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A prescriptive guide to financial and environmentally sustainable library operations

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Introduction

Focusing on sustainable operations and building facilities can reduce the consumption of resources as well as the carbon footprint of businesses in general. Over the long term, a greener business is likely to save the company money and attract customers (Epstein, 2008). This article examines the unique functionality of libraries, suggesting ways in which those areas can be made more efficient to save not only energy and resources, but also time and money. Literature about the green library movement tends to take a macro approach, discussing LEED certification for buildings and steps that library organizations are taking overall (Antonelli, 2008). There remains nonetheless, a need for prescriptive guidelines of sustainable library operations (Jankowska, 2008). Libraries are the education hub of a community and have a unique opportunity to not only become more sustainable themselves, but to also help expose community members to green ideas (Boyden & Weiner, 2000). Though excellent literature exists on greening libraries (McBane & Himmel, 2010), this work is meant to fill a unique niche as a sustainability audit. It is also intended to be a dynamic document, open to discussion.

This work is the result of observations, conversations, and interviews that bridge the best practices of both public and academic libraries. Though library literature tends to segregate public and academic libraries, when it comes to environmental sustainability, these two types of libraries have much to learn from each other. Public libraries really shine in terms of offering green programs to the community.

Defining sustainability

While the term *sustainability* can be applied to the library literature as a management or economics term, *environmental sustainability* considers all levels of resources used in the building and maintenance of library buildings, as well as the organization's functionality from a global environmental perspective. There is an assumption that renewable resources are more energy efficient than non-renewables, that local materials are inherently better than those which must be transported, and that reuse is better than recycling. Above all, the use of energy and water and the creation of waste are minimized. Environmental sustainability nearly always runs in tandem with economic sustainability when considering long-term budgets. The following are suggestions broken down by the most common functions of academic and public libraries. This discussion focuses entirely on library operations, and not the building nor its maintenance.

Information technology

Hardware and phantom power

Laptop computers coupled with docking stations are likely the best choice for employee workstations. Laptops can be carried to meetings, which mean that agendas, handouts and documentation need not be printed. Likewise, minutes and notes can be scribed and distributed directly in electronic format. Finally, laptops draw 50 - 80 percent of the electricity of dedicated workstations according to Energy Star measurements.

Rather than installing graphic screensavers, set computer screens to go blank after two minutes of inactivity. Power down surge protectors at night with a timer, or computers will continually draw phantom power even while they are shut down. Replace dedicated workstations used for Public Access Catalogs, which need only minimal processing, with thin clients. Thin clients are low-power PCs embedded with a scaled-down version of Windows. They use one-tenth the power of an average workstation. They can further be programmed to shut down automatically according to your library's schedule. Thin clients cost only a fraction of the price of a complete workstation. Replace main frame servers with compact, energy-efficient blade servers. This can result in a 66% reduction in energy use. Recycle electronic products whenever possible and favor the purchase of electronic products created from post-consumer waste. Consider not only the *cradle to grave* lifespan of purchased hardware, but its cradle to *cradle* longevity.

Printing and recycling

It makes both economic and environmental sense to charge for printing. Free printing not only costs the library tens of thousands of dollars per year, but also entails tree harvesting, an accumulation of waste, and contributes to carbon in the atmosphere. A study conducted by the Information Technology department at the University of New Mexico revealed that a single graduate student had printed 41,119 pages in less than a year while copying was free (Hendrickson, 2011). Purchase recycled paper products as much as possible. Ensure that recycling bins are placed in obvious public view so that reaching a recycling bin is easier than throwing paper away in the trash bin. Label recycling bins to differentiate between paper recycling, aluminum recycling, and all other waste. Offer two-sided (duplex) printing and network a high quality printer, rather than offering personal printers to staff. Set default printer settings on machines to two-sided printing. Printing preferences can always be changed to one-sided when desired.

Shared documents and cloud computing

As printing is discouraged, saving files electronically can simultaneously be encouraged. Sell flash drives at a nominal cost. Staff members may save files to a shared local drive, to cloud computing services such as Google Docs or a to a local web portal. Assure that public service staff can demonstrate file saving and double-sided printing to library users.

Waste

Get to know your local recycling program and their market. Offer the option to recycle paper everywhere and make the recycling bins more convenient than the garbage cans. Research whether colored paper, newspapers, and white paper must be separated. If a university has no market for the sale of their collected office paper, the paper will eventually end up as landfill. If this is the case, it is more effective to shred and compost office paper than to send it to an ineffective recycling circuit.

