Greener Products
The Making and Marketing of Sustainable Brands
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It’s people like Al Iannuzzi who get me out of bed each day.

That may sound a bit flip or hyperbolic, but it’s true: I am excited and energized by the environmental professionals at some of the world’s largest brands who have devoted their careers to helping their companies align environmental responsibility with business success. In Al’s case, this has been a three-decade-long quest, one that has contributed mightily to placing his employer, Johnson & Johnson, consistently among the world’s most admired companies.

Suffice it to say, achieving environmental excellence is no small task—whether for an individual or a company. It requires something that is difficult for most of us: change. In the case of companies, it requires changes in products, processes, and procedures. It requires top-level commitment, but also grassroots support throughout the rank and file. It requires new kinds of partnerships with suppliers, customers, and stakeholders. It requires a new level of openness and transparency to which most companies aren’t accustomed. And it requires a new vision: a story that the company hopes someday to tell their customers, employees, shareholders, and others about how they integrated environmental thinking into their operations, and did so profitably. Not merely that it is doing “less bad” than it used to, but that it has become a positive, restorative force for the environment and the communities where it operates.

For individuals, environmental responsibility requires changes, too—not just in habits, but in thinking. Few of us wake up each day thinking about harming the planet, but neither do we think about how we can make a positive difference in our daily lives. And we can! Nearly everything we do—at home, work, and play—has an impact on the environment. By making even small changes, millions (or billions) of people can move companies and markets. But it can require effort, more than many people are willing to make.

Most people don’t like to change, even if we like the idea of it. (When it comes to change, we tend to love the noun but hate the verb.) If you’re in the business of selling things to the public, this has major implications. To be a change agent, you’ve got to do more than merely persuade customers to do something different; you’ve got to give them a good reason to do it. Usually, that means offering something better.

Now, “better” can mean a lot of different things, depending on the subject at hand. For a product or service, “better” could refer to something that’s cheaper to buy, cheaper to own or operate, longer lasting, higher performing, locally sourced, healthier for one’s family, cooler for one’s image, or something else entirely. Each of us has our own definition of “better” for most of the things we buy.
The problem is that many so-called green products—for both consumers and businesses—aren’t better. They’re more expensive, harder to find or procure, aren’t as effective, or exact some inconvenience or burden. Is it any wonder that winning in the green marketplace has been a major challenge for most companies?

But things are changing for the better. A new generation of products and services is being introduced that is better. They save money, taste great, look smart, perform well, or offer convenience.

But that doesn’t mean that selling even these products is easy. Far from it. There are several reasons why creating and marketing green products is challenging, about which you’ll learn in the pages that follow. But here’s the gist: The definition of “green” is often in the eye of the beholder. For all of the hundreds of eco-labels and certifications in the marketplace, they collectively cover only a small number of the things we buy and do. And even when products are labeled or certified, it may be for just a portion of its environmental impacts—bird-friendly coffee or energy-efficient appliances are two examples. They attest to one attribute of a product’s environmental friendliness, but not to everything.

Moreover, while large majorities of consumers have told market researchers consistently for decades that they would like to make good, green choices when they shop, they fail to do so. It’s not that consumers are lying; it’s just that most haven’t yet been seduced by products that are both green and “better.”

Marketers bear their share of the blame. One reason is what I call the Green Marketing Paradox: marketers are taught to sell things based on superlatives—that something is the best, smartest, coolest, most efficient, most powerful, cheapest, or fastest—but most green products are only incrementally better. That is, they are less toxic, or have a percentage of recycled content, or use less water or energy. While many of these achievements or attributes are admirable and impactful, they’re hardly the gee-whiz stuff that marketers crave.

The good news is what’s in this book. As you’ll see, companies that develop quality and competitive green products and market them thoughtfully and artfully are finding their markets. They are proving that customers—whether individual consumers or some of the world’s largest businesses and institutions—are ready and willing to make good, green choices.

In the end, you’ll find those that successfully maneuver the vagaries of the green marketplace end up not just with better products, but better companies, too.

Joel Makower

Executive Editor, GreenBiz.com, and author, Strategies for the Green Economy
Preface

Never before has the world had to face such enormous challenges. The Earth’s systems are under constant pressure due to adverse impacts from human activity. We use more energy, create more waste, and produce more air pollutants than ever before. The most significant impacts are now those that affect the global community. Countries can no longer be concerned only with environmental effects within their own borders but must work across the world to solve problems such as global warming. We have seen this clearly through the effects of the 2011 earthquake in Japan; regions throughout the world are concerned about its impact. When radiation is being detected as far away as the United States from leaks at a nuclear plant more than 5,000 miles away, it reinforces that we must work together to live sustainably.

Other pressures on the Earth’s ecosystem are coming from population growth in developing nations. These nations have an emerging middle class that is expanding at an extremely rapid pace. They have an appetite to purchase many goods that once were only available to developed nations: automobiles, consumer packaged goods, electronics, etc. Producing and using these goods have environmental impacts associated with them. More products result in more greenhouse gases, more resources extracted, more waste to be disposed of—and this adds up to more environmental damage.

With all these trends coming together, the necessity for focusing on making products more sustainable is not just a nice thing to do, it’s an imperative. Businesses must respond by providing products that consider lifecycle impacts and follow natural cycles where raw materials are sustainably sourced, the most efficient transportation methods are deployed, manufacturing processes use green chemistry as their basis, product use impacts are minimized, and at a product’s end of life, it is reused as a raw material.

There have been several books written on design for the environment and green marketing. In this book I put it all together: making and marketing greener products. I am unaware of any books that tell the complete story of not only how to make a greener product, but also how best to market the sustainable benefits of it.

This book has three main sections:

Section I  The Case for Greener Products
Section II  Making Greener Products
Section III  Green Marketing

I have been known to go on a little rant when speaking about “green” products and it goes something like this: There is no such thing as a green
product. The only true green product is the one you don’t use. Every product has an impact—raw materials are extracted from the Earth, transportation is required to bring materials to manufacturing plants and to the customer, energy is necessary to run production equipment and to use the product, and then there is the disposal or hopefully the recycling of the packaging and product at its end of life. So that’s why I say “greener” product. It’s about continually improving a product, building in more eco-innovation so it has a smaller and smaller footprint. Based on my experience, I believe customers don’t expect companies to be perfect, but they do expect them to be moving in the right direction and to be genuine in their communications.

Why is it an imperative to bring greener products to market? This question is answered in Chapters 1, 2, and 3. We gain a deeper understanding of the ecosystem pressures on the Earth and explore the market pressures from customers. This includes customers who pull products off supermarket shelves, business customers, and government purchasers who have created a big demand on manufacturers to bring more sustainable brands to market. People throughout the world are more health conscious, and hearing news stories about low levels of chemicals being found in body fluids like blood and mothers’ milk has spurred a growth in purchasing organic and sustainably sourced products.

Global companies such as Walmart, Tesco, Marks & Spenser, Lowe’s, and Home Depot all have embraced sustainability and are triggering companies to build eco-innovation into their product offerings. Governments have responded by putting pressure on product developers to consider tough new requirements such as removing materials of concern (e.g., PVC, brominated flame retardants, BPA, etc.); designing more recyclables; and minimizing packages and facilitating product take-back at its end of life. These global regulations started out in Europe and have exploded throughout the world, making it very complicated for businesses to keep up with the ever-changing requirements and be compliant.

How are greener products made? To find the best way to go about bringing an eco-innovative product to market, we evaluate companies that have been most successful at it. Best practices from many sectors of products are investigated in Chapter 4: apparel, chemicals, electronics, consumer packaged goods, food, energy, medical products, white goods, etc.

I am privileged to have one of the leading thinkers and practitioners in developing greener products, Jim Fava, discuss the toolbox that’s available to develop more sustainable products. The benefits as well as the pitfalls of approaches like lifecycle assessment and the use of ISO standards are discussed. To round out this section of the book on making greener products, Jim discusses lessons learned from his extensive experience in consulting businesses on developing greener products.

A greener product is useless if no one knows it exists. Appropriate marketing of eco-improved products is a critical aspect of a sustainability program. The third section to this book addresses green marketing. We begin our
evaluation of sustainable brand marketing by receiving first-hand information in Chapter 6 from the Shelton Group, a leader in studying and advising businesses on sustainability trends. They do know best because it’s their business to research how to market to eco-conscious consumers and advise firms on the most effective approaches to reach them. Susan Shelton and her accomplished colleagues lay it out very clearly with facts and figures based on data from their Eco Pulse 2010 and Green Living Pulse 2010 studies that green marketing is here to stay. Understanding the market segments—Seekers, Actives, Skeptics, and Indifferents—and knowing what moves them are critical to a successful green marketing program.

In Chapter 7, I evaluate some of the drivers for green marketing and tackle the question asked in boardrooms: Why should we consider green marketing? The case for considering green marketing is made by discussing a host of data that indicate that consumers want greener products and want to purchase from ethical corporations. Not only do they want more sustainable products, but they also want it at the same price (or lower) as a comparable product—it’s an “and” desire (it works well and it’s greener).

Not only must consumer marketers be concerned about bringing eco-innovative products to market, but also business-to-business (B2B) marketers must be savvier in greener product offerings. Scorecards by Walmart, Kaiser Permanente, and Proctor & Gamble, and the advent of B2B green purchasing, are all strong market forces for making the case for greener products. We quickly come to the conclusion as stated by David Compton, CEO at PepsiCo Americas Foods, “It’s the number-one thing consumers all over the world care about.”

Based on my analysis of the most successful green marketing campaigns, there are three keys to winning:

1. Have a credible greener product story
2. Meet your customers’ greener product demands
3. Appropriately communicate the product’s greener attributes

We will use these three keys to evaluate the approach of several leading companies in B2C (business-to-consumer) and B2B marketing. Some companies have changed the way we think about green marketing through their innovative approach and amazing accomplishments. We evaluate what makes Ecomagination so impactful, how Green Works changed the game for mainstream green marketing, as well as innovative approaches by Honest Tea and IBM and many others.

Knowing the finer aspects of green marketing is important to optimize success and avoid the pitfalls into which others have fallen. Chapter 8 starts out with a big watch out: Greenwashing. What is greenwashing? How do we avoid it? And what can we learn from TerraChoice’s impactful Seven Sins of Greenwashing? Understanding the regulations that govern green claims such
as the FTC (Federal Trade Commission) and the United Kingdom’s DFRA guidelines is vital prior to embarking on a green marketing program.

Several companies have made significant inroads using a cause marketing strategy to enhance their sustainable brand. Partnering with nongovernmental organizations (NGOs) that have a good reputation can instantly give credibility to a green brand and expand your customer base. We explore some excellent relationships, such as Clorox Green Works and the Sierra Club, and Neutrogena Naturals and the Nature Conservancy, that demonstrate effective business/NGO relationships. The key elements to having a successful cause marketing connection are examined to ensure that the marketing approach is genuine.

Eco-labels are used, and some may say overused, by many companies. In our study of an eco-label strategy, we see that there are more than 300 of them out there; however, consumers only recognize a handful. Which labels are the most meaningful, and which are being used by the leading sustainable brands? The right label can add credibility to a greener product and enhance sales, while the wrong one can be a waste of time and money. The study of eco-labels concludes that we must choose our labels wisely.

Finally, things are pulled together in Chapter 9 with an evaluation of the best practices that leading companies have for making and marketing greener products. Through an evaluation of all the company initiatives discussed in the Making Greener Products section of the book (Section II), we see that there are some commonalities among the companies that are best at developing eco-improved products. Use of all or a combination of these activities will enable any company to put more sustainable products on the market.

Reviewing the common approaches of successful green marketing campaigns makes it clear to marketers what elements they should be thinking about that best inform customers. After all, what good is it to make eco-improvements to a product if you don't effectively communicate with your customers?

Making and marketing greener products is no longer a nice thing to do—it's a business imperative. I believe that this book makes the case that this is the current state of affairs—no matter what industry you're in. It is always helpful to study other companies’ tactics to help you think about how to make a business process more effective in your organization. Evaluating the multitude of leading practice examples in this book will give any product developer or marketer some ideas that they then can translate into their company culture.

I am hopeful that this work will not only benefit businesses, but will also enable students to better understand what it takes to make and market a greener product and will also be useful for governments, academics, and NGOs. We all are interested in becoming more sustainable, and I believe that it is possible to strike a balance in meeting the world’s product needs while appropriately reducing the resources to meet this demand.
I am very blessed to have the privilege of writing this book—though, at times, I wondered if I was crazy to commit to doing this during nights, weekends, and vacation days in order to see it through. So, first, I must thank my family for putting up with me. To my wife and proofreader Ronnie, thanks for all your help and support; you’re the best! To my children Alphonse, Marissa, and Gianna, I appreciate your understanding and giving me permission to take this on. I love you all very much!

I would like to acknowledge the outstanding guest authors who are truly thought leaders in the field of greener product development and marketing. To Suzanne Shelton and the crew at the Shelton Group, Lee Ann Head, and Karen Barnes, you are on the cutting edge of sustainable product research and are teaching the world that greener products are here to stay and that there are ways to motivate consumers to purchase more sustainable products.

I would like to thank Jim Fava and the firm he helped form, Five Winds International, for his efforts to help companies make more sustainable products. I have learned a lot from Jim, and it has been a great experience working with him and benefiting from his extensive knowledge.

I would like to thank the company that I have worked at the past twenty-six years—Johnson & Johnson. I can’t imagine working for a better organization. I have learned so much from my experiences here and have seen that it is possible to make a profit while being socially responsible in all your actions.

Finally, I would like to thank Taylor & Francis for giving me the opportunity to get this message out and help make the world a better place through greener products.

I can do all things through Christ who strengthens me.

Philippians 4:13
Section I

The Case for Greener Products
Introduction

Things Will Never Be the Same

Something new was happening. It came suddenly and *things would never be the same*. I had been in the environmental field for thirty years and never could have envisioned what was occurring. It seemed that everywhere you looked, sustainability was being talked about. *Sports Illustrated* and *Fortune*, commercial magazines that had never before covered environmental issues, were suddenly devoting entire feature articles to sustainability. *Sports Illustrated* coverage included a cover photo with a baseball player standing knee deep in a flooded stadium as a result of global warming. Another article, entitled “Going, Going Green,” discusses the burning of fossil fuels as a root cause of glaciers melting. (Wolff 2007)

I remember having a discussion with my company’s chief environmental executive that went something like this: “Could you ever imagine in your wildest dreams that we would in our careers have the opportunity that we have now?” Today, going green is no longer the right thing to do, but something you have to do. We once shied away from using the term “sustainability,” thinking company executives would give us the deer-in-the-headlights look of perplexity. Now sustainability is commonplace, plastered all throughout reading materials that our management team pays close attention to.

Gone are the days when you need to tirelessly convince management that there may be some business benefit for deploying a sustainability strategy. Major companies such as GE and IBM are making sustainability a platform for growth and funding significant advertising campaigns. CEOs are talking about the good that their company’s products are bringing due to their superior environmental profile. We used to get excited if there was an environmental-related article in the *Wall Street Journal*. Now it’s rare if there isn’t one.

Today’s climate encourages discussion of sustainability improvements and how those improvements can help us in the marketplace. We have moved from looking at environmental issues as a risk management function to something that has enormous potential for innovation and growth. Greener products play a bigger role than ever before and should be a growing part of every company’s business model.
What Caused This Shift?

Concern for the environment first appeared in the 1970s, gained momentum for the next two decades, and, in recent years, has exploded onto the world business scene. One of the reasons for this new focus is the greater awareness of environmental issues related to things such as hazardous chemicals in our food and bloodstreams, glaciers melting, and scarcity of clean water.

When I’m making a point on environmental awareness during presentations, I will ask: “What is your biggest environmental concern? The feedback is always loud and clear: “Global warming!” Awareness of this crucial issue is high. Yet, it’s far from the only concern on the minds of executives and corporate leaders. Depending on where you live in the world, secondary but significant issues include water scarcity, access to safe drinking water, deforestation, biodiversity, and air pollution.

According to the United Nations (United Nations 2010), 884 million people worldwide still do not have access to safe drinking water. Further, the world’s biodiversity is being affected by the loss of species at an alarming rate. An evaluation of the UN Millennium Development Goals gives us insight into what the world’s major dilemmas are.

The UN Millennium Development Goals are:

- Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.
- Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss.
- Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.
- Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers. (United Nations 2011)

Constant Pressures on the Environment

A constant barrage of environmental concerns has been witnessed by the world through the news media. The stories never stop coming. Just in 2010 there were several significant disasters caused by human error or blamed on climate change. Who can forget the television images of the explosion at the offshore drilling rig Deepwater Horizon on April 20, 2010? The disaster lasted three months and released 185 million gallons of oil into the Gulf of Mexico.
That was not the only major environmental disaster of the year. On October 4, 2010, vivid pictures showed the spewing of toxic red sludge in Hungary from an aluminum plant. The accidental release of 24 million cubic feet of sludge contaminated land and water, and killed all the fish in the Marcal River. In China, a mining company destroyed almost 1,900 tons of fish from releasing 320,000 cubic feet of wastewater to the Ting River. Moreover, severe flooding in Pakistan affected one-fifth of that country, resulting in 1,400 deaths. Then there was the brutal smog event over the summer in Moscow, resulting from a combination of a heat wave and forest fires. Both of the latter two incidents were blamed on climate change. (TreeHugger 2010)

### Top Environmental Concerns

- Global warming
- Clean energy
- Water pollution and access to clean water
- Biodiversity/conservation of important ecosystems
- Toxic chemical use
- Protecting the oceans
- Deforestation
- Air quality

There is little doubt that the constant images resulting from these unfortunate problems shape our thinking about the environment and the importance of protecting it. Consumers have a tendency to want to punish the corporate violators by not purchasing their products. Global environmental damage caused by human activity is $6.6 trillion and about 11 percent of global GDP. The top 3,000 public companies are responsible for one-third of global environmental damage; it’s no wonder citizens everywhere want to move their buying power toward environmentally enlightened companies and away from those perceived as irresponsible. (The Environmental Leader 2010)

Concern over the environment will continue to grow among the world’s consumers, and there is an increasing desire to “make a difference” with purchasing. Every company needs to be aware of the wide spectrum of environmental and natural resource issues and consider the impact of their activities.

Companies must pay close attention to how their operations affect the environment. The issues they are held accountable for stretch deeper and deeper into the supply chain. It includes raw materials harvested in a plantation that has destroyed the rich biodiversity of a tropical rainforest to minerals in your electronic product mined from a country that is exploiting its citizens.
Mainstreaming of Greener Products

You would think that the greatest force behind greener product design would be government regulation or nongovernmental organization (NGO) pressure. But the absolute biggest impetuses are market pressures! I saw this for myself. Once Walmart, our biggest customer, started asking for sustainable products, it began a boon for greener products. At first, it was thought by many to be a simple public relations initiative. But as time went on, momentum built and press releases promoting the idea of green products became more prevalent.

Once Walmart, our biggest customer, started asking for sustainable products, it began a boon for greener products.

Once Walmart started their sustainability journey, many companies started getting on the bandwagon by setting their own sustainability goals. Some even tried to “out-green” one another. Sustainable products have cropped up in all aspects of business, trying to address the consumer’s desire for more ethical goods. In turn, they provide an additional benefit, such as providing safer products for the home or saving money through energy efficiency.

We have also seen the development and mainstreaming of products that were traditionally sold in health food stores, such as Seventh Generation, Method, or Green Works® by Clorox. These products are now commonly found in supermarkets in neighborhoods throughout the country.

The success of the Toyota Prius hybrid has revolutionized the auto industry. Being the first car that has had a green platform from its inception, it has been extremely well received by a public that is eager to purchase a high fuel efficient product. With petroleum prices on the rise, the fifty miles per gallon of a hybrid is very attractive. Plus, a Prius makes a personal statement—one that signals that you are interested in protecting the environment.

In the enormous coffee market, an agribusiness defined by natural resource issues, Starbucks® is well known for their fair and ethical sourcing of coffee. However, they have had to expand their sustainability program to a very visible part of their product—their cup (seen on streets, highways, and in garbage cans). Starbucks set a goal to ensure that 100 percent of their cups are reusable or recyclable by 2015. Partnering with their main supplier, they have pilot tested post-consumer recycled content (PCR) in their cups by using old Starbucks paper cups. (Starbucks 2010)

Is it possible to have greener toilet paper? In 2010, Kimberly Clark initiated an advertising campaign about their new, sustainable toilet paper. They introduced toilet paper without the cardboard tube under the brand name “Scott Naturals.” This advance has the potential to eliminate 160 million
Introduction

pounds of waste in the United States alone. To help make this product successful, Kimberly-Clark is offering it through a partnership with Walmart. (Kimberly-Clark 2010) This will not only help Kimberly Clark, but also Walmart meet their sustainability aspirations.

Another example of the mainstreaming of greener products is the green building phenomenon. There has been a steady increase in the numbers of green buildings around the world. In 2010, certified building space was almost the same as what had been developed in the previous ten years. (Makower 2011) A major factor in the propagation of green buildings is the advent of the LEED certification system.

LEED is an internationally recognized green building certification system, providing third-party verification that indicates a building has improved environmental performance in areas such as energy use, water efficiency, CO₂ emissions reduction, improved indoor air quality, and use of recycled content materials, sustainably sourced materials, and stewardship of resources. (U.S. Green Building Council 2011)

The green building certification process has also brought about an increased demand for greener building products. Companies that have built an environmental benefit into their products would have an edge if a firm were looking to obtain a green building certification. For example, if you evaluate the Armstrong Company’s website, it mentions sustainability in the description of the company. “Armstrong World Industries, Inc. is a global leader in the design and manufacture of floors, ceilings and cabinets, with a focus on innovation, design and environmental sustainability.” Some of the products that Armstrong touts as having greener aspects would be of prime consideration for someone designing a greener building. Examples of these products include no added formaldehyde cabinets, linoleum with 100 percent natural ingredients, bio-based floor tiles made from rapidly renewable ingredients, and ceiling tiles with high recycled content. (Armstrong International 2011)

Why the Focus on Greener Products?

Traditional environmental management used to focus on managing risks and reducing the footprint at manufacturing facilities. With the advent of lifecycle thinking, we became aware that some of the biggest environmental improvements may be made in the selection of raw material or in the use phase of the product. Therefore, coaxing suppliers to improve how raw materials are grown, shipped, or manufactured, or how customers use the product, can yield the greatest environmental benefits.

Perhaps the best product example is cold-water laundry detergent developed by Proctor & Gamble. The use of lifecycle assessment revealed that the heating of water during its use in the home consumed far more energy than
any other lifecycle stage. So a detergent that functions in cold water was introduced into the market. (P&G 2010)

A unique, video that makes a very good case of why we need to focus on products is “The Story of Stuff.” If you have never seen this short video, I would encourage you to view it at http://www.storyofstuff.com. In a very engaging way, it makes the case of why we need to focus on products because of their lifecycle impacts from extraction of raw materials to manufacturing, consumer use, and the most obvious, a product’s end of life. If you can overlook some of the political references, I think it makes some good points about why we need to significantly reduce the impact of products.

Life cycle thinking help us see the full environmental and social impacts of products. “Each thing we buy involved all sorts of resources and labor. Someone mined the earth for the metals in your cell phone; someone unloaded the bales from the cotton gin for your T-shirt. Someone in a factory assembled that pair of sunglasses, and they might have been exposed to carcinogens or forced to work over-time. Someone drove or flew this bouquet around the country or the world to get it to you.” (Leonard 2010)

As we can see in Table 1.1, the United States generates a lot more waste than most countries. Further, consider the countries with the largest populations, like China and India, that are still developing. What happens when their standard of living approaches that of the more developed nations and they start consuming more products? This alone should make us consider the importance of focusing on lessening the impacts of products.

In addition to minimizing the environmental impacts of products, companies are being held to a higher standard than ever before. There are social responsibility indices like the Dow Jones Sustainability Index and FTSE4 Good that evaluate sustainability performance. Stock prices can plummet if there is a slip-up with a product’s environmental performance. One of the first examples of this was Nike when their stock price was impacted because of poor worker and environmental conditions at contract manufacturing sites. Jeffery Hollander, the co-founder of the greener product company Seventh Generation, states in his book The Responsibility Revolution that there is a business shift occurring from a for-profit model to a “for-purpose” model.

<table>
<thead>
<tr>
<th>TABLE 1.1</th>
<th>Per Capita Garbage Production</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Average Pounds per Person per Day</td>
</tr>
<tr>
<td>USA</td>
<td>4.6</td>
</tr>
<tr>
<td>Australia</td>
<td>2.7</td>
</tr>
<tr>
<td>Japan</td>
<td>2.58</td>
</tr>
<tr>
<td>Canada</td>
<td>1.79</td>
</tr>
<tr>
<td>China</td>
<td>0.7</td>
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Corporations are realizing that they must focus more on protecting their reputation and that their products should provide a social benefit. (Hollender 2010) Companies are realizing that they can do well by doing good.

To be successful in the years to come, a company’s product portfolio will have to include greener product offerings.

**Things Will Never Be the Same**

Greener products are here to stay. Even during a recession, consumers are willing to purchase sustainable products. Hybrid cars have more than doubled their market share in the United States since 2005. Spending on energy-related home-remodeling projects has been strong, despite the housing downturn; “it totaled $49 billion in 2009, up 29 percent since 2003, according to Harvard University’s Joint Center for Housing Studies.” (Prior 2010) Further, in a 2010 survey of 1,000 Americans, “64% of respondents said they were searching for greener products (more energy-efficient, natural, sustainable, etc.)”; this is an increase from 2009 (60%). (Shelton Group 2011)

If even in tough economic times we see a strong demand for greener products, what will it be like when the global economy picks up? In addition to this thought, the demand generated by some of the world’s largest companies, such as Walmart, doesn’t appear to be diminishing any time soon. Therefore, to be competitive in the years to come, a company’s product portfolio will have to include greener product offerings.

**References**


Market Drivers for Greener Products

Consumer Demand for Greener Products

In 2010, a global Green Brands Survey concluded that “consumers plan to spend the same or more money on green products in the coming year, with more than 70 percent of consumers in China, India and Brazil saying they will spend more.” A strong global demand for greener products was indicated by over 60 percent in all countries surveyed, indicating that they want to purchase products from environmentally responsible companies. (Cohen & Wolfe 2011)

This survey demonstrates the growing desire of consumers for more sustainable products. “It is striking an interest in the environment and sustainability appears to be on the rise in markets all across the world, but the specific issues on which consumers are focused varies from country to country,” said Dan Esty, chairman of Esty Environmental Partners. A majority of respondents indicated that the key focus areas for greener products should be reducing toxics and dangerous substances, followed by water conservation or recycling. Consumer’s ranked environmental consciousness among the most important product attributes.

“There is a Global Demand for Greener Products

It is striking that interest in the environment and sustainability appears to be on the rise in markets all across the world…”

—Dan Esty
Cohen & Wolfe 2011

“In the United States, 75 percent of consumers say that it is somewhat or very important to them that the brands they buy come from green companies…” (Cohen & Wolfe 2011). Green products are desired in a down economy and some brands have benefited from being perceived as greener then others as we can see in Table 2.1 below, the top-ten brands in the U.S. market.
Retailers’ Demand

The greatest driver for developing greener products is when the marketplace demands it. When your customer is asking you for products that have lower environmental impacts, you pay attention. This is especially true when it’s your largest customer.

When Walmart, the largest retailer in the world, embarks on an aggressive sustainability program and asks their suppliers to help by providing greener products, it changes the way business is conducted. Whatever the reasons are for Walmart’s sustainability initiatives, it has had a huge impact. I cannot think of a more significant single event that propelled the development of greener products than when Walmart decided to embrace sustainability.

When the biggest retailer in the world puts out a sustainability scorecard that can help (or hurt) your sales, you stand up and pay attention. Walmart believes that their “customers want more efficient, longer-lasting, better-performing products. They want to know that

- The materials in the product are safe
- The product is made well
- The product was produced in a responsible way (Walmart 2011b)

The company set out a three-step plan:

1. Develop a supplier sustainability assessment.
2. Develop a lifecycle analysis database.
3. Develop a simple tool that customers can use to consume in a more sustainable way.
Walmart Sustainability Goals
To produce Zero Waste, be supplied with 100% Renewable Energy, and to sell Sustainable Products. (Walmart 2011b.)

If you sell to Walmart, you will be asked to help provide sustainable products and help Walmart to produce zero waste. Part of the first steps in getting sustainability information on products sold in Walmart stores is through the supplier sustainability assessment. This is a survey consisting of fifteen questions that address energy and climate, material efficiency, natural resources, and people and community. Some of the questions asked will no doubt get companies scrambling and create action where they may not have done anything for fear that their competitors have an edge over them. Consider the implications of the following questions if you answer no and your competitor has programs in place:

- Have you measured and taken steps to reduce your corporate greenhouse gas emissions? If yes, what are those targets?
- Have you set publicly available water use reduction targets? If yes, what are those targets?
- Have you obtained third-party certifications for any of the products that you sell to Walmart?
- Do you invest in community development activities in the markets you source from and/or operate within? (Walmart 2011a)

Walmart was not known for sustainability and then became a leading force in what seemed like an overnight time frame. If you consider the amount and type of products that are sold in their stores around the world, there has been a profound impact. In addition to typical consumer brands, there are gardening, pharmacy products, eye care, home furnishings, electronics products, and many more. All of Walmart’s suppliers are being forced to consider the sustainability of their products in a way they may have never had to. The final step in Walmart’s sustainability initiative is “provide customers with product information in a simple, convenient, easy to understand manner so they can make choices and consume in a more sustainable way. This will provide customers with greater transparency into the quality and history of products than they have today.” (Walmart 2011b) This should make every supplier think more seriously about its greener product development commitments.

Tesco is Britain’s largest retailer, and one of the top three global retailers. With operations in 13 countries, over 3,700 stores, and over 440,000 employees, this company also has significant influence. To fully understand the impact of their operations, Tesco determined that their supply chain in the
United Kingdom is responsible for approximately 26 million tons of CO$_2$, which is about ten times the amount from their own operations. In their commitment to minimize climate change, they set several objectives:

- Becoming a zero-carbon business by 2050
- Reducing the emissions of the products we sell by 30 percent by 2020
- Helping our customers to reduce their carbon footprint by 50 percent by 2020
- Halve emissions from our 2006/2007 baseline portfolio of buildings by 2020
- New stores built between 2007 and 2020 to emit half the CO$_2$ of a 2006 new store
- Reducing emissions per case delivered by 50 percent by 2012

As we can see, several of these commitments apply to suppliers. Companies selling products in Tesco stores must be mindful of these targets. In addition to supplier carbon reduction goals, a goal to reduce packaging weight by 25 percent by 2010 has been set.

One area in which Tesco has taken a leadership role is calculating carbon emissions of the products sold in their stores. They have evaluated the carbon footprint of a product’s life cycle, raw materials, shipping, and use and disposal of the product by the customer. This has been done for 500 different products and plans are in place to do many more. The idea is to make the footprint information available on packaging to help customers choose between products and to encourage improved environmental activities.

