

effects of the global recession on libraries and to elicit insight on alternative ways librarians would respond to it.

On average, the respondents reported that they expect their total average projected budgetary loss over three years to be just above 5%. A mixture of responses was returned with respect to cuts that respondents would make to deal with budget shortfalls. Cutting resources topped the list with print books and serials the most likely candidates.

Four methods were presented for balancing the budget: making cutbacks, greater cooperation with other libraries, seeking additional funding, or doing things differently. A plurality of just over a third of the respondents indicated that librarians needed to change what they are doing. Of three change options provided in the survey, over half of the respondents saw the optimal change as acceleration from print to e-resources.

### Implications

The longitudinal data provided by the **Center for Educational Statistics** reveal a downward trend for academic library funding that frames the implications of this study. Many librarians see moving more rapidly toward e-resources over print as the best way forward. This is both a solution and an indication of a problem. Efficiencies associated

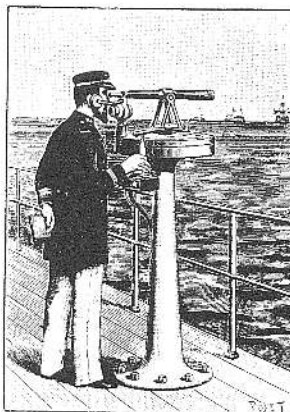
with electronic resource distribution are one way that the loss of funding for libraries over the last decade can be viewed. Libraries have been cutting print subscriptions and purchasing electronic versions for much less per title, and faculty have mostly received online access well. This is largely because of the quantities of titles available in bundles and access options like pay-per-view. If the same phenomenon occurs with books and eBooks over the next decade as the **Google** deal portends, libraries may not see a return to the peak of 1999 but a further decline in budgets. Purchasing power by measure of the number of titles available is increasing despite the decline in budgets. The shift to online access has provided beneficial results with respect to increased access to information resources for faculty and students despite the downward budgetary trend.

There is at least one cautionary note implicit in this transition to e-resources, as well as hope for the future. First the caution: the decline in library budgets does not permit libraries to respond adequately to other aspects of the changing information sphere. This survey focused mostly on the functions of the libraries that are associated with the transition to electronic formats of journals and books. It does not address the development of the future library needs of higher educa-

tion that are related to the evolving Internet that are thus far only beginning to be defined in practice. Academic librarians must navigate access to the complex and rapidly evolving Websites, data structures and navigational tools of the Internet; articulate information literacy across the curriculum; increase efforts toward digital and physical archival preservation and access; and attend to changing peer review and publication models, as well as changes in copyright and fair use practices in an International environment. The reduction in budgets affects the rate at which these challenging issues will be addressed.

With respect to hope for the future, librarians have demonstrated in this survey that they are optimistic about the long-term effects of this economic downturn. They overwhelmingly

assert confidence that it will impose a discipline that is healthy for librarianship. Their attitudes reflect the promise many librarians see as the future for librarianship. The information sphere is exploding in diversity and complexity and, therefore, potential. Information professionals with a bent for harnessing disorder have a much larger and much more interesting job ahead of them than behind. 🌱



## Sustainability — Will We Find It Online?

by **Karen Christensen** (Founder & CEO, Berkshire Publishing Group, 120-122 Castle Street, Great Barrington, MA 01230-1506; Author of *Home Ecology*, *Eco Living*, and *The Armchair Environmentalist*; Phone: 413-528-0206; Fax: 413-541-0076) <karen@berkshirepublishing.com> Skype: karen\_christensen | karen@berkshirepublishing.com; Blog: www.berkshirepublishing.com/blog; Twitter: www.twitter.com/karenchristenze

**O**ur daily activities — travel, eating, and bathing — contribute to each of our personal “environmental footprints.” This term (along with “ecological footprint” and “carbon footprint”) has come to be used as a vivid way to describe the impact of a product, process, or person. Tables and telephones have an environmental footprint, and so does **Twitter**. Spam has an environmental footprint, and so do eBooks, library databases, and digital reference collections.