Offer for sale reusable cloth shopping bags at your circulation desks and gift shop. Offer used plastic bags at the circulation desk for carrying books home. The only plastics that can be recycled are those marked numbers 1 and 2. Biodegradable plastic is marked with a zero, but is only biodegradable if composted. In other words, it will only break down if exposed to moisture and sun, and this takes over two years if not shredded first. Recycle or refill ink cartridges for copiers and printers.

Collections

The topic of collections is multi-layered. The entire process of ordering and purchasing should be entirely electronic. Examine the ordering process in your library to see if at any juncture print documentation is still required, and question whether this can be eliminated. Favor electronic media over print whenever possible. Print journals not only use paper, but they also require transport, shelf space, and eventually binding. Consider electronic collections such as *Books 24/7* and *NetLibrary* for books in rapidly advancing fields, such as Computer Science.

Duplicate an electronic item with its print counterpart only when absolutely necessary. Electronic journals are a preferable format over print for most journals. Some titles have so much aesthetic appeal that they continue to hold value in their print format. Nonetheless, a policy that favors e-journals should be instituted for most academic libraries. Advertise your electronic book services, and consider teaching people to use e-book readers, such as the Amazon Kindle®, Apple's iPad®, and MP3 players. The Zimmerman Library at the University of New Mexico circulates iPads and Kindles. Patrons can recommend the purchase of e-books through an online form.

Book purchasing

When purchasing print materials, collection developers typically purchase new books. Consider purchasing e-books and used books rather than new ones. Though there is the possibility that a used book may not last as long as a new book, the lifespan of the used or paperback book is still likely to surpass the usefulness of the content by decades. Book vendors openly offer the condition of a used book and most used books are in "new" or "good" condition. Experiment with an *on-demand* purchasing program. This streamlines the purchasing process and potentially builds a collection with a higher circulation rate.

Alliances

Rather than each library attempting to be all things to all people, libraries can establish a collection mission for their specialized collections and negotiate collection development as an integral part of their local and national consortia. Alliances can be built with other libraries and interlibrary loan is extremely efficient, offering sometimes a 24 hour turn-around time. Shared digital archives can eliminate the need for duplicated print collections. If each library has a niche, it helps to avoid duplication among the collections. Book club kits are print collections with a high, but immediate demand. These can be rotated through branch libraries periodically so that demand for each title is staggered.

Librarians should provide feedback to government agencies about government contracts that deliver massive and frequent shipments of print documents. The Government Printing Office and the U.S. Patent and Trademark Office are notorious for signing irrevocable contracts that deliver shipments to libraries, though these collections may be duplicated on the Internet. The U.S. Patent and Trademark office is to be commended for announcing the cessation of their CASSIS DVD program which previously delivered approximately six DVDs per week to each patent depository in the country. Avoiding redundancy is, in and of itself, environmentally and economically sensible.

The library as publisher

Academic libraries are well-suited to digitally capture and archive special collections. Assuming that archivists stay abreast of emerging technologies, digital materials generally last longer and are more accessible. Publicize special digitizing projects so that other libraries need not duplicate your effort. Upload digital archives, special collections, and other institutional repositories to the Internet.

Electronic theses and dissertations at universities need not be deposited by graduate students in print format. The demand placed on graduate students for print copies is time consuming and expensive for the students. Electronic dissertations are more accessible and better preserved. The library can partner with the office of graduate studies to set policies and to digitize older theses and dissertations. Academic library staff can lead by example and make electronic publishing a priority for their own research and publications. Favor publishers whose contracts permit uploading the penultimate version (pre-print) of an article in a local electronic repository, such as LoboVault at the University of New Mexico.

Digital course reserves (e-reserves) are more accessible than print files and eliminate the potential for stolen, lost, or damaged items. Consider digitizing special collections, especially those that are most valuable, brittle and unique. Government documents can usurp massive amounts of shelf space. Selective government depositories can de-select government documents that are already offered on the Internet. The caveat is that de-selection is by item number, and one item number can represent numerous titles. Further, anything that is available exclusively in print, must be retained for a minimum of five years before it can be deselected.