Some examples of how footprint information was used to make better decisions include bin liners manufactured from recycled plastic that have “lower carbon footprint per liter than those manufactured from virgin plastic. Recycled toilet paper has a footprint a third lower than the standard product, and aerosol deodorants tend to have higher carbon footprints than roll-ons, because of the high energy needed to make the aluminum can.” (Tesco 2010)

All of this has been done to assist customers to choose products that have the lowest carbon footprint. You may be wondering if customers will even understand what a carbon footprint is and use this information to choose products. Tesco claims that their research indicated that 50 percent of customers understood what a carbon footprint was, and nearly as many said they would seek products with lower footprints. (Tesco 2010)

Any company selling to Tesco will have to take notice of efforts to reduce the carbon footprint of the products they sell. Knowing that your customer is paying attention to the eco-effectiveness of your product will drive activities beyond what would occur without this pull. If product environmental performance can hurt or help your sales, you will pay more attention to greening your products.
Home Improvement Companies

Home improvement companies have also gotten in on the green movement. Lowe’s has set a sustainability strategy that has a heavy emphasis on bringing greener products to customers. The strategy is to provide environmentally responsible products, packaging, and services at everyday low prices.

Lowe’s Policy on Sustainability encompasses the following:

- Educate and engage employees, customers, and others on the importance of conserving resources, reducing waste, and recycling;
- Use resources—energy, fuel, water, and materials—more efficiently and responsibly to minimize our environmental footprint;
- Establish sustainability goals and objectives;
- Review and communicate progress made toward achieving established goals and objectives; and
- Engage in public policy issues related to sustainability. (Lowe’s 2011)

It’s obvious that suppliers offering products with improved performance will get preference in Lowe’s stores. Lowe’s reports progress based on the environmental benefits from products sold in the form of energy and water savings. In 2009, Lowe’s sold enough ENERGY STAR products to

- Reduce the amount of pollution equivalent to taking 275,000 cars off the road.
- Save consumers more than $265 million each year off their energy bills compared with non-ENERGY STAR-qualified products.

The number of WaterSense-labeled toilets and bathroom faucets sold in 2009 can save enough water in a year to

- Fill more than 3,600 Olympic-sized swimming pools (or save more than 2.4 billion gallons of water annually);
- Save consumers $13 million each year on water bills. (Lowe’s 2010)

Their competitor Home Depot has also set goals to bring greener products to their customers. One objective is to encourage customers to become environmentally conscious shoppers. A method being used to educate customers on products with improved environmental performance is a program called “Eco Options.”

Home Depot offers over 3,500 Eco Options products. A product is classified as having improved performance if it demonstrates benefits in one of five areas: energy efficiency, water conservation, healthy home, clean air, and sustainable forests. Improvements are judged by third-party certifications
that have been given to products like the U.S. EPA’s Design for Environment, USDA Organic, Forest Stewardship Council, U.S. EPA Energy Star, and other criteria. (Home Depot 2010)

The types of products given the Eco Options designation include low VOC paint, Waste Sense®-labeled bathroom fixtures, Energy Star®-labeled electrical products, organic plant food, and environmentally preferred cleaners. Any company wishing to sell products in a Home Depot store will need to pay attention to their Eco Options program and seek this designation. In addition to the improved environmental performance, these greener products give customers cost savings. This makes them even more attractive and increases the manufacturer’s attention to developing more sustainable products.

Greener Hospitals

Companies providing products to hospitals are not exempt from the greener product revolution. Why would hospitals be driving the development of greener products? Consider that they are operating 24/7. The lights are always on, there is waste being constantly produced, air pollutants are generated by boilers that supply heat and hot water, and wastewater is continually flowing.

Hospitals are being encouraged to become more sustainable by interest groups such as Health Care Without Harm. Using a phrase from the Hippocratic Oath that doctors take, their mission is to see health care “first, do no harm.” Their goal is to encourage health-care providers to do away with practices that harm people and the environment. The link between human health and environmental pollution is a point used to enroll more hospitals.

Product manufacturers are impacted by this movement because there is a focus on the purchase of safer products, materials, and chemicals. Hospitals are trying to avoid products containing mercury, polyvinyl chloride (PVC) plastic, and brominated flame retardants. (Health Care Without Harm 2011)

One of the leading health-care providers, Kaiser Permanente, raised the bar for greener health-care products when they unveiled their Sustainability Scorecard in 2010. Each company intending to sell to Kaiser Permanente is to complete the scorecard and the results will be used to make purchase decisions.

One of the focus areas is the use of toxic substances. An example is understanding if a product contains di(2-ethylhexyl)phthalate (DEHP). This chemical is undesirable because it has shown adverse effects on the development of the male reproductive system in young laboratory animals, and there is some concern this could also affect some human patients. So, one question on Kaiser Permanente’s scorecard is “Does the product contain DEHP?”

If the answer is “no,” the vendor enters a 0; if the answer is “yes,” it is scored 1. The lower-scored products are the more environmentally friendly.
The implementation of this innovative scorecard can impact how medical device manufacturers do business because Kaiser Permanente purchases more than $1 billion of medical products each year. (Hicks 2010) It is becoming more common for hospitals to ask sustainability questions of their suppliers, therefore, the demand for greener products in health care will continue to grow.

**B2B Purchasing**

Green products are not only relevant to consumers, but we have also seen a strong pull from business-to-business (B2B) customers. The phrase “greening the supply chain” has become synonymous with one business asking another to green up. Companies are pressured to become more sustainable on many fronts. One area that was not originally foreseen was the focus on the supply chain: from procurement of services and raw materials to third-party manufacturers.

More companies are asking their suppliers to help them with their sustainability goals. Unilever has been pressured for using palm oil and other agricultural raw materials in their products from farms that have damaged tropical rainforests. To address this issue, they have been working with suppliers to develop sustainably sourced palm oil, tea, soybeans, and other agricultural products.

Walmart set goals for their suppliers in China to reduce packaging and increase the energy efficiency of products sold in their stores. Staples, the office supply company, has set goals for paper-based products to come from sustainable forests by 2010. (Nidumolu and Rangaseami 2009) SC Johnson in their efforts to remove materials of concern from their products has asked their suppliers to phase out phthalates from the fragrances they provide. (SC Johnson 2011a)

Proctor & Gamble (P&G) has also developed a supplier Environmental Sustainability Scorecard. The scores that suppliers receive will be used to assign an overall rating from P&G that is used to make determinations on who they give their business to. One of the goals of the scorecard is to encourage suppliers to implement more sustainability initiatives. Suppliers must provide data on electrical and fuel use, water input and output, Scope 1 and Scope 2 greenhouse gas emissions, waste sent to landfill or incinerators and hazardous waste disposal. (GreenBiz 2010) P&G believes this rating system can encourage environmental improvement across its entire supply chain. The impact can be huge because P&G has approximately 75,000 suppliers, resulting in about $42 billion in annual spending. (Environmental Leader 2010) This scorecard will surely give firms with greener attributes to their product an edge over others.

These are just a few examples of how businesses are looking to their suppliers to help with their sustainability initiatives and to help them green up.
their products. Companies are no longer only being asked to be responsible for their own footprint, but are also being held accountable for addressing their entire supply chain. Suppliers with a good sustainability story can gain an edge with their key customers.

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**Eco-Innovation as a Value Driver**

More companies are seeing sustainability as a way to drive innovation to generate new products. There are several ways sustainability can add value to your brand. Communicating product attributes that emphasize a brand’s sustainability is an easy way to get some quick wins. Addressing a growing apprehension to use bottled water, Brita water filters (a Clorox product) initiated a repositioning of its product.

Communicating product attributes that emphasize a brand’s sustainability is an easy way to get some quick wins.

Brita took advantage of consumers’ growing desire to become greener by highlighting the use of their product as more sustainable than bottled water. They calculated the millions of empty bottles that would be taken out of the waste stream to make the case that their product is the more sustainable option for getting clean drinking water. Adding to this, they initiated a campaign and associated website (FILTERFORGOOD.COM) that solicited participation in a movement to make drinking water more sustainable. On this site you can sign on to reduce bottle water waste and see the estimated number of bottles reduced through the use of the Brita filter (over 240 million estimated bottles reduced when I visited the site). The overall product positioning is all about how a customer can help the environment by using their product.

If you go to the Brita website, you will see this very clearly: “better for the environment and your wallet.” In other words, you save the environment and money at the same time! (The Clorox Company 2010) The Brita water filter repositioning is an excellent example of using innovative thinking to uncover existing sustainability attributes of your product without having to do any physical changes to your product.

Another example of repositioning products by highlighting their existing greener attributes is GE’s Ecomagination. Under the Ecomagination banner, GE can position any product that has an environmental benefit as a more sustainable option to their customers. GE’s CEO Jeff Immelt considered that his company selling windmills, have more efficient locomotive and jet engines, and were recognized as a U.S. EPA Energy Star partner and thought “maybe
Market Drivers for Greener Products

there is something there if we put all of those together.” (Makower 2009)

Consider washing machines that use less water than those of competitors (or previous versions), hot water heaters and microwave ovens that use less energy—all can be positioned under the Ecomagination banner. The reasons why the equipment has better environmental performance don’t matter; the key is that if it does, communicate it to your customers.

Use of sustainability as the driver for developing new product concepts is another way to meet market needs. A good example of this is Samsung’s greener product development process called PlanetFirst™. This process is used to generate innovative new products that have substantial sustainability benefits. Examples of these new innovative products include the LED TV (UN46B7000WF), which uses less power in normal operation and in standby mode, thus resulting in 43 percent less overall power and significant operation cost savings for the customer. The Blue Earth mobile phone is solar powered, made from post-consumer material extracted from plastic water bottles, and does not contain potentially harmful substances such as brominated flame retardants (BFRs), beryllium, and phthalate. (Samsung Electronics 2010)

Use of sustainability as the driver for developing new product concepts is another way to meet market needs.

Another example of sustainability as innovation is SC Johnson’s Nature Source® product line. SC Johnson is well known for greening up their heritage brands using the well-publicized GreenList™ process. However, the company took a fresh start on some new products using sustainability as the basis and came up with a greener products line called Nature Source®. These household cleaning products are based on ingredients that are 99+ percent natural or naturally derived. (SC Johnson 2011b)

It is common for companies to run innovation sessions to develop new product concepts. As we have seen, many companies have been successful in using sustainability as the innovation driving force. I have had the opportunity to run some eco-innovation sessions and have been surprised to see that top executives are unfamiliar with the sustainability accomplishments that their business unit has achieved. If the executives are unaware, then our customers are too. With the growing demands for more sustainable products in all types of businesses, it is a wasted opportunity to not communicate the improvements made already and to generate new product concepts.

Running an Eco-Innovation Session

Eco-innovation need not be a complicated thing. Simple tools can be used to spur innovative thinking. Some of the key groups that you would want to include in an innovation session would be marketing, sales, R&D, operations,
procurement, environment, health & safety, and communications. A simple agenda for one of these events would look like this:

Eco-Innovation Session Agenda

- Landscape—What’s going on in the marketplace? Are customers looking for greener brands?
- Competitor Analysis—Is anyone leading in sustainability? Are we competing against any green brands? Do any competitors have weaknesses compared to our brand?
- Company Accomplishments—What have we accomplished as an enterprise, and are there any specific greener attributes to our brand (e.g., use of recycled content, better performance, end-of-life solutions)?
- Risk Analysis—What happens if we do nothing? Do we have any sustainability problems (perceived or actual)?
- Opportunity Analysis—1. What can we communicate to customers that we have accomplished already? and 2. What can we do to green up our brand or develop a new product?
- Prioritization—Develop a prioritized list of projects and assignments. (Unruh and Ettenson 2010)

If developing a new product concept or greening up an existing brand is a desired outcome of the innovation meeting, then the Eco-design elements in Figure 2.1 are a good way to initiate innovative thinking.

Just a quick look at Figure 2.1 and many sustainable product innovations can come out of it. If customers have been complaining about excessive packaging or that it can’t be recycled, then we should initiate a project to reduce the packaging size and use commonly recycled materials. Once the improvement is accomplished, make sure you tell customers about it. The engineering department mentioned that we reduced the energy use of the product by 10 percent in its latest design and we think we are best in class for energy use—we should do a competitor analysis and let our customers know that our product is saving them money and is better for the environment.

If we are losing some share points to a competitor with a new natural brand, let’s develop our own natural product line or try to green up by removing ingredients that the marketplace is concerned with.

Product Rating Systems

Another reason to be mindful of a product’s greenness is that there are groups that are rating your product and making it very easy to find out the
It is even possible to download an application on your smartphone and find out information about a product by scanning its bar code while shopping in the store. GoodGuide is one of the prominent systems that rates products.

Shampoo, dog food, coffee, tea, candy, and cosmetics, GoodGuide provides individual product ratings for over 70,000 products. An overall score is assigned to each individual product on a ten-point scale (10 being the best). Having only one score makes it easy for the consumer to compare products. The score is based on a summary of three sub-scores addressing health, environment, and society. Each of these sub-scores consists of a review of a myriad of indicators that GoodGuide has determined are the best-available measures of performance in these areas. Some of the elements considered in the ratings are regulatory noncompliance issues; ingredients that are of concern even if they are approved by regulatory agencies (e.g., triclosan, phthalates, BPA, etc.); energy and waste management; global warming potential; biodiversity; corporate ethics; product quality and safety; and labor and

FIGURE 2.1
Eco-design elements. You will find that the sequence for implementing the strategies is not the same for every product. That is, there is no one way to use the strategies that is “right”; the sequencing depends on the needs of your organization and the product’s production. (Source: PROMISE Manual for Ecodesign. Brezet and van Hemel, 1997, adapted by Five Winds International.)
human rights (and there are many more). The rating is a blend of a company’s overall sustainability and the individual product’s sustainability. Not an easy thing to do; nevertheless, it’s out there and people are using it. (GoodGuide 2011b)

On GoodGuide’s website (www.goodguide.com) you can find the top-rated products and the worst-rated ones in a given category. Amazingly, there is a scroll bar showing live what products are being reviewed on iPhones, showing the product name and the U.S. state in which it is being viewed!

As an example of how this works, we can take a look at the rating of Burt’s Bees Super Shiny Grapefruit & Sugar Beet Shampoo.

**GoodGuide Rating**

**Burt’s Bees Super Shiny Grapefruit & Sugar Beet Shampoo**

Overall rating 7.7

- **Health 8.0**—This product contains one or more ingredients that raise a low level of health concern.
- **Environment 7.9**—Compared to other companies, this company scores well on reducing water use.
- **Society 7.3**—Compared to other companies in the same industry, this company gives a lot to charities. (GoodGuide 2011a)

Environmental groups have also gotten into product ratings. The Environmental Working Group (EWG) has developed several product ratings. One of the most comprehensive is the Skin Deep Cosmetic rating system. Developed in 2004, there are more than 64,000 rated products. The ratings are based on two factors: a hazard rating and a data gap rating. There are seventeen general hazard categories evaluated: cancer, reproductive/developmental toxicity, neurotoxicity, endocrine disruption potential, allergies/immunotoxicity, restrictions/warnings, organ system toxicity, persistence/bioaccumulation, multiple/additive exposure, mutations, cellular/biochemical changes, ecotoxicity, occupational hazards, irritation, absorption, impurities, and miscellaneous.

A very complicated method is used to come up with an overall rating for a product. There are 260 individual categories, ranging from “known human carcinogen according to the EPA” to “skin irritant identified by the Cosmetic Ingredient Review panel.” The categories are then mapped into one of 205 “score categories,” product and ingredient hazard scores; all scores are scaled from 0 to 10, with 10 being the highest level of concern and 0 the least. (EWG 2011a)

Some of EWG’s worst-rated products have some scary-sounding information about them. As an example, when evaluating the worst-rated lipgloss, it received a 9 score (10 being the worst) and had the following information listed in the product details. (EWG 2011b)
Ingredients in this product are linked to:
- Cancer
- Developmental/reproductive toxicity
- Allergies/immunotoxicity
- Other concerns for ingredients used in this product: Neurotoxicity, endocrine disruption, Persistence and bioaccumulation, Organ system toxicity (non-reproductive), Miscellaneous, Multiple, additive exposure sources, Irritation (skin, eyes, or lungs), Enhanced skin absorption, Contamination concerns, Occupational hazards, Biochemical or cellular level changes. (EWG 2011b)

Other than that, it is a pretty good product! Any customer or potential customer that happens to review this database would at the very least, question their purchase of this product. Regardless of how valid a company may feel these rating systems are, it merits to pay attention to them and think about if there is anything that can be learned from them on how to make product improvements. At the very least, it gives a perspective that is not intuitive to the typical manufacturer.

Socially Responsible Investment

Another trend that is encouraging the development of sustainable products is socially responsible investing. More investors are interested in purchasing stock only from companies that are socially responsible. Rating systems such as the Dow Jones Sustainability Indexes (DJSI) and The FTSE4Good indices are prominent metrics that encourage socially responsible investing.

The Dow Jones Sustainability Indexes (DJSI) tracks the performance of companies that lead the field in terms of corporate sustainability. (DJSI 2010) The FTSE4Good Index Series, based in the United Kingdom, has been designed to measure the performance of companies that meet globally recognized corporate responsibility standards, and to facilitate investment in those companies. (FTSE 2010)

To fare well in these indices, a company must be performing well in all aspects of sustainability, including bringing greener products to market. More focus is being placed on product stewardship, eco-efficiency, and supply chain issues associated with product manufacturing. Therefore, failure to adequately address product stewardship issues such as potentially toxic materials in your product, not adequately addressing product end-of-life issues, or failing to initiate sustainability programs at your suppliers, can hurt your rating in these indices.
In addition to social responsibility funds and investing pressures, we have seen an increasing number of shareholder resolutions focused on product responsibility. Examples of the type of product-related questions that are being asked of corporations include a special resolution calling on Shell to give more details on the financial, environmental, and human rights risks of tar sand developed with a controversial “in situ” method. This technique is claimed to have a much higher carbon footprint because it is so much more energy intensive. (Arnott 2010) DuPont is being asked to address adverse impacts associated with genetically engineered organisms. The Coca-Cola Company shareholders want the company to take a leadership position regarding the use of the chemical BPA in can linings. BPA has been banned in the use of baby bottles in Canada and the European Union due to concerns for children and its use for can and bottle linings.

R.R. Donnelley & Sons was asked to address the purchase of sustainable paper. The Hershey Company’s shareholders requested that the board of directors adopt and begin to implement a comprehensive procurement policy for sourcing 100 percent certified sustainable palm oil. (ICCR 2011)

<table>
<thead>
<tr>
<th>Common Shareholder Product Stewardship Resolutions</th>
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<tbody>
<tr>
<td>Sustainable sourcing of raw materials</td>
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<td>Climate change policies or initiatives</td>
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<td>Use of GMO materials</td>
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<td>Reducing toxic chemical usage</td>
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**Green Public Procurement**

A significant new approach to procurement is the purchase of goods and services in a manner that fosters lower environmental impact. This Green Public Procurement (GPP) is a process whereby public authorities seek to procure goods, services, and works with a reduced environmental impact throughout their life cycle.

In Europe they have realized that green purchasing can have a big impact. The European Union “public authorities (central, regional and local levels) spend approximately 17 percent of EU GDP—or €2,000 billion—on goods, services and works each year.” A good deal of this spending is on services that have significant environmental impacts, such as transportation, buildings, and food. By using GPP criteria, public officials can sway the purchase of items to reduce their impacts. (European Commission 2010)
European Union member States have developed National Action Plans (NAPs) for greening their public procurement. The NAPs contain targets that are reported on publicly. The type of goods and services that will first be focused on include paper, cleaning chemicals, office IT equipment, construction, transport, furniture, electricity, windows, doors, thermal insulation, road construction, and mobile phones. (European Commission 2010) Any company that manufactures products in these categories should be interested in evaluating the criteria that the EU has set for GPP.

In the United States, the Environmental Protection Agency (EPA) has been tasked with the development of Environmentally Preferable Purchasing (EPP) guidance for federal agencies to implement. Similar to the initiative in Europe, the impact can be significant. “The Federal government is the single largest consumer in the U.S., spending over $350 billion each year on a wide variety of products and services.” This purchase power carries with it a significant environmental footprint. (U.S. EPA 2010)

The federal government can minimize environmental impacts through the purchase of goods and services by trying to purchase those with the lowest impacts. The EPA defined EPP as products or services that “have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service.” U.S. EPA Guiding Principles were developed to help federal agencies follow through with these commitments (U.S. EPA 2010):

1. Environment + Price + Performance = EPP: Include environmental considerations as part of the normal purchasing process.
2. Pollution prevention: Emphasize pollution prevention as part of the purchasing process.
3. Lifecycle perspective/multiple attributes: Examine multiple environmental attributes throughout the product and service’s life cycle.
4. Comparison of environmental impacts: Compare environmental impacts when selecting products and services.
5. Environmental performance information: Collect accurate and meaningful environmental information about environmental performance of products and services. (U.S. EPA 2010)

Scorecards were developed to help federal agencies to track their progress in making progress by the President’s Office of Management and Budget. Here again, companies that sell to the federal government need to be mindful of the potential impacts of this initiative. Consider losing a sale to a large customer like the U.S. Government because your product was not up to par with your competitor’s product.
Conclusion

The market is demanding greener products and this demand is growing. Manufacturers need to fully realize the growing pull for products with enhanced environmental and social benefits.

Market Demands for Greener Products

- Consumers desire greener products
- Institutional customers are requesting them
- Hospital green revolution
- B2B green purchasing
- Eco-innovation as a value driver
- Product Rating Systems
- Socially responsible investing
- Green public procurement

No matter what aspect of business you are in, there is a shift occurring that makes it imperative to offer greener products to your customers. We are seeing market demands in all major sectors: consumer goods, chemicals, transportation, medical products, pharmaceuticals, energy, and others. In addition to customer demand, there is pressure from other areas such as environmental groups, sustainability rating organizations, and competitors. The use of sustainability is even being used as an innovation driver for new product development. Having greener product offerings is no longer a nice-to-have prospect—it is a necessity to be competitive in the market place.

References


3

Regulatory Drivers for Greener Products

A New Set of Rules

It used to be that the only environmental regulations a company had to be concerned with were those affecting a manufacturing facility’s air emissions, waste generation, and waste water. Governments began to realize that the disposal of products presented significant environmental concerns and soon began developing regulations to address this issue. In recent years there has been an exponential growth of environmental regulations that apply to products (see Figure 3.1). Beginning in Europe with requirements for developing more sustainable packaging and mandatory take-back requirements, these regulations have expanded to all regions of the world.

Having to comply with these regulations requires manufacturers to develop management systems to ensure that products being brought to market comply with the myriad of design, reporting, labeling, and fee requirements throughout the world. Organizations within a company that have not typically had to be concerned with environmental regulations now are faced with new challenges. For example, R&D groups have to develop processes to ensure that banned or restricted materials are not present in new products. Sales and marketing units must ensure that labeling, registration, and fees are paid to governments where their products are sold. Further, systems must be set up to facilitate the recovery and recycling of such things as electrical products, packages, and most recently, sharps and unused medications.

Product-based regulations are becoming drivers for new product design and are causing product development teams to anticipate and monitor these requirements. As a case study, consider having to comply with new requirements that restrict the limit of certain toxic metals and flame retardants in electronics. The European Union Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations (the “RoHS Regulations”) is expanding into other categories beyond consumer electronics (such as medical equipment). Addressing these requirements affects product design criteria.
Knowing that regulatory deadlines are approaching, design groups need to start discussions with their suppliers to begin the testing and validation of new RoHS-compliant parts. To prevent barriers to the sale of your product, designs must be changed years prior to the compliance date. Companies that can anticipate these regulations and make changes quicker than the competition can gain in the marketplace by appealing to purchasers that desire greener products, if they can certify compliance ahead of schedule.

Packaging Regulations

Another area of regulation that has complicated product sales is packaging regulations. It is getting increasingly difficult to ensure that product packaging is compliant in all regions of the world. As more companies move toward global brands, a single package is being used for all markets; therefore, the design must incorporate a multitude of regulatory requirements. Consider there are environmental packaging regulations of some type in all regions of the world, and new regulations are being added on a regular basis.
Let’s consider some of the requirements necessary for a package to be sold globally. As an illustration, let’s evaluate the standards of one packaging regulation, the EU Packaging Directive. The EU Packaging and Packaging Waste Directive (94/62/EC) requires

- **Source reduction:** Companies must demonstrate that they have reduced their packaging as much as possible and then identify the critical area (such as product protection, safety, consumer acceptance, etc.) that prevents further reduction in weight or volume of a packaging component.

- **Recovery standards:** Packaging components must be recoverable by at least one of three recovery routes (energy, organic, or material recovery) and must meet certain requirements specific to that recovery route.

- **Reuse:** Optional, but a package must meet the requirements of the reuse standard if it is claimed as reusable.

- **Heavy metals content:** Sets a concentration limit for lead, cadmium, mercury, and hexavalent chromium in packaging.

- **Reduction of hazardous substances in packaging:** Substances classified as noxious (e.g., zinc) must be minimized if they could be released in emissions, ash, or leachate when packaging is landfilled or burned. (ODEQ 2005)

In addition to these requirements, fees must be paid based on the type of packaging put on the market. This also affects the package design because there are higher fees for packaging that is not easily recyclable. So to minimize fees, one would want to use the least costly (most recyclable materials) in one’s design. Regulations covering each of these requirements must be developed and put into law for every member state of the European Union. Therefore, each state can have slightly different requirements to meet the objectives. This makes it more complex for companies placing products on the market in the EU. (Europa 2010)
Similar to the European Union requirement, the government of Korea also has set stringent regulations. South Korea Packaging Requirements include

- Fees for certain packaging
- Restrictions on heavy metals, PVC, and expanded polystyrene
- Labeling of recyclable materials
- Empty space and layering requirements
- Reusable containers encouraged for some products (ODEQ 2005)

Having to conform to different regulations in many countries makes it very challenging to design a globally compliant package. This is just one environmental product regulatory requirement; there are many other requirements that firms must comply with when putting a product on the market.

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**Restriction on the Use of Chemicals and Notifications**

One of the most significant chemical regulations that has brought substantial changes to the sale of products in Europe and throughout the world is the European REACH regulation. The acronym REACH stands for Registration, Evaluation and Authorisation of Chemicals. The regulation has been in effect since 2007 and requires all products and chemicals imported into and manufactured in EU member states greater than one ton per year to be registered with the European Chemicals Agency. Its aim is to place the responsibility on chemical manufacturers and importers to ensure that chemicals are being used in a way that is protective of human health and the environment. The regulation requires more data on the hazards of chemicals developed, and it will restrict or ban “substances of very high concern” (SVHC). (European Commission 2010) This has been a game changer for chemical regulation, and its impact is being seen throughout the world. In addition to requiring registrations and more information on the toxicity of chemicals, companies are facing the prospects of having to find other materials for their products if they use any chemicals on the SVHC list. Also, other countries are adopting REACH-like regulations.

For instance, China and Korea REACH have mimicked certain elements of the European REACH requirements. These regulations are similar to the EU REACH but have their own country requirements. China REACH applies to new chemical substances regardless of the quantity. Any new chemical that is not on the Existing Chemical Substances Produced or Imported in China (IECSC) list (about 45,000 substances) must meet certain notification and testing requirements. Some of the requirements of this regulation include
• Completion of a notification application form,
• A test report detailing the substance’s physiochemical properties and its toxicity and ecotoxicity,
• An environmental risk assessment report,
• Recommended classification and labeling, and
• Preparation of a Chinese Safety Data Sheet. (CIRS 2011)

These REACH-like regulations are becoming more prevalent and are influencing regulatory developments in regions other than Asia Pacific. A case in point is that the new California Green Chemistry Initiative has looked to REACH for inspiration. Also, REACH is referred to in discussions about reforming the U.S. Toxic Substances Control Act (TSCA).

There are many other regulations in addition to REACH that restrict the use of chemicals. Several of them focus on electronics and electrical equipment because of the hazardous materials employed in their design. Examples include the European Union RoSH, and China, Japan, and Korea RoSH requirements. These regulations put very tight limits on the amount of certain compounds that cause harm to human health and the environment if improperly disposed. As an example, the EU Directive 2002/95 known as RoSH (restriction of certain hazardous substances) bans the placement of new electrical and electronic equipment containing greater than specified levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE) flame retardants on the EU market. The limits range from 0.01 to 0.1 percent, depending on the compound. (DBIS 2011)

There is also an expanding list of regulations that require products containing certain hazardous chemicals to be registered in the country where the product is sold. The following are examples of regulations that require products to be registered, restrict or ban the use of certain chemicals, or require labeling of products that contain specific chemicals.

**Chemical Restriction Regulations**

• **EU REACH:** In effect since 2007; affects all products and chemicals imported into and manufactured in EU member states; requirements include registration, communication, and restrictions of substances of very high concern.

• **China REACH:** Similar to EU REACH requires registration, testing, labeling, and data sheets for new chemicals before they can be put on the market in China.

• **EU RoHS:** Restricts six hazardous chemicals and flame retardants in electrical and electronic equipment (lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE) flame retardants) and has been in place since 2006.
• **China RoHS**: Restricts the use of the same EU RoHS chemicals; effective since 2007; covered products include medical equipment, measuring instruments, radar, communications transmission and switch equipment, and manufacturing equipment for electronic products. Requires products to have a label called the environmental protection use period (EPUP) that indicates the number of years it is expected to contain hazardous materials without causing environmental contamination. (RSJ Technical Consulting 2009)

• **Health Canada**: Focuses on chemicals of concern, including lead, mercury, Bisphenol A (BPA), and phthalates. Canada was the first government in the world to restrict BPA in products. They maintain a list of “Chemical Substances of Interest,” which may lead to the restriction or banning of other materials. (Health Canada 2011)

• **California Green Chemistry**: The California Green Chemistry Initiative was signed into law in September 2008 and establishes a framework for regulating toxic substances based upon “life cycle thinking and green chemistry principles.” This law applies to consumer products. Formal regulations are anticipated in 2011 and will most likely restrict the use of certain toxic substances, require companies to find safer alternatives, and establish a process to identify and prioritize chemicals of concern. (CalEPA 2010)

• **California Proposition 65**: Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The aim of the Proposition is to protect California citizens and the state’s drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm, and to inform citizens about exposures to such chemicals. The rule requires notification and labels so that “no person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state (California) to cause cancer or reproductive toxicity without first giving a clear and reasonable warning.” (CalEPA 2007)

• **Interstate Mercury Education and Reduction Clearinghouse (IMERC)**. In 2001, the United States Northeast Waste Management Officials’ Association (NEWMOA) launched the Interstate Mercury Education and Reduction Clearinghouse (IMERC). Anyone who offers to sell, sells, or distributes a mercury-added product in a state covered by this rule is required to complete a Notification Form and submit it to IMERC. This information informs the public on which products have mercury so that its use may be minimized. (NEWMOA 2011)

• **Globally Harmonized System of Classification and Labeling of Chemicals (GHS)**: “The GHS is a system for standardizing and harmonizing the classification and labeling of chemicals.” It requires governments
Regulatory Drivers for Greener Products

around the world to conform their hazard classification and communication rules to a common system, regardless of the country. This initiative will require changes in the way hazards of chemicals are defined and communicated. Consistency will be achieved globally in determining health, physical, and environmental hazard determinations as well as communicating hazards through icons and chemical Safety Data Sheets. For example, countries have different definitions and icons for “flammable.” With GHS, the icons and definitions would be the same regardless of the country in which you operate. (OSHA 2011)

There are many more regulations in addition to these that have some form of labeling, restriction, or reporting on the toxics used in products. However, the intent here is not to have an exhaustive list, but rather to inform on the growing number of regulations that manufacturers must be cognizant of to ensure a compliant product on the global market.

