



Environment and Natural Resources Trust Fund

2022 Request for Proposal

General Information

Proposal ID: 2022-022

Proposal Title: Reaching Minnesota's recent immigrant community with environmental education

Project Manager Information

Name: Paul Capel

Organization: U of MN - College of Science and Engineering

Office Telephone: (612) 625-3082

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Project Basic Information

Project Summary: With Minnesota's recent immigrant high school students as liaisons, this will identify the priority needs for environment education for their local communities, help develop, and communicate these educational materials.

Funds Requested: \$177,000

Proposed Project Completion: June 30 2024

LCCMR Funding Category: Small Projects (H)

Secondary Category: Environmental Education (C)

Project Location

What is the best scale for describing where your work will take place?

Region(s): Metro

What is the best scale to describe the area impacted by your work?

Region(s): Metro

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Minnesota's newest residents, recent immigrants, arrive in our State with little knowledge of our environment and how to interact with it. They need environmental education to become aware of human health and safety concerns (such as safe drinking water, lead poisoning, lake ice safety), aware of the respect and rules for environmental care (such as waste disposal, recycling, litter, fishing rules), and aware of the vast environmental recreational opportunities that Minnesota offers. Although this knowledge has been published by State, county, and city agencies, much of this material is not accessible to the recent immigrant communities. This project aims to create a process that will bring culturally-relevant, accessible environmental education to Minnesota's recent immigrants. The agencies that are tasked to provide environmental education to the people of Minnesota have limited ability to specifically discover and meet the needs of the recent immigrants. Finally, the high school students from the recent immigrant communities oftentimes have little opportunities to explore our beautiful environment outside of the city. This project will allow the student participants to experience the environment as part of their participation and, hopefully, inspire some of them to seek careers in environmentally-relevant fields.

What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.

This project will provide accessible environmental education to the recent immigrant communities through their children who are in high school. High school students will help create a questionnaire and interview their families, extended families, and communities to help articulate their environmental education needs relative to human health and safety concerns, respect and rules for environmental care, and recreational opportunities. The interviews by the high school students will be supplemented by interviews of professionals who work directly with the recent immigrants (medical, legal, relocation staff, social services) by UMN students. The interviews will also help identify the best ways to communicate the educational materials to their communities.

This pilot will be hosted by Lincoln International High School (LIHS), a charter high school in Minneapolis, which has a student population of exclusively recent immigrants. Somali, Spanish, and Oromo are the three largest language groups at LIHS. The student interviews will be summarized and the most important topics identified. Accessible environmental education will be developed for the important topics, based on resource documents already available by the State, county, and city agencies. The educational products will be communicated back to the community through the high school students and a community fair.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

At the core, this project will develop a process to bring accessible environmental education to recent immigrant communities in Minnesota. The long-term outcome will be a verified process that can be replicated in other communities and schools. For this pilot project, the specific outcomes will be the identification of the high priority needs for environmental education for three immigrant communities in the Twin Cities. Educational materials for these priority needs will be provided to the communities and communicated to Minnesota agencies working with the environment and professionals (medical, legal, social services, relocation) working with the immigrant communities.

Activities and Milestones

Activity 1: Identify the environmental education needs of recent immigrant communities

Activity Budget: \$60,474

Activity Description:

The project will have two annual cycles with each year learning from the previous year's experiences. In the first year, the project will start in the high school student's environmental science class. A questionnaire will be developed in a collaboration of the LIHS students and staff and UMN students and project manager. The high school students will use this questionnaire to interview their families, extended families, and communities. The community interviews by the LIHS students will be supplemented by interviews by UMN students with professionals (such as medical, legal, and relocation staff) who work directly with the recent immigrants. No personal information will be collected from the people who are being interviewed. The LIHS and UMN students will use digital survey forms and the responses will be transferred to a database. These interviews will be summarized. The results will be used to choose priority topics and provide an understanding of the best media types to best communicate the developed materials to each of the communities.

