

Common Cause: Creating a Unified Environmental Information System through Stakeholder Partnership

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Introduction:

This paper begins with a basic premise: universal access to and sharing of scientifically-sound research helps to promote rational decision-making about environmental and related societal concerns (e.g. transportation, land use and development, public health). The preservation of any state's natural heritage depends largely on the ability of government policy makers to plan and to allocate resources for both preservation and remediation. It is of particular concern that usable and timely data be made available to local government officials who bear the major responsibility for environment-related planning within their communities, as well as to the citizens, researchers, and environmental organizations who work to influence policy.

Currently, however, the state-of-the-art in distributing such information to diverse users leaves much to be desired, and the uneven availability and usability of environmental data compromise informed decision-making. Multiple investigators, representing multiple disci-

plines are involved in data collection and analysis, usually for a specific purpose and with little thought of possible secondary uses of their research. The resulting studies constitute a large and growing body of environmental "grey literature"—both print and digital—that resides at best across distributed networks; at worst, in the offices of individuals, unknown to other potential researchers. This paper will illustrate by example the benefits and pitfalls of working with non-library partners towards the common goal of making New Jersey's environmental research record available to researcher and citizens.

Background Notes on New Jersey's Environment

In 1996, when the New Jersey Department of Environmental Protection announced a campaign to promote Ecotourism in the state, the citizens of New Jersey responded with some, perhaps considerable, skepticism. The polite ones did, anyway. The notion of environmental excursions in tourism to the state of New Jersey

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somehow provokes comedy—even burlesque. (Remember film-maker Michael Moore’s scurrilous reference to the imaginary New Jersey theme park—Chemical Land—in his movie, “Roger and Me?”) And in truth, New Jersey’s environmental condition, by many measures, does present a troubling picture. After all, we hold the dubious distinction for:

- the greatest population density;
- the greatest automobile density;
- the most miles of paved road;
- the greatest number of federal Superfund sites—116;
- troubling, if yet unproven, occurrences of “clusters” of disease, and speculation about environmental causation.

Certainly continuous development and a long history of industrial and agricultural pollution compromise New Jersey’s environmental health. But the environmental situation in New Jersey is an extremely complex one. Despite the tremendous pressures of past and present environmental practices, the state is replete with areas of tremendous natural beauty: pristine beaches and sand dunes, lush green countryside, historic towns, rolling hills, scenic river valleys and mountain overlooks, lush wetlands, and dense pine forests. New Jersey’s environmental challenge is a dual one: to preserve and protect its natural heritage, and to address remediation of its tainted lands, air, and water.

Federal/State Partnership

How New Jersey and other states will address their environmental challenges is in many ways shaped by federal objective. A major Environmental Protection Agency (EPA) initiative is having a tremendous influence on how states conduct their environmental planning activities. The National Environmental Performance Partnership System (NEPPS) is a framework for joint priority-setting and decision-making between the EPA and states. NEPPS represents a new approach to environmental management, with a focus on measuring progress towards better environmental protection through the use of goals and indicators of environmental improvements.

The use of “environmental indicators” as a way of focusing program priorities on desired outcomes, and as a useful way of communicating results to the public, is a critical component of NEPPS. Environmental indicators are viewed as the best, if long-term, way to measure meaningful progress in improving human health

and the environment. Scientists might, for example, monitor a stream’s sensitive macro-invertebrates over time to determine whether point-source pollutants are entering the ecosystem, rather than trying to detect transitory occurrences of discharge. NEPPS is an innovative management system designed to foster identification of state environmental priorities and to allow states the flexibility to better direct federal resources to address their distinct priorities. New Jersey, for example, would obviously have environmental concerns differing from those of Alaska; the set of indicators each would measure would be determined by the individual state, in understanding with the EPA. Examples of state “Performance Partnership Agreements” are available from the EPA’s Office of State and Local Relations/NEPPS Signed Documents and State Agreements site at: <http://www.epa.gov/regional/pps/docs.htm>.

A key provision in NEPPS—and one that impacts directly on information services issues—is based on enhancing accountability to the public. NEPPS commits both the EPA and state environmental officials to share information on environmental priorities, status, and trends broadly and effectively with the public. No specific approach to achieving that objective is prescribed, however. The general concept is to involve the public more actively in understanding environmental issues and choices.¹

A Widening Circle of Partners...