Extended Producer Responsibility

More governments are mandating that manufacturers take responsibility for their products at the end of their useful life. One of the first and most comprehensive regulations of this type is the European Union Directive 2002/96/EC, known as WEEE (waste electrical and electronic equipment). Enacted in 2003, WEEE requires manufacturers to take responsibility for the recycling of equipment at its end of life. The equipment covered by the regulation includes large and small household appliances; IT and telecommunications equipment; consumer, toys, leisure, and sports equipment; lighting equipment; electrical and electronics tools, monitoring and control instruments, and automatic dispensers; and medical devices.

Producers of electrical and electronic equipment are required to set up and pay for collection points where WEEE can be brought to be recycled and are responsible for the costs of collection, treatment, recovery, and disposal. Equipment must be designed to be recycled and must include guidelines for how to recycle the equipment and be labeled to indicate that it is WEEE. (RSJ 2006)

The state of California also has a WEEE regulation, SB 20. It only applies to CRT, LCD, and plasma screens larger than four inches. A fee to cover recycling is paid for by consumers at the point of purchase.

Manufacturers must notify retailers and the California Integrated Waste Management Board (CIWMB) when a device is subject to the recycling fee and provide consumer information on how to recycle those products. Annual reports must be filed with the Board indicating the total amount of hazardous substances in each device, the efforts to reduce hazardous
materials, the use of recyclable materials, and efforts to design more environmentally friendly products. (RSJ 2008) California is not the only U.S. state that has electronic equipment take-back requirements. In 2010 there were twenty-four U.S. states that had some sort of electronic take-back requirements. (Electronics TakeBack Coalition 2010)

Another component of electronic products that has caused environmental harm is batteries. Batteries contain toxic metals such as lead, mercury, and cadmium, and if improperly disposed, cause environmental pollution. The European Union Battery Directive 2006/66/EC requires the collection and recycling of waste batteries and accumulators at their end of life. In addition, product design must enable easy removal of batteries to facilitate recycling and include instructions on removing the batteries.

Batteries must be labeled with a symbol indicating that they are to be recycled. Product manufacturers must cover the cost of collecting and recycling industrial, automotive, and portable batteries and accumulators, as well as the costs to inform the public of the recycling schemes. (Europa 2009)

On March 30, 2010, Brazil Resolution SMA-024 was enacted. This rule is, in essence, a producer responsibility regulation. It requires some manufacturers, importers, and distributors to take responsibility for the post-consumption wastes that their products generate. Products covered by this resolution include automobile oil filters; automobile oil containers; fluorescent bulbs; automobile batteries; tires; electro-electronic products; and primary, secondary, and tertiary packaging of foods and beverages, personal hygiene products, cleaning products, and durable consumer goods.

Manufacturers, importers, and distributors of these products must—in partnerships or separately—“maintain collection posts for used products; to inform consumers of the need to return end-of-life products; to meet collection quotas; to report on the quantities collected; and to ensure that collected products are recycled, burned for energy, or otherwise disposed in a manner approved by CETESB” (the Brazilian environmental agency). (Beveridge and Diamond 2011)

### Examples of Global Product Stewardship Regulations

- **Packaging regulations:** EU Packaging Directive and various others require size reduction, reduction of toxic metals, take-back.
- **Chemical use restrictions and notifications:** REACH, RoHS, chemical-specific bans, for example, Health Canada BPA ban, IMERC mercury use notification, CA Proposition 65 notifications, GHS.
- **Extended producer responsibility:** WEEE, Battery, Brazil EPR, etc. require producers to take back products at their end of life.
The development of regulations for take-back of products and forcing companies to be responsible for the end of life of their products is becoming more popular with legislators. This policy initiative enables products to be properly managed when they have lost their usefulness and typically at a cost that is born by manufacturers, which adds to its attractiveness. We should expect to see more of this type of regulation in all markets throughout the world.

Supply Chain Issues

A focus on environmental and social issues deep into the supply chain is a new regulatory initiative. Manufacturers are being held accountable not just for their own operations, but also those of their suppliers. It is becoming increasingly important to know what’s in your product. This goes beyond the materials used in the product and includes social issues such as the working conditions at suppliers, how suppliers’ employees are treated, and political conditions of where raw materials are sourced.

In California SB 657, the California Transparency in Supply Chains Act requires companies doing business in California with more than $100 million in gross receipts to report on efforts to eradicate slavery and human trafficking from its supply chain. The reporting requirements are very broad and go into areas that governments never before considered. Disclosures of activities to ensure that human trafficking is not occurring in a product supply chain must be reported on the company’s website. The information requires such disclosure if the business

1. Engages in verification of supply chains to address human trafficking and slavery and uses third parties in that process;
2. Conducts independent, unannounced audits of suppliers to ensure compliance with company standards on trafficking and slavery;
3. Requires direct suppliers to certify that materials incorporated in their products comply with the laws regarding slavery and human trafficking of the country or countries in which they do business;
4. Maintains internal accountability standards for employees and contractors failing to meet company standards on slavery and trafficking; and
5. Provides both managerial and nonmanagerial employees training on mitigating risks of slavery and trafficking in supply chains. (Foley and Lardner 2011)

This view into a supply chain is adding more scrutiny to every step of bringing a product to market. Governments are responding to concerns with the
conditions at the suppliers used for making a product and are holding manufacturers accountable for ensuring that their product does not enable horrendous conditions.

Another similar initiative is the use of conflict minerals. If someone would have asked me if I was concerned about conflict minerals used in our products a year ago, I would have looked at them and said, “What’s that?” Now it is a frequently discussed product stewardship concern. Various products contain minerals that come from Africa. Cell phones, laptop computers, televisions, medical equipment, and many other products contain these minerals.

The U.S. Government, through the conflict minerals provision of the Dodd-Frank Act (Section 1502), will require companies to publicly disclose if they use these materials. Section 1502(e) (4) of the Dodd-Frank Act defines “conflict mineral” as cassiterite (tin), wolframite (tungsten), coltan (tantalum), and gold (gold) or their derivatives. Public companies are to report on minerals used in their manufactured goods that originated in war-torn Congo or adjoining countries in Africa. “The law is intended to address widespread corruption, human abuse and genocide in that region by imposing supply-chain due diligence on manufacturers that use in their products ‘conflict minerals’ that fund groups responsible for the atrocities.” (Corporate Law Report 2011)

This new focus area is the continuation of a trend that requires product manufacturers to know the minutest details about how products are brought to market. Doing this can be extremely difficult because parts that go into products come from several tiers of suppliers, perhaps going back to the mine where the minerals came from, are not readily available information. Consider the many materials that go into one part, and that some products have thousands of parts. Now try to understand where all the materials came from. This is a daunting task; nevertheless, supply chain regulations are most likely going to increase and cover areas that, today, we cannot even imagine.

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Company Management Systems for Product Regulations

With all the new regulatory requirements that apply to products, how does a global company ensure compliance? As mentioned earlier, more and more businesses are developing and marketing products that are sold globally. Having a robust system to ensure that products being developed are meeting country standards is becoming increasingly more important. Management systems must be put in place for product development groups, both in-house and for third-party partners, to ensure compliance. As noted above, there is an enormous set of requirements that must be complied with.

One approach to manage this complexity is the use of company-developed standards. A good example of this is Hewlett-Packard’s (HP’s) General Specification for the Environment. To ensure that products meet the global
rules, HP requires compliance with this standard in all contracts for design, manufacture, or purchase of HP brand products. This includes subassemblies, parts, materials, components, batteries, and packaging that are incorporated into HP brand products.

The standard has 102 pages of requirements. There is a section that addresses “Substances and Materials Requirements.” HP restricts or prohibits certain materials in their parts and products. Some examples include halogenated flame retardants and polyvinyl chloride (PVC) limits of 0.1 percent (1,000 ppm), hexavalent chromium and its compounds in metallic applications must not be present, mercury and its compounds 0.1 percent (1,000 ppm), and PVC in external case plastic parts must not be present. Mercury must not be intentionally added in any battery, and must not be present in more than 0.0001 percent (1 ppm) mercury by weight. Tributyl tin, triphenyl tin, and tributyl tin oxide must not be used in parts, components, materials, or products.

The use of wood is also addressed. Parts, components, materials, and products must not contain any wood material or wild plant material that was illegally sourced from its country of origin. Heavy metals must be managed in packaging; the sum concentration of incidental lead, mercury, cadmium, and hexavalent chromium may not be greater than 0.01 percent (100 ppm) by weight. Product stewardship regulations are also addressed. Compliance must be achieved with any applicable regulations, and documentation must be maintained. Examples include China RoHS User Documentation, Korea e-Standby User Instructions for Personal Computers, Product End of Life Declarations, and many, many more requirements. (HP 2010)

The use of a management system such as this HP Standard is a good example of the type of processes that must be put in place to ensure that developers and parts suppliers are providing compliant products to the global marketplace. The fact that this document is more than 100 pages long speaks to the difficulties of addressing all the requirements out there. One thing is for sure: Companies must develop some mechanism to track and assist R&D groups and suppliers on how to comply with the multitude of global requirements.

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**Emerging Issues**

As we have seen, regulations can have a huge impact on a company’s ability to compete in the marketplace. Corporations are always trying to minimize their business risk, and they have adopted various methods to mitigate and anticipate adverse situations that can interrupt or even stop products from being sold. One of the most difficult situations to be in occurs when an issue comes out of nowhere, and you’re completely blindsided by it. Even worse is having to defend yourselves in the court of public opinion because of it. As one of my company’s business leaders used to say, “When you’re explaining, you’re losing.”
As one of my companies business leaders used to say, “When you’re explaining, you’re losing.”

Business managers like to think that if you have good scientific evidence on your side, this is all you need to prove that your point of view is correct. However, time after time we have seen that perception trumps scientific evidence. Once an issue gets out into the public in a widely distributed report—whether it’s based on scientific evidence or not—it becomes very difficult to dispute after the fact. A good way of looking at emerging risk associated with a product is to understand that risk = hazard + outrage. (Blake 1995)

Risk = Hazard + Outrage

The leading factor that seems to bring public distrust of industry is a lack of transparency. The public is leery of firms that don’t appear forthright with information and are not telling them all they know about an issue.

A good example of this is the issue of genetically modified organisms (GMOs). When the use of GMO crops first came to the public eye, there was outrage. Cries of Franken food and environmental group protests were prevalent. However, GMO crops have the possibility to address food shortages by being resistant to bad weather, insects, or viruses. (HGP 2008) Regardless of where you stand on the issue, it makes you wonder if the companies that developed these GMO crops had an emerging issues management program and did they see the outrage coming? Could they have been more transparent? Would it have been possible to have reached out to the opposition groups and share data? I don’t have the answers to this, but a robust emerging issues process would have given this issue a better chance of not being the firestorm that it was.

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<th>Factors That Decrease Risk</th>
<th>Factors That Increase Risk</th>
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<td>Voluntary</td>
<td>Imposed</td>
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<td>Morally unacceptable</td>
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<tr>
<td>Trustworthy source</td>
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Emerging Issues Process

It is possible to get signals on emerging issues that can result in business risk and appropriately influence its development. An issue takes a certain path before it becomes a regulation or a public relations nightmare. There are opportunities to address issues when they are in the “anticipatory” stage. Monitoring the warning signs coming from NGO reports, blogs, Web postings, and research reports is imperative to getting a read on developing business risk.

Emerging issues must be put through a filter that considers

1. Potential business impact (both financial and reputational) and
2. The time it will take to become a “crisis” and hit the public in the form of a news report or a regulation.

Resources, such as the commissioning of teams of experts to study and recommend actions to management, should be deployed for the issues with the greatest potential to impact the business. Actions are most effective if they occur in the early stages of the chart in Figure 3.2, the Anticipatory stage.

![The General Life Cycle of an Issue](image)

FIGURE 3.2
The general life cycle of an issue.
Some of the outcomes of an effective emerging issues process would include

- Commissioning research on topics to develop science
- Papers developed and posted in peer review scientific journals to develop the science on the new issue
- Presentations of data and perspectives at scientific conferences
- White papers that discuss the issue and what the organization’s understanding and positions are on the issue
- Communications in the form of meetings with NGOs or government agencies to share knowledge and points of view on issues
- Development of company guidelines and standards

An emerging issues process must have a strong connection to the company’s government affairs group because they see what legislatures are considering first. Granted, this is much further down the path toward an issue becoming law, but it is critical to get sound science principles front and center when regulations are being formed. Working with legislatures in the earliest stages possible is also critical to prevent unnecessary regulatory burdens that do not add value.

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**Examples of Emerging Issues**

What types of issues are being monitored by companies today that can have significant business risk in the future? It depends a lot on the type of industry, but there are some issues that can affect quite a few different companies.

At Johnson & Johnson we initiated an environmental, health & safety (EHS) emerging issues process in 1998, and it has been an extremely helpful process for evaluating the landscape and influencing potential regulation and mitigating risk. In the formative days of the Emerging Issues Committee, we tagged such topics as the use of PVC, endocrine disrupting compounds, and the availability of fresh water. Over time, other topics that surfaced as significant issues included the presence of very small concentrations of pharmaceuticals and consumer products in water, nanotechnology, biomonitoring, and one-off chemicals being pressured such as Bisphenol A, triclosan, parabens, phthalates, and others.

I can draw on my own experience to share a few examples of how an emerging issues process works. Let’s take PVC; when it first came on our radar, there were no regulations prohibiting its use. However, environmental groups were petitioning companies to stop using PVC because they claimed it was the worst plastic to use because of manufacturing and end-of-life concerns.
on this issue resulted in the development of studies, a white paper position on PVC, and eventually the adoption of a public-facing sustainability goal to significantly reduce and, in some uses, completely eliminate PVC from company packaging (to date, thousands of tons of PVC have been removed from Johnson & Johnson packaging). This approach has paid dividends because our customers are asking for products and packages free of PVC, and we are ahead on this issue because of the emerging issues process.

Some Current Emerging Issues

- **Biomonitoring**: Finding of trace chemicals in human blood and body fluids.
- **Chemicals of concern**: Several individual chemicals being pressured by NGOs as harmful to human health and the environment (e.g., BPA, triclosan, phthalates, DEHP, etc.).
- **Chemical mixtures**: Minute concentrations of chemicals in the environment and their collective impact.
- **Climate change**: Impacts of climate change on raw material supplies and other potential business disruptions.
- **Endocrine disrupting chemicals (EDCs)**: Fate of EDCs in the environment.
- **Nanotechnology**: The impact of materials 1 to 100 nanometers in dimension on human health and the environment.
- **PPCPs**: Trace amounts of personal care products and pharmaceuticals found in the environment.
- **Water scarcity**: Availability of safe and secure water supply.

Nanotechnology is an example of an issue on the verge of being fully emerged. Governments are trying to determine the best way to address the use of compounds that are very common, but now are able to be milled down to nano size (nano size = 1 to 100 nanometers in dimension). Questions have been raised as to whether smaller-sized materials will react differently in the environment or cause a human health issue that is greater than the larger-sized particle.

To address this issue, our emerging issues committee for nanotechnology partnered with other organizations to fund research on the environmental and human health impacts of these smaller particles. A safety guideline was developed to ensure that new concerns are evaluated for any research or handling of nano-sized materials and proper protection of employees is in place. Guidelines on the responsible use of nanotechnology were also developed that require risk assessments, consideration of social and ethical issues, marketing practices, and notification of suppliers. Further, Johnson & Johnson scientists have met with government officials to share their knowledge and presented data at toxicology conferences.
Discussing Emerging Issues Publicly

As mentioned above, an important aspect in preventing outrage on emerging issues is dialog. It is becoming increasingly common to see companies discuss dilemmas publicly. By doing so, it lets stakeholders know where they stand and that they are paying attention to issues with which they are concerned. A good example of this is seen on Baxter’s website.

Being a medical products manufacturer, Baxter had received some adverse publicity about the use of PVC in some of their products. The use of PVC is discussed on the company website through a Materials Use Position Statement. This statement addresses exactly how the company sees the use of PVC in medical products and what they are doing to address the concerns of customers regarding this material.

Baxter Addresses PVC

In their position statement they explain that PVC has a long history of use in a variety of medical products, such as contact lenses, intravenous bags, oxygen tents, and catheters. These products have undergone strict regulatory review by many government and independent health agencies throughout the world, including the U.S. Food and Drug Administration. The safety of these materials has been confirmed by more than forty years of use, with approximately eight billion patient days of acute and chronic exposure without report of significant adverse effects. Environmental questions relating to the incineration of PVC are being addressed with modern pollution control technologies that can reduce, for instance, dioxin emissions up to 99.9 percent.

“While PVC is a widely used material that can consistently meet the rigorous requirements for medical products, it may not be appropriate for all clinical applications. To meet the preferences of some customers and address drug compatibility issues in specific clinical applications, Baxter offers a portfolio of intravenous medications, parenteral nutrition solutions, injectable drugs, biopharmaceuticals, IV sets and access devices, and other products that use or are contained in non-PVC materials or non-DEHP [di-(2-ethylhexyl)phthalate], a common component of PVC materials.” (Baxter 2011)

This is a very good example of publicly stating a position on a topic of concern to stakeholders and demonstrating that consideration of the topic was made and non-PVC alternatives are being pursued.

Conclusion

Environmental regulatory requirements for products are increasing in all regions of the world. Governments are realizing that they can address many
environmental and human health issues by focusing on products. Many have started in Europe and have inspired other governments to write similar regulatory requirements, such as REACH, RoHS, WEEE, and packaging regulations. In addition to making regulatory compliance more complex, these expanding requirements are becoming a significant driver of greener product development.

Having to consider requirements that affect product design of packaging, toxic material use in products, and producer responsibility requirements for product end-of-life management all result in forcing greener product design. Some companies have enacted robust management systems to ensure that product developers and suppliers are aware of and anticipating regulatory requirement in their design.

As these requirements become more important for products that are marketed globally, manufacturers are trying to track and influence the development of issues that can affect product marketability through emerging issues processes. It is evident that the increase in environmental product legislation will make tracking and complying with these new requirements a critical part of bringing greener products to market.

References


Section II

Making Greener Products
Greener Product Design Examples

There are a lot of companies developing greener products and marketing the greener aspects of these products. Businesses boast of significant sales from these eco-innovative goods. To understand the best techniques and processes used to make greener products, we will evaluate the practices of leading companies. In the end, we will determine which elements are the most common for success. I chose the companies in this study based on their notoriety for exemplary greener product programs, and many of them are the firms that I have looked to for benchmarking purposes during my career.

Ecomagination™

Perhaps the most prominent and successful green product initiative is GE’s Ecomagination. An evaluation of GE’s program can tell us a lot about the elements of a successful greener product development program. We also will get a perspective on how a firm with diversified products, from microwaves and dishwashers to medical imaging equipment to windmills and locomotives, addresses sustainable design.

Ecomagination is a well-rounded top-down initiative that has been given significant attention by GE management. You would be hard pressed to have not heard of this program as the company has used television commercials, print advertisements, and digital marketing to communicate their greener product offerings. The company puts out an annual Ecomagination report, and their CEO is very public in speaking about the financial and environmental benefits of this initiative.

Perhaps the greatest strength of this program is that it is represented as a business initiative, not an environmental one. GE describes this program in business terms, profits from the products sold and customer demands met. “Ecomagination is a business initiative to help meet customers’ demand for more energy efficient products and to drive reliable growth for GE.” There is a focus on helping customers and society meet the environmental challenges of the day. However, GE makes it clear that addressing these issues is not an altruistic endeavor; in meeting these challenges, business units must generate “profitable growth for the company.” Positioning this program as a business imperative almost guarantees its success. Executives from...
various GE business units have taken notice and developed and marketed Ecomagination products. (GE 2009)

It’s interesting to see that Ecomagination is positioned as meeting the world’s need for energy efficiency. According to GE, the world’s energy infrastructure must be transformed because it is obsolete and uses environmentally dirty technology. Cleaner, more reliable and efficient solutions are needed to support the energy needs of future generations. That’s where Ecomagination products come in.

Ecomagination was launched in 2005 and has increased in size and scope since its beginnings. GE has made significant funding commitments to demonstrate their commitment: $1.5 billion in clean technology investment in research and development. GE has also committed another $10 billion for R&D over the next five years. Success is measured in dollars. Sales in 2009 were $18 billion, and the goal for 2010 is $20 billion. Not only are there goals for Ecomagination product sales, but they also set higher growth targets for these products at double the rate of the overall company growth. This is a huge testimony to the benefits of generating greener products. Setting growth targets that are double the rate of other products in the portfolio breaks the old paradigm that green products are barely profitable. In fact, Ecomagination products are sold in 100 countries, and GE sees a growing demand across the world. (GE 2009)

To bolster these products’ image as “green,” GE performs a rigorous review to assess which products and services should be part of the Ecomagination portfolio. A corporate team has been established consisting of legal council, environmental health & safety, and marketing representatives. A sustainability consulting firm, GreenOrder, verifies product information and the marketing claims to substantiate the environmental benefits of products. The characteristics considered to designate a product as Ecomagination include energy use, greenhouse gas emissions, water use, and the ability to offer financial benefits to their customers. Neither the 2009 report nor any other materials I have read describe the methodology used to determine when a product meets the Ecomagination standard. However, as we will see later in the description of some of the products, there are obvious environmental benefits. (GE 2009)

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<th>Ecomagination product characteristics considered include</th>
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<td>• Energy use</td>
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<td>• Water use</td>
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<td>• Ability to offer financial benefits to their customers</td>
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To lend further credibility to GE’s greener product approach, an independent advisory board has been set up. The board consists of members
from nongovernmental organizations (NGOs) such as the World Resources Institute, Ceres, and academic institutions (Massachusetts Institute of Technology and University College of London). In the Ecomagination report, opinions about the program are given from the members of the advisory board, which demonstrates their active participation. (GE 2009)

The best way to understand the effectiveness of this program is to evaluate a few examples of the products having achieved the designation. The installation of co-generation Jenbacher engines and steam generation units in a Macedonian industrial park resulted in energy savings and CO₂ reductions through reduced fossil fuel use. The reductions were equivalent to 185,000 metric tons of CO₂ emissions. Because the installation qualified for certified emission reduction credits, the owner will also be able to profit by selling the carbon credits. (GE 2009)

Substantial water savings resulted from the installation of GE’s reverse osmosis system and cooling water treatment process at OMNOVA Solutions’ Green Bay, Wisconsin, facility. The benefits were realized by sending wastewater for cooling tower use instead of being discharged to the sewer. This resulted in eliminating an astounding 3.6 million gallons of water and saving $120,000 per year. (GE 2009)

Renewable energy is a major focus for Europe in establishing a secure, safe, and sustainable energy for the future. A goal of adding 20 percent additional renewable energy capacity by 2020 has been set. GE sold 139 windmills to the largest on-shore wind farm in Central Europe and plans to add 101 more. The electricity generated from these will provide enough energy to power 400,000 homes. (GE 2009)

Homeowners can also benefit from Ecomagination products. The new Geospring hybrid hot water heater is more efficient than other models. Compared to standard 50-gallon electric water heaters, CO₂ emissions and energy use can be reduced by an impressive 62 percent. This is one of several GE products that are termed “smart appliances.” There are other products under the smart appliance banner, such as refrigerators, ovens, and microwaves. More energy-efficient appliances like these will help reduce costs to homeowners and address various goals established by governments to reduce greenhouse gas emissions. The focus on greener products like these will help GE drive profitable growth while addressing the world’s need for energy. (GE 2009)

It seems that the Ecomagination products are touching all aspects of society. Starbucks was looking for more viable, energy-efficient lighting for their stores. In a partnership with GE, highly efficient LED lighting was developed. As of September 2009, over 1,000 stores have installed the LED lighting. Compared to typical store lighting, this saves approximately 8,100 metric tons of CO₂ emissions, the equivalent of 1,600 cars on U.S. highways. Starbucks hopes to expand the use of this highly efficient lighting to over 8,000 stores by the end of 2010—further improving the use of energy-efficient electricity, driving cost savings, and fewer emissions. (GE 2009)
As we can see from reviewing some of the Ecomagination products, there are demonstrable benefits for the products under this banner. Its effectiveness is exemplified through the breadth of the products that have achieved such designation. The financial support and targets set by the company show that it is firmly behind this program—not only to help the world solve its environmental problems, but also to bring profits to the bottom line.

Timberland’s Green Index®

One of the most impressive greener product development programs is that of Timberland®. It is the first company that I am aware of that has taken leadership to put a customer-facing nutrition-like label on their product packaging; they call it the Green Index®.

It is obvious that Timberland is very interested in greening their products when you read through their Green Index report. The company is extremely transparent on how they evaluate their products and goes into great detail to describe their program to develop and evaluate products in its Green Index report. A lot can be learned by evaluating this innovative program.

Timberland describes their program as a socially responsible initiative “to manufacture our products more responsibly.” (Timberland 2010b) The Green Index is an environmental rating system that has two intents:

1. Provide designers and developers with a relative measure of a product’s environmental performance so that they are empowered to make it better from the start.
2. Provide consumers with a relative measure of products’ environmental impacts to spur more sustainable purchasing. (Timberland 2010b)
Green Index Program Objectives

Intent #1:
Provide designers and developers with a relative measure of a product’s environmental performance so that they are empowered to make it better from the start.

Intent #2:
Provide consumers with a relative measure of products’ environmental impacts to spur more sustainable purchasing. (Timberland 2010a)

Using Life Cycle Assessment (LCA), Timberland evaluated their iconic yellow boot. This assessment was used to identify the areas that have the most impact from raw-material extraction, production, and transportation. The results indicated that the largest environmental impacts come from raw material extraction and production; this leads developers to focus on reducing impacts of manufacturing and raw materials. By focusing their improvement efforts on the hot spots from the LCA, improvements can be targeted on the most important lifecycle impacts. When developing the label, they had to make some decisions on what not to measure and report on. For instance, transportation of footwear is not a focus area because it is an insignificant impact, accounting for less than 5 percent of the total climate impact.

There are three metrics for the Green Index®: climate impact, chemicals used, and resource consumption. The climate metric includes the electricity data from manufacturing and raw materials that are converted into greenhouse gas emissions. The chemical metric focuses on the use of solvent-based adhesives and PVC in the shoe materials. The resource metric considers the weight of recycled, renewable, and organic materials used in a shoe. Each category includes a calculation that results in a 0 to 10 score. The score is then averaged for a total score. This score and each category summary score are listed on the label that is put on the product package, similar to a nutrition label. (Timberland 2010b)

The exact method used to make the calculations for the Green Index® is described in detail in Timberland’s annual report. Metrics like these are helpful for companies to drive improved performance and innovation. Timberland’s developers compare scores of new footwear to the existing model to determine if they are making it greener.

A good example is the innovations that have been made to the new Earthkeepers™ 2.0 boot. This boot uses less raw material and more recycled materials, which lowers their resources score by one point from 8.5 to 7.5 from the previous version. Timberland explains the importance of this improvement, when multiplied against 40,000 boots per year: 500 metric
tons of carbon are reduced compared to the preceding version of the boot (Figure 4.1). (Timberland 2010, 2010b)

Timberland has connected the use of their green metrics with a brand that they call Earthkeepers™. Currently, the Green Index rates only about 5 percent of their footwear. Timberland has set a goal to have 100 percent of their product lines rated in 2011. (Timberland 2010a)

The use of standards ensures a consistent approach to identifying product impacts. Timberland uses ISO 14040 lifecycle assessment management systems standards to make environmental product declarations. They also use BSI Standards PAS 2050 as their method for measuring greenhouse gas (GHG) emissions of their products.

To drive further product improvements, Timberland has set specific goals and reports on their annual progress in their sustainability report. Because the use of volatile organic compounds (VOCs) is one of the key pollutants in manufacturing shoes, they measure the number of grams per pair of shoes. In 2008, they had 74.9 grams per pair and set a 2010 goal of 71.2 grams per pair. PVC is an undesirable plastic that is frequently targeted for phase-out by companies as part of their product stewardship programs, and Timberland has set a goal to remove it from their shoes. (Timberland 2010a)

![Figure 4.1: Timberland Green Index](image)

**FIGURE 4.1**
Timberland Green Index.
Key attributes of Timberland’s Product Stewardship Program include

- Use a label, “Green Index,” to communicate product greenness.
- Use ISO 14040 lifecycle assessment management systems.
- Set and report on product stewardship goals.
- Have Earthkeepers line of greener products.

Using a combination of the Green Index with overarching product stewardship goals is a good method for driving product improvements. The Green Index helps product developers focus environmental improvements on the most important lifecycle impacts. The higher-level product stewardship goals help emphasize and quantify corporate improvements to their products.

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**SC Johnson GreenList™**

SC Johnson is a privately held company based in Racine, Wisconsin, and is a global provider of consumer products. With over $8 billion in sales, their product lines include a variety of merchandise used in homes, such as Glade® air fresheners, Ziploc® plastic sandwich bags, household cleaners Pledge® and Windex®, and even the Raid® pesticide brand. Manufacturers of these product groups have been challenged by customers and NGOs to improve their formulas because of ingredients that may have toxic effects on the environment and on the customers who use them. The market has been shifting with the introduction of newer products claiming to be more natural or green.

SC Johnson has been very public about focusing on greening their products. To positively affect product design, they made sustainability a company-wide initiative and not a single department’s responsibility. The main way that products are greened is by continuously improving the raw materials used. The measurement system to drive greener product improvements is a process called GreenList™.

SC Johnson developed GreenList in 2001. This continuous improvement process rates each ingredient from 3 to 0. Ingredients are put into categories of Best (3), Better (2), Acceptable (1), and the least desirable to use, 0-rated materials. Each ingredient is based on four to seven key criteria, such as biodegradability and toxicity. The objective is to increase the score of a product’s ingredients over time. The 0-rated materials are a specific area of focus, only used if there is no other workable alternative (SC Johnson 2010b).

It is very useful to have tools and objectives to enable product developers. SC Johnson scientists are tasked with developing new products that use raw materials rated as Better (2) or Best (3). As with most consumer product
companies, there are times when product formulations are updated; in such a case, the scientist must include ingredients that have ratings equal to or higher than the original formula.

Results of GreenList

The benefit of having a metric-based system to rate your products is that progress can clearly be demonstrated to stakeholders. Using 2000/2001 as a baseline in the reporting year 2007/2008, SC Johnson’s product formulas improved the amount of what they consider the best ingredients (3 and 4 rated ingredients). Looking at all of their product lines from the baseline year, the Better and Best materials increased from 36 percent to 47 percent. The lowest-rated materials were reduced from 10 percent to 2 percent.

GreenList has also been responsible for encouraging product developers to remove chlorine-containing packaging from their products, including PVC plastic and bleached paperboard. Phthalates have been removed from fragrances with a goal of removing all phthalates by the end of 2012 (Table 4.1).

