



Green Exhibitions Need Green Museums

by Charlie Trautmann and Maureen McConnell

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Scientists are sounding increasingly insistent warnings about the impact of our society on the global environment. In turn, museums are engaging in a fundamental debate about how they can do their part to bring issues related to sustainability to the public and to serve as agents of change. For many museums, the first thing that comes to mind is to mount an exhibition. After all, that's what brings in most of our visitors, and that's what we do well in the eyes of our visiting public.

The creators and sponsors of exhibitions on topics related to sustainability may be motivated by many goals, but we propose that such exhibitions will not be successful unless they address the following issues.

- Focus of the exhibition
- Voice of the presentation
- Museum context
- Post-visit engagement

Focus of the Exhibition

The focus of an exhibition is a key factor for successful visitor impact. For exhibitions related to sustainability, some guidance comes from the classic formula for the impact of human activities on the environment that was developed in the early 1970s by Barry Commoner, Paul Holdren, and Paul Ehrlich:

$$I = P \times A \times T$$

or Impact = Population x Affluence x Technology. Expressed in a sentence, the human impact on the environment is the product of the number of people, the quantity of goods they consume per person, and the environmental cost of the technologies they use per person.

A primary focus of the green movement has been on the T (technology) part of this equation: improved efficiency and lower environmental

impacts through cleaner green technologies. Many, if not most, exhibitions on sustainability emphasize technology.

A small number of exhibitions have treated the A (affluence) part of the equation by advocating a reduction in consumption as well as reuse and recycling. In our view, this should be a more prominent element of exhibitions on sustainability. A museum can reinforce this message through its operations, as explained later.

Few exhibitions that we are aware of treat the P (population) part of the equation in detail. Because population growth is such a personal issue and so closely tied to religion and culture, it has remained essentially off the menu of topics for sustainability-related exhibitions at most museums, even though the majority of scientists quietly acknowledge that population growth is one of the most significant issues for the sustainability of humanity. While neglecting the topic of human population growth might be safe politics, it's bad science.

There is a lively environmental debate underway that can be another aid in checking the framing of your exhibition's focus. *Bright Green* environmentalism aims for a society that relies on new technology and improved design to achieve gains in ecological sustainability without reducing (indeed, increasing) the potential for economic growth. This philosophy decries traditional environmentalism which it labels *Dark Green*. Pessimistic, anachronistic, unattractive, "dark green" ideas, according to bright green philosophy, depend on a reduction in human numbers or a relinquishment of technology to reduce impact on the biosphere. The present green movement incorporates

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many of the ideas of bright green which has a wonderful positive appeal, but tends to downplay biodiversity loss, human population issues and other dark green concerns.

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Voice of the Presentation

The approach and tone of an exhibition combine to create a voice that strongly influences how visitors engage with the content.

Dark Green

Many environmental exhibitions assume a dark green perspective, providing a grim forecast of the future that cites current conditions and extrapolates adverse trends. While this approach may raise the awareness of some visitors, it can easily lead to a sense of hopelessness by many others. Visitors can be so overwhelmed by the scale of environmental problems that they feel depressed, ineffective, and helpless to make a difference.

Early research on this effect was conducted in Germany following a series of exhibitions on the impact of acid rain on forests (Scher, 1998). Exhibitions at that time detailed how forests were dying and explained that if trends continued, the resulting loss of forests would lead to catastrophic changes in ecosystems and society. Independent of the scientific content, researchers found that visitors were less inspired to change their behavior to solve the problem, because the issue seemed too large and remote from their daily activities. In the U.S., a similar effect was observed in a visitor survey associated with the Smithsonian's 1986 exhibition *Tropical Rainforests: A Disappearing*

Treasure. When the exhibition traveled, an alert Smithsonian team sent the survey ahead to each hosting institution, giving ample notice that visitors were leaving the hall feeling depressed. In response, museums added new sections to the exhibition that gave visitors a chance to take positive actions to slow rainforest depletion.