The New Jersey Ecological Research Partnership was formed about the same time as the NEPPS initiative, with a specific purpose: to promote the use of environmental information in decision making. The Partnership represented members of state and local government agencies, citizens groups, and local corporations; however, the initial effort was primarily led by scientists in the NJ-DEP and researchers in the biological, geological, environmental sciences at Rutgers University. The federal mandate to enhance public access to environmental data coincided with the Partnership’s goals, since the development of environmental indicators depends upon data availability. New Jersey’s signed agreement with the EPA clearly includes, in its mission, provisions for making information available:

...as critical environmental issues have evolved over time, and knowledge of the limitations of existing strategies to address these increasingly

complex issues has matured, the need for reinventing many environmental protection practices is now frequently acknowledged. The goal of this next generation of environmental protection is to focus efforts on achievement of improved environmental results while allowing flexibility in how results are achieved. Key elements of this new philosophy are long term direction setting, and development and reporting of specific, scientifically sound measures of progress toward meeting these goals. Additionally, reinvention relies on increased sharing of information and decision-making with all stakeholders, creates opportunities for compliance assistance with environmental requirements, and attempts to lessen the burden of complying with these requirements. Through reinvention practices, environmental agencies can improve the ways in which they protect the environment and the public, while setting clear priorities and making the best use of limited resources.²

Ultimately, the Partnership, led by a scientist at the NJ-DEP's Division of Science, Research and Technology, backed a proposal to create a web-based data directory, which could be used by any researcher to identify environmental data and experts. The project's accordance with the goals of the NEPPS program no doubt contributed to the Partnership's ultimate ability to secure funding for the project

...Encompasses the Library

The NJ Ecological Research partners—most of them researchers themselves—were keenly aware of the difficulty in determining the existence and location of extant data on the environment. What was needed in the partnership was the inclusion of those with the skills to discover elusive information, organize it, make it available to the public, provide outreach services and, most importantly, have the technological know-how to bring about the information management system envisioned by the Partnership.

In a tremendous show of keen, collective insight (for a group of academics), the idea of *librarian* took hold and grew. The librarians of Rutgers, the State University of New Jersey, seemed the likely candidates to approach. The Rutgers librarians' familiarity with scientific research collections and connections to the state's

leading environmental research faculty clearly recommended them to the project.

Moreover, the Library had recently opened its new Scholarly Communication Center (SCC). This SCC is a state-of-the-art technological information facility, equipped with computer and distance education labs, teleconferencing and satellite transmission capabilities, and Humanities and Social Science Data Centers. We are confident that the year spent in meetings and negotiations about the project in this environment, represented by librarians who had planned and implemented the Center, sealed the deal!

The New Jersey Department of Environmental Protection awarded a \$50,000 seed grant to investigators from the Rutgers University Libraries and Rutgers Ecopolicy Center to create a web-based resource to facilitate discovery and access to scientific reports and data related to New Jersey's environment. The resulting product, the prototype New Jersey Environmental Research Record, is part traditional catalog, part digital library, part data server for GIS, and part community outreach tool. Some of the basic elements of the Record are:

- World Wide Web used to create/modify records, search/browse contents, retrieve/download data;
- Computing platform: NT 4.0 with Internet Information Server, FrontPage, Cold Fusion, and MS Access;
- FGDC metadata standard to describe digital/non-digital objects; all entries are geo-referenced for discovery through a map-based graphical interface;
- Contents ultimately to be built through self-submission by data holders.

Development is ongoing, but because of shifting priorities of our funding partner, the NJ-DEP, the project has undergone significant upheavals in scope and direction. Partnership relations can shift as new developments arise, and new players enter the picture.

All Partners are Equal, but Some are More So

What do librarians bring to the table in a partnership? Certainly not hard resources—we are much more likely to be on the receiving end of a money-granting situation. Instead, we contribute our “in-kind service”—the commitment of our time and expertise to the project. In-kind service is valuable and, in grantsmanship, a most justifiable and quantifiable contribution. Nonetheless, the fact is that the partner putting up the hard resources is going to have

tremendous influence over the direction of the project.

At last year's ACRL conference, Kate Nevins, the Executive Director of SOLINET, delivered an excellent and insightful paper entitled "Partnerships and Competition," in which she asserted: "... it cannot be assumed that our partners don't compete with libraries, or that others partners on the project don't compete with each other."³ Insofar as our partnership evolved, truer words were never spoken. The direction of our project has been radically altered—twice—as our partners engaged either directly or through "third party" partners in parallel projects. In each case, the library partners were expected to conform to the new goals of the funding partner.

In the first major shake-up, the "ever-widening circle of partners" benefit took a direction that was simultaneously exciting and disquieting. The partnership circle kicked-off by the EPA's NEPPS initiative came full circle, back to the EPA. The EPA's own adherence to the NEPPS initiative spawned the development of a number of information management systems within the agency. Among them was the Environmental Information Management System (EIMS), intended to provide uniform data access to the multiple EPA offices. When the EIMS concept became known to the NJ-DEP, it was viewed as a possible option for New Jersey. Our immediate contacts within NJ-DEP quickly recognized the significant overlap of projects, and redirected our activities to actively partnering directly with the EIMS staff, with the goal of merging our prototype with EIMS. Our work was radically altered as we joined with database developers in Washington, D.C. to act as consultants to their (and potentially our own) database and user interface design. Development of our own database project—with the exception of content development—froze in place.

