMENT**

University of Minnesota researchers (UMD Natural Resources Research Institute, Minnesota Sea Grant) propose a pilot educational and informational outreach program to identify/assemble/disseminate validated information regarding the complex interactions between Minnesota’s clean water and mineral resources. The program will be citizen-focused and structured to drive fact-based discussions and well-informed recommendations concerning cost, risk, and benefit analyses of mineral opportunities in a fresh water-rich state. This work supports our shared goal with LCCMR for the effective maintenance and enhancement of Minnesota's natural resources that include citizen and community involvement in scientific efforts.

Why is this program important? Because clean energy objectives and growing societal demands have brought it to the forefront. The State of Minnesota and major Minnesota corporations like Xcel Energy and 3M share the same stated goal of achieving zero-carbon, clean energy production by 2050. The clean energy economy will include wind farms, solar arrays, and new energy storage and distribution alternatives. To achieve the clean energy goal – based on the state of today’s renewable clean energy technologies and manufacturing capabilities – some estimates suggest more metals will have to be supplied in the next 30 years than have been supplied in the last 100. Growing standards of living and lifestyle changes are also driving increasing world-wide demand for metals, and metal availability is necessary for economically supporting both. This means we will need to be prepared to respond to that rising demand in responsible and sustainable ways.

So, what now? Most of the mineral resources sought to satisfy the increased metal demand, in part driven by new energy technologies, cannot be provided by recycling alone. They will come instead from larger, lower-grade, and deeper mineral deposits simply because most of the higher-grade and easier-to-access deposits have largely been discovered, put into production, or exhausted.

It is a given that pursuit of mineral opportunities must protect water resources. Mineral resource development has had a chequered track-record, and development of those resources can lead to complex interrelationships that have both environmental and economic consequences. We have a mineral opportunity in the state of Minnesota to start with good info and make better decisions that drive sustainability and resiliency of our resources, society, and economy.

**This proposal seeks LCCMR funding to develop and implement a pilot outreach program focused on providing understanding of the complex interrelationships between Minnesota’s water and mineral resources that will empower Minnesotans to hold well-informed discussions and reach recommendations for sound, long-term decisions. The pilot will be carried out in three representative communities across Minnesota. The program will use local steering committees to help guide this program.** Citizen input and reaction will be gathered throughout the program to determine baseline scientific understanding of these complex issues and gained knowledge as a result of program participation.

The Natural Resources Research Institute and Minnesota Sea Grant – two of the University of Minnesota’s applied research institutes – will combine and make best use of their respective areas of expertise and deliver a comprehensive and multidisciplinary educational outreach service to Minnesota citizens from a non-advocacy perspective.

**II. PROJECT ACTIVITIES AND OUTCOMES**

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| **Activity 1: Formation of community steering committees to inform program content**Three Minnesota communities will be selected for the pilot study (potential examples – northeast Minnesota, St. Cloud, and Rochester) with the intent to develop similar efforts statewide based on the experiences and lessons learned from the pilot. The University team (led by Zanko, McFarland, and Hagley) will form diverse multidisciplinary steering committees comprised of 10-12 community members that represent multiple facets of the issue. Two to three in-person meetings will be held in each community to conduct an informal needs assessment which will inform what content could be of greatest benefit, which could include; understanding Minnesota’s available mineral resources and their potential value in applications, interactions between mineral and water resources, emerging water resource challenges and capabilities of water remediation technologies, among others. Guidance on program format and delivery will also be sought from the committee to maximize the potential for community engagement. **ENRTF BUDGET: $94,638** |  |
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| **Outcome** | **Start Date** | **End Date** |
| 1. Project team assembled; communities identified; formation of community steering committees  | Jul 1, 2020 | Sep 30, 2020 |
| 2. Steering committee meetings; informal needs assessment work | Oct 1, 2020 | Nov 30, 2020 |
| 3. Development of outreach programs  | Dec 1, 2020 | Mar 31, 2021 |

**Activity 2: Delivery of outreach programs in each targeted community**Informed by the community steering committees outlined in Activity 1, individual community events will be hosted with the primary objective to present unbiased information clearly and promote constructive conversations around the challenging issues of metal mining and water resources. Citizen input and reaction will be solicited to determine baseline knowledge of science and related issues coming into the program and after to determine how the program content increased participant knowledge. Program evaluations coupled with the citizen input will inform a project report that will outline lessons learned from the pilot study in attempt to advise potential program dissemination statewide. **ENRTF BUDGET: $101,989** |  |
| **Outcome** | **Start Date** | **End Date** |
| 1. Delivery of outreach programs (forum/symposium style event) in each community; concurrent survey work | Apr 1, 2021 | May 31, 2021 |
| 2. Analysis of survey work and reflections from the programs | Jun 1, 2021 | Sep 30, 2021 |
| 3. Report development outlining results of pilot study, recommendation for statewide application, analysis of change in citizen literacy and perceptions | Oct 1, 2021 | Dec 31, 2021 |
| 4. Distribution of report and presentations at appropriate venues | Jan 1, 2022 | Apr 30, 2022 |
| 5. Final report to LCCMR completed and project findings posted and made available to inform the public and decision-makers.  | May 1, 2022 | June 30, 2022 |

**III. PROJECT PARTNERS:**

**A. Partners receiving ENRTF funding:** N/A

**B. Partners NOT receiving ENRTF funding:** Partners will be identified locally and included in the community steering committees

**IV. LONG-TERM- IMPLEMENTATION AND FUNDING:**

The work conducted on this pilot project will inform potential statewide application to support increased natural resource understanding throughout Minnesota. The model may be applied to other complex natural resource based issues where citizen’s values and understanding are critical to manage changing landscapes. Long-term funding for this and similar communication and education programs will be a blend of grant, matching, and in-kind support from the project collaborators, agencies, foundations, and the private and public sectors.

 **V. TIME LINE REQUIREMENTS:**

The project duration would require two years of ENRTF funding from 7/1/2020 to 6/30/2022.