The lesson from this research is that exhibition designers must be extremely careful when presenting environmental degradation, if the



Examples of scientists' work to preserve rainforests, such as this ethnobotanist's camp, were added to **Rainforests: A Disappearing Treasure**. Courtesy of Larry Ralph.

goal is to build a case for change. We have watched visitors in linear exhibitions bypass the closing sections, in which positive solutions are presented, because of a sense of hopelessness acquired early in the exhibition. In science centers and children's museums, where one-half or more of the audience is likely to be under the age of 12, young visitors may be scared or



This highly interactive exhibit created by the Swedish science center Teknikens Hus illustrates a bright green approach by promoting the science and the benefits of wind power technology without addressing costs or negative impacts. Courtesy of Charlie Trautmann.

(continued from page 45)

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even terrorized by scenarios of rising seas and heat waves, rather than inspired to turn off unneeded lights and recycle their paper.

Bright Green

At the other extreme of museum voice is an overly optimistic approach that highlights the positive aspects of technology and touts technology's potential for solving environmental problems without adequately addressing unintended consequences and other side effects. Some of today's green exhibits take this bright green approach. Bright green environmentalism aims for a society that fully embraces new technologies and improved designs to increase the potential for economic growth.

To be most effective in promoting visitor awareness of sustainability-related issues and inspiring changes in attitudes and behavior, we propose that exhibitions on sustainability should begin with the intended audience, develop an appropriate focus and voice for the exhibition, and then take a balanced approach to design that mixes elements of dark and bright

green and suggests credible solutions in response to specific problems.

For example, designers of exhibitions for science centers, children's museums, and other venues where families and children are the core audience should begin with the characteristics of visitors to these types of museums. In this case, visitors expect to find hands-on, interactive exhibits. Forcing visitors in these types of museums to navigate a sea of information on text panels that could more easily be provided through a website makes little sense and may result in visitors simply moving to another gallery, in hopes of finding a more engaging experience.

Museum Context

In their comprehensive research on the topic, Falk and Dierking (2007, 1992) have found that the experience of museum visitors is influenced not only by the content of an exhibition, but also by the entire museum environment, e.g. the people they interact with; the building, including the approach; parking; entrance; front-desk; and restrooms.

In our experience, these findings are particularly true for exhibitions on sustainability-related topics, such as energy and climate change. When an exhibition attempts to convey more than information and seeks to change attitudes or encourage behavior change, its message can be strongly reinforced or canceled out by the museum context.

We suggest that, for maximum impact and credibility, museums consider a comprehensive, three-dimensional framework for sustainability that includes both the internal (museum management) and external (education and relationships) aspects of the three key elements

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The Monterey Bay Aquarium has aligned the offerings of its own restaurant with its message of responsible seafood purchasing. Courtesy of Charlie Trautmann.

of sustainability (environment, people, and economics). This framework includes six areas (Trautmann, 2008):

Internal Management

Environment. What is the museum's approach to the environment? Is it recycling paper and containers visibly, purchasing green power and cleaning products, composting its food waste, or treating its storm water on-site?

People. Are the museum's human resource policies aligned with the goal of sustaining its staff, maximizing staff satisfaction, providing long-term benefits, minimizing turnover, and providing for the growth of staff capacity through regular training and

professional development?

Economics. Does the museum seek long-term financial security through endowment, diversity of income streams, and responsible use of one-time funds—such as income from blockbuster exhibitions—for one-time purposes such as capital maintenance projects, rather than for temporary solutions to structural budgets deficits?

External Education and Community

Environment. How is the museum communicating its message on the environment to its visitors and its community? Does it have appropriate exhibits and programs, and is the museum telling the public about its

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(continued from page 47)

environmental activities that are not readily visible? How does the museum engage its audience in environmental issues?