But our commitment never lessened. While working in good faith to cooperate with EIMS, we continued to openly discuss with involved NJ-DEP managers the problems of merging New Jersey data into the federal agency system as we saw it: the lack of local control, the over-complexity of the database, the rigidity of EPA's security system, and the loss of New Jersey's specific imprimatur on the whole project. Ultimately, the partnership between NJ-DEP and EIMS faltered, and we rather elatedly returned to our originally slated activities of prototyping the New Jersey Environmental Record. Until then we had concentrated the project on handling documents and like

objects; now we hired a new staff member who had years experience in GIS, and began the next stage of prototyping for GIS and other data resources.

The next upheaval was swift to arrive, and came from a source closer to home: the NJ-DEP itself. In the time that had transpired since the beginning of our grant award from DEP's Division of Science, Research and Technology, the DEP's Geographic Information System's (GIS) Division had secured a large sum in state funding to consolidate GIS data from all the state's agencies. The proposed GIS "clearinghouse," Endex - The Environmental Data Exchange, has as its stated mission the very same one that we based our entire project on: to fashion an approach to support environmental management and decision making. Specifically, Endex would:

- Establish an "electronic trading post";
- Use the Internet and GIS for cooperative problem solving;
- Demonstrate advantages of open information access and data sharing;
- Create an information sharing service;
- Work smarter by organizing environmental monitoring data.

Once again, a project so like the one that we were funded to create was in the making, and given the resources and DEP talent behind it, would certainly prevail. Everyone involved realized that the continuation of our project as initially envisioned threatened a wasteful duplication of effort, not to mention creating a state of confusion for the state's environmental researchers.

As of this writing, negotiations are underway to determine how our projects can be realigned to work with, and benefit from, the Endex initiative. The tentative plan is for all state GIS collections and services to reside within the DEP. The Library proposes that it will take on the creation of a digital library for documents, including maps.

The exclusion of GIS from our immediate purview is disappointing, for we have significant expertise in management of data in our organization. However, we agree that areas of responsibility must be clearly delineated—in effect, competition reduced—if the relationship is to prevail. Ultimately, our commitment to the aims of this project outweigh our sense of "ownership," and we continue in our commitment to work towards what is still, after all, our common cause—creating universal access to environmental information for the benefit of the state's citizens and researchers.

Summing it All Up

What do libraries gain from these partnerships? Successful partnership ventures generally cite common benefits: increased breadth of expertise, enhanced resource-sharing capabilities, and making connections to potential new contributors. Subtler benefits are derived, as well, and among those that librarians might expect to achieve are as follows:

Working in non-library partnerships aligns academic libraries with national campus trends toward university engagement with community and government. Librarians need to develop collaboration beyond those of their immediate colleagues in order to meet the increasing campus objective to make their services available to the state's citizens. Ernest Boyer, former President of the Carnegie Foundation for the Advancement of Teaching, noted:

Increasingly, I'm convinced that ultimately, the scholarship of engagement also means creating a special climate in which the academic and civic cultures communicate more continuously and more creatively with each other, helping to enlarge what anthropologist Clifford Geertz describes as the universe of human discourse and enriching the quality of life for us all.⁴

By working in partnership with other stakeholders, the university library can achieve goals unreachable on its own. Partnerships allow us to share both costs and benefits; this is a winning strategy for the University, and for the citizens whose tax dollars help to support it.

Partnerships furnish opportunities for development of original services. Because partnerships enhance resource-sharing, they can occasion the development of creative pilot projects that would not find support in the mainstay budget. It is important, for example, for librarians to stretch their knowledge and capabilities in the digital library environment. Too often, however, budgetary and time limitations constrain our capabilities to undertake experimental projects.

Partnerships furnish opportunities for individual growth...

The benefit that partnership support brings to projects like ours goes beyond mere technological support to improve library services. Partnership relationships can serve to significantly improve the knowledge of the individual by expanding the circle of expertise in which we move, and by affording us time and resources for creativity and invention.

... which will in turn promote institutional growth.

I predict that as faculty librarians will increasingly seek to garner the support necessary to create digital library projects, and that they will do so though the development of partnerships with academic departments, government agencies, and citizens. Through this expansion and redefinition of work and scholarly activity, a secondary benefit is bound to emerge. The reinvention of individual librarians' view of their work may ultimately produce a fundamental shift in our organizational behavior and beliefs about what librarianship is and can be.

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