Companies can make strategic decisions to either build green by coming out with a new “green” product line or green up by improving the environmental profile of existing products. SC Johnson has done both. The improvements made by GreenList would be an example of greening up a product, and the introduction of the product line called Nature Source® is a new green line. This new line of cleaning products is made with natural ingredients and was developed for consumers who are looking for wholesome products.

One of the ways to generate more public trust in the environmental and health claims a company makes is to become more transparent about product ingredients. There have been a lot of NGO reports on the hazardous nature of household products, such as the type manufactured by SC Johnson. Taking a bold step, the company has committed to make all of its ingredients available to the public. Not many companies have made this type of commitment, but those that do fail to report on fragrances and preservatives because of the difficulty in getting this information from suppliers. SC Johnson, going the extra mile, has committed to list all ingredients, including fragrances and preservatives, on a dedicated website called whatsinsidescjohnson.com. This is a leadership position for the industry and a trend that I believe will eventually become a requirement.

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<td>15%</td>
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<tr>
<td>Better</td>
<td>14%</td>
<td>32%</td>
</tr>
<tr>
<td>Acceptable</td>
<td>73%</td>
<td>51%</td>
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<tr>
<td>0 Rated (Worst)</td>
<td>10%</td>
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TABLE 4.1
SC Johnson Greenlist Progress
Key attributes of SC Johnson’s program include

- GreenList metric-based ingredient improvement system
- Nature Source green product line
- Committed to making all product ingredients available to the public
- Focus on marketing products to the base of the pyramid: consumers
- Connect product sales to worthy causes to promote human health

**Base of the Pyramid**

SC Johnson has made a concerted effort to source and sell products to the poorest individuals in the world, which they call the base of the pyramid. They are trying to bring products that are affordable and source products that can bring a social benefit to the poorest people in the world.

An example of this is sourcing the pest control product, pyrethrum, from local suppliers in East Africa. Pyrethrum can be manufactured through a synthetic process; however, it can be derived naturally by extraction from chrysanthemums. To enable economic growth and a sustainable sourced raw material, SC Johnson is working with local suppliers in East Africa through a partnership with the U.S. Agency for International Development to improve farming techniques to enable a more consistent supply. Through this effort, farmers in Africa are able to increase their crop yields and make more profit while providing a naturally derived ingredient. New supply chains are being developed to bring their products to those who traditionally could not afford them. This will enable bringing pest control products to markets where it can help reduce insect-borne diseases such as Dengue fever and malaria. (SC Johnson 2010)

**Speaking of Dilemmas**

NGOs have focused on low-level concentrations of potentially problematic ingredients in consumer products. By publicly discussing a point of view and sharing data, trust in your product stewardship program can be built. One of the ingredients of concern that is used in some SC Johnson products are phthalates. The one that has received the most negative focus is diethyl phthalate (DEP). This issue is discussed on SC Johnson’s website, where they state that evidence of many studies indicate that DEP is safe for use, as is the whole class of phthalates.
As anyone who has worked in the area of product stewardship knows, that perception is reality in the eyes of the public. Conceding this fact, SC Johnson explains that the scientific evidence indicates that there is no concern; however, they understand the consumers desire to have products without materials of concern. So suppliers were asked to phase out DEP in all their fragrances. (SC Johnson 2010a)

Speaking about dilemmas such as this builds public trust and lends credibility to discussions with NGOs. Sometimes, difficult decisions must be made based on the customer’s perception, even if company scientists disagree. Only leaders in product stewardship are willing to publicly discuss sensitive issues such as product ingredients.

SC Johnson deploys a metric-based system that makes it easy for developers to focus on product improvements and to report public progress. They have also connected their products to special causes that will benefit the poorest consumers. In addition to greening up the existing line of products, a greener product line was brought to market based on natural ingredients. SC Johnson has taken a leadership position in voluntarily listing all product ingredients on their website.

Clorox Green Works®

Clorox®, best known as the maker of bleach, also markets such products as plastic wrap, household cleaners, water filters, and charcoal for grilling food. In recent years they have become well known for developing eco-innovative products. The most meaningful way to improve a product’s environmental performance is to focus on the greatest lifecycle impacts. When looking at consumer goods manufacturers, the most significant impacts are in the product itself, not on the manufacturing plant. This is especially true when you put over 1 billion products into the marketplace every year.

A fabulous example of developing and marketing a greener product came as a surprise to many. The entry of the Green Works line was revolutionary and a real game-changer for the household cleaning industry. Green Works products are based on a natural ingredients platform. When visiting a supermarket in the United States, you will see a prominent display of these natural green cleaners. According to Clorox, Green Works is the No. 1 natural home care brand.

Perhaps the greatest accomplishment of this product line is not that it has had so much success, but more the way it vaulted greener products into the mainstream marketplace. The old stereotype for green products being ineffective and not of high quality was broken. Having a leading manufacturer of cleaning products introduce a natural product line enabled the public to embrace and feel safe purchasing greener products.
Key attributes of Clorox green products initiatives include

- Development of the natural products line Green Works
- Acquisition of Burt’s Bees® green product line
- Partner with an environmental group and obtain the U.S. EPA’s DfE Certification to bolster green credentials
- Set sustainable product and packaging goals for legacy products

Clorox explains that the reason Green Works products were developed was to meet customers’ demand for naturally derived cleaning products. Their evaluation of the market was right on and apparently their timing was perfect. In my opinion, the success of the Green Works line paved the way for other brands, even those that were not previously sold in the mainstream grocery store, such as Seventh Generation.

Certification and Partnership

To bolster the confidence and trust of customers and stakeholder, Clorox took two significant steps: (1) receiving the U.S. Environmental Protection Agency (EPA) Design for the Environment (DfE) product certification and (2) getting the endorsement from a major environmental NGO, the Sierra Club. By doing this, their new green brand’s “natural” image was reinforced.

The DfE certification requires a stringent evaluation of product ingredients. Products that receive this certification have reached a level that indicates their ingredients have the lowest impacts in their product class. Although not widely recognized by consumers, the use of the DfE logo on a product does go a long way toward defusing criticism by NGO watchdog groups, and makes retailers more comfortable touting the product as greener. Because the U.S. EPA uses a robust process of ingredient reviews and the use of predictive models, their certification quells claims of greenwashing.

The other smart move for Green Works was partnering with the Sierra Club when it was introduced in 2008. This backing is significant because the Sierra Club is one of the best-known environmental groups in the world. Green Works displays the Sierra Club logo, which indicates their endorsement of the brand.

An additional natural line of products that Clorox acquired in 2007 is the iconic Burt’s Bees. Being sold in mainstream supermarkets, it is the leading natural personal care brand in the United States, and it is marketed internationally. Clorox is expanding the Burt’s Bees business model, one that has a strong social responsibility component, where they give 10 percent of all sales to worthy causes.
Clorox 2013 Eco Goals are to

- Generate one-third of growth from environmental sustainability initiatives (versus 2007 baseline).
- Reduce the environmental footprint of operations for each case sold by 10 to 20 percent (versus 2007 baseline).
- Make sustainability improvements to 25 percent of our product portfolio (versus 2009 baseline).
- Achieve an environmental stewardship reputation at consumer packaged goods exemplar levels.

Green Works and Burt’s Bees have been a big success, but what about Clorox’s legacy products? To address their main products, a corporate goal has been set to achieve sustainability improvements for 25 percent of their portfolio by 2013 using 2009 as the baseline year. To achieve this goal, improvements must be made to more than 300 products. Examples of product improvements to traditional product lines include Clorox 2® stain fighter and color booster reduced water used in manufacturing by 54 percent, resin used in bottles by 36 percent, and diesel fuel used for shipping by 160 million gallons per year.

Other examples of greening existing product lines include the development of the Glad® compostable trash bag, made with renewable resources. Even pet owners can purchase a greener product; Fresh Step® cat litter provides a natural product for cat owners.

Having products that are inherently greener is another way to demonstrate a company’s commitment to sustainability and enables customers to reduce their environmental impacts. The Brita® pitcher filter provides clean drinking water. Consumers using this instead of disposable bottles can replace as many as 300 standard 16.9-ounce bottles of water. This is not only good for reducing plastic bottles, but also saves the consumer money. Clorox estimates that a Brita pitcher filters 240 gallons of water per year for about 19 cents per day. This is a substantially lower cost than purchasing a bottle of water.

A big impact area for consumer goods is packaging waste. Many Clorox company brands have moved to more sustainable packaging. Package redesign, material reduction, and increases in recycled content have led to measurable improvements. Clorox has made significant progress in this area with 90 percent of product packages made of 100 percent recycled material. Further, Clorox regular bleach has reduced the plastic in its bottles by more than 5 million pounds annually. Reducing packaging is an important focus area where there is a goal to reduce packaging size in one-third of their product portfolio (from 2005 to 2013). Packages are to be further improved by identifying alternatives to PVC use.
Another leadership position taken by Clorox is being the first in the cleaning industry to commit to voluntary disclosure of product ingredients. Work on this objective began in 2008 when all ingredients were listed on product labels for the Green Works line. Traditional brand household and commercial cleaners had their ingredients listed on the corporate website in 2009.

Clorox has been a trailblazer in bringing greener products to the mainstream consumer with the Green Works line. Not only have greener product lines been brought to market, but legacy product lines are also being greened up by setting corporate goals to improve the environmental profile of products and packages. The credentials of the products are bolstered with third-party certifications, a partnership with a leading NGO, and donation of a portion of sales to good causes.

**Philips®**

Headquartered in Holland with 2010 sales of 25.4 billion Euros, Philips has a robust greener product program. Having three main divisions—Lighting (household and industrial), Consumer Lifestyle (televisions, computers, vacuum cleaners), and Healthcare (CT scanners, ultrasound, and diagnostic equipment)—makes it challenging to have a unified greener products program. However, a great deal can be learned by studying this European-based conglomerate’s approach to greener product design.

Philips’ goal is to offer more sustainable products to their customers through a design process focusing on a 10 percent environmental improvement in one or more of the following Green Focal Areas:

- Energy efficiency
- Toxic materials
- Packaging
- Weight
- Recycling and disposal
- Lifetime reliability

Products that meet the 10 percent improvement are given notoriety via a program called A Simple Switch. This program has a logo associated with it to indicate that the product has met the green goal of 10 percent improvement. These greener products can be seen on Philips’ website. (Philips 2011) A Simple Switch is Philips greener product logo (Figure 4.2).

In addition to the greener products design program, sustainability goals have been set every four years since the 1990s. The current goals commit to developing more sustainable products. EcoVision4, which goes to 2012,
requires 30 percent of revenue to be derived from greener products. In addition, investment in eco-innovation is to be doubled to 1 billion Euros.

The newest sustainably goals, EcoVision5 (Philips 2010), have objectives that are all related to products:

**Eco Vision 5**

- Bringing care to more than 500 million people
  Target: 500 million lives touched by 2015
- Improving energy efficiency of Philips products
  Target: 50 percent improvement by 2015 (for the average total product portfolio) compared to 2009 (Table 4.2)
- Closing the materials loop

Target: Double global collection, recycling amounts, and recycled materials in products by 2015 compared to 2009 (Table 4.2). (Philips 2011)

To make the most significant improvements, Philips has identified key life cycle aspects for each product category. For Health Care, it is reducing energy consumption, weight, and dose; for Consumer Lifestyle, it is to focus on energy efficiency and closing material loops (e.g., increasing materials recycling); and for Lighting, it is energy efficiency. Examples of the product improvements will help us understand how these goals and strategies are deployed.

In the Health Care area, the new Mammodiagnost DR unit has multiple eco-improvements compared to its predecessor product: a 46 percent reduction in energy use, 13 percent less product weight, and 11 percent less packaging weight. In addition, there is a health benefit for the patient with the x-ray dose being reduced by 20 percent.

---

**TABLE 4.2**

Philips Green Product Sales

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.3</td>
<td>6</td>
<td>7.1</td>
</tr>
<tr>
<td>% of Total Sales&lt;sup&gt;a&lt;/sup&gt;</td>
<td>19.8</td>
<td>22.6</td>
<td>30.6</td>
</tr>
</tbody>
</table>

<sup>a</sup> In billions of Euros.
In the Lighting sector, the new Novallure LED candle light lowers energy consumption and operation costs for customers. This new light can save up to 80 percent of the energy of an incandescent light. (Phillips 2010)

**Philips Greener Product Program Highlights**

- Six Green Focal Areas to make products greener: energy efficiency, packaging, toxic materials, weight, recycling and disposal, lifetime reliability
- Sustainability goals focus on developing greener products
- Revenue goal of 30 percent from greener products
- Target of 50 percent improvement in energy efficiency of products
- Brand greener products as “asimpleswitch.com”

Having diverse product lines of health care, consumer electronics, and lighting makes it challenging to motivate greener product design across all business units. Philips has developed design guidance, called Green Focal Areas, that can be applied to all business categories. To drive the development of sustainable products, goals have been set to improve energy efficiency, increase R&D investment, and increase revenue from eco-innovative products.

**Samsung Electronics**

The electronics industry has been an early adopter in developing greener products. The very nature of their products beckons NGOs and ecologically aware consumers to put pressure on manufacturers. The use of electricity and its link to CO₂ emissions, the short life cycle of some of their products, and past poor practices with disposal motivates electronic manufacturers to focus on developing greener products.

Taking a closer look at the approach of a successful global electronics manufacturer headquartered in the Asia Pacific region will yield some unique insights. Samsung Corporation, based in South Korea, is interesting to evaluate because of the diversity of electronic products it brings to the market. Some of the products include televisions, cell phones, wash machines, dryers, computers, printers, and MP3 players.

Samsung’s eco-product development process started in 1995 when they adopted what they call the life cycle assessment (LCA) approach. Environmental assessments have been required for new product development
since 2004 when the “Eco Design Management Process” was established. More recently, a new “Eco Design System (EDS)” and implementation of an Eco Rating System was employed.

Under the Eco Rating System, grades are determined based on twenty distinct items that emphasize a device’s eco-friendly nature. Products are put into three categories based on the following eco grading scheme: Eco-product, Good Eco-product, or Premium Eco-product. A goal has been set for 100 percent of products to achieve a minimum “Good Eco-product” rating by 2013 (Table 4.3).

**Planet First™ Design Process**

Samsung set a goal to develop sustainable innovative products that will reduce their products’ impacts across the entire life cycle. Their vision is “creating new value through eco-innovation,” and their greener product development process is called PlanetFirst™. The biggest lifecycle impact for plug-in products is energy use during operation. Their analysis has identified that both power use and standby power are key product aspects that must be addressed to lower their environmental impacts.

Samsung started measuring these parameters and set goals to develop more energy-efficient electronics and reduce standby power consumption. Achieving this objective will not only benefit the environment, but will also reduce operational costs for customers. A goal was set to improve the energy efficiency of core products by more than 40 percent by 2013 (2008 baseline). If achieved, it is projected to reduce CO₂ emissions from product use by 84 million tons.

An example of work toward this goal is switching technology for televisions from LCD to the lower-impact LED. The LED TV (UN46B7000WF) uses less power during normal operation and in standby mode than a similar LCD product, resulting in 43 percent less overall power and 86 percent less standby power. These improvements result in a decrease in annual carbon emissions of 38.1 kg.

A significant focus area for electronics is minimizing the use of hazardous ingredients, including heavy metals and brominated flame retardants. In 2004, Samsung implemented a supplier program to address this issue; it is called the Eco-Partner Certification Scheme. The object of this initiative is to reduce the use of hazardous parts and raw materials, and assist suppliers in setting up environmental quality systems. If a supplier puts a process in place

<table>
<thead>
<tr>
<th>TABLE 4.3</th>
<th>Samsung Eco-Product Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009 Target</td>
</tr>
<tr>
<td>Good Eco-Product</td>
<td>60</td>
</tr>
<tr>
<td>Premium Eco-Product</td>
<td>5</td>
</tr>
</tbody>
</table>
to manage these substances, Samsung issues a certification of compliance to the standards. Additional steps are taken by inspecting components and raw materials to prevent the use of hazardous materials. (Samsung 2010a)

**Green Management Committee**

Having an effective management system is necessary to ensure that greener products are being developed. Samsung has the highest level of management support involved in their process. The CEO oversees the Green Management Committee. This committee has a subcommittee, called the Eco-Product Council, reporting to them that keeps the focus on bringing greener products to market.

Publicly stated goals are a very visible part of committing to offering eco-innovative products. Samsung’s, called Eco-Management 2013, has two key focus areas: greenhouse gas reduction and development of eco-products. The pathways to developing more sustainable products are increasing energy efficiency and the use of eco-friendly and recycled materials.

The use of Eco-design guidelines helps developers to identify ways to bring more eco-friendly products to market. These guides steer developers to consider such areas as

- Reduce resources to produce products and consumables.
- Design to maximize the recyclability of products after usage.
- Reduce the type of materials.
- Minimize the use of materials that have the potential to give negative influences to human health and environment. (Samsung 2010a)

**Eco-Labels**

Samsung pursues third-party certificates to demonstrate their improvements. In fact, they boast that they have the “highest number of external certifications among electronics companies worldwide.” As of December 2009, they have obtained eight different international certifications. Some of these are U.S. (EPEAT), Germany (Blue Angel), Sweden (TCO), EU (Eco Flower), Scandinavia (Nordic Swan), and Canada (Environmental Choice). An impressive 1,729 models in seven product groups (printer, PC, monitor, TV, DVD player, refrigerator, and washing machines) have received environmental certification. This is a very strong commitment that demonstrates to customers that significant product improvements were made.

Further examples of product improvements are established through recognition by the U.S. magazine *Good Housekeeping* for their front-loading washing machine as the “best washer” for using the least amount of water among tested washers. Another innovation within the washing machine category
was the “Bubble” washing machine, which reduces washing time by half (to 59 minutes) compared to conventional front-loading washers. The environmental benefits resulting from the shorter washing cycle resulted in 22 percent less electricity and 32 percent less water usage compared to other front-loading washers.

### Samsung’s Eco-Product Initiatives

- CEO oversees a Green Management Committee
- Use of LCAs identified two key focus areas, energy efficiency and standby mode
- Goals have been set to increase the amount of “good” and “premium” eco-products
- Eco-labels are pursued with over 1,700 models receiving third-party environmental certifications
- Product developers are given guides to help design more eco-products
- Initiated voluntary take-back programs

Eco-innovative products go further than washing machines. The mobile phone (SPH-M560) uses eco-friendly bio-plastic that is free of PVC, brominated flame retardants, and phthalates, and uses recycled packaging with soy ink. Another model, the Blue Earth mobile phone (GT-S7550), has similar improvements and also has innovative solar-powered recharging and incorporates the use of post-consumer recycled materials into its design. The Kimchi refrigerator (ZRM316NWAQ) results in 5 percent energy savings per year, has a power switch in each compartment, and uses an eco-friendly refrigerant (R-600A). The desktop PC (DM-Z200) resulted in 17 percent energy savings per year; only 1 watt is used for standby power and its slim design results in the use of less raw materials.

### End-of-Life Management

It is important to consider end-of-life issues for any product stewardship program. This is especially true for electronics. Poor disposal practices resulting in environmental and human health problems have been well publicized. Keeping this in mind, Samsung has voluntarily initiated take-back programs for waste electronics. They set up Korea’s first waste electronic product recovery and recycling system in 1995. The program is intended to prevent the illegal disposal of electronics through incineration and landfilling, and to encourage the recovery of valuable materials.

Expanding on this concept, global take-back programs have been put in place in countries where electronics recycling is not mandatory, such as in
the United States. An estimated 250,000 tons of waste electronics were taken out of disposal systems and put into recycling systems as a result of this program in 2009. (Samsung 2010b)

Samsung has emphasized bringing more eco-products to the market. Through the use of lifecycle assessments, efforts have focused on minimizing the most important impact areas: energy use and standby mode. Improvements are further encouraged with new product design checklists and guides. A scoring system called the Eco rating system ranks products’ greenness. The objective is to bring to market more Good and Premium rated eco-products.

Apple® Inc.

One of the most innovative companies in the world is the electronics manufacturer Apple, the creator of the Macintosh computer, the world’s thinnest laptop, the extremely popular iPhone, and their most recent invention—the iPad. Their innovation has been applied to their sustainability program as well.

Apple has been criticized by environmental groups for not being proactive enough on making their products greener. In 2007, Greenpeace ranked Apple last among major electronics manufacturers. They claimed that the use of hazardous materials such as PVC and toxic flame retardants in their products was lagging compared to similar electronic products.

Since this report, there has been a concerted effort to make product improvements. Today, Greenpeace acknowledges that Apple is moving in the right direction. They mention that their campaign highlighted Apple’s shortcomings to their customers, which in turn caused positive changes in their products. Further, they also believe that their public reporting of Apple’s performance forced Steve Jobs, Apple’s CEO, to become a green leader. (Greenpeace 2010)

Regardless of the reasons why Apple has made strides to bring greener products to market, they do present their progress, as you would expect, in an innovative way.

Use of the Lifecycle Assessment

Apple uses lifecycle assessment to measure their environmental footprint. The key indicator used for determining their footprint is greenhouse gas emissions. For 2009, Apple estimates that they produced 9.6 million metric tons of greenhouse gas emissions. Emissions are calculated from manufacturing, transportation, use, and recycling of products. Their analysis determined that a majority of their emissions came from product manufacturing (45 percent) and customer use (46 percent). Therefore, to improve their footprint, they decided to focus on bringing products to market that are more
energy efficient, use less material and packaging, are free of toxic substances, and are composed of recyclable materials.

To address these key areas, a design-for-the-environment concept, dematerialization, was employed very successfully. Looking at their product lines, it’s evident that design engineers have fostered the innovation of thinner, smaller products that deliver the same or more benefits as competitors. The reduction in raw materials used in electronics yields significant environmental improvements. Consider the impact benefits from fewer metals having to be mined and transported to manufacturing sites, lighter products that require less energy and chemicals to process, and that less transportation emissions are generated because more packages can fit on trucks or planes during shipping.

An example of dematerialization combined with enhanced performance is the 21.5-inch iMac. This computer is faster, has more features, and has a larger screen than the first-generation, 15-inch iMac. Amazingly, it uses 50 percent less material and generates 35 percent less carbon emissions.

### Apple’s Eco-Design Focus Areas

- Use less material
- Ship with smaller packaging
- Free of toxic substances
- Be as energy efficient and recyclable as possible

### Removing Toxic Materials

The raw materials needed for electronic products contain toxic materials. Because Apple received a good deal of criticism for not being proactive in removing toxic materials from their products, they decided to be more public about their accomplishments and future goals. Apple set a goal to lead their industry in reducing or eliminating environmentally harmful substances such as: toxic metals, brominated flame retardants (BFRs), phthalates, and polyvinyl chloride (PVC).

A typical cathode ray tube (CRT) contains an amazing amount of lead (approximately 3 pounds, or 1.36 kg). Apple became the first company in the computer industry to eliminate CRTs back in 2006. They point out that the leading PC manufacturers still sell CRTs. (Apple Inc. 2010b) Apple claims that they are far ahead of their competitors in reducing toxic materials. Every product is free of BFRs, elemental bromine and chlorine, and every display has mercury- and arsenic-free glass.

Another objective to improve performance is to minimize product packaging. This effort has a double benefit: less packaging materials and reduced greenhouse gas emissions during product transportation. The newest MacBook
laptop computer is packaged using 53 percent less material than the previous version. This enables 80 percent more MacBook boxes inside a transportation vehicle or vessel, which then results in less greenhouse gas emissions.

**Energy Efficiency**

Based on lifecycle assessment, a majority of greenhouse gas emissions come from the consumers’ use of the product. Therefore, focusing on designing more energy-efficient products is one of the most critical eco-design aspects. The Mac mini is reported to be the world’s most energy-efficient desktop computer. It uses less power than a single 13-Watt CFL light bulb! If you take these savings across the hundreds of millions of computers sold throughout the world, you can imagine the tremendous amount of energy savings that can be achieved.

Having third-party standards to verify claims is helpful in building credibility. Energy efficiency claims have been confirmed by meeting the U.S. EPA’s Energy Star criteria. Not stopping at this, every product goes beyond the Energy Star guidelines for efficiency. Apple states that they are the only company in the industry that can make this statement.

Making products that last longer is a design-for-environment principle. Extending the life of a battery is one way to demonstrate this principle. Most typical notebook batteries can be charged 200 to 300 times before they use their useful life. The MacBook Pro battery can be charged more than three times this amount (up to 1,000 times and up to 5 years). This results in a multitude of environmental improvements, less raw material use, and less waste to recycle or dispose.

**Recycling Initiatives**

No matter how long a product is designed to last, it has an end. Electronic products are of considerable concern because of their metallic components and flame retardants. Many electronic manufacturers have established end-of-life management programs to address this concern. Apple has established recycling initiatives in 95 percent of the countries where their products are sold. Their programs have enabled the recycling of more than 130.2 million pounds of products since 1994.

Apple set a goal to attain a worldwide recycling rate of 50 percent by 2010. They exceeded this target in 2009 and were able to reach a 66.4 percent global rate of product recycling. This rate is much better than leading PC manufacturers, which are reported as reaching less than 20 percent. The bar has now been raised to a 70 percent recycling target.

Part of this initiative is to ensure that recycling partners are acting responsibly; therefore, auditing programs and guidelines are critical. Apple neither permits firms to dispose of electronic waste in solid waste landfills nor by
incineration. Enabling the takeback and recycling of products helps bolster a company’s green image, and it is a strong statement to customers because environmental issues are at the forefront of when a product needs to be disposed of. (Apple Inc. 2010c)

Product Environmental Report

Several companies publish product-specific environmental reports. Apple has posted several on their website. Their latest innovative product is the iPad; a review of how Apple evaluates this product will help in understanding their approach to product greening.

The categories that are cataloged for each product include

- Climate change
- Energy efficiency
- Material efficiency
- Packaging
- Restricted substances
- Recycling

The report details the iPad Wi-Fi + 3G environmental impacts with graphs and tables. The lifecycle greenhouse gas emissions are estimated at 130 kg CO$_2$. The emissions from the greatest to least are reported as 58 percent production, 30 percent customer use, 11 percent transportation, and 1 percent recycling. (Apple 2010a.)

The iPad is reported to use energy-efficient components such as a power adapter that is more efficient than the U.S. EPA Energy Star specifications for power supplies. Power consumption is reported for the sleep, idle, and adapter modes.

Apple strives to use recyclable materials such as aluminum and glass. Materials used are charted and the weights of various components are cataloged: for example, aluminum (12.5 g), plastic (55 g), glass (155 g), battery (155 g), circuit board (45 g), display (155 g), and other materials (40 g). (Apple 2010a.)

Packaging is addressed by the type and weight of material for the retail box and the shipping box, for example, paper (corrugated, molded fiber), polystyrene plastic, and other plastics. Paper consists of a minimum of 33 percent post-consumer recycled content. Apple claims that their packaging is extremely material efficient, and it’s obvious from the photos in their product environmental report that they are designed to the form of the product with little excess. (Apple 2010a.)

To show progress toward the use of restricted substances, the iPad complies with the European Directive on the Restriction of the Use of Certain
Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive). This directive covers lead, mercury, cadmium, hexavalent chromium, and PBB and PBDE brominated flame retardants (BFRs). Going further, it contains a mercury-free LED backlit display, arsenic-free display glass, and is BFR and PVC free. (Apple 2010a.)

Recycling is reported on in a general manner in the product report. Use of less raw materials and inclusion of recyclable materials in the product design are emphasized; the result is less waste at the end of life and maximum recyclability. There are takeback and recycling programs in 95 percent of the regions where products are sold. Reference to the Web page www.apple.com/environment/recycling/facilitates the recycling of the old iPad and enables customers to receive an Apple gift card for the value of the device. Interestingly, they will also help facilitate the recycling of any old electronic device, even those not manufactured by Apple, for a $30 fee. (Apple Inc. 2010a)

In addition to the very detailed environmental report, a status report is maintained to highlight some key features.

**iPad Environmental Status Report**
iPad is designed with the following features to reduce environmental impact:

- Arsenic-free display glass
- Brominated flame retardant-free
- Mercury-free LED backlit display
- PVC-free
- Recyclable aluminum and glass enclosure
- Power adapter outperforms
- Strictest global energy efficiency standards

Apple is a leader in innovative products and has taken an innovative approach to product stewardship. One of Apple’s most significant accomplishments is the light sizing of electronic devices. They have been a leader in making some of the thinnest laptops and smart phones in the industry. This initiative alone has gone a long way to advance greener products. Strides have also been made in reducing toxic materials and designing devices for longevity. Apple has some of the longest-lasting batteries in the electronics industry. Providing end-of-life recycling solutions for customers addresses an important environmental concern for electronic products. The use of environmental reports on individual products is an industry-leading practice that helps catalog the environmental improvements on a product level.
Seventh Generation

Seventh Generation is a company that from its very beginning was based on bringing greener products to market. Sustainability is the very essence of the company. In their mission statement they state an Iroquois Indian law that they must “consider the impact of their decisions on the next seven generations.” You can’t have a more solid foundation for a company to base their greener product program on. So it makes sense to evaluate the approach of Seventh Generation to understand how a company with green at its very roots develops products.

Seventh Generation makes various home use products such as disinfectants, baby products, laundry products, hand wash, household cleaners, household paper and supplies, feminine care products, and dishwashing detergents. Their product developers, while focusing on effectiveness, are to take into account economic, environmental, and health factors. A product scorecard is used to assist in developing greener products.

Scorecard

The scorecard, developed in 2009, was completed with the assistance of the sustainability consulting firm Pure Strategies. This tool identifies improvement areas and assists with evaluating trade-offs. While most companies with greener product scorecards focus primarily on environmental performance, Seventh Generation takes a more holistic approach (Figure 4.3).

There are seven categories that cover environmental and human health concerns and, interestingly, financial performance and product performance. Each category is weighted by factors: the more factors, the greater
the importance. When discussing their scorecard, they do not indicate how they calculate scores, only that there are more factors for certain categories than others.

The most important items to Seventh Generation according to the scorecard are human health (thirteen factors), packaging (six factors), followed by water quality (three factors). All other areas are weighted with only one factor: air quality, resources sustainability, product performance, and financial performance. The weighting of these factors tells a lot about how Seventh Generation thinks about sustainability and what’s most important to them. Human health and environmental performance are weighted way above product performance and financial performance (Figure 4.3). This is, no doubt, a different way of looking at products than what most companies do.

**Dish Detergent Scorecard**

Seventh Generation gives an example of their scorecard in their sustainability report. The overall score improved from the previous version of this product from 6.5 to 7.8. They are very tough on themselves; although a significant improvement in recycled content was made in their packaging from 25 percent to 90 percent, the packaging score only increased by 0.6 points. The score would be higher if the packaging could be reused, had a lower product-to-packaging ratio, or was biodegradable. Having these tough standards will no doubt bring about significant eco-innovation.

**Packaging**

One of the most visible aspects of a consumer product company’s sustainability is packaging. Realizing this, Seventh Generation has made a consolidated effort to place greener packaging on store shelves. Significant progress was made regarding the eco-friendliness of the type of material used and incorporation of recycled content.

