

COVERSTORY

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No MISSING Pieces: A Holistic Approach to Green Purchasing

A desire to go “green” so often arises only as we seek ways to stave off climate change within a framework of urgency. The result is that we overlook the enormous opportunity that this shift in consciousness provides: a new economic landscape. It is one that is likely to produce a more equitable pattern of wealth based on our willingness to look holistically at the economic, environmental, and social justice impacts of the ways we design, make, select, use, and dispose of products.

As people are drawn to invest in sustainable industries, suddenly our actions synchronize: we are at once able to do well for our own and future generations by reducing toxicity in our air, soil and water, and by improving human health and productivity.

As a massive transformation takes place in how production and consumption are handled in our society, architects and interior designers are positioned to take the lead in advancing a sustainable future. Building activities, after all, cause much of the total environmental degradation in our world.

If you approach your clientele with this big, bright picture in mind, how might you want to use your influence? After all, our well-being (maybe even our survival) may depend, to

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a large extent, on your ability to meet The 2030 °Challenge.

Yet, is survival all we’re aimed for in the future? Aren’t goals in human health and values surrounding quality of life equally important? If so, we will want to turn our attention to the whole puzzle of sustainable development.

Valuable work on one piece is being done by groups like the Carbon Disclosure Project, the GHG Protocol, and The Carbon Trust. They have developed life-cycle based tools that help entities, large and small, measure their carbon footprints and communicate their progress to the public. But what about the other pieces needed to ensure a balance of economic, environmental and social justice considerations?

In looking at this need, we’re reminded of the 10-year-old boy, in bed with the flu, who struggled all day to complete a puzzle. When his mom returned from work, he shared his frustration and was amazed when she sat down on the floor and completed the complex puzzle in 15 minutes. “How did you do it so fast?” he asked. She held up the cover of the box: “The secret is to see the whole picture first, then you’ll understand how all the pieces fit.” This was his first lesson in holistic thinking.

PRODUCT LCAs

The areas where holistic thinking and action are most valuable is production

and consumption—i.e., how we design, make, select, use, and dispose of products. In this arena, a big picture tool is a product Life Cycle Assessment (LCA). LCA includes a carbon footprint of the product, but it is much more than that. It gives us a product's biography—one that captures all of its exchanges with the environment throughout its full life-cycle, including carbon emissions from the burning of fossil fuel.

A recent article in *Greener Computing* points out that while “CO₂ emissions of ICT [Internet Communication Technology] result from the use of PCs, servers cooling, fixed and mobile telephony ... the impact of ICT on the environment is broader than CO₂ emissions alone. The environment is also impacted by chemicals and waste resulting from the disposal of equipment, polluting the soil with cadmium and mercury.”

Carbon footprints contain information about only one of the 12 environmental impacts identified to be of critical importance by the U.S. Environmental Protection Agency's (EPA) Science Advisory Board. That, of course, is global warming. So a carbon footprint needs to be assessed in tandem with a product LCA in order to see all of the pieces of the sustainable development puzzle.

A full product LCA encompasses all 12 impacts deemed by EPA scientists to be threatening to life on our planet:

1. Global warming
2. Acid rain
3. Water pollution
4. Fossil fuel depletion
5. Indoor air quality
6. Habitat alteration
7. Water use
8. Ambient air pollution
9. Ecological toxicity

10. Human health
11. Ozone depletion
12. Smog

Most manufacturers are beginning to realize that in the long run it is cost effective to pay moderate fees for third-party certification of product LCAs, as they know they will benefit over time from increased respect for their brand in the marketplace.

As Michael Conroy, economist, notes in his book *Branded! How the Certification Revolution is Transforming Global Corporations*, “Branding links to new forms of 21st century corporate accountability to the creation of global certification systems that help companies transform their corporate practices and grant them credit in the marketplace for that transformation; but only if the certification has credible independent verification.”

Value will accrue to manufacturers providing transparent, third-party certification of a product's performance in various areas—economic, environmental, human health, life-cycle cost, mechanical, and safety—in a number of ways.

First, manufacturers developing product LCAs will benefit from a current initiative of the U.S. Green Building Council called “LCA into LEED.” The intent of this program is to strengthen all the various LEED® programs by providing credits for using LCAs for building system components, and it is close to going public.

Currently, the program features use of the Athena Sustainable Materials Institute's “EcoCalculator,” but future versions will surely support the use of other tools as well.

The intent of LCA into LEED is to move quickly to provide credits for interior building products because they are replaced five to 10 times over a

building's lifetime in the United States—having a proportionally larger impact on the environment than we ordinarily calculate.

SUSTAINABLE PRODUCT STANDARDS

Second, manufacturers who have product LCAs will be able to use them in connection with a Sustainable Product Standard—a signal to the public that the product has gone through an evaluation process that is scientifically based. The Institute of Market Transformation to Sustainability's (MTS) SMART® Sustainable Product Standard requires use of a LCA that meets all requirements set by the International Standards Organization (ISO). Others have chosen to recommend the use of LCA, but do not yet require it.