Gifts and discards

The saying that "there is no such thing as a free gift," truly applies to libraries. Accepting a gift requires processing time, shelf space and sometimes binding. Rejecting a gift, however, could ultimately mean tossing an unwanted personal collection into the landfill. Work with your local recycling company to assure that unwanted gifts can truly be recycled. Inform your patrons about how they can recycle old books, or offer them online when the library cannot accept them. A charity called Better World Books accepts donations of books. Recycle unwanted print books and journals.

Sustainability as a subject area

Environmental sustainability is a multi-disciplinary subject area. Any general or science library should have an ample, modern collection on the topic of sustainability, environmental science, green building, and renewable energy. There are numerous bibliographies that can help the collection developer shape their collection. Showcasing recent book acquisitions that cover sustainability encourages the community to explore new issues.

There are several journal databases that cover the areas of environmental science and sustainability. Fred Stoss reviewed these (Stoss, 2010), and gave high ratings to Gale's new GREENR database (*Global Reference on Environment, Energy, and Natural Resources)*. The database focuses expressly on issues pertaining to the environment and sustainability. Stoss found that *GREENR* "successfully captured alternative data and resources." *Environmental Sciences and Pollution Management* (Cambridge Scientific Abstracts) as well as *Alternative Press Index* are likewise important databases for inclusion in a sustainability collection.

Alternative collections

Libraries have embraced the concept of sharing from their inception, though traditionally they were designed to share books and news sources. Today several libraries lend expensive or bulky items that a patron is likely to use only once or twice. The Berkeley Public Library, for example has a Tool Lending Library. Several libraries loan cruiser bicycles for commuting. The Wilkinson Public Library in Telluride has a fleet of pink town bikes that can be easily checked out with a library card. The San Miguel Power Association partnered with public libraries in their region to offer *Kill-A-Watt Meters*. These meters, when plugged into an appliance, and then into an electric socket, measure both the energy and phantom power used by that household appliance. Phantom power is electricity used by an appliance when it is shut down.

Mobile Services

Bookmobiles

The San Francisco Public Libraries will soon be unveiling their new hybrid, bio-diesel, semi-solar powered bookmobile. As Jon Worona, the former bookmobile manager explains, the solar panels are used to augment power to the computers, ceiling fans, and lights. Most of the light is supplied through skylights in the roof. Inside each skylight are ceiling fans made of clear plastic so as not to obfuscate the natural light. Books sit atop wooden shelves built from sustainably

harvested wood. The engine runs on a B-20 biodiesel blend, so 20% of the fuel is not a petroleum product. In addition, the engine is designed with "clean diesel technology." An additive clears out nitrous oxide and sulfur fumes normally associated with diesel exhaust. Being a hybrid vehicle, the engine completely shuts down when battery power is ample.

Interlibrary loan

Some libraries have converted their "pony express" vehicles used for delivering books between branches or across campuses to solar electric or natural gas-powered engines. If the distance is short enough you can transport books on a human-powered book-mobile. Equip a bicycle with a B.O.B. trailer or an Xtracycle to tow heavy objects. Computers or fragile equipment can be transported with a hand-held trolley or cart. This also offers a nice break from sitting in an office or cubicle.

The library as employer

Promoting a sustainable climate among employees

Making sustainability part of your library's mission statement sets the climate among employees. Relaxed business attire, for example, is more energy efficient than a formal dress code for several reasons. During summer months light clothing necessitates less air conditioning. An informal dress code encourages more bicycle and pedestrian commuters. Finally, dry-cleaners are implicated with releasing toxic solvents into the atmosphere. Encourage bicycle commuting by creating a bicycle storage facility within the library building. Consider sponsoring a program that offers free bus and train passes to all employees. If sustainability is not a part of the library's mission, employees may feel compelled to dress more formally or might be nervous about bring a bicycle into the building.

Form a green committee

Create a sustainability committee that sets benchmarks and expectations for future policies. Expectations from the library administration can have a tremendous impact on employee routines. A sustainability committee can assess needs, prioritize action items, set standards, and provide training and outreach to their fellow staff. The sustainability committee can roam the library at various hours of the day to assess needs. It helps if committee members have some background in green architecture or sustainable business practices. Create a listserv for offering large items that are no longer wanted, such as the *Reuse-l* listserv used by employees at the University of New Mexico Libraries.