An analysis of the type of packaging used resulted in a switch from polyethylene terephthalate (PET) to a high-density polyethylene (HDPE) because the latter requires less energy to make. In addition to this, a move to incorporate more post-consumer recycled (PCR) content into each package was made. Also, because HDPE is used in the common milk jug, Seventh Generation is using these discarded containers to manufacture their dishwashing liquid bottles.

Setting high expectations for your organization is a necessary step in developing greener products. This includes setting stretch goals such as striving for 90 percent PCR content in bottles before anyone else in your category. Leading isn’t easy; “failed attempts” due to PCR being more rigid created problems, however, working with suppliers, progress was made and now the hand dishwashing liquid, fabric softener, and bleach containers use 90 percent PCR content (Figure 4.4).
Post-Consumer Content Packaging

The use of recycled content has not been limited to plastic bottles. All paper packaging for shipping cartons and product boxes contain 100 percent PCR content except for baby diaper packaging and a paper towel box. These boxes are intended to be 100 percent PCR content in 2011.

Materials

Having a natural products line requires a greater focus on the ingredients that go into a product. Therefore, relentless effort to improve your formulas is critical to maintaining your customers’ trust. An example of the continual greening of products is the 27 percent increase in renewable materials in dishwashing liquids accomplished in 2009. Seventh Generation also removed an undesirable ingredient that was part of the surfactant (1,4-dioxane), a possible human carcinogen.

Future directions for greening products are guided by Seventh Generation’s new sustainability goals: products will be composed of 100 percent renewable materials by 2015, and virgin plastic use will be reduced by 80 percent by 2014.

Another ingredient activity that demonstrates attention to detail is the commitment to sustainably sourcing materials containing or derived from palm oil. Palm oil has become a significant issue because it is sourced in

FIGURE 4.4
Seventh Generation cardboard packaging progress.
regions where portions of rainforests have been cut down to establish palm groves. To address this issue; a goal to sustainably sourcing 100 percent of palm oil by 2012 was established.

Unique ingredients have been used to offer customers products with more natural materials. New disinfectant cleaners were developed using thymol, a component of thyme oil derived from the garden herb thyme. Seventh Generation claims that these cleaners kill 99.99 percent of germs. A review of the ingredient list from their Disinfecting Multi-Surface Cleaner demonstrates a commitment to natural ingredients. It reads more like a label on a salad dressing bottle than cleaner.

**Disinfecting Multi-Surface Cleaner Ingredient List**

Thymol (component of thyme oil), sodium lauryl sulfate (palm kernel- or coconut-derived cleaning agent), copper sulfate pentahydrate (bluestone) (mineral-derived water mineralizer), citric acid and sodium citrate (cornstarch-derived water softeners), essential oils and botanical extracts [origanum vulgare (oregano) oil, cedrus atlantica (blue atlas cedar) bark oil, citrus medica limonum (lemon) peel oil, cymbopogon schoenanthus (lemongrass) oil, citrus medica limonum (lemon) fruit extract, mentha citrata (orange bergamot mint) leaf extract], aqua (water).

Transparency is another key aspect of Seventh Generation’s commitment to greening product ingredients. They commit to disclose all ingredients in their products. A visit to their website will enable the viewer to see a list of everything that is in a Seventh Generation product. (Seventh Generation 2010)

**Key Aspects to Seventh Generation’s Program**

- The company is based on green products: consider the impact of their decisions on the next seven generations
- Big emphasis on natural ingredients and incorporation of PCR in packaging
- Use a product scorecard to drive innovative improvements and continuously green their products
- Commitment to transparency of all product ingredients

Seventh Generation is a company whose very essence is based on bringing greener products to market. It is obvious that they are fully committed to this concept when reading their sustainability report. The use of a scorecard indicates that the most important aspects to them are human health,
packaging, and water quality. There is a big emphasis on natural ingredients and the use of PCR in their packaging. Focusing on sourcing ingredients in a sustainable manner, and a commitment to making all ingredients available for each product sold, rounds out the key elements to their product greening strategies.

**Method**

You need not go any further than the company tag line “people against dirty” to understand Method’s commitment to sustainable products. Method’s definition of “dirty” goes to the very core of what the company is about. “Whether it’s fighting grime on the kitchen floor, taking out the toxins in the shower, or pummeling the bad stuff floating in the world, we are people against dirty.” (Method 2010c)

The company was formed in 2001 with the goal of providing natural cleaning products. Looking at their website and a photo of their very youthful-looking founders, you know you’re dealing with a cutting-edge, innovative company. Method makes baby products (shampoos and lotions), hand cleaners, body wash, laundry detergent, and household cleaners. Their goal is to make “products that work, for you and for the planet.” They have five key design elements (Method 2010c):

1. **Clean**: effective formulas that work
2. **Safe**: people and pet friendly
3. **Green**: safe and sustainable materials that are manufactured responsibly
4. **Design**: attractive product designs
5. **Fragrance**: use of flowers, fruit, and herbs for product scents

Of all the companies evaluated in this book, Method has the most comprehensive approach to greener product design. According to company statements, they believe that business can be an agent for positive social and environmental change. In fact, it is their desire that every product “is a little agent of environmental change.”

A comprehensive list of criteria is used when designing products for “true sustainability.” The method rightly states that focus cannot be on just one element such as carbon footprint or safety; rather, new products require a holistic evaluation. Product design factors considered are listed in three categories.

**Product Design Factors**

- **Healthy** (Non-Toxic, No Skin Irritation, No Eye Irritation, Non-Allergenic, Non-Mutagenic, Non-Carcinogenic, Developmental Toxicity.)
– Green (Natural, Locally Sourced Renewable Energy, Biodegradable, Bioaccumulation, Aquatic Toxicity, Preserves Habitat, Recycled Content, Material Reduction.)
– Responsible Practices (Employee Ownership, Labor Practices, Community Service, Sourcing, Diversity, Giving, Training and Education.) (Method 2010a)

Method explains that only focusing on one aspect to green a product may result in less than optimum results. For example, natural should not be the only dimension that is focused on for a product. Natural ingredients are important, but some natural ingredients can be toxic. Method uses natural as the place to begin and also evaluates all other aspects of a product to ensure they are making the most sustainable decisions possible.

Sustainable product assessments must also include consideration of the product packaging. An important consideration of sustainable packaging is the recyclability of the materials being used, or as Method states, using “bottles that used to be bottles and will be bottles again.” They assert they were the first to bring to market a 100 percent PCR content PET bottle. The use of PCR content is paramount to designing sustainable packaging according to Method; they state that all they use is 100 percent recycled plastic to make their bottles. They also strive to reduce the mass of the plastic in each bottle, as evidenced by the marketing of pouches for some products. (Method 2010b)

**Cradle-to-Cradle Design (C2C)**

Method has embraced the Cradle-to-Cradle (C2C) Design theory. This theory was developed by McDonough Braungart Design Chemistry (MBDC), a sustainability consulting firm. This firm also issues certifications for products that follow their Cradle-to-Cradle® Framework. The certification is issued on a product-by-product basis and covers an evaluation of human health, environmental health, and recyclability. (MBDC 2010c)

C2C Design encourages following natural cycles, or as MBDC says, “nature’s biological metabolism.” The main idea behind C2C is to design products and materials with life cycles that are safe for human health and the environment, and that can be reused in a closed-loop fashion. (MBDC 2010c)

**The Cradle-to-Cradle Framework embraces these theories:**

Eliminate the concept of waste and waste equals food.

The C2C design framework has been included in all the products that Method designs. In 2010, they had more than forty products that were Cradle-
to-Cradle certified, one of the most of any company. Products such as hand wash, dish detergent, laundry detergent, and body wash are certified. It is Method’s goal to have their entire product line achieve certification by 2015.

The C2C Criteria are very comprehensive. There are five categories in which a product is evaluated. In each area there are criteria set that lead to achievement of silver, gold, and platinum levels.

C2C categories of criteria for certification include

1. Material Health
2. Material Reutilization
3. Renewable Energy Use
4. Water Stewardship
5. Social Responsibility

As an example of how products are evaluated, the Material Reutilization category “rewards products that contain recycled or renewable materials.” Manufacturers are expected to develop and implement a strategy to close the loop on the product at the end of its useful life at the highest levels of certification. (MBDC 2010b)

**Design for the Environment (DfE)**

In addition to the Cradle-to-Cradle certification, Method has also embraced the U.S. EPA’s Design for the Environment (DfE) certification. In addition to getting a government agency to certify your product, DfE validates that the ingredients that Method uses in their products are safe for human health and the environment.

The EPA has recognized over fifty Method products since 2006. Further recognition has been given for participation in a DfE program called the Safer Detergents Stewardship Initiative (SDSI). This recognition is given to companies that are dedicated to using surfactants that break down safely in the environment. Method was given the highest recognition in the program as an SDSI “champion.”

**Formulation Approach**

The following five steps are used when developing products:

1. *The Precautionary Principle:* If there’s a chance an ingredient isn’t safe, we don’t use it.
2. *The Dirty Ingredient List:* Ingredients that many others use, but we don’t.
4. **Comprehensive, Third-Party Assessment:** Ingredient reviews are completed by independent researchers using scientifically peer-reviewed materials.

5. **Validation:** Cradle-to-Cradle, DfE, and other certification.

Having a robust process is critical in bringing greener products to market. This includes having principles and procedures that product developers can use. As indicated above, Method uses a host of ways to bring greener products to market; giving advice about which materials to steer away from is an important element. A list of undesirable or “dirty” ingredients is maintained that formulators must avoid. The list includes materials such as parabens, phosphates, chlorine bleach, phthalates, triclosan, bisphenol-A, ethylene glycol ethers, formaldehyde, and ammonia.

Ingredients are also reviewed by the Environmental Protection and Encouragement Agency, a scientific institute associated with C2C and MBDC. To ensure that all products meet the strictest procedures, every product must be approved by the environmental chemist, and the co-developer of the Cradle-to-Cradle Framework (Michael Braungart). After this, the final step is to pursue third-party certification such as DfE and C2C. (Method 2010a)

To further bolster trust in their brand, each product page on their website lists every ingredient used. Other companies have committed to this form of transparency; however, Method goes further and makes available an evaluation of each ingredient by a third party. Product labels have a list of the ingredient names and a link to where you can get more information online.

### Key Aspects to Method’s Program

- The company mission is founded on greener products: “People against dirty”
- Holistic greener product design process and guides
- Commitment to Cradle-to-Cradle & DfE certifications
- Third-party assessment of all products and ingredients
- All product ingredients are made publicly available
- Emphasis on the use of PCR in packages – only 100 percent PCR content is used

Method has been a deep green company from its very beginning. All their products are based on green design. They consider an extreme amount of details when developing products—from the efficacy and toxicity of raw materials, to avoiding the most problematic (or dirty) chemicals, to the amount of PCR content in packages. All products undergo a third-party review to ensure that they meet the company’s goals for greenness. Method has committed to getting all products certified by Cradle-to-Cradle. All of
their product ingredients are available on the company website. The company believes that they can make a difference with their products and our committed to bringing healthier and environmentally safe products to market.

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Proctor & Gamble

Proctor & Gamble (P&G) is a company with over 170 years in business and is the world’s largest consumer packaged goods company. They have iconic brands that are sold globally. Some of their key brands are Tide® laundry detergent, Luvs® disposable diapers, Gillette® razors, Olay® beauty products, and Duracell® batteries. Being a huge multinational company with over $79 billion in sales (2009), it is interesting to see how they have made their sustainability programs and initiatives very public and an obvious enhancement to the company’s equity. A big part of their sustainability initiative involves their product greening efforts.

P&G received significant publicity when they announced their long-term 2020 sustainability vision. They established three very big objectives:

1. 100 percent renewable energy will power our plants.
2. 100 percent renewable or recycled materials will be used for all products and packaging.
3. Zero consumer and manufacturing waste will go to landfills.

Of these three long-term goals, two of them focus on their products, which demonstrates that they understand that their biggest environmental and social impacts come from manufactured goods. Similarly, their short-term sustainability strategy also has a significant focus on products.

- **Strategy 1: Products:**
  - Goal: Develop and market at least $50 billion in cumulative sales of “sustainable innovation products,” which are products that have an improved environmental profile.

- **Strategy 2: Operations:**
  - Goal: Deliver an additional 20 percent reduction (per unit production) in CO₂ emissions, energy consumption, water consumption, and disposed waste from P&G plants, leading to a total reduction over the decade of at least 50 percent.

- **Strategy 3: Social Responsibility:**
  - Goal: Enable 300 million children to Live, Learn, and Thrive. Prevent 160 million days of disease and save 20,000 lives by
Greener Product Design Examples

delivering 4 billion liters of clean water in our P&G Children’s Safe Drinking Water program.

Significant progress has been made against these short-term goals. There have been $26.5 billion sustainable innovative products sold toward the $50 billion goal. Sustainable innovation products are defined as products that have a greater than 10 percent reduction in one or more of the following indicators: energy, water, transportation, amount of material used in packaging or products, substitution of nonrenewable energy or materials with renewable sources without negatively impacting the overall sustainability profile of the product. (Proctor & Gamble 2010a)

Product Innovation

To reduce product environmental impact and spur product innovation, P&G uses a Life Cycle Assessment approach. Looking at a product’s full life from raw materials, manufacturing, and product use helps identify the most important areas to focus on to make the greatest reduction in environmental impact.

Perhaps one of the best demonstrations of the application of LCA is that for laundry detergent. Prior to consideration of lifecycle impacts, companies focused primarily on reducing the footprint at the manufacturing facility. Environmental initiatives, focused on reducing energy, water use, and waste generation, all seemed like the right thing to do. However, after evaluating the full life cycle of a laundry detergent, it was determined that the heating of water during product use accounted for 70 percent of the lifecycle impacts. This enabled product developers to focus their efforts on the most important area and generated a significant sustainability innovation: detergent that works in cold water. Ariel® was introduced in Europe and Tide® in North America; these are detergents that operate in cold water, avoiding the need for heating during use by the consumer. This is not only good for the environment, but it also saves customers money.

Taking innovation even further, Ariel Excel Gel was invented. This product uses 20 percent to 50 percent less energy during use. By not using thickeners, solvents, or stabilizers, it forms a gel naturally and need much less material per washing load. The added benefits of this much more concentrated formula means 14 percent to 45 percent less packaging and 40 percent fewer trucks.

Another example of the LCA approach is the evaluation of Pampers® disposable diapers. The review indicated that the sourcing and production of raw materials is the biggest impact area. Development of a new technology that uses less raw material resulted in a 20 percent thinner diaper. The use of fewer materials addresses the biggest lifecycle impact. This new diaper performs better than previous versions, generates 12 percent less waste, uses 8 percent less energy, and uses 10 percent less raw materials.
Other sustainable innovations implemented by P&G include

- Duracell batteries: material reduction
- Cascade dish detergent ActionPacs: packaging reduction
- Crest Pro-Health Rinse: packaging reduction
- Oral-B Professional Care (power toothbrush): packaging reduction
- Scope Outlast: dose compaction, packaging reduction
- Packaging elimination of PVC throughout the company: less than 1.5 percent of total plastic packaging is PVC (Proctor & Gamble 2010b.)

Future Friendly

Another product-related program is a recent initiative called Future Friendly. This initiative uses brands to educate consumers how to save water, waste, and energy in their homes. Showing homeowners the cost savings and energy savings that can be achieved by using cold-water laundry detergent is one of the education efforts. Helpful statistics such as knowing that 80 percent of the energy used in a typical load of laundry comes from heating water helps make the case for saving energy. The Future Friendly program has helped over 50 million households reduce their environmental impact. The program is given more prominence through a partnership with National Geographic. Educational materials are developed by National Geographic, which provides tools and advice to explain to consumers how to save costs and resources at home. (Proctor & Gamble 2010b.)

Procter & Gamble’s Greener Products Program

- Long-Term and Short-Term Greener Product Goals:
  - 100 percent renewable or recycled materials will be used for all products and packaging; $50 billion in cumulative sales of sustainable innovation products.
  - Use Life Cycle Assessments to work on the most important product impacts.
  - Future Friendly program helps customers reduce their environmental impacts.

P&G is the largest packaged good consumer product company in the world. Marketing products that are prominent in most households gives P&G the impetus to initiate a greener product focus. Some very bold goals have been set that demonstrate significant commitment to reducing the impacts of their products. The use of Lifecycle Assessments guides product developers to the most important areas on which to focus product improvements; this has led to
important innovations. Having a target of billions of dollars of sustainable products sets a high standard for consumer product manufacturers to follow and indicates that there is a strong pull for greener products in the marketplace.

**Unilever**

Another large consumer product manufacturing company that has made significant sustainability commitments is Unilever. Headquartered in London, Unilever states that on any given day, two billion people use their products. With sales of 44.3 billion Euros (2009), Unilever manufactures numerous food products, and home cleaning and personal care products. They have more than 400 brands, many of which are household names such as Lipton®, Knorr®, Slimfast®, Hellmann’s®, Wishbone®, Country Crock®, Suave®, Ben & Jerry’s®, and Bertolli®. (Unilever 2010a)

When you purchase 12 percent of the world’s black tea and 3 percent of the world’s palm oil to manufacture your products, you have a big opportunity to impact global production processes. Making a bold commitment to a long-term sustainability initiative, the Unilever Sustainable Living Plan was announced in November 2010.

**Sustainable Living Plan**

The Sustainable Living Plan has three bold 2020 targets:

1. Halve the environmental footprint of the making and use of products;
2. Help more than a billion people take action to improve their health and well-being;
3. Source 100 percent of our agricultural raw materials sustainably.

The plan embraces all aspects of sustainability and ties them into sourcing and selling their products. The idea is to increase sales in a sustainable manner—to enable billions of people to increase their quality of life, without increasing their environmental impact.

**Our Vision**

We work to create a better future every day.
We help people feel good, look good, and get more out of life with brands and services that are good for them and good for others.
We will inspire people to take small, everyday actions that can add up to a big difference for the world.
We will develop new ways of doing business with the aim of doubling the size of our company while reducing our environmental impact. (Unilever 2010a)

The company vision embraces sustainability. To fully understand how this initiative impacts product design, we will evaluate some of the accomplishments and directions Unilever has taken.

**Greenhouse Gas Emissions**

Significant progress has been made by reducing greenhouse gas (GHG) emissions at manufacturing sites (greater than 50 percent reduction over the past 15 years). However, when looking at the lifecycle impacts of products that require water use, it is clear that water has the greatest impact on emissions. It is estimated that 95 percent of the GHG emissions associated with shampoos and soaps occur when they are used in the shower with hot water. So, Unilever has decided that the best way to reduce GHG emissions is to encourage customers to change their shower habits. They estimate that if they can lead 20 million people to cut a minute from their shower time, it would save emissions of “1 million metric tons of CO\textsubscript{2} a year—equivalent to taking 110,000 cars off the road.” A new initiative called “Turn off the Tap” encourages customers to turn off the shower while they lather. With this campaign and others, they plan to encourage people to save 30 seconds to a minute of shower time. Their goal is to get 400 million customers to embrace this initiative by 2020.

Another initiative is associated with laundry detergents. It is amazing to consider that products sold for home laundry are used up to 125 billion times a year throughout the world. Considering this large opportunity, even small changes can make a big difference. An example of a product that addresses this issue is Persil Small and Mighty\textsuperscript{®}. This product is a super-concentrate (one third the volume of equivalent detergents), and it has lower GHG emissions per wash compared to powder detergents.

**Water Use**

Water scarcity is becoming a larger issue in many parts of the world. The United Nations estimates that 1.2 billion people live in water-scarce areas. When looking at water through a lifecycle lens, it becomes clear that products based on agriculture, such as tea, identify the farming process as the largest impact area. Unilever estimates that around half the water consumed by their products during their life cycle is in agriculture. So to address this issue, they decided to focus on their suppliers’ use of water. (Unilever, 2010b.)
Programs to assist suppliers with implementing processes that reduce irrigation need include drip irrigation. This method has been used in countries such as India to reduce irrigation water use by as much as 70 percent. Other methods include storing water in reservoirs during rainy seasons and the use of low-pressure irrigation.

**Sustainable Sourcing**

As we have seen with Unilever’s water goal, working with suppliers can make a much larger impact than can a focus on a company’s own manufacturing operations. Many of Unilever’s products depend on agriculturally derived raw materials. Some developing countries have depleted important biological areas such as tropical rainforests to provide agricultural products. NGOs have urged focusing on sustainable production methods to combat this problem.

Unilever has set aggressive goals to ensure that sensitive habitats are protected through a focus on sustainable sourcing. Currently, 10 percent of agricultural raw materials are sustainably sourced, and objectives are set to source 50 percent by 2015 and 100 percent by 2020.

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We get a better feel for what is meant by sustainable sourcing from evaluating a few examples of what Unilever has done. As mentioned in some of the other case studies, palm oil has received significant press as an agricultural product that is associated with destroying sensitive habitats. To address this issue, Unilever helped form the Roundtable on Sustainable Palm Oil (RSPO), an initiative working with the World Wildlife Fund (WWF) to develop global standards for producers, processors, consumer goods manufacturers, and retailers.

Some sustainable sourcing accomplishments and plans include:

- 2009: purchased 185,000 tons of certified sustainable palm oil in the form of Green Palm Certificates (35 percent of total purchases)
- 2010: plan to purchase more than 500,000 tons of certified oil
- 2011: plan to purchase more than 800,000 tons of certified oil
- 2015: 100 percent of palm oil being certified as sustainable

There has been a growing demand for soy-based products. Soybeans are being used for drinks, oils, salad dressings, and margarines. Soy farming has been associated with significant deforestation in South America. Goals
have been set to sustainably source 100 percent of soybeans by 2014, and all soy oils by 2020. Similar to palm oil, Unilever demonstrated leadership in sustainable sourcing by being a founding member of the Round Table on Responsible Soy (RTRS). The RTRS is a coalition of businesses, suppliers, and NGOs that are developing methods in which soy should be grown sustainably.

Being the largest seller of tea in the world requires an even greater focus on working with suppliers to ensure that ethical sourcing practices are followed. Tea is sourced from developing nations in Africa where poor agricultural practices can have a significant effect on biodiversity, water quality, and soil quality. All Lipton tea bags are to be sourced from Rainforest Alliance Certified™ suppliers by 2015, and the remaining tea use will be sustainably sourced by 2020. Considering the amount of tea sourced by Unilever, this will have a significant impact and may be the impetus for a global norm.

Sourcing goals have also been set for various other raw materials, including fruit, vegetables, cocoa, sugar, oils, dairy, and eggs. Some of the objectives include fair trade sourcing, which means the standards from the Fair-trade Labeling Organizations International (FLO) are followed. This standard aims to ensure that farmers and producers are treated fairly, “guaranteed a minimum price and paid a premium for investment in development projects.” (Unilever 2010)

Packaging Initiatives

Paper packaging includes 42 percent of Unilever’s total packaging. A goal has been set for all paper and paperboard packaging to be sustainably sourced by 2020. The certification preferred is the Forest Stewardship Council (FSC) mark. In making progress toward this objective, the Ben & Jerry’s ice cream brand has converted all pint-size packaging to FSC-certified paper.

Unilever’s Greener Product Program

- Company vision includes sustainability
- Developed very aggressive long-term goals through their Sustainable Living Plan
- Uses Lifecycle Assessments to identify the most meaningful focus areas for product improvements
- Significant commitment to sustainable sourcing—short-term and long-term targets
- Commitment to educating consumers to reduce their environmental impacts
- Partner with suppliers to drive sustainable innovations
Unilever has a large impact on the world’s resources, purchasing significant amounts of raw materials and selling billions of consumer products. Having a company vision that embraces sustainability enables the development of greener products. The use of lifecycle thinking facilitates the focus on reducing the environmental impacts of a product where it makes the most sense; in many cases, this is during consumer use or from raw material production. Unilever has developed education programs to help consumers reduce their environmental impacts. Being reliant on agricultural commodities, a very comprehensive sustainable sourcing program was initiated to partner with suppliers to reduce impacts at the very beginning of their products’ life cycle.

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**DuPont®**

Why would a company that specializes in selling chemicals and materials used for formulation by others be concerned with greener products? When DuPont surveyed their customers to determine if they were interested in receiving more sustainable products, they found that more than 89 percent stated they want products with better environmental performance. In addition, their customers confirmed that they see the desire for more sustainable products growing in the years to come. DuPont’s eco-innovative products enable their customers to bring greener products to market, reduce their factories’ environmental impacts, and yield cost savings.

With sales of over $31.5 billion (2010) and product offerings in chemicals, coatings, agriculture, nutrition, electronics, and communications, there are plenty of opportunities to bring sustainable innovations to the marketplace. To focus the development of new products on sustainability, DuPont identified ten key areas. The goal is for new products to provide better performance in one of these areas while not reducing performance in the other areas. The ten key focus areas are

1. Climate change
2. Energy use
3. Pollution
4. Material use
5. Waste
6. Disposal
7. Ecosystems and biodiversity
8. Water
9. Toxicological risk
10. Use of nondepletable resources
**DuPont Sustainable Product Goals**

- **Goal:** Double investment to $640 million in R&D programs with direct, quantifiable environmental benefits for customers and consumers along the value chain.
  - **Progress:** $660 million invested.
- **Goal:** Introduce at least 1,000 new products or services that help make people safer.
  - **Progress:** 675 new products introduced.
- **Goal:** Increase annual revenue at least $2 billion from products that create energy efficiency and/or significantly reduce greenhouse gas emissions.
  - **Progress:** $731 million in revenues.
- **Goal:** Nearly double revenues from nondepletable resources to at least $8 billion.
  - **Progress:** $7.4 billion in revenues. (DuPont 2010a.)

To foster the development of greener products, an R&D spending goal has been developed: doubling investment for sustainable innovation products ($640 million). This goal is illustrated by the DuPont Waterborne Products line, which includes liquid and powder automotive and industrial coatings. The Cromax® finish is based on water and is faster and easier to apply than other finishes. Because it is water based, it has less environmental impact.

Another key focus area is to introduce at least 1,000 new products or services that help make people safer. One of the products that helps attain this goal is the use of Kevlar® in tires developed by Goodyear. The Wrangler® and the Fortera® tires both use Kevlar in the sidewall. This robust material prevents punctures and cuts, which in turn protects drivers from the harm of a punctured tire.

Selling products that come from renewable sources is another objective of DuPont’s greener product program. A program called Pioneer Industry Select® develops products that meet customer demands with renewable resources. Corn that is capable of producing more ethanol per bushel and products that increase crop yields are indicative of this initiative.

A revenue goal for developing greener products that bring more energy efficiency and less greenhouse gases was established. This addresses customer requirements that will not likely diminish in the future. A target of $2 billion in sales from these lower-impact products was set. One example of a product that generates these benefits is the use of nanomaterials in polymers to form lightweight composite plastic parts. The company believes that these new materials will be used in automobiles where lighter-weight materials are desirable to make vehicles more fuel efficient. (DuPont 2010c)
Product Stewardship Initiatives

Much has been made of the shortcomings of toxicity data available for chemicals in commerce. Reports of inadequate hazard and health data prompted DuPont to join the Global Product Stewardship initiative in 2006. The purpose of this group is to promote responsible practices throughout the supply chain of the chemical industry. DuPont, along with the other members, committed to further evaluate the risk of their chemicals and report on their progress in 2012.

Activities to support this initiative include performing Product Stewardship Assessments and developing additional information on the safety of their chemicals, which includes

- Business relevance
- Hazard characteristics
- Exposure potential
- Detection in human blood, tissue, or urine
- Potential impacts on selected populations and/or endpoints
- Stakeholder feedback

Another initiative that will result in bringing more sustainable products to market is the Product Stewardship Management System (PSMS). This is a systematic process that is part of the voluntary chemical industry code (American Chemistry Council), Responsible Care®. The PSMS requires completion of product stewardship reviews, worldwide training, and assurance of Product Stewardship Assessment of all new products prior to commercialization. To verify adequacy of the program, analysis by company leadership must occur on an annual basis and third-party audits of the program are required. (DuPont 2010b)

DuPont has deployed product stewardship strategies to assist their customers in bringing greener products to market. Setting aggressive goals on the amount of R&D dollars that will be invested in developing more sustainable materials and bringing products to market with increased safety considerations are part of their greener product development initiative. In addition, sales targets for products derived from renewable resources have been set. To address criticism about the lack of hazard and health data of chemicals, voluntary programs have been joined, some of which require third-party audits to verify progress.

DuPont Product Stewardship Program

- Set goals to bring sustainable products to market: R&D spending, revenue from sustainable products.
Greener Products: The Making and Marketing of Sustainable Brands

• All new products must be improved in at least one sustainability area.
• Commitment to voluntary product stewardship initiatives to ensure that proper hazard and safety data is developed.

BASF

BASF is a large chemical company based in Germany, with sales of 63.9 billion Euros (2010), about 105,000 employees, and 385 production sites worldwide. The main products sold are chemicals, plastics, coatings, catalysts, crop protections, and oil and gas. A tag line that has been used by the company—“We don’t make a lot of the products you buy; we make a lot of the products you buy better®”—is a good basis for the necessity for providing greener products. Helping their customers bring more sustainable products to market is the basis for their greener product program. (BASF 2009b)

As a chemical company, it’s critical to focus on the safety and environmental impacts of your products. Being a member of the International Council of Chemical Associations (ICCA), BASF follows the ICCA Global Product Strategy (GPS). The GPS is a voluntary standard to ensure that chemical manufacturers are following adequate product stewardship practices. The GPS requires very broad product stewardship initiatives:

• Establish a base set of hazard and exposure information adequate to conduct safety assessments for chemicals in commerce.
• Perform a risk assessment for all chemicals produced or sold worldwide.
• Provide global capacity building to implement best assessment practices and management procedures, especially with small- and medium-sized companies and in developing countries. (BASF 2011)

Commitment to a voluntary standard such as GPS helps to demonstrate to customers and stakeholders the importance of product stewardship to BASF. To support their public commitment to these ideals, BASF set a goal to perform risk assessments of chemicals produced at greater than 1 metric ton per year by 2015.

Being transparent about their progress, BASF committed to making their risk assessments available to the public and to generate annual reports on their progress on meeting this goal. The reports will include hazardous properties of substances, safe handling methods, and the type and extent of
potential exposure to humans and the environment. The risk assessments will be in conformance with the European REACH requirements.

**Eco-Efficiency Analysis**

BASF has been a pioneer in the concept of eco-efficiency. Eco-efficiency is an evaluation of the entire life cycle of a product or process “from cradle to grave, that is, all the way from raw materials sourcing, to product manufacture and use, to disposal.” It also considers the consumption methods of the product and its end-of-life recycling or disposal activities. (BASF 2010c)

BASF started their work on this process in 1996. They verified the validity of their approach through two independent, third-party organizations, TÜV (German technical inspection and certification organization) and the NSF (National Sanitation Foundation). The purpose of eco-efficiency is to contrast different materials’ environmental impacts across their life cycle.

The first step in their process is to evaluate environmental impacts in six areas:

1. Raw materials consumption
2. Energy consumption
3. Land use
4. Air and water emissions and solid waste
5. Potential toxicity
6. Potential risks

Costs incurred in manufacturing and product use are included in the evaluation. Economic and ecological data are plotted on a graph, which is the eco-efficiency comparison of one product to another (see example of eco-package below).

