



## Executive Summary

eERL Final Report (2002-2004), NSF Grant #0226116

**eERL Mission Statement: To Provide a Comprehensive Library of Online Environmental and Sustainable Energy Resources for Community College Educators, Students, and Practitioners.**

### Overview: About eERL

<http://www.eerl.org>

The electronic Environmental Resources Library (eERL), an ATEEC (Advanced Technology Environmental Education Center; <http://www.ateec.org>) project, is a multi-faceted clearing house of valuable electronic resources for environmental science and technology education. eERL results from an NSDL, or National Science Digital Library, grant. Its audience is primarily educators and librarians who have an impact on students and graduates from community college programs in environmental science and technology.

For this grant, ATEEC joined forces with the Davenport Public Library (DPL; <http://www.rbls.lib.il.us/dpl/>) and also collaborated with the Partnership for Environmental Technology Education (PETE; <http://www.ateec.org/pete/>) and MIT's Laboratory for Energy and the Environment (LFEE; <http://fee.mit.edu/>). DPL's librarians bring the knowledge, experience, and skills to catalogue the resources recommended by PETE, the Collection team, and LFEE and reviewed / vetted by eERL's handpicked team of environmental educators and practitioners.

“eERL is clearly committed to delivering rich, well structured, high-quality metadata. The schema and tools used follow best practices.”

*Tim Cole,  
Professor of Library  
Administration, University of  
Illinois*

This electronic library, resulting from Grant# 0226116, now has a collection of nearly 3000 STEM (Science, Technology, Engineering, and Math) resources tied to environmental science and technology resource information— from classroom-ready materials to regulatory information and global environmental issues. Some of the areas include: air quality, emergency preparedness and response, sustainable energy, natural resources management, safety and health, and sustainability. Vocational areas are covered also, from agriculture, automotive, and green building to manufacturing technology.

eERL's team of expert community college educators and librarians evaluate and recommend valid, up-to-date content. eERL's carefully chosen resources are harvested by and incorporated into NSDL's database regularly, offering another way to access eERL and many other NSDL libraries. See NSDL's site: <http://nsdl.org>.

## Community College Role in Digital Libraries

Community colleges enroll 10.4 million students annually in college transfer and workforce preparation credit and noncredit programs. 44% of all undergraduates are attending community colleges with 58% of those students being women. 46% of African Americans, 55% of Hispanic, 46% of Asian, and 55% of Native American undergraduate students attend community colleges.

eERL is a product of a community college-based NSF center, ATEEC. As the only community college digital library portal in NSDL, eERL links to STEM resources tied to environmental science and technology content and makes that content available to high school and middle school, as well as to its niche of community college education. eERL also collaborates with ASDL (Analytical Sciences Digital Library), which features a collection of chemistry measurement resources.

## MIT Laboratory for Energy and the Environment (LFEE)

The Education Program at the MIT Laboratory for Energy and the Environment (LFEE; <http://lfee.mit.edu/>) contributes original research from inside and outside MIT to eERL on energy and other environmental issues. The Laboratory for Energy and the Environment at the Massachusetts Institute of Technology brings together collaborating faculty and staff in 13 departments to address the complex interrelationships between energy and the environment, and other global environmental challenges. The LFEE Education Program is dedicated to enhancing environmental literacy and deepening multidisciplinary environmental knowledge, particularly among the leaders of tomorrow's science and technology communities.

### eERL's Library Team

A team of librarians help guide the eERL project, forming collection policies and preparing data about the resources available through the eERL database. The tremendous value librarians add to the digital library process includes organizing and cataloguing information that makes the resources easy to find and identify.

"I really like the beta site. It seems like a simple, intuitive interface and was easy to find resources quickly—either browsing or with a keyword search. It allowed me to quickly find the best return by presenting brief but complete descriptions of the resource."