Alpine Bank created a "Green Team." The priorities of their green initiatives are widely cost-based. When setting priorities, committee members assign a positive number from 1 to 5 for each potential benefit, and a negative number for the relative cost. A high benefit for little cost could be swapping out incandescent light bulbs with CFLs, for example. Replacing a heating or cooling system would have a high long-term payback, but also a high upfront cost. Recycling has a large benefit with nearly no cost. Because Alpine Bank is owned by its employees, the

members on the Green Team are more likely to take a longer-termed view than the share-holders of a publicly traded company.

Office supplies and equipment

Rather than ordering from a national vendor, consider ordering from a local supplier or bookstore, or from a charitable organization. If your library typically orders a calendar for each employee, consider allowing employees the choice of selecting a calendar from Sierra Club or Audubon, for example. These calendars are considerably more inspiring than the standard black or maroon 4x8 and the cost is comparable. Each week a photograph brings to mind places or animals that are worth preserving.

Encourage employees to unplug computers and appliances at the surge protector rather than merely shutting down the appliance. Phantom loads, or the power consumed by appliances in standby mode, account for 5% of an energy bill. Personal heaters and computers should never be left on after an employee leaves for the day. Install energy star appliances including a high-efficiency dishwasher in each staff lounge. A dishwasher requires less energy and water than each employee washing their own dishes. It also saves time otherwise wasted.

It helps if the library administration creates an expectation that paper is used as infrequently as possible. Printers should be capable of double-sided (duplex) printing, and workstations should be set to double-sided printing by default. Public service staff should be able to help library patrons change the default settings to one-sided printing if preferable.

Share documents on networks and on cloud computing services such as Google Documents. Scan documents and send them via email rather than mailing print items whenever possible. Electronic forms can be interactive such that the receiver can input data electronically and email the newly completed form back. Read-only forms require printing. The term "paperwork" should be little more than a metaphor.

Human Resources

Human Resources, administration and payroll departments should all be on board with electronic documentation, forms, contracts and rules. Progress reports and employee reviews should be entirely electronic. Electronic signatures can be acceptable protocol on official documents such as annual reviews, grant requests, and salary contracts. Archive human resource documents in an electronic format.

Employee transportation and parking

Policies can encourage employees to choose an alternative to driving to work each day. A formal dress code encourages driving to work. Encouraging flex-time and telecommuting mitigates rush hour traffic. If it is within a library's budget, consider offering free or reduced-fair monthly bus or train passes to employees. Create safe indoor bicycle storage for employees. Organize carpools either within the library or via a city or country program.

Many employers reward employees who bike or walk to work by allowing them to arrive 15 minutes late and leave for the day 15 minutes earlier than normal. Academic libraries often have the advantage of having a gym nearby on the campus. When considering new construction for a public library building, consider installing a shower so that cyclists have the opportunity to freshen up after their commute. At the very least, employees should have a place to change clothes with privacy and comfort. Investigate the possibility of offering subsidized bus passes to employees. Advertise this option to patrons if such a local incentive exists.

Though Atlanta is a city reliant on cars, the Candler Library on the Emory University Campus deserves credit for installing bike racks and a changing/shower room to support those who bike or walk to work. The building is served by Emory's alternative transportation system which consists of clean burning natural gas and electric buses which reduces local emissions and vehicle parking spaces. The library is served by eight bus routes available within a ¼ mile of the building.

Conferences, Retreats, and Continuing Education

Conferences

Teleconferencing is a great way for people to present unique ideas and network without the cost, loss of time, pollution or carbon contribution of air travel. Employees can take advantage of webinars offered through professional organizations. A good example of this is the webinar sponsored by Amigos entitled *Going Green at Your Library 2*. Presenters covered ways to green library buildings, reading lists, and hardware. Amigos used *Adobe Connect* software to administer their conference. Other groups have successfully used *Microsoft's Sharepoint*, which is designed for employees to fluidly share documents before and during the meeting. Drupal is free software that acts as a web portal for publishing a variety of documents and can serve as a newsletter or forum. Conference proceedings can fill several volumes when published in print, leaving attendees to haul these back home on a plane or ship them to their institution. A better solution is to load proceedings online, to a DVD, or on free thumb drives for each attendee. A thumb drives makes a nice gift (Cosgrove, 2010).

In cases where employees become responsible for local arrangements of a professional conference, one person can make a big difference by selecting green options for participants. Consider recycled or compostable plates, cups, and plastic ware, or better yet, washable table ware. Provide clearly labeled recycle bins for plastic, aluminum, glass, and paper, as well as a separate bin for compost. Support local vendors whenever possible. Serve fruit and vegetables instead of highly processed or packaged food. Consider food that does not need much refrigeration such as fresh, uncut fruit. Vegetarian and vegan food uses less energy to produce, is more cost effective, is a healthy choice, and will not interfere with people's ethical or religious preferences. Uneaten food can be donated to local food banks.