But this fact has not really sunk in with people, or even with environmental experts. The other day a colleague in Shanghai wrote, “send me electronic versions of what you can (I am nearly paperless!).” He’s a consultant who specializes in both China and environmental issues, two of the main areas where **Berkshire Publishing Group** is focused. I met this colleague through **Twitter**, so he’s tech-savvy and globally networked. But he takes it for granted that being paperless is green.

The transition from print to eBooks and online databases raises new and challenging

questions for libraries, and it’s become a special issue for me because I’m an environmental author — and working to be a green publisher. I’m all for saving trees, but paper has an undeservingly bad reputation with the general public and with experts, too, even though trees are wonderfully renewable. It thrills me that New England has been largely reforested over the last century. But during early days of work on *The Business of Sustainability* (the second volume in **Berkshire’s** new *Encyclopedia of Sustainability*), one of the editors, a scholar at a leading business school specializing in environmental strategy, said, “I’m not sure why this is going to be on paper at all, instead of on CDs or online.”

### One of the Best Things to Do with a Tree

In 1989, I was a young author in London, propelled into the Green world by the surprise success of my first book. My first media event was an hour-long call-in interview on a major London radio program. I was coming down with flu, and leaving my two-month-old baby

didn’t add any joy to the occasion. I was wildly nervous and prayed that no one I knew would listen. But the interviewer, a radio celebrity, was charming, the handful of people calling in asked easy questions, and the time flew past. I could see the clock and was beginning to think that I was going to survive, when the interviewer started fanning the pages of my book. He looked and said, “I assume this is printed on recycled paper?”

Recycled paper had been a point of discussion from early in the project, naturally, but the small London publisher that had taken on an unknown young author (whose friends were quick to tell her that she knew nothing about the subject of the book) had no budget for copy editing, let alone printing on recycled paper. (For reasons I did not entirely understand, but clearly having to do with volume and demand, recycled paper in those days cost some 50% more than virgin paper. And while prices are more reasonable now, it still costs more to use recycled paper stock.)

*continued on page 47*

**Sustainability — Will We Find It Online?**  
from page 46

On the radio that afternoon in London, I had to respond to this reasonable enquiry while longing to get back to my baby and to go to bed with aspirin and a toddy. "No, it isn't," I said. "The economics of recycled paper don't work yet for publishers. But the important thing to remember is that books last. Using paper to create something as durable and useful as a book — that can last hundreds of years — is one of the best possible things you can do with a tree."

My publisher called later to tell me I'd handled that question well. I felt I'd made a point worth making. I didn't realize that one day I would have my own publishing company and have to deal with the issues of printing on recycled paper. But there was a bigger issue not yet on the horizon at the time: the transition to online publishing.

I am not saying that we should publish only on paper, but that we need to open our eyes to the resource and energy costs of digital information.

There are several pieces to the equation. There are the resources (including rare and toxic metals) used to build computer equipment, storage systems, and ancillary products. Then there is the power required to keep all the machines humming — roughly as much as that used by the global aviation industry, and growing. This power use is not only what is used by us, the consumer (whether in a library or a home or business), though that's considerable, but the power required to manage, store, and move information around. Printed publications don't require fossil fuels to keep them accessible, just a little human energy to move and lift them, while maintaining access to online publications contributes to global warming 24 hours a day, 7 days a week.

Just how much information are we talking about? Experts say that **Google** runs more than 400,000 servers. How about the major library database providers? And how much energy do libraries use, and what can we do to make our information management more efficient and climate-friendly? We need to learn from industries where creating green data centers is a familiar concept. I've been trying to track down information through our expert authors, through the **Green Press Initiative** (which focuses entirely on paper at the moment), and also through the various digital aggregators. So far, I'm not getting much in the way of response, which leads me to think that the publishing industry is (as usual) lagging behind other industries.

It is clear from considering some data on spam that the management of information in libraries is no small thing. "The energy required annually to create, send, receive, store, and view spam adds up to more than 33 billion KWh, approximately equivalent to ... the power provided by four large new coal power plants. ICF estimates spam-related emissions for all email users at an annual total of 17 million metric tons of CO<sub>2</sub> or 0.2 percent of the total global CO<sub>2</sub> emissions — a number equivalent to emissions from approximately 1.5 million [U.S.] homes." [http://img.en25.com/Web/McAfee/CarbonFootprint\\_web\\_final2.pdf](http://img.en25.com/Web/McAfee/CarbonFootprint_web_final2.pdf).