BASF has conducted more than 400 analyses using this method. They have developed a label for products that have undergone a review using the BASF method. They even sell the eco-efficiency review as a service to other companies and permit the use of their eco-label (Figure 4.5). (BASF 2010c)

To better understand how this evaluation assists in generating more environmental friendly products, we can evaluate a few examples.

**Headline®**

Headline is a fungicide sold to enhance crop yields. An eco-efficiency study was completed for this product on corn sold in the state of Iowa (about 20 percent of all U.S. corn comes from Iowa). The survey indicated that the use of Headline was a more eco-efficient solution, with a greater crop yield, lower environmental impacts, and lower production costs. When using this product,
farmers will get the same amount of corn with fewer resources and less energy per bushel resulting in a 7 percent average yield increase. (BASF 2010a.)

**Eco-Package**

BASF co-designed a lightweight plastic bottle for transporting pesticides. The eco-efficiency analysis showed that the new packaging has higher eco-performance than the original bottle. Because it uses 25 percent less plastic, it has lower environmental impacts, resulting in less greenhouse gas emissions during the production and recycling processes. The bottle consists of only one type of material and therefore is easier to recycle. The eco-efficiency chart (Figure 4.6) shows that the new package is superior to the old package. (BASF 2010b.)

**3:1 for More Climate Protection**

BASF states that they are the first company to conduct a carbon footprint of their products. Using lifecycle calculations of greenhouse gas (GHG) emissions that include raw materials, manufacturing, transportation, and end-of-life disposal of chemical products, they first published their company’s complete carbon footprint in 2008.

**3:1 Program**

- Carbon footprint considers the entire life cycle of BASF products.
- CO₂ savings from BASF products outweigh emissions caused during production and disposal by a ratio of 3 to 1.
- Ambitious climate protection goal: Energy efficiency to be increased by 25 percent by 2020.
BASF calculated that their products save three times more greenhouse gas emissions during their use than they do to bring them to market (raw materials, transportation, manufacturing, and disposal). This is where the 3-to-1 ratio derives. They had their calculations verified by an independent organization, the Institute of Applied Ecology (Öko-Institut) in Freiburg, to add validity to their methods and claims.

Calculations for the 3-to-1 ratio are documented in company reports. “Emissions from raw materials, inputs, production and disposal come to roughly 90 million metric tons of CO$_2$ equivalents (28 million of these from in-house production). By comparison, the use of BASF products saves 287 million tons of CO$_2$, resulting in a ratio of 3 to 1.” Their goal is to maintain this ratio or improve it for all products in the future. (BASF 2009a)

An example of how products reduce more emissions in their use than to manufacture them can be demonstrated by evaluating the building insulation known worldwide under the brand name of Styropor®. This product, which is expandable polystyrene (EPS), has had its insulating performance improved through innovation by up to 20 percent. Use of this product can be translated into a reduction in annual heating-oil consumption in an old residential building from 21 to 7 liters per square meter. Thus, the combined GHG emissions to make this product versus its use results in a 3 times net reduction in emissions compared to if it was not used.

BASF has set bold long-term goals to reduce GHG emissions and promote energy efficiency. They set a 2020 goal to reduce GHG emissions per metric ton of product sold by 25 percent using 2002 as a baseline. (BASF 2010c)
BASF Product Stewardship Program

- Committed to product stewardship through participation in the voluntary Global Product Strategy
- Set goals to do Risk Assessments for each chemical sold in significant quantities (>1 ton per year)
- Use their own developed eco-efficiency tool to improve the greenness of their products
- 3:1 Climate Program aims to maintain a benefit of 3 times less GHG emissions for use of their products compared to GHG to bring them to market

BASF, being a large chemical company, has made assurances to their customers and stakeholders that their products will be both safe for human health and the environment. Commitments have been made to conform to voluntary international standards to insure that products have adequate performance. To foster lower environmental impacts of its products, BASF has developed an eco-efficiency tool that measures the footprint of their products and cost benefits. This tool has been used to demonstrate the improved benefits of new products: helping to meet customers’ desire for greener products. Further, the 3:1 Climate Program aims to maintain a ratio of benefit of 3 times less GHG emissions for the use of their products compared to the GHG to bring them to market.

Johnson & Johnson

Johnson & Johnson (J&J) is the world’s largest health-care product provider. It is also the company I know the most about because I have worked for this company for more than twenty-five years. J&J has a very broad line of products, with annual sales in excess of $60 billion (2010). Developing product stewardship programs for a wide array of different products has its challenges. There are three main divisions: consumer products, medical devices and diagnostic equipment, and pharmaceuticals. Some of the brands that may be familiar to you include J&J’s baby products, Aveeno®, Neutrogena®, Acuvue® contact lens, over-the-counter pain medications Tylenol® and Motrin®, and in addition numerous medical devices such as blood glucose monitors, replacement hips and knees, sutures, and various pharmaceutical products that treat conditions such as migraines, rheumatoid arthritis, and cancer.
Earthwards™

I have been fortunate to work for a company that embraced the concept of product stewardship before it became a business imperative. In the 1990s, J&J’s first product stewardship initiatives began with the public-facing Pollution Prevention goals. These goals were primarily traditional footprint reduction goals at manufacturing facilities (e.g., water, waste, and energy reductions) but there also was a packaging reduction goal, the first attempt at reducing the impacts of the product itself.

In the late 1990s, I was privileged to develop and lead the J&J Design for the Environment (DfE) program. This endeavor covered all aspects of the product life cycle, from evaluation of raw materials, to improvements of the manufacturing process, the product and package, as well as end-of-life disposal issues. In 2000, the company started to develop and report on public-facing sustainability goals every five years. The goals, called the Next Generation Goals, included a requirement that all products and packages have an environmental impact analysis performed, considering ways in which impacts can be reduced.

In 2009, the feeling was that the company needed to get more out of the DfE program and make it easier for development personnel to determine how to make a product greener and for marketing personnel to communicate the greener attributes of product improvements. This was the rationale behind the development of Earthwards™.

Earthwards is a process to enable product development teams to evaluate a product throughout its life cycle and identify areas where it can be improved to lower its impact and increase social benefit. A suite of tools has been developed to assist design teams in making their products greener. A scorecard assists teams in uncovering the areas that can be improved upon to reduce product impacts. Products that have been significantly improved can receive special recognition if they complete a lifecycle screen, meet prerequisites, and achieve considerable improvements.

The scorecard was developed through benchmarking leading companies, through interviewing internal and external stakeholders, and by the guidance of a leading product stewardship consultant, Five Winds International. In addition, experts from government, academia, business, and an environmental NGO reviewed the Earthwards™ process and made recommendations for improvements that were incorporated.

**Scorecard Steps**

The scorecard (Figure 4.7) consists of four steps:

1. **Prerequisites:** Product teams are to answer a series of questions that assess risk; examples include
   - What materials are we using?
   - Where do they come from?
   - What happens to the product after it’s used?
2. **Lifecycle screening**: A high-level lifecycle screening evaluates the key aspects of the product and identifies which stages are most important to focus on to gain the greatest environmental improvement.

3. **Make improvements**: Teams then identify areas for improvements from seven potential categories: materials, packaging, energy, waste, water, innovation, and social. The idea is to focus on at least a 10 percent improvement in three areas.

4. **Scorecard approval**: If the product team believes that at least three improvements were made, then they can submit the scorecard for verification to a review board consisting of internal J&J product stewardship experts, legal counsel, public affairs, and two NGOs. The board then makes a decision if the product has met the Earthwards™ criteria. If it does meet the criteria, the product receives the designation and is considered an Earthwards™ product.

The seven areas for improvement are as follows: (Johnson & Johnson 2010)

1. **Materials**:
   - Meet consumer needs with less material.
   - Use more environmentally preferable material.

---

<table>
<thead>
<tr>
<th>EARTHWARDS™ Scorecard</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-requisites</td>
<td></td>
</tr>
<tr>
<td>Know materials, ingredients in your product</td>
<td></td>
</tr>
<tr>
<td>Identify and plan to address J&amp;J Watch List materials</td>
<td></td>
</tr>
<tr>
<td>Know where product and packaging end up after use</td>
<td></td>
</tr>
<tr>
<td>Know whether agricultural or mined ingredients come from culturally or environmentally sensitive regions</td>
<td></td>
</tr>
<tr>
<td>Complete life cycle screen to identify priority goals for the product (see separate screening questions)</td>
<td></td>
</tr>
<tr>
<td>Goals</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td></td>
</tr>
<tr>
<td>1 Meet consumer need with less material or</td>
<td></td>
</tr>
<tr>
<td>2 Use more environmentally preferred material</td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
</tr>
<tr>
<td>3 Meet consumer need with less packaging or</td>
<td></td>
</tr>
<tr>
<td>4 Use more environmentally preferred packaging material</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>5 Make product more energy efficient in use or</td>
<td></td>
</tr>
<tr>
<td>6 Make manufacturing or distribution more energy efficient or</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
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<tr>
<td>7 Make product more water efficient in use or</td>
<td></td>
</tr>
<tr>
<td>8 Make manufacturing more water efficient</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td></td>
</tr>
<tr>
<td>9 Make product with less waste during manufacturing or</td>
<td></td>
</tr>
<tr>
<td>10 Recover more product, after use, for reuse or recycling</td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td>Achieved all pre-requisites + three other goals?</td>
</tr>
</tbody>
</table>
2. Packaging:
   • Reduce packaging.
   • Use more sustainable packaging materials.

3. Energy:
   • Create a less energy-intensive product.
   • Use more efficient manufacturing and distribution processes.

4. Waste:
   • Reduce waste during manufacturing.
   • Recover more products for reuse or recycling.

5. Water:
   • Generate a more water-efficient product.
   • Make manufacturing process more water efficient.

6. Innovation:
   • Initiate quantifiable environmental improvements in a product or process that have not been captured in another scorecard category.

7. Social:
   • Use fair-trade materials, select socially responsible suppliers, or support causes with clear social/environmental benefits.

Earthwards-designated product examples include the following:

1. One Touch® Ultramini Testing Kit: The most recent blood glucose meter that Johnson & Johnson’s LifeScan division markets has some significant improvements over the previous version. The meter is a lot lighter and thus uses less raw materials to manufacture and it is compliant with the most stringent regulations for electronic product hazardous materials in the world, the European Union RoHS Directive (restriction of hazardous materials), when it is not required to do so. The carrying case has been greened by removing PVC and latex, materials that customers are not interested in having and the packaging is more sustainable by using fewer materials and including post-consumer recycled content.
   • Materials: A 56 percent reduction in materials compared to the OneTouch® Basic Testing Kit.
   • Packaging: Reduced tertiary packaging (kit level packaging) by 39 percent, and incorporated 70 percent post-consumer recycled materials into packaging.
   • Innovation: Lycra® replaced Latex bands, and thermoplastic polyurethane (TPU) replaced polyvinyl chloride (PVC). Eliminated
DEHP from the carrying cases and antimony trioxide from the test strips.

2. Simponi® (GOLIMUMAB): If you were suffering with rheumatoid arthritis, would you prefer your treatment injections to be once per month or three or four times a month? Simponi is an innovative therapy that requires self-injections in the comfort of your home. Not only is this therapy more convenient and less invasive for the patient but it is also much more sustainable than other treatments, using less materials and less energy.

- **Innovation:** By requiring only twelve injections per year (the least among competitor products), patient needs are met using 36 percent to 61 percent less material. In the United States, a new sample distribution system includes a shipper that is returnable, reusable, and employs USDA-certified bio-based cooling materials. The previous shipping container was single-use disposable.
- **Packaging:** The new shipper is 50 percent lighter and helps prevent disposal of more than 42,000 cubic feet of Styrofoam annually compared to the original shipping method.

### Healthy Planet 2010

In addition to the Earthwards™ process, the company set product stewardship objectives as part of the Healthy Planet 2010 goals. The goals augment individual product greening efforts by setting enterprise-wide goals that apply to all brands. Whereas the Earthwards process is a brand-specific focus, the sustainability goals are across all business units.

The Healthy Planet sustainability goals cover many areas, including manufacturing facility footprint reduction, community outreach, and transparency objectives. They also have several product stewardship objectives such as requiring all business units to come up with plans to make their products greener, making packaging greener, and setting up electronic product take-back programs. (Johnson & Johnson 2010b)

#### Healthy Planet 2010 Product Stewardship Goals

- **Goal:** 90 percent of office paper and 75 percent of paper-based packaging will contain more than 30 percent post-consumer recycled (PCR) content or fiber from certified forests by 2010.
- **Actual:** 97 percent of packaging and 92 percent of office paper contain more than 30 percent PCR or fiber from certified forests.
• **Goal:** All operating companies to have a plan to improve their product and process environmental profiles and eliminate high-priority materials.
• **Actual:** 100 percent of operating companies have a plan.
• **Goal:** Implement an electronics takeback program in all regions to ensure that 100 percent of electronic-based waste products can be taken back for remanufacturing/reuse.
• **Actual:** 54 percent of our businesses (calculated on a regional basis) have implemented takeback programs.
• **Goal:** Eliminate PVC in primary, secondary, and tertiary packaging across the corporation by year-end 2010.
• **Actual:** Eliminated over 3,000 tons of PVC across the company. (Johnson & Johnson 2011)

*Results current to 2010.*

**Healthy Future 2015**

Building on the Healthy Planet 2010 goals, a new set of goals has been developed to further sustainability in the corporation called Healthy Future 2015. Part of these goals requires greener products be brought to market. There are two product stewardship objectives to accomplish this:

1. Expand the number of products that meet the Earthwards™ criteria to 60, and
2. Evaluate all new products and packages for sustainability improvements.

In order to demonstrate that products are continually being greened, pathways have been identified appropriate for each business sector. All sectors will make packaging more sustainable by eliminating PVC, reducing packaging size, increasing its recyclability, increasing the use of post-recycled content, and increasing the use of bio based materials. Each sector has different objectives that will foster greener product improvements appropriate to their business units. Examples of some of the targets include: sustainably sourcing palm oil, removal of target materials from products (e.g., toxic metals, PVC, brominated flame retardants), increase the use of recycled content and bio based materials in products, reduce the amount of energy necessary for plug-in products, provide end-of-life solutions to customers (e.g., electronics takeback programs), deploy green chemistry methods to improve the eco-efficiency of processes, and use more environmentally preferred materials.
Johnson & Johnson Greener Product Programs

- Earthwards™ process is used to develop greener products using lifecycle thinking and seven key focus areas.
- Products making significant improvements receive the Earthwards™ designation.
- Sustainability goals apply to all new products and packages to address enterprisewide targets such as removal of PVC, use of PCR, and sustainable sourcing.
- Sector-appropriate initiatives to green up processes and products.

Johnson & Johnson uses the Earthwards™ process to make their products greener. Lifecycle reviews to focus on seven key areas for making individual product improvements are used (materials, waste, water, packaging, energy, innovation, and social). Environmental advances are also initiated by corporatewide goals to green packaging by eliminating PVC, sourcing paper packaging sustainably, and incorporating post-consumer recycled content.

Common Practices among Leaders

By evaluating leading companies’ activities, we can determine what the key initiatives are that they use to bring greener products to market. There are three main initiatives used:

1. **Framework for product developers**: Leading companies believe that it is imperative to have methods that make it as straightforward as possible for product developers to take strides to make their products greener. Just about every company evaluated has a program to enable greener product design. The most frequent focus areas for these programs include reduction of energy, removal of toxic materials, reducing the product size, weight, package, and use of lifecycle thinking to identify the key aspects of a product on which to focus environmental improvements. Also, the use of scorecards is a leading practice that helps design teams make the most meaningful improvements. Companies such as Philips, Seventh Generation, GE, and Johnson & Johnson all use focal areas and scorecards to help design teams advance greener product design. In developing these frameworks, several companies have partnered with third parties to bring validity to their approach. Some have used consulting firms to assist in developing scorecards and others have used audits by third parties.
2. **Goals for developing greener products**: Just having a framework alone does not appear to be enough to bring greener products to the market. Most companies use sustainability goals focused on product improvements. Examples are revenue goals for greener products and R&D spending on sustainable innovations, which GE, P&G, and DuPont have all set. Several companies have goals that focus on sustainable sourcing, use, improvement in energy efficiency, and removal of problematic materials such as PVC and various others.

3. **Communication schemes**: In order to inform customers of the positive attributes of their sustainable products, leading companies have developed ways to make it clear to customers that their products have improved performance. Branded green product lines such as Ecomagination, Green Works, or Earthkeepers enable customers to quickly identify a greener product. Some companies have used innovative methods to communicate improvements, such as the eco-label that Timberland uses. Others have looked outside their companies for assistance in communicating their greener products with third-party certifications such as the U.S. EPA’s Energy Star and DfE certifications or the Cradle-to-Cradle and FSC sustainable forest certification. Another communication method to gain the trust of customers is the transparency of materials and ingredients used. Several companies have made bold commitments to disclose every ingredient used. This is especially true for the deep green-based products such as those of Method and Seventh Generation, but also with household product companies such as SC Johnson and Clorox. Other innovative communication tools are product environmental reports that indicate various environmental and sustainability information. These communication methods will be discussed in more detail when evaluating the marketing programs companies use later in this book.

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**References**


BASF. 2009b. *Climate protection with BASF*. Ludwigshafen: BASF.


Setting the Stage: Identifying Tradeoffs and Opportunities

Many approaches to environmental protection continue to be based on “end-of-pipe” solutions that focus on a single medium (e.g., air, water, or soil), a single stage in the product’s life cycle (e.g., production, use, or disposal), or a single issue (e.g., individual chemical limits). Such strategies do not always lead to a net environmental benefit. Environmental laws and regulations that have a single focus often force the use of pollution control resources in ways that are not optimal for reducing overall impacts.

By attempting to solve a single environmental problem without considering the interconnectivity of natural systems, designed legislation, although intended for a specific purpose, has often created additional, unexpected or unintended consequences. Because single-issue approaches are often not designed with a systematic understanding of the trade-offs and their implications, they often diminish opportunities for achieving net environmental improvements.

By attempting to solve a single environmental problem without considering the interconnectivity of natural systems, designed legislation, although intended for a specific purpose, has often created additional, unexpected or unintended consequences environmental.

One of the rapidly evolving landscapes in business today is adaptability to the changing nature of environmental impact management as scope expands from a single site or issue to a full understanding of the impacts of our products over their entire life cycles. Many advertisements pitch “green” product traits, but all products have environmental impacts. Materials and crude oil are extracted from the earth, processed, combined with other materials to make parts, assembled into finished products, shipped to customers, and ultimately delivered to final consumers who use the products and dispose of them. Along that value chain, energy is used, waste is generated, and more
natural resources are consumed. Sustainability will require us to continue creating value for society while reducing environmental impacts.

The purpose of this chapter is to convey two overriding themes about greener products:

1. The importance of a sustainability toolbox (not just one tool, but a toolbox) to inform better design of products, and
2. The value of using existing standards and other tools to guide the development of greener products.

Concluding the chapter will be observations from my own twenty years of experience in applying tools to inform decisions about designing and developing greener products and technologies.

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**A Sustainability Toolbox Exists**

Environmental considerations have emerged as an important factor in government and business decisions, and the number of environmental issues to consider has increased significantly. While sustainability includes environmental, social, and economic considerations (the triple bottom line), the focus of this chapter is on the environmental component of sustainability.

To respond to these challenges, the private and public sectors have developed a variety of environmental management systems, programs, and tools that, when used properly together with informed judgment, can significantly enhance the effectiveness of environmental decision making. Unfortunately, the uncoordinated application of these diverse tools has caused considerable confusion in the marketplace, sometimes leading to their misuse.

Currently, there is no single program or technique capable of delivering a comprehensive solution for environmental decision making. Adoption of an ISO Environmental Management System (EMS) or application of a Lifecycle Assessment (LCA) will not meet all of an organization’s environmental decision-making needs. Although utilization of the ISO 14001 standard as a universal framework goes a long way toward establishing the necessary management systems, it does not provide the specialized tools that are needed. Similarly, LCA is a helpful technique when used to identify the global supply chain, resource, and environmental profiles of a product system, but it does not adequately address actual local impacts.

What is needed to integrate environmental considerations into current decision-making processes is a flexible framework of systems, programs, and tools. Because the goals of various tools overlap, it is possible to link these approaches on a situation-specific basis through a flexible conceptual framework. The evolution of environmental management strategies within
firms has been influenced by external drivers (e.g., regulations and customer requirements), internal drivers (e.g., cost savings and environmental strategies), and internal capacity and resources. This is clarified by situating environmental management within an overall Strategy Implementation Framework (built on earlier work by Fava et al. 1998) that includes other concepts and tools (see Figure 5.1).

The environmental management activities at a firm are guided by the selection of an environmental strategy. This strategy drives alignment of the environmental management systems, programs, and tools that will be used. Environmental strategies can be said to occupy four levels of sustainability: compliant, market driven, engaged, and shaping the future (Table 5.1).

All firms have an environmental strategy but, interestingly, it is not always explicitly defined. For many, the aim is simply to comply with regulations. The Strategy Implementation Framework allows for clear, conscious, deliberate definition of an environmental strategy with an understanding of the tools and systems that the strategy implies and necessitates.

The relationship of business implications (e.g., efficiency, compliance, liability reduction, cost savings or avoidance, and revenue generation) to environmental strategy is shown in Figure 5.2. As a firm moves from a compliant strategy to a more sustainable strategy, different implications result. A compliant strategy, for example, is often viewed as a cost and often includes only strategic elements aimed at meeting the legal requirements as efficiently as possible. In a market-driven strategy, a firm has integrated pollution prevention and customer/consumer or reactive market considerations

FIGURE 5.1
Strategy implementation framework. (Source: Adapted from Fava, J. et al. 2001. Contracting, Partnerships and Costing Innovations to Promote Environmental Excellence. Published in the BELL Conference, Penn University.)
TABLE 5.1

Four Strategy Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliant</td>
<td>A firm decides it will be in compliance with all environmental, health, and safety regulations. This is the minimum level of environmental strategy a firm can adopt.</td>
</tr>
<tr>
<td>Market-driven</td>
<td>A firm responds not only to regulatory requirements, but also reacts to its customers’ environmental expectations by providing leading product/service and operational performance.</td>
</tr>
<tr>
<td>Engaged</td>
<td>A firm is not only in compliance, but also understands its environmental market opportunities and proactively uses that knowledge to create engagements with the value chain and other stakeholders to identify opportunities faster.</td>
</tr>
<tr>
<td>Shaping the future</td>
<td>A firm develops products and services for current and future market conditions, addressing unmet societal needs by proactively integrating economic growth, environmental health and safety, and social well-being into its operations and business practices.</td>
</tr>
</tbody>
</table>


FIGURE 5.2

Business implications on the strategy implemented. (Adapted from Fava et. al. 2001)

into the design of its products or processes, which results in cost savings or cost avoidance. On the other end, a *shaping the future* strategy may generate revenue by viewing the environment from a strategic perspective to identify new business opportunities, and greener products.

Strategy Is Essential but Not Sufficient; Businesses Also Need Environmental Management Systems, Programs, and Tools

Organizations use various approaches and tools to integrate environmental considerations into their everyday decision processes. Environmental approaches and tools can be described as operating at a *management system* level, a *program* level, or a *tool* level.

Environmental management systems are broad, flexible frameworks for managing an organization’s environment-related activities. They are usually tailored to a specific organization’s environmental strategy, business model,
and environmental responsibilities. Management systems addressing similar needs can vary significantly from one organization to another, based on differentiation arising from their respective business models and environmental strategies.

Programs are a level below management systems and are often used to carry out the strategic intent of the organization. Programs generally have a higher degree of specificity, and common program elements often appear among organizations in the same industrial sector.

Tools are used to support environmental systems and programs. Environmental tools are highly specialized and are often created with rigorous scientific methodology. Each of these systems, programs, and tools can be deployed in different ways. Table 5.2 presents descriptions and primary organizational utilities for various systems, programs, and tools.

### Applying Framework to Tool Use

As established in a paper by P. R. White et al. (1995), the use of environmental tools depends on the issue being addressed. White et al.’s paper puts the use of LCA into perspective by creating an explicit hierarchy of five elements of environmentally and economically sustainable environmental management (Table 5.3). Element 1 (Human and Environmental Safety) and Element 2 (Regulatory Compliance) should be established before an operation or product is developed or sold.

Element 3 (Customer Stewardship) provides a reactive basis for understanding and responding to customer expectations, whereas Elements 4 (Efficient Resource Management) and 5 (Proactively Addressing Societal Concerns) correspond with an even greater degree of integration of sustainability and eco-efficiency into operations and products. These last two elements also imply awareness of stakeholder interests and willingness to respond to them.

The four environmental strategy levels can be superimposed upon these five elements. For a compliant strategy, an organization will focus their efforts on Elements 1 and 2. A market-driven strategy will address Elements 1, 2, and 3. An engaged strategy would provide a proactive integration of Elements 3, 4, or 5, depending on the business assessment. A shaping the future strategy would include all five elements, where the firm is seen as a leader—often first to market.

It is critical to understand the environmental issue at hand before deploying any technique. If one is trying to address efficient resource use and waste management concerns, LCA would provide important information to identify opportunities for improvement within an organization. If the goal of the analysis is to address customer concerns regarding health and toxic effects, LCA is not the appropriate tool. This issue could be addressed, for example, by conducting a human health and ecological risk assessment. Finally, to address the “overall environmental preference” of one system over another,
<table>
<thead>
<tr>
<th><strong>Category</strong></th>
<th><strong>Description</strong></th>
<th><strong>Primary Utility</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management Systems</strong></td>
<td></td>
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</tr>
<tr>
<td>ISO 14000</td>
<td>A series of international voluntary standards that outlines a framework for managing environmental performance at the organizational level.</td>
<td>Management system tool; it does not set specific and universal values or goals; organizations are free to interpret and apply it to meet their unique needs.</td>
</tr>
<tr>
<td>Responsible Care® (RC)</td>
<td>Responsible Care® is a chemical industry framework designed to improve the performance in the fields of environment, health, safety, product safety, distribution, emergency response, and relations with the public.</td>
<td>Responsible Care® is the organizing framework for programs and tools used in the chemical industry; requires all members to comply with the “spirit” of the system, but leaves individual implementation to the organization.</td>
</tr>
<tr>
<td><strong>Programs</strong></td>
<td></td>
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<tr>
<td>Product Stewardship</td>
<td>Product Stewardship is the product-focused initiative of the Responsible Care® framework that helps manage the EHS components of an organization, through characterizing and managing risks associated with product lines and providing customers with EHS information.</td>
<td>Product Stewardship is a systematic framework for continual improvement in EHS performance of products.</td>
</tr>
<tr>
<td>Pollution Prevention</td>
<td>A common voluntary program used to guide modifications of equipment and processes, as well as reformulation or design of products to reduce or eliminate pollution before it is created.</td>
<td>Provides understanding of the advantages (both financial and environmental) of reducing or eliminating pollution, either at the source or in the design stage.</td>
</tr>
<tr>
<td>Extended Product Responsibility</td>
<td>A lifecycle-based system approach gaining acceptance as part of voluntary efforts to understand and manage risks along a product’s life cycle. It recognizes that there is a shared responsibility along the value chain.</td>
<td>A systematic program to provide inputs into identifying specific risks, clarifies the responsibilities of each member of the value chain, and enables management of those risks associated with product systems.</td>
</tr>
<tr>
<td>Design for Environment (DfE)</td>
<td>A systems-oriented approach for designing more ecologically and economically sustainable product systems. It couples the product development cycle used in business with the physical life cycle of a product.</td>
<td>Systematically provides input into the development process to provide opportunities to improve a product’s environmental performance.</td>
</tr>
<tr>
<td>Lifecycle Management</td>
<td>Integration of lifecycle thinking and tools into existing business operations and product management.</td>
<td></td>
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<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifecycle Assessment (LCA)</td>
<td>Analysis of energy and materials utilization, as well as potential environmental impacts of the product/service system conducted along the lifecycle continuum from “cradle to grave.”</td>
<td></td>
</tr>
<tr>
<td>Full-Cost Accounting (FCA)</td>
<td>Technique that incorporates an organization’s internal environmental costs (e.g., costs for regulatory compliance or hidden expenses) and external environmental costs (e.g., costs for using nonrenewable resources, costs for cleaning up waste disposal sites, etc.) into its accounting process.</td>
<td></td>
</tr>
<tr>
<td>Risk Management</td>
<td>Management tools to provide guidance on actions necessary to manage and reduce risks associated with products and operations. Actions depend on the degree of risk identified.</td>
<td></td>
</tr>
<tr>
<td>Risk Assessment (RA)</td>
<td>The process by which the potential adverse effects of human or ecological exposure to chemicals are characterized.</td>
<td></td>
</tr>
<tr>
<td>Auditing (A)</td>
<td>The process whereby selected levels of an organization’s performance are judged with regard to compliance with regulatory requirements, internal policies, or other established standards.</td>
<td></td>
</tr>
<tr>
<td>Environmental Impact Assessment (EIA)</td>
<td>A detailed study of the adverse and beneficial effects that construction, maintenance, and operation of a proposed development or land-use change will have on the environment, including people.</td>
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</tbody>
</table>

a variety of tools, including Risk Assessments and LCA (among other tools), would be appropriate.

No one technique is universally superior to another. The selection of technique(s) depends on the question being asked and the endpoints of concern to the user and stakeholder community. For many applications where

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**TABLE 5.3**
Hierarchical Linkage between Environmentally and Economically Sustainable Elements and Key Tools

<table>
<thead>
<tr>
<th>Goal</th>
<th>Elements</th>
<th>Key Tools</th>
<th>Strategy Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally and economically sustainable environmental management</td>
<td>1. Human and Environmental Safety</td>
<td>Human Health Risk Assessment (occupational and domestic exposure) Ecological Risk Assessment</td>
<td>Compliant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Regulatory Compliance</td>
<td>Auditing, reporting (SARA, TRI), classification, and labeling of products</td>
<td>Compliant</td>
</tr>
<tr>
<td></td>
<td>3. Customer Stewardship</td>
<td>Stakeholder analysis, Lifecycle Assessment, risk communication, packaging design</td>
<td>Market Driven</td>
</tr>
<tr>
<td></td>
<td>4. Efficient Resource Management</td>
<td>Energy and waste monitoring and reduction, material consumption monitoring and reduction, manufacturing site environmental auditing, supplier auditing, product lifecycle inventory, eco-design, economic analysis</td>
<td>Market Driven or Engaged</td>
</tr>
<tr>
<td></td>
<td>5. Proactively Addressing Societal Concerns (i.e., understand and respond)</td>
<td>Understand: • Opinion surveys • Consumer and market research • Networking Respond: • Public presentations and publications • Scientific and industry work groups • Lobbying • Reporting • Cooperation with society to find solutions to environmental problems</td>
<td>Shaping the Future</td>
</tr>
</tbody>
</table>

Framework for Developing Greener Products

greener products are desired, lifecycle approaches offer the most useful tools for gathering the data to inform greener designs.