When serving food at meetings, avoid individual packaging as much as possible. Boxed lunches generally use several plastic wrappers and one non-recyclable box per lunch. In many places

cardboard cannot be recycled unless it is corrugated. Encourage conference attendees to use a refillable mug for beverages. Offer filtered water from a tap instead of bottled water or canned sodas. Wrap sandwiches in recyclable paper and avoid plastic at all costs. Less than 10 percent of plastics that CAN be recycled (numbers 1 and 2) are ever actually re-used. At best they are usually turned into post-consumer building products, (Shane, 2007). The rest often end up in landfills or in the middle of the Pacific Ocean where they are likely to be ingested by birds and fish (Jordan, 2009).

Tote bags, t-shirts, and plastic trinkets consume energy to produce and invariably end their life cycle in a landfill shortly after the conference ends. Offer instead bookmarks, business cards, or gift certificates in small, but creative ways. Consider light projections for signage instead of large plastic banners. If you offer attendees gifts, try to purchase items that are biodegradable or reusable. Consider the materials and energy involved in producing conference bags before giving them away for free. Conference bags are typically not used again after a conference ends because they often appear nerdy in the real world. Request that attendees bring their own bags, or simply let attendees know before they register, that tote bags will not be included in the cost of their registration. Attendees can be given the option of purchasing bags separately from the cost of the conference fees, which also gives the organizer an idea of how desirable those tote bags really are (Davis, 2008). Having sponsors pay for consumables can mask their true cost. Do not be afraid to place a realistic price on items that either consume energy while produced, or have potential to create waste. A conference can produce zero waste if attendees understand their role in this target. The Telluride Mountain Film Festival accomplished their goal of zero waste by instructing attendees to bring their own mugs and table ware. All garbage was separated into compost and recycling, and dishes were washed for attendees at washing stations. Disposable plates and silverware were never even offered as an option.

Librarians as faculty

Several academic libraries have a promotion and tenure system that supports faculty status for librarians. Though the case can certainly be made that discourse at conferences and published refereed articles advances the information science profession, it must also be acknowledged that conference travel and the tradition of publishing in print journals is rarely, if ever, an environmentally friendly process. When a department or college encourages quality over quantity it is not only greener, but also allows the faculty to focus their energy on unique ideas that potentially impact the profession.

Works published in open source online venues hold the most potential for exposure. Eugene Garfield, the creator of ISI's Science Citation Index, found that open source publications are cited more frequently than those published in print (Garfield, 2011). Academic libraries can also encourage junior faculty to seek alternatives to the long-standing tradition of publishing. The development of user-friendly projects that improve library services and the local community should be valued as a contribution toward tenure and promotion.

As faculty members proceed through their tenure process, there are review documents that accompany each juncture. Requiring print votes and comments regarding the advancement for each tenure track faculty member at each of their six code review years can quickly lead to a lot

of paper in that paper trail. If, for example, three junior faculty members are under review, and there are 25 faculty members in a university library, this necessitates 75 sheets of paper each year for six years. Electronic voting eliminates waste. Placing dossiers and publications on e-reserves can maintain confidentiality through password protection, while still enabling colleagues to access documents under review.

Meetings and Retreats

Notes can be projected at meetings rather than printing and distributing handouts. Agendas are often distributed via email and attendees feel compelled to print them, only to find more handouts distributed at the meeting as well. Avoiding redundancy and ambiguity reduces the need for printed materials. It helps to communicate to employees the expectation that they read documentation online prior to the meetings, or let them know that documents will be collectively reviewed at the upcoming meeting. In short, discourage printing.

Avoid using giant Post-It Notes® or other large sheets of paper at a retreat or meeting. A computer tablet makes a nice drawing pad that can be projected. Equip a meeting room with a workstation, a wireless mouse and keyboard, a projector, and a screen or white wall space for projection. Creative expression and brainstorming need not necessitate paper. Markers can be used on erasable re-useable cells or a white board. Graphical interfaces that enable archiving of doodles and notes for future use can be shared more easily than traditional paper notes.