Rajul Pandya  
P.I., University of  
Atmospheric Research  
SOARS program

The following three sections summarize what eERL provides for each of its three audiences—educators, students, and practitioners\*:

*\*Lessons Learned: The eERL Advisory Board has suggested that the audience for eERL is not clearly and succinctly defined. The material may be important to a broader audience, but the selection criteria need to focus on a specific audience. For this reason, it would be useful to designate two-year college faculty and librarians as a particular focus within the broader teacher, student, practitioner audience. Students, and future practitioners, will initially learn about eERL from this primary audience. eERL currently needs to increase its number of resources to attract students, but the students could be directed to the site by the primary audience. This narrower focus should not only guide library development (building it for what the faculty feel their students need, but should also guide initial portal tuning and marketing efforts. Building eERL for faculty and librarians will allow it to draw most directly and effectively from ATEEC's rich experience.*

### **eERL provides educators with:**

- a clearing house of environmental resource information—from classroom-ready materials to regulatory information and global environmental issues
- reliable resources for classes. They are reviewed/vetted by expert educators and practitioners
- bibliographic information that is searchable and expertly crafted and organized by librarians to help you find the right resources for your needs FAST
- an opportunity to contribute resources to be reviewed and become part of eERL
- a forum for sharing information
- a Teacher's Guide to find ideas to customize lessons without starting from scratch

### **eERL provides students with:**

- reliable resources reviewed and recommended by expert educators and practitioners in environmental technology
- quick access to resources. Use keyword or advanced search or browse.
- regulatory information online, allowing bookmarking of favorite sites, which reduces research time
- career information—from locating internships and potential employers to how to's for job search
- contacts; links to organizations and associations
- information about hot topics, like greenbuilding, sustainability, energy, etc.

### **eERL provides practitioners with:**

- advanced search techniques to find resources quickly and easily
- links to associations and organizations to keep you in touch with hot topics
- job market opportunities
- regulations and updated messages on new aspects to regulations

## Partners and Teams

- Principal Investigator
- Project Manager/Coordinator
- Librarians
- CWIS: The Collection Workflow Integration System, recommended for eERL to use by Metadata Services at Cornell University, was designed to enhance library development and to allow the collection, or selection, of resources to be the focus of the effort. See <http://scout.wisc.edu/Projects/CWIS/> for more information.
- Technologist
- Collection team + LfEE (<http://lfee.mit.edu/>): eERL's resources were identified to meet the collection criteria (<http://www.uni.edu/neuhaus/eERLCollectionPolicy.doc>) chosen to meet the needs of the audience. This team of expert community college educators and librarians plus an education liaison from MIT's LfEE worked together to recommend quality resources for eERL's 31 categories of environmental science and technology content. \*\* These categories are shown in the Collection section (link to it). Evaluator: Chris Neuhaus, Instruction Coordinator Rod Library, University of Northern Iowa, has a depth of education, both in science and as a librarian, that provided eERL a perfect complement both to understanding the environmental science and technology content as well as the technology required to create the library. He has served as an archivist of the project's work as well, located at <http://www.uni.edu/neuhaus/eerlwork.html> .
- Project Advisory Board: This board provided Summative Evaluation each year of the grant. Composed of two librarians and two educators, the board addressed concerns and recommendations as well as project strengths. See <http://www.uni.edu/neuhaus/eERLNSDLboardreport072004.doc> .
- Classroom implementers: Educators from around the country used eERL in projects for their students to help eERL's Evaluator gain formative data about how the library performed for users. See <http://www.uni.edu/neuhaus/eerlreportoutcomesassessment.html> .
- Teacher's Guide Designers: A subset of the educators and librarians on the Collection team actively helped design a guide, which was initially tested by the above classroom implementers but will ultimately serve as a detailed guide to eERL use in the classroom. (See <http://www.uni.edu/neuhaus/eerlteachersguide.html> )
- The Education Program at the MIT Laboratory for Energy and the Environment (LFEE; <http://lfee.mit.edu/>) contributes original research from inside and outside MIT to eERL on energy and other environmental issues. The Laboratory for Energy and the Environment at the Massachusetts Institute of Technology brings together collaborating faculty and staff in 13 departments to address the complex interrelationships between energy and the environment, and other global environmental challenges. The LFEE Education Program is dedicated to enhancing environmental literacy and deepening multidisciplinary environmental knowledge, particularly among the leaders of tomorrow's science and technology communities.
- Cornell's Metadata Services, headed by Martin Kurth and recommended by Core Integration, helped the eERL librarians, technologist, and project coordinator to develop the metadata structure for eERL , including the taxonomy and classification for the Browse function.
- PETE: Partnership for Environmental Technology Education, directed by Kirk Laflin, provides a ready network of environmental educators to help field questions about the user base for eERL and to help spread the word about eERL to their peers.
- Think Aloud Moderators: Thanks to willing moderators, who were trained to conduct Think Alouds (see link for discussion of this techniques) with users, the eERL evaluator, gained some interesting information about the use of eERL. See <http://www.uni.edu/neuhaus/summaryofthinkalouds.doc>