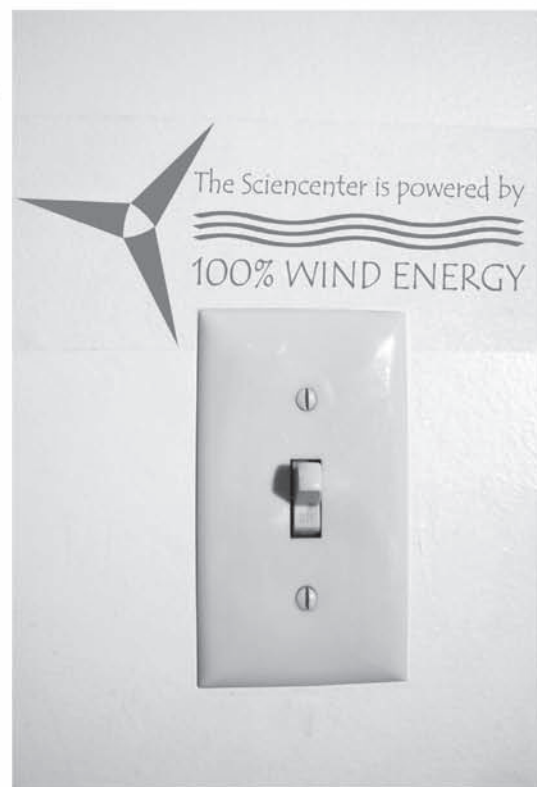
People. Every museum is embedded within a community. Does the museum enhance the sustainability of its community? Does it reach out to those less able to participate in the museum's activities? Does it support community initiatives, such as the United Way? Does it encourage staff to participate on the boards of other local non-profits?

Economics. A community with a strong economy has many obvious benefits to a museum, its visitors, and its staff. Does the museum look for ways to enhance the local economy by partnering with economic development efforts, tourism leaders, realtors, and businesses seeking to recruit and retain the best employees?

It can take years of commitment, as well as a change in organizational culture, to accomplish such alignment. However, continuing business as usual, particularly when addressing issues related to sustainability, can have the effect of reducing the credibility of all museums.

For example, imagine a museum display on climate change that encourages visitors to replace their incandescent light bulbs with more energy-efficient compact florescent bulbs, citing a 75% reduction in energy usage, longer life, and lower carbon footprint. But if visitors look up at the ceiling and see halogen spot lights, which require six times more energy for the same amount of light as compact florescent bulbs and last only 25% as long, what message do visitors actually receive? Unfortunately, the likely message is, "Do as I say and not as I do" and the credibility of museums in general - one of our most valuable intangible assets—takes a hit.

The Monterey Bay Aquarium in Monterey, CA has long been a beacon for museums that seek to align their management with their message. The menu choices at the Aquarium's restaurant are carefully selected to reinforce the conservation message of the exhibits. Information on responsible purchasing of seafood is provided at many places within the Aquarium, and the institution has worked with both food suppliers and restaurants to ensure that seafood offered to the public is aligned with the responsible selection process advocated by the Aquarium.



The Sciencenter in Ithaca, NY decided that, before it could effectively promote sustainable energy in its exhibits and programs, it needed first to align its management with its message by purchasing its own power from renewable sources (and letting its visitors know about it). Courtesy of Charlie Trautmann.

At the Sciencenter of Ithaca, NY, the staff suggested (and the board agreed) that the museum's credibility in presenting programming related to sustainability should start with aligning the museum's management with the message it wanted to present. As a first step, the board agreed to spend 20% more to buy renewable, wind-generated power. Ironically, after the decision was made (following several months of debate at both the staff and board levels), the extra cost was soon made up by a sponsor, who increased annual giving by an amount that covered the extra cost four-fold.

Maintaining Post-Visit Engagement

As many people have learned through experience, and as research has documented around the world (Trautmann, 2008), taking action in response to a problem is a powerful antidote to hopelessness. Bookstores and the web are full of literature with steps citizens can take to address environmental problems.

Organizations such as WorldChanging.com are exemplars of the positive, bright green approach to sustainability. For museums seeking to use their exhibitions to initiate systemic change, these and many other sources provide off-the-shelf content that can readily be turned into engaging program ideas for visitors.

Museum-led workshops, field trips and ecotours are frequent accompaniments to "issues" exhibitions. A particularly interesting approach that is starting to gain traction at museums is citizen science. Long a staple for amateur astronomers, birders, and other hobby scientists, citizen science is the term given to volunteer projects that enlist the involvement of networks of citizen volunteers in a scientific



A highly visible composting display such as this one from the Universeum, a science center in Gothenburg, Sweden, can be an inexpensive and attractive way to begin aligning a museum's management practices with the message of sustainability. Courtesy of Charlie Trautmann.

project of broad geographic scope. Applied early in the last century in the fields of astronomy and ornithology, citizen science can now be applied to many other topics via the Internet, enabling the communication and display of real-time observations made across any desired geographical region.