Outreach and development

Public programs

As libraries are the hub of activity, programming that teaches sustainability is the central impetus for a progressive community. Any business can incorporate sustainable business practices, but a library has a unique opportunity to teach environmental literacy through community programs and via the library's collections. A garden, for example, can be used to teach community classes in xeric design, grey water, and drip irrigation. Many libraries have as their mission statements some consideration for the "teaching moment." Why not educate the community on the value of passive solar design? This can be done on several levels; passively, with the building as a public showcase (Boyden & Weiner, 2001) and through a strong sustainable design collection, or actively, through public programming.

Public libraries have taken the lead in partnering with communities in environmental outreach. The Wilkinson Public Library in Telluride, CO regularly partners with The New Community Coalition to co-host Green Business Roundtables in which the community is invited to participate in presentations and discussions involving energy-efficient or environmentally sound best-practices. The New Community Coalition is a non-profit organization dedicated to the region's long term sustainability. The roundtables are a chance for the public to be informed, but it also presents opportunities for business owners and consumers to network. Local vendors get a chance to discuss or showcase their green products directly with potential clients. The

Wilkinson Public Library continually hosts other workshops for the community on such issues as composting, recycling, and shopping locally. They offer a social issues book club, air provocative films, and involve children in various green programs.

The Chicago Public Library offers classes and lectures on green-living themes, primarily during the summer, calling their campaign "Read Green, Live Green." Programs include green parenting and the social dimensions of climate change. Their director of marketing, Ruth Lednicer, estimates that 52,000 children read 1.2 million green-themed books in one year (Lednicer, 2010). San Francisco Public Library's Green Stacks program is a community partnership intended to expose people to green ideas. This consists of green library initiatives, such as their corn-based library cards, green book lists, and programming that focuses on the environment.

Library Instruction

Course Management Systems, such as Blackboard and Moodle theoretically alleviate the massive amounts of printing traditionally expected from students, especially when integrated with the library's electronic reserve system. Acquiring the best of technologies, however, does not guarantee a clear departure from waste. Professors may nonetheless require that students print a confirmation of their electronically submitted assignment, which is not only inefficient, but creates long lines at the library's printers. Ideally in these types of situations librarians can serve on committees and focus groups, where they might provide input on instructional design and technology, especially as it impacts library infrastructure and services. Librarians can connect with a professor directly and offer help with electronic reserves and course management systems.

When teaching in an academic library, distribute a business card or a bookmark with the URL of your web page rather than full-page handouts. Students are more likely to hang onto something that is useful and brief. Create specialized online guides specifically designed for their subject area. Online learning objects created with Adobe Captivate® or Camtasia Studio® can be used in addition to Springshare Libguides®.

The library cafe

A café inside a library can be quite popular with patrons and generates money for the organization. Selling travel mugs or stainless steel water bottles with the library's logo and website URL for a nominal fee is as much a paper cup saver as it is a marketing strategy. Avoid giving objects away free of charge. Once an object has value, it is less likely to wind up in the landfill. Reward people for bringing their reusable mug by offering a discount on their beverage. Eliminate the need for coffee stirs entirely by placing the sweeteners, dairy and soy creamers at the front of the line instead of the back. If the coffee is poured over the crème and sugar there is no need to stir. This is a simple solution to eliminating hundreds of plastic stirs. Though eliminating small bits of plastic may not make much difference in a huge landfill, it can save the life of a bird years down the line. Eliminate bottled water and soda vending machines altogether.

Telling your story

If you have successfully completed a green project, let the world know about it. Sometimes libraries forget to brag to the world about their accomplishments. The Wilkinson Public Library has an excellent example of a Going Green page, which resides on their web site under their *About* section. In general, academic libraries tend to discuss their projects in the academic library literature while public libraries generally post accomplishments to their web pages. Periodically recording a construction project through photos, video, or live-streaming invites stakeholders to share the excitement and anticipation of the building process. NCSU loaded a video of their library's construction to YouTube.

Conclusions

The daily operations of a library, like any business, can be made more efficient. Creating more sustainable library operations reduces a library's carbon footprint, minimizes waste generated, and reduces inputs. In the long-term however, it also generally saves the library money, saves employees time, and attracts patronage through programs. Libraries hold a unique opportunity to create an awareness of environmental issues. In creating green programs, libraries go beyond being merely sustainable, but rather restorative, exploiting a teaching moment that builds not only a greener library, but also a greener community.

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