RESEARCH INFRASTRUCTURE IMPROVEMENT (RII 4)
PROPOSAL DEVELOPMENT PROCESS

EDUCATION & OUTREACH WHITE PAPER

FOR DISCUSSION
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TITLE: PROMOTING DATA LITERACY FOR SECONDARY STUDENTS AND THEIR TEACHERS

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Promoting Data Literacy for Secondary Students and Their Teachers

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Description of Activities:

In this proposed project, teachers from throughout the state of New Mexico will participate in professional development activities that promote the connection between mathematical data analysis and scientific inquiry. Teachers will first participate in a 5-7 day summer workshop that introduces them to environmental monitoring techniques, project-based learning inquiry, and data collection. Teachers will also learn how to integrate data collections with the mathematical processes required to conduct data analysis. Teachers will be exposed to the research being conducted by EPSCoR scientists as well as their data collections. Teachers will then develop year-long lessons that embed data collection, analysis, and inquiry into their standard curricular lessons on multiple occasions. Students in these classes will learn how to utilize their mathematics skills, particularly statistics and data analysis to help them answer the questions posed in science class. Throughout the school year, teachers will be provided support from workshop facilitators, research scientists, and experienced educator mentors to help them in implementing their lessons, collecting, finding and utilizing appropriate and meaningful data, and assessing student learning. Finally, program evaluators will work closely with teachers to conduct several classroom observations as they assess student achievement in math and science data analysis.

Relevance to Energy-Water-Environment Nexus:

The main goals of NM EPSCoR and the nexus of Energy-Water-Environment will be integrated into the teacher professional development workshop and the data analysis lessons developed by teacher participants. Professional development activities during the workshop will focus heavily on data collection within the topic areas of energy, water and the environment. Since EPSCoR research data will be utilized during the workshop, teachers will have the ability to have their students delve more deeply into the interactions and impacts of energy on the state's water and environmental resources. Connecting real scientific data to student learning is essential to not only their engagement and motivation, but their willingness and ability to achieve data literacy. Through on-going data analysis and usage in their classes, students will gain insight into why it is so important for them to be able to understand the data they encounter regarding energy, water and the environment in their daily lives.

Target Audience: 7-12 Students and Teachers