Lifecycle Approaches

It would be interesting to pursue lifecycle approaches in a little more detail. Above, lifecycle assessment was identified as one of the tools to inform the development of greener products. Over the past several years, there has been growth in the development of lifecycle-based tools that span a continuum—ranging from qualitative (e.g., lifecycle thinking) to the quantitative tools (lifecycle assessment).

On the qualitative side, tools such as an eco-design strategy wheel provide a systematic integration of environmental considerations into product and process design. An eco-design strategy can inform the designers on ideas and directions to influence changes in the design, manufacturing, logistics, uses, and how the product is managed after its intended initial useful life has been met.

An example of seven design strategies is (Source: From PROMISE Manual for Ecodesign. Brezet and Hemel, 1997, adapted by Five Winds International):

Seven Design Strategies

1. **New concept developments:** The function(s) of the product can be examined for the needs of the end user (e.g., increased shared use or provide a service).
2. **Physical optimization:** Designed to increase its useable life span (e.g., increase reliability, durability, easy maintenance and repair).
3. **Optimize material use:** Select the most environmental appropriate materials (e.g., cleaner materials, renewable materials, recycled materials, lower energy using materials).
4. **Optimize production:** Implement cleaner production practices through the continuous use of industrial processes and products that increase efficiency; prevent pollution to air, water, and land; and minimize risk to human health and the environment (e.g., fewer production steps, lower/cleaner energy consumption, less production waste).
5. **Optimize distribution:** Transport products from producer to distributor, retailer, and user in the most efficient manner (e.g., energy-efficient transportation).
6. **Reduce impact during the product use stage:** Design a product so that end users will be able to make efficient use of product consumables such as energy, water, and detergent and secondary products such as batteries, refills, and filters (e.g., lower energy consumption, reduce use of consumables); and
7. **Optimize end of life systems:** Minimize the environmental impact of a product once it reaches the end of its useable life span through
proper waste management and reclamation of components and materials (e.g., product reuse, design for disassemble or remanufacture).

Another example is mining the knowledge and learning from existing lifecycle assessment studies. Doing this can provide lifecycle data to inform designers on what are the critical stages for which resources should be focused. An illustration is, for a cleaner, the use and end-of-life stages are where the greatest impacts occur. This is due to use of water and/or energy in the use stage and release of ingredients into the environment at the end of life (Figure 5.3). (Note: This graphic is for illustrative purposes and may not apply to all products.) To minimize impacts of these types of products, design considerations for using less water and energy in the use stage, and employing ingredients that are environmentally preferred, should be pursued.

In the mid-range between qualitative and quantitative tools, other solutions exist. The Johnson & Johnson EARTHWARDS™ tool and process, which is described in this book, is just one excellent example of how companies are taking a lifecycle approach with a combination of qualitative, semi-quantitative, and quantitative approaches.

On the other end of the continuum is lifecycle assessment. The results of an LCA study help to identify the opportunities and risks of a product or technology at each stage, all the way from raw materials to final disposition. An LCA helps us recognize how our choices influence each of these stages so that we can choose to make positive impacts on the economy, the environment, and society. LCA helps us recognize that our choices affect a large, interconnected system.

Lifecycle assessment is not necessarily about making right or wrong decisions. It simply helps us consider all stages of the life cycle. It identifies the

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**FIGURE 5.3**
Relative qualitative lifecycle impacts of a single-use cleaner (illustrative example).
unintentional impacts of our actions and brings focus on those impacts, and it helps us avoid decisions that benefit one aspect of the environment at the expense of another.

The selection of the right tool for the application can be influenced by a number of factors; for example,

- Intended application/purpose (e.g., informing product designers early in the design process or providing data to substantiate an environmental claim to the marketplace)
- Completeness of the lifecycle stages and impacts to be examined
- Amount of primary data to be collected versus use of existing databases
- Number of suppliers and the complexity of the product system
- Critical review process

Useful Standards Are Available

This second section of the chapter outlines the various standards that exist today to guide the development of greener products. In the late 1980s, a number of “dueling” lifecycle assessment studies attempted to illustrate the superiority of one product over another. As these studies gained visibility, issues associated with boundary conditions, sources of data, and functional unit were revealed. The Geneva-based International Organization for Standardization (ISO) responded to these issues (as well as to concerns by industry, government, and the public about the proliferation of local and national environmental standards) by establishing a technical committee known as TC-207 to develop environmental management tools (including LCA) that would be applicable worldwide.

To get a sense of the ISO LCA standards and their applications, let’s consider LCA and ISO in context.

Historical Perspectives

In 1990, the Society of Environmental Toxicology and Chemistry (SETAC) sponsored an international workshop that resulted in the publication of “A Technical Framework for Lifecycle Assessments” (Fava et al. 1991). Although LCA had been used by a few practitioners in the United States and Europe under various names (such as REPA, or “Resource and Environmental Profile Analysis”) (Hunt and Franklin 1996), SETAC established the terminology and framework for LCA development worldwide. In North America and Europe, SETAC set up LCA advisory groups whose mission has remained to advance
the science, practice, and application of LCA. SETAC has partnered with the United Nations Environmental Programme (UNEP) to establish the UNEP/SETAC Life Cycle Initiative with the goal of developing practical tools for evaluating products and services over their entire life cycles to achieve sustainable development. See http://www.uneptie.org/pc/sustain/lcinitiative/home.htm for a complete description of the UNEP/SETAC Initiative as well as its sponsors, training materials, and publications.

In 2004, the UNEP/SETAC Life Cycle Initiative held a forum to discuss current LCA and green building programs (UNEP/SETAC 2004). When asked to provide a vision of LCA in 2010, the group foresaw a number of exciting possibilities:

• LCA tools and data being as readily available as geographical information systems (GIS) are today;
• LCA as an integral part of design and permitting;
• Readily available Web-enabled access to LCA tools and databases; and
• A widespread understanding and use of LCA.

In addition, the group envisioned product information, including not only features and benefits, but also lifecycle information. In five years, the group agreed, LCA would be seen as a means to improve decision making, not an end in itself. While we have not fully arrived, there has been considerable progress, as evidenced by organizations such as the UNEP/SETAC Initiative, the Sustainability Consortium, Green Building Councils, and various retail initiatives—all supporting and encouraging lifecycle approaches.

The elements required to implement this vision were also identified: (1) readily accessible databases, (2) easy-to-use LCA tools, (3) relevant impact categories, and (4) a methodology that is trusted, comprehensive, robust, accepted, reproducible, simple, transparent, and accountable. It was agreed that the ISO 14040 family of LCA standards should be used as a starting point for further development of LCA methodology within the building industry sector.

The ISO’s Guiding Role

It is important to understand that SETAC’s role is not to standardize methodology, but rather to improve the science and practice of LCA. Primary responsibility for standardization lies with the ISO, which performs this function worldwide in an effort to standardize and streamline the international marketplace for industry. Among the tools under development are environmental management systems, auditing, environmental performance evaluation, lifecycle assessment, and eco-labeling. More than thirty countries have participated in the development of the ISO 14000 series. More than twenty specific standards have been completed and more are in development (see www.iso.org).
TABLE 5.4

International Organization of Standardization “The ISO Documents” on Life Cycle Assessment and Eco-Labeling

| ISO 14020: Environmental Labels and Declarations – General Principles |
| ISO 14021: Environmental Labels and Declarations – Type II Declarations |
| ISO 14024: Environmental Labels and Declarations – Type I Declarations |
| ISO 14025: Environmental Labels and Declarations – Type III Declarations |
| ISO 14040: Principles and Framework |
| ISO 14044: Requirements and Guidelines |
| ISO 14047: Examples of the Application of Impact Assessment |
| ISO 14048: Documentation Format |
| ISO 14049: Examples of Inventory Analysis |

Within the ISO, TC-207 has responsibility for the development of environmental management standards, including those dealing with LCA. Table 5.4 lists the existing ISO LCA standards and technical reports and other related standards.

The Value of ISO LCA in Developing Greener Products

ISO standards provide excellent resources for understanding the basic elements and requirements of LCA studies. They also provide insights into factors to consider when evaluating the results of an LCA study. Portions of the ISO standards are summarized in the next subsection.

LCA Description

Lifecycle assessment is a systematic approach used to manage the potential environmental impacts of product and service systems. It is applied methodologically to build a quantitative inventory of environmental burdens or releases, evaluate their potential impacts, and consider options for interpreting the results or improving environmental performance. LCA can be used to identify critical lifecycle stages or burdens for which additional tools, such as risk assessment, may be applied to fully understand the potential impacts and risks.

In any application, LCA considers the potential environmental impacts along the continuum of a product’s life (i.e., cradle to grave or cradle-to-cradle), from raw materials acquisition to production, use, and disposal or recovery. The potential environmental impacts to consider include resource depletion, human health, and ecological health.

LCA consists of four iterative phases:

1. **Goal and Scope Definition** defines the aims, product system, and reach of the study.
2. **Inventory Analysis** quantifies extractions and emissions related to the product system, and connects them to product function.
3. **Impact Assessment** analyzes the inventory outcomes with respect to their environmental relevance and aggregates them within a smaller number of relevant environmental issues.

4. **Interpretation** compares the results with the goal of the study.

LCA can assist in

- Identifying opportunities to improve the environmental aspects of products at various points in their life cycles.
- Decision making in industry, government, or nongovernmental organizations (e.g., building design, material, and product selection).
- Selection of relevant indicators of environmental performance, including measurement tools.
- Marketing (e.g., environmental claims, eco-labeling, or environmental product declarations).

**Core LCA Principles**

ISO 14040 defines a number of principles:

- **Lifecycle perspective:** LCA considers the entire life cycle of a product, from raw material extraction and acquisition through energy and material production and manufacturing to use and end of life treatment and final disposal. Through such a systematic overview and perspective, the shifting of a potential environmental burden between lifecycle stages or individual processes can be identified and possibly avoided.

- **Environmental focus:** LCA addresses the environmental aspects and impacts of a product system. Economic and social aspects and impacts are, typically, outside the scope of the LCA.\(^1\) Other tools may be combined with LCA for more extensive assessments.

- **Relative approach and functional unit:** LCA is a relative approach that is structured around a functional unit. This functional unit defines what is being studied. All subsequent analyses are then relative to that functional unit because all inputs and outputs in the LCA (and consequently the LCA profile) are relative to the functional unit.

- **Iterative approach:** LCA is an iterative technique. The individual phases of an LCA use results from prior phases. The iterative approach within and between the phases contributes to the comprehensiveness and consistency of the study and the results.

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\(^1\) Although efforts are underway by the SETAC and the UNEP/SETAC life cycle initiative to advance life cycle approaches to economic and social considerations.
Framework for Developing Greener Products

• **Transparency:** Due to the inherent complexity of executing LCAs, transparency is an important guiding principle that ensures proper interpretation of the results.
• **Comprehensiveness:** LCA considers all attributes and aspects of natural environment, human health, and resources. By considering all attributes and aspects within one study in a cross-media perspective, potential trade-offs can be identified and assessed.
• **Priority of scientific approach:** Decisions within an LCA should be based on natural science. If this is not possible, other scientific approaches (e.g., social and economic sciences) can be used or international conventions can be referenced. If there is no basis in science or international convention, then, as appropriate, decisions may be based on value choices.

**ISO and Comparative Assertions**

Users of LCA results sometimes seek to make claims regarding the environmental superiority of their product over a competitor’s on the basis of LCA study results. Although the LCA standards were written to ensure flexibility of use within an organization (e.g., for research purposes), additional requirements must be met when the ISO 14040 series is used to support a publicly stated environmental claim of superiority or equivalence, which the ISO refers to as a “comparative assertion.” These requirements include the following:

• The data quality requirements shall address time-related coverage, geographical coverage, technology coverage, precision, completeness and representativeness of the data, consistency and reproducibility of the methods used throughout the LCA, sources of the data and their representativeness, and the uncertainty of the information.
• The LCA study shall be peer reviewed in accordance with the critical review process of Section 7.3.3 of ISO 14044.
• An impact assessment shall be performed. The category indicators of the impact assessment used to support the comparative assertion must be sufficiently comprehensive, internationally accepted, scientifically and technically valid, and environmentally relevant. Weighting may not be used.
• Systems shall be compared using the same functional unit and equivalent methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules on evaluating inputs and outputs, and impact assessment. Any differences between systems regarding these parameters must be identified and reported.

Additional information on using LCA results to make claims can be found in ISO 14025. In addition, the U.S. Federal Trade Commission has developed
“Guides for the Use of Environmental Marketing Claims,” which prohibit unfair or deceptive advertising claims.

**Eight Lessons Learned from LCA Application**

So, what have we learned from the application of lifecycle assessment based on the ISO LCA standards? Here are some thoughts from my experience as an LCA practitioner working with products and material manufacturers:

1. The ISO LCA standards have established a consistent methodology for conducting LCA studies and reporting their results. They represent a substantial “stake in the ground” on LCA practice.
2. The ISO LCA peer review and criteria review processes provide a system of checks and balances to ensure that LCA studies used for external policy and decision making undergo additional review by independent and interested parties.
3. LCA practitioners should be able to demonstrate their knowledge of the requirements of the ISO LCA standards and their application of those requirements.
4. There is a learning curve in completing LCAs. A company’s first LCA study (whether it is done internally using LCA software tools such as GaBi, or by consultants) often takes more time and resources than expected, but subsequent studies are usually easier to complete.
5. Within the LCA standards, sufficient flexibility exists to ensure that LCA studies can be completed on a variety of applications. These range from answers to questions on a select list of impact categories and/or lifecycle stages to comprehensive studies supporting environmental claims.
6. Any LCA methodology used in the public context must display transparency, be publicly available, and must have undergone appropriate peer review.
7. Application within an organization to drive continuous improvement and innovation can achieve meaningful results, but it must be consistent.
8. LCA studies can provide information on trade-offs and opportunities to improve a product’s performance over its life cycle. Complementary assessments, in particular those related to site-specific environmental issues, are often necessary to provide a better understanding of absolute risks and opportunities.

In conclusion, the ISO LCA standards have established a global set of rules to ensure that LCA studies are conducted in a consistent, reproducible
fashion. The standards define what should be considered in setting the goal and scope of the study, what data are needed, how to evaluate the quality of the data, what impact assessment categories will be used (and why), how the results can be interpreted for improvement, what information should be included, and when different levels of review are necessary.

Over the next few years, LCA will, in my opinion, move even further toward becoming a practical tool for design and development, marketing, material selection, design trade-offs, and environmental and business improvements.

**Product Sustainability Standard Efforts**

Emerging trends include the development of product sustainability standards, Product Category Rules (PCRs), and Environmental Product Declarations (EPDs). These product sustainability standards tend to be life-cycle based and recognize the supply chain’s impact in contributing to the environmental burden of common products. The standards take into account manufacturing and logistics practices beyond the product of interest, while in some cases encouraging a manufacturer’s commitment to sustainability. The following examples apply and information is from Fava et al. (2011):

- The Electronic Product Environmental Assessment Tool (EPEAT, [www.epeat.net](http://www.epeat.net)) was developed during a two-year multi-stakeholder process facilitated by the Zero Waste Alliance and funded by the U.S. EPA. EPEAT specifications are now included in government purchasing requirements at the city, state, and national levels (in Canada and the United States). They are also included in some private organizations’ purchasing policies.

- The Business and Institutional Furniture Manufacturers Association (BIFMA), with active arms in the United States, Canada, and Mexico, initiated their efforts to establish common furniture terminology and standards at the request of customers seeking to define the sustainability of their products. BIFMA believed that leading the characterization of product sustainability in the furniture industry would be preferable to reacting to it. As of 2010, there have been over 550 products certified to the BIFMA sustainability standard. This number appears to be continuing to increase.

- The Carpet and Rug Institute (CRI) developed their Sustainable Carpet Assessment Standard (NSF 140) under circumstances similar to BIFMA’s, with the state of California as a key partner. With CRI as an ally, the Canadian Carpet Institute developed product standards for air quality, presumably opening the door for an international lifecycle-focused effort in North America.

- The Association of Home Appliance Manufacturers (AHAM) announced that they are teaming with the Canadian Standards

In addition to association- and stakeholder-driven product standards development, North American participation in international standardization bodies continues to increase for a wide variety of products. The American Society for Testing and Materials (ASTM) recognizes that there needs to be overarching guidance standards for reporting products’ environmental aspects. The draft standard for building materials, ASTM WK 23356, is available for public comment. This standard provides PCRs for the inclusion of data for Type III environmental declarations including business-to-business (cradle-to-gate) and business-to-consumer (cradle-to-grave) EPDs for building products and systems. Such efforts seek to adequately represent product-unique lifecycle issues and provide a synergistic assessment framework and infrastructure. One of the leading efforts implementing the ISO 14025 standard provides the requirements for Type III EPDs for any product system. The protocol requires the establishment of an agreed-upon set of PCRs for a family of products exhibiting the same fundamental function.

In the case of building materials, the ISO 21930 standard and the ASTM draft standard include various subcategories (e.g., structural, envelope, interior finishings) nested under the overarching PCRs, within which products are considered interchangeable with one another. The PCR is intended to level the playing field, in that all LCAs will be obliged to address the same predefined scope and boundary conditions; meet requirements for data timeliness, representativeness, and relevance; and report specific environmental impacts for the family of products using the units and the impact assessment method referenced in the PCR. Once an LCA is conducted and verified, the EPD may be published.

There is a movement to have EPDs developed at various levels of specificity, such that trade associations may develop an EPD for broad product categories (e.g., commercial nylon carpet) while a particular manufacturer may opt to develop a product-specific EPD. Within this context, the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) system is considering the endorsement of EPDs developed and published according to the ISO 14025 standards as a preferred method of communicating products’ environmental characteristics.

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**Final Thoughts**

Upon reflection on the use of tools and standards to inform the development of greener products, concluding messages surfaced:
Message 1: Sustainability Issues Are Managed over the Entire Lifecycle
Frequently asked questions include

1. What are the lifecycle stages (Figure 5.4) associated with my product?
2. What materials are in my product, and where do they come from?
3. What are the impacts at each of the lifecycle stages?

This information can then be used to identify hot spots and areas to target for improvement opportunities.

Message 2: Each Product Category and Material Has Its Own Set of Footprint and Sustainability Characteristics

Figure 5.5 illustrates three different value propositions based upon the unique characteristics of three materials (Five Winds International 2001). For example, for products containing metals (which retain their properties over time), a sustainability strategy is to maximize the utility of the metal through subsequent recovery and reuse. A sustainability strategy for wood and paper products is to maximize the integrity of the resource stock itself. A sustainability strategy for plastics might be to maximize the value of the product.

Message 3: Tools and Approaches Exist
As illustrated previously in this chapter, a variety of tools exist and the appropriate tool can be selected to suit the questions and decisions at hand.
FIGURE 5.5
The UNEP/SETAC Life Cycle Initiative website (http://lcinitiative.unep.fr) contains a nice summary of additional tools and approaches.

**Message 4: A Great Tool Isn’t Enough**

Without an owner or a defined place in an existing business practice, a tool’s value is reduced. A number of conditions must be met to permit full utilization of tools and full incorporation of the information value into decision making.

**Message 5: Existing Infrastructure Often Hinders Product Sustainability Implementation**

Implementing product sustainability measures requires communication between and among organizations, departments, and functional units that traditionally do not interact much. For continual progress to be made, we must move toward the integration of social and environmental concerns into core business decision making, as illustrated in Figure 5.6.

**Conclusions**

This chapter sought to advance the understanding of the various management systems, programs, and tools currently used by industry to enhance environmental decision making. Enlightened organizations have moved beyond mere compliance with regulatory requirements and are realizing the business benefits associated with integrating environmental considerations into their management systems and in managing their products and operations.
Fundamental to effective environmental decision making is the explicit agreement and communication of an environmental strategy. Four strategies that influence the management systems, programs, and tools available and used within an organization were proposed.

One of the purposes of this framework is to define some of the various environmental programs and tools promoted and used today. This framework illustrates how these tools are complementary (not mutually exclusive) and how their use is driven by the question(s) at hand. It puts them all in perspective, allowing an organization to place what appeared to be separate, isolated programs into a common context to provide optimal information for decision making. Moreover, use of the framework should help organizations focus their efforts and increase efficiency in resource utilization.

Organizations realize that they must ultimately operate under a sustainable strategy. While business divisions or products may come and go, most organizations intend to exist indefinitely. As a result, organizations can use the framework highlighted to

- Identify, document, and communicate existing strategy.
- Move from the current environmental strategy to a sustainable (“shaping the future”) strategy.

The critical component of this framework is that the environmental strategy should be explicitly described to (and accepted by) employees and stakeholders. The implementation rate will be driven by the specific nature of each business or organization.

For each successful firm, however, there are more that have failed in their attempts to integrate sustainability considerations into their business. In my extensive project experience and case study work, there are a number of attributes that contribute to the successful integration of sustainable development into a company; they include: (Brady 2001; Fava et al. 2001)

- A deep understanding within senior management of how sustainable development relates to the company and its entire value chain, its social license to operate, and ultimately its long-term shareholder value.
- Management systems that ensure that the company has procedures in place to systematically identify and manage its economic, social, and environmental aspects. (Note: Social management systems are less well developed at this time, and many companies have begun to integrate environmental systems with health and safety systems—and even with financial management systems in some cases. To date, there are few, if any, companies that have an integrated sustainability management system.)
- Stakeholder dialogue processes designed to ensure that the company understands its stakeholders’ expectations and benefits from their knowledge and insights.
• World-class operations and product development processes ensure optimum productivity of resources and place the consideration of environmental and social factors up front in the decision-making processes (e.g., in capital project development or process and product design).

• Open, transparent, and credible reporting on triple bottom-line performance—environmental, economic, and social.

• Innovative supply chain management processes where the environmental and economic performance of suppliers is seen as an important component of the firm’s long-term sustainability.

• A toolbox that includes lifecycle assessment, design for the environment, cleaner production methods, and lifecycle methodologies that support implementation and lead to business benefits (Rowledge et al. 1998).

• A range of tailor-made communications messages that carry the firm’s commitment and performance to key stakeholders, including customers, shareholders, and financial markets.

• Human resource development initiatives and performance incentive programs that foster and reward sustainability initiatives.

These attributes can enable firms to identify and manage the available business opportunities and realize business benefits such as the following:

• Continual design, development, and introduction of greener products,

• Reduced environmental liabilities,

• Identification of opportunities to reduce environmental costs,

• Increased revenues from the capture of environmentally conscious customers (e.g., government customers, corporate customers, and consumers), and

• Improved public image.

All these benefits contribute to a firm’s ability to grow, and they cannot be ignored in times when business growth is sparse. Sustainability must continue to be the ultimate goal.

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Section III

Green Marketing
Consumer Interest in Green Purchases Is Growing

Lee Ann Head, Karen Barnes, and Suzanne Shelton

Introduction to the Chapter

I am privileged to have the contributions of a leading green advertising agency share their research and advice to this book. The Shelton Group is a thought leader in the green marketing space and has an excellent feel for the demand for greener products in the United States.

As we will see in the information presented in this chapter, the pull for greener products is growing and is predicted to continue. In fact, Shelton’s 2011 research indicates that 70% of U.S. consumers say they are searching for green products. (Roth 2011)

Before initiating a green marketing program, it is critical to understand your customer. The Shelton group has segmented consumers into four rational groups (Actives, Seekers, Skeptics, and Indifferents). The data compiled will help a brand team identify the best way to position their product toward their target consumers. The concepts presented here are the backbone to approaches and methods presented in the subsequent chapters on how to effectively market a greener product.

As we will see in the evaluation of the most successful green marketing programs, they have implemented the advice in this chapter and truly “get it” when it comes to the proper way to position a product. Some groups may be willing to pay a premium for greener products (Shelton calls them the Actives), while others want greener products but want them as an “and.” What I mean by this is that they want a product to be effective, at their price point, “and” if it doesn't cost more, the greener attribute will push the customer over the edge to buy it.

Knowing how to position a brand to its target group and understanding which certifications or attributes (e.g., certified organic) are meaningful can make you a winner. Understanding message preferences is just as important as green product attributes, because what good is a greener product if you can't get the customer to buy it?

The data in this chapter are based on surveys of the U.S. population; however, the concepts are valid in all markets throughout the world. Of
course there are regional differences, but understanding your customer and knowing the right questions to ask is applicable everywhere.

The remainder of this chapter is authored by Lee Ann Head, Vice President of Research; Karen Barnes, Vice President of Insight; and Suzanne Shelton, CEO, Shelton Group

The Mainstreaming of Green

Green is officially mainstream. In Eco Pulse 2010, an online survey of 1,000 Americans, 64 percent of respondents said they were searching for greener (more energy-efficient, natural, sustainable, etc.) products these days. Not only did this percentage increase from the prior year (60 percent), but the green buyer base is largely representative of the overall U.S. population, with just a couple of significant differences:

- Hispanics (75 percent) and other minorities (74 percent) were significantly more likely to be searching for greener products than Caucasians (61 percent) or African Americans (57 percent).
- Propensity also significantly increased with income. For example, 54 percent of those with household incomes of $25,000 or less said they were searching for greener products, compared to 71 percent of those with household incomes of $100,000+.
- Overall, consumers who said they were searching for greener products said they were doing so primarily in lower-cost, consumable product categories: home cleaning, laundry and dish detergents, and paper products, although interest was also high in higher-priced categories like energy-efficient appliances (see Figure 6.1).

While men and women said they were searching to buy greener products at roughly the same rate, women were seeking green in many more product categories (ten out of fourteen). Women were significantly more likely than men to seek out greener options in the following categories:

- Food and beverages (54 percent versus 46 percent)
- Personal care products (shampoo, soaps, lotion, etc.) (59 percent versus 40 percent)
- Paper products (74 percent versus 57 percent)
- Pet products (33 percent versus 23 percent)
- Home cleaning products (77 percent versus 62 percent)
- Laundry and dishwashing detergents (75 percent versus 57 percent)
Consumer Interest in Green Purchases Is Growing

Men were significantly more likely than women to seek out greener options in electronics (56 percent versus 39 percent). They were also somewhat more likely than women to look for green alternatives in automobiles/vehicles (36 percent versus 29 percent).

Green product consumption is growing, although most consumers think that green costs more. Almost 80 percent of Eco Pulse respondents agreed that green products “sometimes or always” cost more than traditional products. Despite this perception, however, green purchase habits remained strong—even through the 2008–2010 recession. When asked if the economic climate had negatively impacted their green buying habits, 21 percent of Americans said they were buying more, and 48 percent said they were buying the same amount. However, answers were correlated with household income, with respondents reporting incomes of less than $75,000 significantly more likely than the overall population to say they were buying fewer green products (18 percent versus 8 percent).

FIGURE 6.1
In which product categories are you searching for greener products? (Source: From Ecopulse 2010, Shelton Group.)

Men were significantly more likely than women to seek out greener options in electronics (56 percent versus 39 percent). They were also somewhat more likely than women to look for green alternatives in automobiles/vehicles (36 percent versus 29 percent).

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Green Purchase Drivers Differ by Product Category

The Shelton Group has found that people buy green products for very different reasons, and those reasons vary by product category. In the energy-efficient appliance and green home improvement categories, for example, the
primary purchase driver is “to save money.” However, when asked why they buy all-natural personal care products, consumers chose “to limit my (and my family’s) exposure to toxins and chemicals.” Shelton also found that “preserving natural resources for future generations” is consistently among the top three benefits of buying green in multiple, disparate product categories.

However, what consumers find compelling can sometimes be surprising. For example, when Shelton tested a variety of green features in a conjoint analysis, for baby wipes, products featuring “manufactured with wind power” were selected more often and commanded a higher price (exhibited more price inelasticity) than those with “natural botanical ingredients” or “made with organic cotton.”

And while the primary driver for healthy or organic food purchases is generally “better health,” we’ve found that endorsements or certifications generally test better in these categories than “organic” or “100 percent natural ingredients” in conjoint analysis. For example, in the healthy soup category, the “Endorsed by the American Heart Association” heart check was a stronger selection feature than “100 percent natural ingredients” or “certified organic ingredients.” Similarly, “endorsed by the American Heart Association” tested better than healthy additive descriptions such as “contains 13 vitamins and minerals” in the toasted oat cereal category.

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**Green Habits Are Also Increasing**

When presented with a long list of possible sustainable behaviors and asked which they regularly or habitually do (see Figure 6.2 and Figure 6.3), over one-third of Americans (35 percent) fell into the high activity category (10–39) in 2010, compared to only 18 percent in the previous year. The average number of green activities for respondents increased from six to eight in one year. The most common green activities were adjusting thermostat settings to save energy (65 percent); always recycling aluminum cans, plastic bottles, newspapers, and cardboard (61 percent); and replacing most incandescent bulbs with CFLs (53 percent). Sustainable transportation habits, such as riding a bike or walking rather than driving (19 percent) or taking public transportation (14 percent), are consistently the least popular activities. American consumers continue to be largely unwilling or unable to change their driving habits.

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**So, Who’s Buying Green?**

The Shelton Group has developed a proprietary segmentation system to better understand the attitudes, behaviors, drivers, motivations, and personalities...
Consumer Interest in Green Purchases Is Growing

of those Americans who are buying green. The following data come from our Eco Pulse 2010 and Green Living Pulse 2010 studies. We’ve identified four distinct groups of consumers at different points along the green spectrum. The two greenest segments are the Actives and the Seekers (Figure 6.4).

Meet the Actives

The most involved of these groups is the Actives, representing 22 percent of the overall American adult population. This group is green in both their beliefs and activities, with 86 percent reporting that they are actively searching for greener products.

Demographics

The Actives are well educated and have the disposable income to follow through on their green values:

• They’re equally likely to be male or female.
• They’re slightly older; 27 percent are aged 55+.
• They’re slightly more likely to reside in the Midwest or the Northeast.
• They’re the best educated of all the groups.
40 percent have a household income of $75,000+.

They’re more likely to be white-collar workers.

They’re predominantly white, but they are also more likely to be Hispanic than the overall population.

Almost all are homeowners.

Most are married and half of them have children under 18 in the household.

Lifestyle and Personality

Personality-wise, Actives consider themselves as leaders, with most saying that others come to them for information and ideas. They are also very involved in volunteer activities, with more than a quarter of them saying they “often” or “very often” volunteer in civic, community, church, or other non-profit group activities. Actives are also adventurous, outspoken opinion leaders, and are vocal in their support or boycott of companies and products. Their style isn’t quietly altruistic or secretly philanthropic. Being green is an important part of their personal image; more than half say they’ll pay more for a product that is consistent with the image they want to convey. Their public image is very important to them, as is achieving a higher social status and ambition or aspiring to get ahead. These Americans are generally highly driven, type-A personalities.
Actives are also significantly more likely than other groups to make their own cleaning products and grow some or most of their own food. They cook at home rather than going out to eat significantly more often than all other groups, and they are also more likely to be do-it-yourselfers around the house. These facts all point to an important personality characteristic of Actives: They are pragmatic “doers.” They are more physically active than the overall population and are significantly more involved than other groups in sports—particularly outdoor activities such as hiking, kayaking, and camping—and the arts.