When tied to a museum exhibition, such programs can offer a way for interested visitors to stay connected with the topic, deepen their involvement, and provide valuable information.

Cost

The four considerations—focus, voice, museum context, and post-visit engagement—have dramatically different financial implications for museums. At the low end of the scale, the issues of focus and voice have relatively minor financial implications, because they affect the choice of text and images used in an exhibition but in general not the cost of exhibit components.

Programming represents the next level of financial commitment on the part of museums in developing an exhibition. Some museums do not provide programming with their exhibitions at all, while at the other extreme, some museums use an exhibition to jump-start community-wide

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(continued from page 49)

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involvement in a topic. Programs can often be funded through sponsorships and extend an exhibition's message in both time and depth, but adding programming to an exhibition adds additional staff costs.

At the other extreme is the issue of museum context, which has the most far-reaching financial implications. Building sustainable practices into the operation of a museum can have significant initial costs; however, many of these costs lead to sustained savings later on. Some museums have formed "green teams" among staff and/or board to look for simple ways to advance sustainability in an affordable way. Activities such as recycling of paper and bottles cost little and can help to make all staff and volunteers more aware of environmental issues and feel empowered to make a positive difference. Some capital improvements that can help museums convey their message to visitors, such as changing lighting or installing high-efficiency hand driers in restrooms, eliminating paper towel usage, have an up-front investment but result in significant savings over the long term. These changes can make good sense pedagogically, as well as economically, because if a museum adopts a sustainable practice it lends legitimacy to the concept and can help visitors to change themselves. Some practices, such as buying renewable power and recycled paper, simply cost more at this time and have no payback. It is up to each museum to decide how far it wants to go to align its message

with the example it sets forth to its audience and community.

There is often a tradeoff between spending money now in order to save money later. Many such decisions are made on the basis of payback period, where any improvement that has a payback of several years or less and a reasonable life expectancy is considered a good investment.

We suggest that museums will be more effective in inspiring sustainable behavior among their visitors and their community if they align their internal management and external activities with the framework of sustainability presented above.

Summary: The Road to Effective Exhibitions on Sustainability

We have argued that if museums seek to change visitors through exhibitions on sustainability, they need to address four issues: the focus of the exhibition, the voice of the exhibition, the museum context, and post-visit engagement through programming. While the first two issues can be addressed in the design of an exhibition, the others are comprehensive, museum-wide issues that require a significant commitment. The good news is museums making such a commitment often find a new sense of significance within their own community and among their donors and sponsors, with the overall result that they advance from "nice" to "necessary" among their stakeholders. ☀

Here is a checklist to help you plan your next exhibition on sustainability:

FOCUS

Do your exhibition and its associated programming reflect a balance of the three elements of the IPAT equation: population, affluence, and technology?

Is yours a balanced presentation, or a human-centered story (bright green)? Does it emphasize the relationship between human life and the rest of life on earth? Or does it ignore human life and suggest that we are a detriment to “wild” nature (dark green)?

Does your exhibition address controversial topics within the exhibition itself, or does it instead relegate risky subjects to associated programming?

VOICE

Is your exhibition a mix of bright and dark green perspectives? Is your storyline likely to leave a visitor feeling depressed or hopeless? Or does it suggest that technology alone will solve all of our problems?

MUSEUM CONTEXT

Do your museum’s internal operations (environment, people, and finances) align with the educational goals of your exhibition or program?

Do your museum’s external education and community relations (environment, society, and economy) align with the educational goals of your exhibition or program?

POST-VISIT PROGRAMMING

Have you provided both personal and broader-scale options for visitors who want to take action?

Have you provided citizen science or other participatory programs that provide a mechanism for visitors to further engage or make a positive impact?

Is there a mechanism for visitors to see the outcome of any actions they take?