**Can Publishing on Paper be in the  
"Spirit of Sustainability?"**

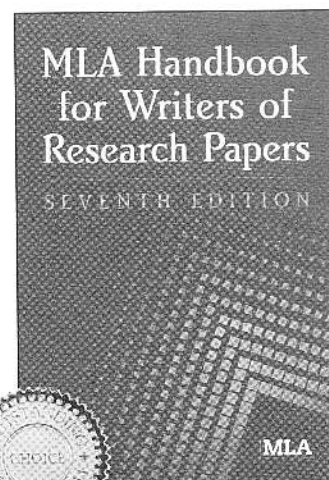
In early October I wrote to our library customers and colleagues to tell them that the first volume of the *Encyclopedia of Sustainability*, entitled *The Spirit of Sustainability* and a project of the Forum on Religion and Ecology at **Yale University** (<http://www.berkshirepublishing.com/brw/product.asp?projID=82>) was at the printers. Within an hour I heard from **Mary Krautter**, Head of Reference and Instructional Services at the **Jackson Library, University of North Carolina at Greensboro**. She asked about plans to make the ten volumes of the *Encyclopedia of Sustainability* available online. "It does seem odd to offer a set like this only in paper — goes against the 'spirit of sustainability.'"

In fact, we are publishing electronically as well as in print. But this question got a conversation going with our colleagues and customers that I've found extremely enlightening — and makes me realize that to walk our talk, as publishers, we need to find ways to change our industry. In fact, I can't think of an issue where general awareness is more out of balance with its real-world impact than the choices we make about using computers and online services. There is no simple answer, as you'll see, but the vital first step is to get over the misconception

*continued on page 48*

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that digital publishing is inherently better for the environment than publishing on paper.

**Mary Krautter** responded, “Of course sustainability is really not the only reason that we’re avoiding paper reference works, although it’s a factor. ... I’m still a big fan of paper volumes for longer works that can be checked out and studied at leisure, but for reference sets which we typically make building use only with relatively brief articles, this model just isn’t working for us anymore. As a very minor example, our music librarian in another branch library is a member of our sustainability/green librarian group — will she be more likely to use articles from this set if she has to walk over to the main library? Or if she can access from her desktop?”

Circulating this discussion further, I heard from scholars and environmentalists as well as librarians. **Oliver Rackham** OBE, of **Corpus Christi College, Cambridge**, authority on the British countryside, who recently wrote on “Trees in World History” for **Berkshire’s** second edition of the *Encyclopedia of World History* (McNeill et al., 2005/2010), responded with several points and concluded, “The problems are complex, not least because of the very wide variations in time-scale. It is time someone tried to analyze them, on the lines maybe of the Americans who investigated ‘built-in obsolescence’ as a factor driving the car industry in the 1960s. None of the reviews of computers that I have seen pays much attention to reliability or longevity.”

**Donna Halper**, professor of communications at **Lesley University in Cambridge, Massachusetts**, brought up the digital divide, “I think some of my colleagues who want everything online (whether to save a tree or because it’s faster and easier) need to keep in mind that while most of us have all sorts of laptops and **Netbooks** and **Kindles**, along with a multitude of databases, not everyone shares our good fortune. ... In the ideal universe, students wouldn’t be denied access to research just because their school can’t afford the best databases. ... Thus, I am delighted that you are publishing this and all your reference volumes in BOTH an online and a hard copy version.” A teacher in Hawaii wrote, “Wow! I never thought about this aspect of e-publishing, but my eyes are open now!” I even had a thank-you note from the office of one of the world’s leading environmentalists. (These colleagues have kindly given me permission to share their comments.)