Activity Milestones:

| Description | Completion Date |
|--|-----------------|
| Summary of priority topics for development of environmental education, year 1 | January 31 2023 |
| Summary of priority topics to State, county, and city agencies and local professionals, year 1 | January 31 2023 |
| Summary of priority topics for development of environmental education, year 2 | January 31 2024 |
| Summary of priority topics to State, county, and city agencies and local professionals, year 2 | January 31 2024 |

Activity 2: Communication of environmental education to the recent immigrant communities

Activity Budget: \$80,079

Activity Description:

The environmental education materials will be developed during the spring semesters. The LIHS and UMN students, together with the LIHS and UMN staff will collaborate on the development of the educational materials. The existing content of published resources from health, environmental, and tourism agencies will be used as the resource documents for the development of culturally-relevant educational materials for the community. Final materials could be in the form of text, graphics, audio, or video, depending on the best ways to reach the communities. The educational materials will be transferred to the immigrant communities through the high school students to their families, friends, and mosques/churches. The materials will be made available for use by agencies and community professionals. LIHS will post all of the developed materials on their website. A community fair will be held each year to disseminate the materials. Agencies will be invited to host booths and talk to the public. In addition, the high school students will have field trips of environmental experiences (Mississippi River boat ride) for their participation and excellence in doing the community interviews and preparation of educational materials. The environmental experience could inspire some of the students to seek environmentally-relevant careers.

Activity Milestones:

| Description | Completion Date |
|--|-----------------|
| Environmental materials developed and made available (1-3 topics for language group, year 1) | June 30 2023 |
| Community fair with State, county, and city agencies invited, year 1 | July 31 2023 |
| Field trips for LIHS students as rewards for participation and excellence (years 1 and 2) | June 30 2024 |
| Environmental materials developed and made available (1-3 topics for language group, year 2) | June 30 2024 |
| Community fair with State, county, and city agencies invited, year 2 | June 30 2024 |

Activity 3: Documentation and communication of the process for the benefit of other schools and other communities

Activity Budget: \$36,447

Activity Description:

The process of delivering environmental education to recent immigrant communities with the help of Lincoln High school students will be a learning prototype that could be replicated in other high schools that serve recent immigrant communities. The project will be evaluated at the end of the first academic year (June 2023) and adjusted, as needed, for the following academic year. A dedicated Lincoln High staff member will guide this project in the high school, and document and evaluate the process. The process will also be evaluated by the high school students and staff at Lincoln, and by the UMN project manager and UMN students. The lessons learned from the project will be summarized in one or more education/scientific journal articles. Presentations will be made at education and/or scientific conferences, such as the Minnesota Water Resources Conference. Additional presentations will be made to the various State, county, and city agencies who provided the source material for the educational modules prepared for the recent immigrant communities.

Activity Milestones:

| Description | Completion Date |
|---|-----------------|
| Analysis of process after first academic year with improvements for next year with written report | July 31 2023 |
| Publication of article that summarizes findings in an education/scientific journal | June 30 2024 |
| Presentations on project outcomes at education/scientific conferences and to agencies | June 30 2024 |

Project Partners and Collaborators

| Name | Organization | Role | Receiving Funds |
|-------------|-----------------------------------|--|-----------------|
| Manyi Tambe | Lincoln International High School | Lincoln will host this project. Their students are exclusively recent immigrants to Minnesota. These students will play a central role in this project as liaisons to their communities through their environmental education and communication classes. The school will have a staff member, to work with the students and their communities. | Yes |

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this be funded?

Based on the outcome of this project, this process could be continued as part of the curriculum at Lincoln International High School (LIHS) and replicated by other high schools. Broader implementation will occur through publication of findings in the peer-reviewed literature and communication of results to other educators, State, county, and city agencies, and the public. Additional small grants will be sought by LIHS from State, county, city, and Federal agencies to expand the communication aspects and the annual community fair.

Other ENRTF Appropriations Awarded in the Last Six Years

| Name | Appropriation | Amount Awarded |
|---|---|----------------|
| Determining Influence of Insecticides on Algal Blooms | M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 04a | \$350,000 |

Project Manager and Organization Qualifications

Project Manager Name: Paul Capel

Job Title: Adjunct Associate Professor

Provide description of the project manager's qualifications to manage the proposed project.

Dr. Paul Capel will be responsible for design and supervision of this project. His work focuses on water quality, the environmental behavior and transport of chemicals, and the importance of hydrologic flowpaths on chemical transport. He worked for the US Geological Survey for more than 30 years designing, conducting, and directing large-scale, water-quality field and modeling studies on in agricultural and urban areas. Dr. Capel is a member of the graduate faculty in Water Resources Science. He teaches in the UMN Department of Civil, Environmental, and Geo- Engineering and in the Honor Program. He has co-authored over 110 articles in peer reviewed journals, reports, and books. He has served on advisory and review panels for the US Department of Agriculture, US Environmental Protection Agency, and US Department of the Interior. He has trained 20 MS and 4 PhD students, as well as numerous undergraduates. He is also the faculty advisor the UMN student group "Engineers Without Borders" which does community development projects both locally and internationally.

B.A., Chemistry and Science Education, 1979, Evangel College, Springfield, MO.

M.S.C.E, Civil Engineering, 1983, University of Minnesota, Minneapolis, MN.