Many groups are working with NSF International to come up with Sustainable Product Standards for their industries; these include the Association of Contract Textiles (ACT); the Business & Institutional Furniture Manufacturers Association (BIFMA); the Carpet & Rug Institute (CRI); and the Resilient Floor Covering Institute (RFCI).

The field is moving rapidly to make these standards more robust, and it is likely that, sooner or later, all will ask for a product LCA that meets requirements set by the ISO.

THIRD-PARTY CERTIFICATION

Third, for-profit entities like First Environment, Five Winds, and Scientific Certification Systems are at hand to provide manufacturers with third-party validation that their product LCAs meet current standards related to completion, comparability and transparency.

LCA is *complete* when all of a product's exchanges with the environment have been captured; it is *comparable* when the scope of data to be collected is fulfilled; and it is *transparent* when a professional reviewer can clearly see where all of the data has come from and how it's been analyzed.

Three organizations—Sylvatica, GreenDeltaTC, and The Green Standard—have partnered to create, and make public, free use of LCA

software that manufacturers can run internally. The partnership work includes:

- ▶ openLCA from GreenDeltaTC, enabling users to create full product LCAs, including life-cycle inventories and life-cycle impact assessments
- ▶ Earthster from Sylvatica, designed for calculation and optional Web publishing of life-cycle results, beginning with “cradle-to-gate” life-cycle inventories and impact assessments results from suppliers of materials
- ▶ A data sharing bridge between these two software systems, developed by The Green Standard, to enable integration of product information from these programs and producing next generation product LCAs

If the resulting LCAs are to be posted publicly or used with sustainable product standards or environmental product declarations, third-party validation is required as set for by the ISO.

This is good news for the small- and medium-sized companies that have hitherto thought it too costly to pay for a full-scale product LCA. Using the open source software, manufacturers of any size can get a picture of where they stand in terms of global warming, water pollution, indoor air pollution, and all other forms of major environmental degradation.

Earthster and openLCA will demystify the rapidly growing arena of environmental consciousness and responsibility, providing hands-on experience for manufacturers in relation to the impact of their practices. It will afford them the opportunity to make informed choices about how and when to reduce their imprint in all 12 areas that are determined to have the greatest negative effect.

Manufacturers will be able to make business decisions on the basis of the whole picture, rather than from a small puzzle piece; and those decisions are likely to be better for their bottom line ... and for all of us ... in the long run.

ENVIRONMENTAL PRODUCT DECLARATIONS

A new wave of environmental responsibility involves another measurement for product LCAs: Environmental Product Declarations (EPDs). EPDs capture a range of product performance information, including all the data in a LCA as well as data pertinent to human health, mechanics and safety.

The European Union has led the way in the development of EPDs and has created, along with Japan, a set of best practices surrounding them. The Green Standard is collaborating with several entities on development and management of an EPD system designed to support U.S. manufacturers in using this key component in the emerging global product information system.

Some forward-looking manufacturers in the United States (e.g., Interface, izzydesign and Steelcase), already have EPDs in process, and so act as trailblazers in encouraging the United States to close the gap. They have discovered that being able to showcase this newest tool to communicate product performance noticeably increases their credibility and competitive advantage in markets around the world.

In future years, other types of information may be included by the Global Environmental Declaration Network (GEDNet), an international organization that approves new EPD systems and their formats.

POSSIBLE U.S. ECOLABEL

At a forum hosted by the EPA in November 2007, a consensus was reached, among 50 leading professionals, regarding the need for common language and metrics in evaluating and certifying products in our country. The vision of a U.S. EcoLabel encompassing all types of products and using LCA as a scientific basis was endorsed by most forum participants.

They also appeared to endorse the concept of having several non-governmental organizations serve as leaders of this initiative, following announcements by the EPA and the USGBC that their organizations are not in a position to do so. They plan to participate in the coalition while leaving leadership of this initiative to others with a strong knowledge base and practical experience in this area.

Such an EcoLabel would allow committed building professionals, who haven't time to evaluate choices, to create eco-friendly spaces for their clients. Buyers will see at a glance that the products they purchase have been certified (by LCA professionals) to benchmarks set by respected governmental and non-government organizations.

The summary of a product LCA offered within the context of a national and/or global EcoLabel may do more for us than simply supply reliable data about a product's environmental performance. It may come to "speak to us" ... to address the issues that we are concerned about in our families and in our communities.

Either type of LCA-based EcoLabel may come to signify the health of our rivers, forests, oceans, and fields. In that small stamp we may see pollution from industrial sources ebbing away, and water running clear.

THE POSSIBILITY

We stand on the threshold of a majestic possibility—that we can reverse the negative loop of past generations, and create a world for ourselves and for future generations that spirals upward and builds on itself.

New industries are arising in which the manufacturing process adds to the resources of the global ecosystem instead of detracting or doing harm.

Through continued investments in sustainable industries, and through purchasing products that are life-enhancing, "acting on one's own behalf" can become synonymous with contributing to all. ❖