### As much Energy as the Global Aviation Industry

For years I’ve felt that the environmental impact of publishing needed much more attention, especially after my own book *The Armchair Environmentalist* (MQ Publications 2004, [www.armchairenvironmentalist.com/blog](http://www.armchairenvironmentalist.com/blog)) was one of the first books to be published in the UK on 100% recycled paper. “At last!” I thought, remembering that I’d been asked about this all the way back in 1989 when my first book, *Home Ecology*, was published in London. It was in London, too, that my education about data centers really took off. I was asked to chair the first **Green Data Centres Conference** in July 2008 and I learned what a myth it was that online publishing was inevitably a better, less carbon- and resource-intensive option.

I learned just what a huge environmental challenge is posed by our increasing dependence on online and mobile communications, shopping, and publishing. I found out that computer networks use as much energy as the global aviation industry and are on a much faster growth trajectory. I learned that keeping anything or anyone online makes a continuous contribution to global warming (unless, of course, your systems are entirely powered by renewables).

In working with major online vendors, I’ve discovered that they are no more efficient than print publishers, and in fact I can get a

volume out in print months before the major vendors are able to put it online (though through smaller hosting companies I can have titles up within hours or days). This suggests a lack of operational efficiency that does not bode well for their data center management — though I’ve yet to get any response to my questions to them about their efforts in this area.

I’ve learned more as we worked with experts around the world on Volume 2, *The Business of Sustainability*. E-waste is a problem that we’re far from solving because of the short life of technology products — and they have not been designed, yet, for anything close to efficient reuse or remanufacturing. It’s not just the energy we use but the energy we waste. “Data center power and cooling infrastructure worldwide wastes more than 60,000,000 megawatt-hours per year of electricity. This represents an enormous financial burden on industry and is a significant public policy environmental issue,” according to a recent report ([http://www.apcmedia.com/salestools/NRAN-6V5QAA\\_R0\\_EN.pdf](http://www.apcmedia.com/salestools/NRAN-6V5QAA_R0_EN.pdf)). The vast amounts of water required to cool today’s data centers is another issue of great concern to environmental analysts. We’ll be publishing articles on telecommunications, the information technology industry, and data centers in *The Business of Sustainability* early in 2010, and plan to develop resources for librarians interested in this aspect of sustainability.

### A Sustainable Business Will Stay in Business

And we publishers need to take steps to improve both print and digital publishing systems. By working with printers who are active in the **Green Press Initiative** ([www.greenpressinitiative.org/](http://www.greenpressinitiative.org/)) we saved, with our printing of the 5-volume *Berkshire Encyclopedia of China* in May 2009, 138 trees (40’ tall and 6-8” diameter), 117 million BTUs of total energy, 12,219 pounds of greenhouse gases, 50,717 gallons of wastewater, and 6,513 pounds of solid waste. And our publishing program is increasingly geared to online usability, with separate PDFs for all articles, succinct abstracts, and scheduled updating.

But that’s not all that even a small company like **Berkshire** — or a library — can do. Even more important than making our own commitment to sustainable operations is working with our customers and partners, our suppliers and distributors, and with universities and business schools to increase awareness of the many opportunities that exist to improve performance. The inefficiencies of the book business and our supply chains — which often move books from one warehouse to another, back and forth across the continent and even the world — need to change in order to reduce the impact of print publishing (the distribution system’s inefficiencies probably contribute more to climate change than our use of paper).

These improvements could help with budgets, too. The “business of sustainability” also means economic sustainability. That is, a sustainable business is managed so that it will stay in business. Libraries, too, need to be sustainable in this sense, and one can certainly argue that without excellent electronic resources they will become obsolete. My paperless Shanghai colleague points out that the Internet serves billions of people. And we are not going to solve global environmental problems without excellent and timely information resources — which is where libraries come in, as a vital part of the knowledge equation.

**Frederick Stoss**, of **SUNY Buffalo**, and I are guest editing the November 2010 issue of *Against the Grain*, with “Sustainability” as its theme. We urgently need to take stock, and to demand of ourselves and our vendors a new way of doing business. What’s next is a mini-Copenhagen in our industry, where we can agree (or begin to agree) on standard and targets. **Katina Strauch** has, with her usual vision, agreed to make this part of the **Charleston Conference** in 2010, so please contact me, or **Katina**, with your ideas for a panel or other events, and information about what your organization is doing. Questions are welcome, too: we’re in this one together! 🌱