Ph.D., Civil Engineering, 1988, University of Minnesota, Minneapolis, MN.

Organization: U of MN - College of Science and Engineering

Organization Description:

The University of Minnesota is one of the largest, most comprehensive, and most prestigious public universities in the United States (<http://twin-cities.umn.edu/about-us>). The offices of the PI contain the necessary fixed and moveable equipment and facilities needed for the proposed study.

Budget Summary

| Category / Name | Subcategory or Type | Description | Purpose | Gen. Ineligible | % Benefits | # FTE | Classified Staff? | \$ Amount |
|---------------------------------------|---------------------|---|---------|-----------------|------------|-------|-------------------|-----------------|
| Personnel | | | | | | | | |
| Project manager | | Manage project, guide work, advise students, write final report | | | 36.5% | 0.1 | | \$19,314 |
| Undergraduate student 2 | | Work with high school students, advise on context, summarize interviews | | | 0% | 0.5 | | \$13,520 |
| Undergraduate student 1 | | Work with high school students, advise on context, summarize interviews | | | 0% | 0.5 | | \$13,520 |
| Undergraduate student 3 | | Work with high school students, advise on context, summarize interviews | | | 0% | 0.5 | | \$13,520 |
| Undergraduate student 4 | | Work with high school students, advise on context, summarize interviews | | | 0% | 0.5 | | \$13,520 |
| | | | | | | | Sub Total | \$73,394 |
| Contracts and Services | | | | | | | | |
| Lincoln International High School | Sub award | Lincoln International High School will host this project. This funding will be for staff member to coordinate the project within the high school, to work with the high school students and UMN students, give presentations at conferences and agencies, and to help write the final report. | | | | 2 | | \$82,000 |
| | | | | | | | Sub Total | \$82,000 |
| Equipment, Tools, and Supplies | | | | | | | | |
| | | | | | | | Sub Total | - |
| Capital Expenditures | | | | | | | | |
| | | | | | | | Sub Total | - |
| Acquisitions and Stewardship | | | | | | | | |

| | | | | | | | | |
|---------------------------------|---|--|--|--|--|--|--------------------|------------------|
| | | | | | | | Sub Total | - |
| Travel In Minnesota | | | | | | | | |
| | Conference Registration Miles/ Meals/ Lodging | Local Minnesota educational/scientific conferences, 2 conferences per year, 1-2 people per conference | Present results of study | | | | | \$2,000 |
| | Other | Day field trips for high school students and staff for environmental experiences, up to 5 trips per year and 30 students per trip, local to Twin Cities area | Field trips for LIHS students for participation and excellence | | | | | \$9,606 |
| | | | | | | | Sub Total | \$11,606 |
| Travel Outside Minnesota | | | | | | | | |
| | | | | | | | Sub Total | - |
| Printing and Publication | | | | | | | | |
| | Publication | journal charges for publications | journal charges for publications | | | | | \$1,000 |
| | Printing | Production and printing of educational materials | Outcome of some of the educational materials | | | | | \$3,000 |
| | | | | | | | Sub Total | \$4,000 |
| Other Expenses | | | | | | | | |
| | | Community fair to disseminate educational materials, 1 per year | Community fair to disseminate educational materials | | | | | \$6,000 |
| | | | | | | | Sub Total | \$6,000 |
| | | | | | | | Grand Total | \$177,000 |

Classified Staff or Generally Ineligible Expenses

| Category/Name | Subcategory or Type | Description | Justification Ineligible Expense or Classified Staff Request |
|---------------|---------------------|-------------|--|
|---------------|---------------------|-------------|--|

Non ENRTF Funds

| Category | Specific Source | Use | Status | Amount |
|------------------|--|--|----------------------------|-----------------|
| State | | | | |
| In-Kind | University of Minnesota indirect costs | Space, accounting support, computer access | Secured | \$66,000 |
| | | | State Sub Total | \$66,000 |
| Non-State | | | | |
| | | | Non State Sub Total | - |
| | | | Funds Total | \$66,000 |

Attachments

Required Attachments

Visual Component

File: [cc0d8391-b56.pdf](#)

Alternate Text for Visual Component

The graphic shows a flow diagram of the process proposed that uses the high students of recent immigrants to reach their communities with environmental education. In the Fall semester, the high schools students, in collaboration with UMN students, explore environmental-human connections and prepare a questionnaire to understand the environmental education needs for their communities. Then, the high schools and UMN students conduct interviews the community and professionals serving recent immi...

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

Yes, Sponsored Projects Administration

Reaching Minnesota's recent immigrant community with environmental education