**Green Attitudes and Behaviors**

Actives score very high on both green attitudes and behaviors. This group prioritizes the environment higher than other groups, and that belief guides their actions. To illustrate,

- 81 percent of them said they would choose the environment over their personal comfort or convenience (versus 33 percent of the overall sample).
- 86 percent of them were concerned about chemicals, such as those found in traditional cleaning products (versus 59 percent overall).
- Actives were significantly more likely than average to say that they or someone they care about had been touched by cancer, birth defects, or some other health issue that may be related to environmental contamination (28 percent versus 22 percent overall).
- 84 percent of them considered being in-tune with nature to be important (versus 53 percent overall).
- 84 percent of them said they think it’s important to reduce water consumption (versus 67 percent overall).
- While the percentage was low, they were significantly more likely than the overall sample to say they or someone they care about had been directly affected by water pollution or a serious shortage of safe, drinkable water (13 percent versus 7 percent).

This level of environmental engagement and concern translates into their definition of “green.” To this group, green means several things: environmentally friendly, recycled or recyclable, and energy efficient—but it’s also likely to mean water conserving, safe, healthy, organic, and natural.

There’s not much controversy about global warming with this group—three out of four of them believe it’s real, happening, and caused by human activity. They feel a strong sense of personal responsibility to change their daily habits and purchase behaviors to positively impact the environment.
As their name implies, Actives participate in significantly more green activities than other groups, completing an average of thirteen activities compared to eight overall. What’s most notable about this is that they’re not just doing the easy activities such as adjusting their thermostats. They’re doing the things that require extra effort or extra expense, such as recycling harder-to-recycle products, replacing toilets/showerheads with low-flow alternatives, and completing energy-efficient home renovations. In fact, nearly 70 percent of Actives say they’ve either made significant strides or done everything they can to conserve energy and water, and improve the environment.

While they’re seeking green products at a much higher rate than the overall population (85 percent versus 63 percent), Actives are actually somewhat less likely to seek green products than the Seekers group (described below). This is partly because many Actives would rather “do green” than “buy green”—they’ve already adopted many sustainable behaviors, such as growing their own food or making their own cleaning supplies, which makes them somewhat less likely to seek green products in those categories. In short, we suspect some reject consumerism as a matter of principle.

Actives may also be less likely to seek green products because they’ve already established green purchase behaviors and brand loyalties. But Actives are very open to trying new things; so as new green options emerge in new categories, they’ll likely be early adopters.

When considering which products to purchase, Actives are the group most likely to have chosen one product over another or stopped purchasing a product based on the environmental record and practices of its manufacturer. Actives know a product is green because they do their research. They read about the ingredients, content, and energy savings on the package and research it on the Internet. They also trust third-party certification and third-party endorsement when determining if a product is green.

**Important Categories and Messaging Preferences**

Despite the challenging economy, Actives are still buying green products. In fact, about one in three are buying even more green products than in previous years. They continue to be willing to pay a premium for green goods and services because they value the benefits each offers.

Among eleven categories tested, Actives prioritize green purchases in food and beverages, energy, cars, personal care products, and home cleaning products. They’re less likely to open up their wallets for green clothing, home electronics, and paper products, ranking these at the bottom of their priority lists.

Overall, Actives gravitate toward messages that emphasize environmental harmony and health concerns. They tend to reject messages that focus on saving money, duty, and control. When it comes to messaging strategies for
food and beverages, Actives gravitate toward themes of enlightenment and truth. They believe that natural and organic foods are better than conventional options because they’re grown without chemical enhancements.

Enlightenment: Natural and organic foods are produced with fewer pesticides, hormones, and artificial ingredients than other foods. When you eat natural or organic food, you limit your exposure to things that can harm your health, and you enjoy food that’s more like nature intended. Eating natural and organic foods feels like the smart thing to do.

Truth: Natural and organic foods are the best way to eat fresher, purer foods. It’s the closest thing to eating food that’s just picked from the garden. Knowing that the food you’re eating is natural or organic feels more honest and more authentic than eating prepackaged, processed food.

When we tested energy-efficiency and conservation messaging, we found that preferences were a little different for Actives. While most Americans say they’re conserving energy to save money, Actives are more motivated by energy independence and environmental harmony than by financial gain.

Independence: Conserving energy is one of the most cost-effective ways to make our nation more energy independent. If we reduce our energy consumption, we reduce our need for foreign oil and more expensive alternative energy sources.

Environmental Harmony: Reducing your energy consumption is one of the most important things you can do to help protect the environment. When you use less energy, you’re helping to slow the impact of the climate crisis and conserve natural resources.

For marketers who are selling personal care products to the greenest Americans (the Actives), messaging that emphasizes healthy or natural ingredients/no toxins and chemicals will be well received.

Harmony and Oneness: Natural skin-care products are a way to live more in tune with your values and with the environment. You’re concerned about the impact of toxins and chemicals on your body, and using fewer synthetic ingredients and natural ingredients feels like the right thing to do for your body and for the planet.

Makers of green household cleaners may want to consider a message that emphasizes the health benefits of their products over conventional ones. Actives migrated toward messages of control/health and environmental harmony.
Control/Health: I’m concerned about the toxins and chemicals found in traditional household cleaners. So I’m taking control of my health and my family’s health by using more natural products.

Environment: By cleaning my house with cleaners that are more natural, I’m living in a more environmentally responsible way, and that’s important to me.

Meet the Seekers

Seekers are the largest segment and are very similar to—and sometimes even stronger than—Actives in their environmental beliefs and attitudes. All of them are seeking to be green but most fall somewhat short with their activities and purchase behaviors. With more limited incomes than the overall population, Seekers often do not have the resources to act on their beliefs by making expensive green purchases.

Demographics

Seekers are

- Equally likely to be male or female
- Slightly younger than Actives, with 80 percent under 55 years of age and more likely to be age 25 to 34
- More likely to be living in the South and the West
- Not well educated; half have attained only a high school diploma or less
• More likely to have a household income of $50,000 or less
• White-collar or blue-collar workers
• More likely than the overall sample to be minorities; they are the group with the highest percentage of Hispanics (19 percent)
• This group contains the highest percentage of non-homeowners (50 percent versus 38 percent overall)

**Lifestyle and Personality**

Seekers are less outspoken and spontaneous than Actives. They generally gravitate to the center of most personality scales. They mirror the overall population in terms of optimism, leadership, organization, and security. However, in our survey, they were more likely than average to say they give advice rather than ask for advice, indicating they are influencers. They are also somewhat more ambitious than Actives, but their reputation is more important to them than achieving a higher social status. Politically, about a third of Seekers are Democrats and an equal percentage of them are Independents, with the remainder identifying themselves as Conservatives.

Like the Actives, Seekers engage in exercise, with 84 percent reporting that they work out an average of 3.8 days per week. Seekers consider themselves as “regular home do-it-yourselfers,” just slightly more so than the overall population, thus indicating a sense of self-sufficiency and pragmatism.

**Green Attitudes and Behaviors**

Seekers are primarily defined by their active search for greener products. A full 100 percent of them (versus 63 percent overall) said they are searching for greener products these days. They score medium to high in both green attitudes and behaviors, and one-third rank the environment over the economy. For instance,

• Seekers feel the most personally responsible to change their daily habits and purchase practices to positively impact the environment (68 percent versus 51 percent overall).
• 69 percent said a company’s environmental record has “Somewhat” or “Very Much” impacted their decision whether or not to buy its products (versus 45 percent overall).
• Seekers are very environmentally vocal; 47 percent said they would both stop buying and tell their friends to stop buying (versus 25 percent overall) if their favorite toilet paper manufacturer was revealed to be committing environmental infractions.
• However, only 17 percent have actually chosen one product over another or stopped purchasing a product based on the environmental
record or practices of its manufacturer, although this is slightly more than the percentage of the overall sample that did so (i.e., 14 percent).

- The economic environment has not impacted their green purchases; 29 percent say they are buying more green products (versus 21 percent overall).

- Seekers are highly engaged (although somewhat less so than Actives) on environmental issues; 76 percent said that preserving the environment was important to them, compared to 63 percent of the overall sample.

- 79 percent of survey respondents said it was important to reduce water consumption, compared to 67 percent of the overall sample.

- However, Seekers are less engaged on the issue of climate change than Actives, with 50 percent agreeing that the phenomenon is occurring and caused by humans (matching overall green consumer agreement).

- Seekers primarily defined “green” as “environmentally friendly” (78 percent) or “recycled” (55 percent). They were also the group most likely to choose the definition “energy efficient” (44 percent). Interestingly, they were significantly less likely than the overall sample to choose the terms “organic” (12 percent versus 16 percent) or “natural” (19 percent versus 24 percent).

When it comes to green activities, 63 percent of Seekers fall into the medium green activity count, compared to 52 percent of the overall sample. Their average number of activities is slightly above average (8.5 versus 8.0 overall). Most have integrated the easy habits (recycling, adjusting the thermostat, giving up disposable water bottles, etc.), and significantly more have also undertaken energy-efficiency-related home improvement projects, such as buying Energy Star®-qualified appliances (43 percent versus 33 percent overall) and making energy-efficient renovations (29 percent versus 19 percent overall).

The types of activities they participate in compared to the overall population require effort rather than money. For example: 70 percent always recycle aluminum cans, plastic bottles, newspapers, and cardboard (versus 61 percent overall); 51 percent drink from reusable containers, not disposable plastic bottles (versus 46 percent overall); 53 percent avoid tub baths/take shorter showers to reduce water use (versus 45 percent overall); 47 percent always unplug things/turn off power strips (versus 39 percent overall); 43 percent bring their own bags when they go shopping (versus 37 percent overall); 44 percent regularly buy or make green cleaning products (versus 33 percent); 30 percent most often buy natural or organic personal care products (versus 21 percent overall); and 29 percent most often buy organic produce or meats (versus 20 percent overall).

Seekers also read the ingredients, content, or energy-savings details on the package in order to know if a product is green (45 percent versus 38 percent...
of the overall sample). They are only slightly more likely than the overall sample to research whether a product is green on the Internet (21 percent versus 18 percent). While the number-one definition of green (for all groups) was “environmentally friendly,” Seekers were the respondents most likely to also choose “recycled or recyclable” (50 percent versus 46 percent overall) and natural (30 percent versus 26 percent).

Seekers are more likely to buy based on quality rather than price. In our survey, they were more willing than the overall sample to pay more for a product that was environmentally friendly (68 percent versus 53 percent overall). They were also more likely to agree that they would buy a product from a company they trust, even if it is more expensive (73 percent versus 64 percent overall). Finally, cooking with fresh food was significantly more important to them (84 percent) than eating organic food (37 percent).

**Important Categories and Messaging Preferences**

Due to their lower household incomes (lower than the Actives), Seekers are primarily searching for green products in lower-priced categories, such as home cleaning products, laundry and dishwashing detergents, paper products, food and beverages, and personal care products. However, they also show great interest in energy-efficient appliances and home improvement projects that typically require a significant financial investment.

Seekers are most interested in green home cleaning products. This may be because Seekers were significantly more likely than the overall sample to say that they had someone in their household with respiratory issues such as asthma, COPD, or serious respiratory allergies (31 percent versus 21 percent), which can be exacerbated by breathing some traditional cleaners. This is reflected in their messaging preference for this category—Control/Health:

> Control/Health: I’m concerned about the toxins and chemicals found in traditional household cleaners. So I’m taking control of my health and my family’s health by using more natural products.

Like the Actives, the Seekers also responded positively to a message of environmental harmony for household cleaners:

> Environmental Harmony: By cleaning my house with cleaners that are more natural, I’m living in a more environmentally responsible way, and that’s important to me.

Similarly, the Seekers gravitated toward a health message for personal care products. Their top reason for buying a greener personal care product was “to limit my (and my family’s) exposure to toxins and chemicals” (27 percent versus 21 percent of the overall sample), followed by “to be healthier” (14 percent versus 10 percent).
For recycled paper products, Seekers preferred a “don’t waste” or “duty” message:

Don’t waste/Duty: Buying recycled paper products is the right thing to do—it reduces waste and helps me feel like I’m doing my part.

Perhaps surprisingly, reducing home energy consumption was more important to Seekers than to Actives, with 79 percent of them rating this important compared to 68 percent of Actives. Thus, they also prioritized buying green appliances higher than did the overall sample. Their primary reason for undertaking energy-efficient improvements was “to reduce or better control energy costs” (31 percent versus 27 percent overall), but they chose an energy independence message as their favorite. They were also significantly more likely than the overall sample to choose the “feels good to be responsible/do your part” message (23 percent versus 18 percent).

Energy Independence: Conserving energy is one of the most cost-effective ways to make our nation more energy independent. If we reduce our energy consumption, we reduce our need for foreign oil and more expensive alternative energy sources.

Summary and Conclusions

Green Purchases Are Up although Environmental Concern Is Down

While more Americans are buying green products and participating in conservation behaviors than ever before, they’re doing so primarily for money-saving or health reasons and not environmental reasons—many are “accidental environmentalists.” Overall, concern for the environment seems to have waned somewhat, with more Americans shifting to an undecided stance on global warming and fewer expressing a strong sense of personal responsibility to change their behavior.

• 64 percent of respondents said they are searching for greener products these days (up from 60 percent from 2009).
• The primary reason by far to purchase greener personal care products was “to limit my (and my family’s) exposure to toxins and chemicals” (21 percent), compared to 10 percent who selected “to preserve natural resources for future generations.”
• The primary reason to buy greener home improvement products was “to save money” (17 percent), compared to 10 percent who replied “to save natural resources.”
• Only 48 percent (compared to 58 percent in 2009 and 57 percent in 2008) said they agreed or strongly agreed with the statement that “Global warming or climate change is occurring and is primarily caused by human activity.” The change largely happened due to a large shift to undecided responses (30 percent compared to 22 percent from 2009) and not a marked increase in disagreement (21 percent compared to 19 percent from 2009).

• In 2009, 18 percent felt “very personally responsible” to change daily habits and purchase practices to positively impact the environment. In 2010 only 14 percent felt “very personally responsible.”

• Only 24 percent would choose the environment over their personal comfort or convenience, compared to 26 percent in 2009 and 31 percent in 2008.

• Green purchases are up, despite the economy.

• Green product purchase growth is occurring primarily in lower-cost product categories, with most respondents reporting that the recent economic environment has not affected their green product purchase patterns. In fact, many said their purchase volume has actually increased despite the troubled economy.

• 48 percent said they were buying the same amount of green products, even in light of the current economy.

• 21 percent said they were buying more green products.

**Green Purchase Drivers Differ by Segment**

Ultimately, our findings point to a sustained shift toward green product purchasing that’s driven primarily by very personal, not altruistic or overtly environmental, reasons. People are buying green to meet their own needs—not, generally, to save the planet. Purchase drivers differ by market segment. There is no sure-fire, one-size-fits-all messaging approach for the “green buyer”—because there is no one “green-buyer” profile. Even consumers who are not particularly pro-environmental (i.e., the Skeptics) can be a good target audience for some green products if you tap into the right drivers with the right product positioning and messaging.

Ultimately, applying basic marketing strategies can help clarify any product’s most likely “green buyer.” Start by looking at the product category, its pricing, and where it falls on the standard adoption curve. In general, if the green product is more expensive and relatively early on the product adoption curve, then you should likely target upscale, early-adopter green consumers (the Actives). If the green product is less expensive and in the “early majority” phase of adoption, then Seekers would likely be the primary target audience. For example, if you were selling sustainable wood flooring and solar panels, then Actives would likely be the better target.
However, if you’re selling a green household cleaner, then Seekers should be your focus. Finally, messaging should be customized to the target audience. A “save money” message can be a turn-off to Actives, while a “do your part to limit global warming” message won’t work for many Seekers. And the product attributes or “reasons to believe” you choose for messaging and packaging call-outs should also match the priorities of your audience. In short, the best advice for the successful marketing of green products is the same as it is for successfully marketing any other product: Know thy buyer!

**About the Shelton Group**

Shelton Group is a full-service advertising agency entirely dedicated to sustainability and energy efficiency. With clients across the country ranging from consumer packaged goods and building products companies to utilities, government entities, and non-profits, Shelton Group is a recognized thought leader in the industry. Shelton Group regularly conducts proprietary research studies—Eco Pulse™, Green Living Pulse™, Energy Pulse™, and Utility Pulse™—to track consumer attitudes, beliefs, and behaviors. Shelton leverages these insights to create powerful advertising campaigns that produce behavior change.

**Reference**

The Case for Green Marketing

Green marketing is quickly becoming more of a mainstream necessity rather than an initiative to be taken by proactive companies or those with a niche green product line. We are seeing green marketing (also called sustainable brand marketing) occurring in all types of products and industries. It’s not just the firms that sell direct to consumers that must be concerned with this new marketing; suppliers of all types of products must start heeding this macro trend that doesn’t seem to be subsiding, even during a global economic slowdown. As discussed in previous chapters, companies are seeing a need to develop greener products in all parts of business: consumer products, chemicals, electrical products, medical products, and even pharmaceuticals.

Working for a company that sells products directly to consumers and also does a good deal of business-to-business (B2B) sales, my experience tells me that green marketing is quickly moving toward being an imperative. I have seen green marketing take off in the consumer area, but I am now also seeing an uptick in the B2B space. Customers in just about all of our markets are looking for greener products. The signals in the field are building, and now is the time to start positioning your brand to get on board with this trend.

Consumer Demand

As we have seen in the previous chapter, research by the Shelton Group indicated that 64 percent of Americans are searching for greener (more energy efficient, natural, sustainable, etc.) products. This trend is not just limited to the United States. In the book entitled *Green Recovery*, Andrew Winston makes the point that global data from twenty-six countries indicate that 86 percent of consumers were concerned with climate change, 71 percent said they would avoid buying goods that traveled long distances, and further studies indicated that more than 50 percent of consumers “seek
out eco-products or consider environmental and social aspects in their purchases.” (Winston 2009)

We have seen greener products entering the mainstream. In the United States when you make a trip to the local supermarket, you will see products that used to only be offered in health food stores. Products like Seventh Generation detergents, Method facial cleansers, and Stoneyfield Farm organic yogurt, to name a few, are commonplace. It is typical for grocery stores to have an “organic” section offering cereals, fruits, vegetables, milk, and baby products. We see traditional companies coming out with green products that have done extremely well. Clorox’s Green Works line is perhaps the best example of this. According to Clorox’s own press release, one year after introducing Green Works, the “natural cleaning category has grown more than 100 percent, delivering on the company’s goal to make natural cleaning more accessible and affordable to everyday consumers... Green Works™ is now the #1 natural cleaning brand in the U.S., with a 42 percent share of the market to date.” (Clorox 2009)

Further signals that emphasize the greener product trend are that U.S. consumers invested around $290 billion in more sustainable products during the recession in 2008. These products range from hybrid cars to natural and organic products and energy-efficient appliances. In 2007, the U.S. Patent and Trademark Office saw more than 300,000 applications for green-related brand names, logos, and tag lines. The Organic Trade Association reported that in 2008, organic food accounted for 3.5 percent of all food sales and reached an amazing $22.9 billion. In addition, other organic-based materials such as fibers and personal care products were also significant, $1.6 billion in total. (Ottman 2011)

**Should You Market Green?**

“It’s the number one thing consumers all over the world care about.”
David Compton, CEO PepsiCo Americas Foods (WSJ 2011)

A 2009 Green Shopper Study (conducted by Deloitte and the Grocery Manufacturers Association (GMA)) of more than 6,000 customers indicated that 63 percent of the shoppers were looking for green products. “One in five shoppers surveyed considers sustainability to be a dominant or primary decision-making factor in many merchandise categories.” Although green is not the dominant factor for most, it is becoming an important brand differentiator. The research leads to an understanding that a product’s sustainability characteristics “act as a frequent tie breaker that tips the balance when other purchase drivers are in parity.” (GMA 2009)

This idea of greener being an “and” is a concept I believe is proven out by numerous studies of consumers’ purchase tendencies and based on my experience with consumer and B2B purchasing. What I mean by this is that the
majority of consumers want a greener product but don’t want to pay more for it, therefore it is an “and.” Only the deep green purchasers, or the ones the Shelton Group would call “Actives,” would be willing to pay a premium for a greener product (only 22 percent of shoppers in the United States). Therefore, in order to reach the majority of purchasers, product attributes such as efficacy and appeal must be present and then its sustainability qualities can push it over the edge. Consumer product buyers are not the only ones looking for greener products; we are also seeing companies having to market their product’s greener aspects to other businesses to get market advantage. The concept of the greener characteristics being an “and” also applies to the business customer.

Business-to-Business Demand

Similar to consumers, many companies are actively seeking to purchase greener products. Firms have been pressured by market forces to take responsibility for the supply chain. Perhaps the most notable examples of this is when Nike and other footwear and apparel companies received significant pressure to take responsibility for the poor working and environmental conditions at the companies that manufactured shoes for them in the 1990s. Not long after this, several apparel firms received significant pressure to take responsibility for suppliers that made their products in sweatshops. Companies started to get the point and then began to develop very comprehensive policies and auditing programs for their suppliers to ensure that the environment is protected and employees within their supply chain have safe working conditions. Taking this initiative even further, we see manufacturing firms now asking their supply chain to achieve certain goals, such as reducing water, energy, waste, and other issues. These initiatives have been coined as “greening the supply chain.”

With the advent of greening the supply chain initiatives, supplies will gain market advantage when they meet the demands of their business customers. I know that in my company (Johnson and & Johnson), we give preference to like-minded firms that have adopted sustainable practices. Meeting your customers’ needs is the inspiration behind business-to-business (B2B) marketing.

As an illustration, look at one of Unilever’s sustainability goals: to increase the amount of sustainably sourced raw materials such as palm oil and tea. (Unilever 2010) If your company is a supplier of one of their raw materials and you can reliably source sustainable tea, you can help them with this goal and it will give you an opportunity to increase your sales.

Similarly, suppliers to Tesco can see that they are very serious about getting more sustainable innovation from their suppliers. They have an eighty-eight-page “Environmental Guide for Suppliers.” Being a major global retailer, they recognize that they have an opportunity to make a big impact in their
supply chain by conducting their operations in a responsible way. Strides have been made to reduce their carbon footprint, and they want to encourage their supply base to do the same. A goal was established to become a zero carbon business by 2050 and to reduce carbon emissions by 50 percent from their distribution network by 2012. This goal affects all suppliers.

To assist suppliers in minimizing their footprints, objectives were set in various areas such as energy, waste, water, and transportation. The objectives lead to higher levels of achievement from bronze, silver, and gold levels of performance. They have also set mandatory policies for suppliers to follow, such as palm oil sourcing, restricting toxic substances, and various others. Any company that can excel in these areas will, at a minimum, get the right to sell in a Tesco store and, if they have superior performance, could get the most preferred shelf space or other marketing benefits.

It’s not just Tesco that has green purchasing policies. You would be hard pressed to find a large company that doesn’t have a procurement strategy that emphasizes purchasing greener products. From energy-saving electronics to paper that contains post-consumer recycled content or green supply chain initiatives that seek suppliers to bring forth sustainable innovations. These kinds of initiatives will only become broader and will demand more eco-efficiency from suppliers in the future. The companies that see this trend and can meet customers’ demands will be able to win in the greener product market.

B2B marketing is also getting to be a bigger focus area due to the advent of supplier scorecards. Walmart’s Supplier Sustainability Assessment and Packaging Score Card are well known, but there are other very influential companies with sustainability scorecards of their own. Kaiser Permanente and Procter & Gamble (P&G) have also issued mandatory supplier scorecards. These two companies have a combined annual purchasing power of $121 billion! Suppliers take notice when they hear the VP and Chief Procurement Officer of Kaiser Permanente say, “Green up your act today, lest you lose a huge client tomorrow.” Also consider that P&G alone has 75,000 suppliers throughout the world.

These scorecards will no doubt drive companies to highlight the greener benefits of their products. When customers are interested in if a product contains specific toxic chemicals or if they are manufactured using renewable power, it is in your best interest to clearly communicate which products in your portfolio have greener features.

Examples of questions from P&G and KP scorecards include

- What percentage of energy consumed is generated from renewable resources?
- Does the company have a climate action plan with baseline and targets?
- How many metric tons of hazardous and nonhazardous waste are produced? (Joseph 2010)
Other drivers of B2B marketing are the public relations benefits for being perceived as a company that cares and helping your customers save money. Home improvement giant Lowe’s was recognized as the WaterSense® retail partner of the year by the U.S. Environmental Protection Agency. They also received kudos from the Department of Energy’s Energy Star® Sustained Excellence Award in 2010. These accolades were achieved by providing products that save money while reducing environmental impacts.

In 2009, Lowe’s sold enough Energy Star products to save consumers more than $265 million each year off their energy bills compared with non-Energy Star-qualified products. Lowe’s explains the benefits of water conservation in their stores and helps families reduce utility bills. The number of WaterSense-labeled toilets and bathroom faucets that Lowe’s sold in 2009 can save consumers $13 million each year on water bills. (Lowe’s 2010)

With this kind of focus on greener products, would it make sense for suppliers to get the Energy Star or WaterSense label on their products? With Lowe’s getting such positive recognition as a sustainable company while generating savings for their customers, it would be prudent for suppliers to provide products that help Lowe’s attain their goals.

This scenario is common across all industrial sectors. Companies that provide building supply products can help their customers seeking green building certifications (like LEED) with products such as low-VOC (volatile organic compounds) paint, more energy-efficient windows, sustainable wood products, more efficient air handling equipment, more sustainable carpet and cleaning compounds, to name a few. We are seeing that suppliers are being held to higher standards, and sustainable innovation is one of them. When a company can provide greener products to its business customers and help them achieve their sustainability goals, they are more likely to make the sale.

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Examples of Green Marketing

Earlier in the book we discussed how to build greener products. The first step in green marketing is to have a credible greener product to bring to customers. The next step is to appropriately communicate the qualities of your product or service that meet customers’ demands.

What are the key elements of green marketing? First, your product must have a “greener” story to tell based on scientific facts and data. As the Shelton Group says, you must know your buyer and meet your customers’ greener product demands. Finally, the greener benefits must be appropriately communicated, not overstating or misleading.
The Boston Center for Corporate Citizenship recommends five guidelines for green marketing:

1. Be precise: Make specific claims that provide quantitative impacts.
2. Be relevant: Demonstrate a clear connection between the product or service and the environment.
3. Be a resource: Provide additional information for consumers in a place where they want it.
4. Be consistent: Don’t let marketing images send a signal that contradicts the carefully chosen words and facts you use.
5. Be realistic: There are always more environmental improvements that can be made to a product or service, and they are but one piece of a much larger environmental journey for society. The way I would say this is, communicate your products as greenER, not green. (Hollender, Orgain, and Nunez 2010)

These five guidelines make a lot of sense to me. Based on my experience, I would simplify effective green marketing into three key elements; first there must be a truly greener product to market (see Chapter 4 on making greener products to know how), we must understand what the customer requirements are, and we must appropriately communicate a product’s greener characteristics.

### Key’s to Green Marketing

1. Have a credible greener product story.
2. Meet your customers’ greener product demands.
3. Appropriately communicate the product’s greener attributes.

### B2C Green Marketing Examples

Green marketing is all about communication. The greenest product in the world is useless if no one knows it’s available. We have many successful green marketing campaigns to learn from, so let’s evaluate a few and see what the key aspects are looking through the lens of

1. Having a credible greener product story,
2. Meeting your customers’ greener product demands, and
3. Appropriately communicating the product’s greener attributes.
Green Works®

As previously discussed, Clorox’s Green Works changed the game and enabled greener products to be sold in the mainstream market. Prior to Green Works, we had seen green products stigmatized in the consumers minds as being a niche product sold primarily in health food stores. The mainstream consumer thought of these products as not working well, too expensive, and they couldn't trust them. Green Works is based on a natural ingredients platform (at least 99 percent natural ingredients). In their testing and preliminary evaluations, they determined that Green Works cleaners performed as well and sometimes better than the cleaning products that were on the market. Consumer research indicated that the highest-scoring desire was that of personal protection: “doing things that protect me and my family.”

To address the possibility of not being considered authentic, the line of products was put through the U.S. EPA’s Design for the Environment (DfE) certification. Further bolstering their green claims, they received endorsement from the environmental group, the Sierra Club, placing their logo on product bottles. Augmenting this, they placed the ingredients of the compounds used on the product labels, even though this was neither required by law and nor a common practice for household cleaners. (Werbach 2009)

Green Works clearly has done the work to credibly develop a greener product. They understand the consumer’s needs of personal protection and they have clearly messaged the products’ greener attributes to the customer. Receiving third-party endorsement with the DfE certification and the Sierra Club’s backing helped cement the product as truly green in the minds of prospective purchasers.

Seventh Generation

Coming from a different direction than Clorox, Seventh Generation has been a deep green company from its very beginning, also selling cleaning products, but their offerings include baby, laundry, dish detergents, and other products as well. Their aim was to bring their greener product into the mainstream market. In their mission statement, they state an Iroquois Indian law that they must “consider the impact of their decisions on the next seven generations.” You can’t make a stronger commitment to sustainability than that in your mission statement.

Their greener product scorecard, developed in 2009, was done with the assistance of a third-party sustainability consulting firm, Pure Strategies. This tool assigns a score to a product and identifies improvement areas so developers can make the most sustainable product possible. The products are based on natural ingredients and they use some of the highest concentrations of (PCR) Post Consumer Recycled content in their packaging, most being at 100 percent. They also emphasize purchasing sustainably sourced agricultural raw materials like palm oil.
According to research by the Shelton Group, consumers purchase all-natural personal care products to limit exposure to toxins and chemicals; this is the essence of Seventh Generation products. Seventh Generation has been effective in communicating that their products are greener. Upon evaluation of their company website, one can see the clear commitment to sustainability. For instance, take their concentrated laundry detergent for babies. It clearly indicates that the main benefits are free of dyes and fragrances and it comes with a message to help conserve water by encouraging customers to please run full loads. We also see a connection to the customers’ demands for a safe product when they mention “we create effective household and personal care products that help you care for the health of your family, your home, and our planet.” Ingredients are described as being “biodegradable, free of dyes and synthetic fragrances, free of optical’ brightness and non-irritating to skin.” (Seventh Generation 2011)

Seventh Generation covers all the key areas for green marketing. They obviously have a truly greener product, they know what their customers are looking for, and they clearly communicate the greener benefits to the customers’ demands on packaging as well as digitally.

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**Communicating Green Attributes Important to the Customer**

**Honest Tea®**

I first came across Honest Tea through my teenage children. Desiring a low-calorie, good-tasting drink, they became aware of this new beverage. The name of the company describes their mission. “Honest Tea creates and promotes delicious, truly healthy, organic beverages. We strive to grow with the same honesty we use to craft our products, with sustainability and great taste for all.” A commitment to social responsibility is central to Honest Tea’s identity and purpose. The company states that they strive for “authenticity, integrity and purity, in our products and in the way we do business.” The platform for products is a healthy beverage with a lot less sugar than most bottled drinks.

Their products are based on five key focus areas:

- Antioxidants
- Fair trade
- Less sugar
- Organic certified
- Packaging
Independent laboratory analysis is used to prove their drinks have antioxidant levels that are as high as or higher than brewed tea leaves. In 2003, Honest Tea became the first to make a Fair Trade Certified™ bottled tea. This certification strives to empower family farmers and workers around the world to get a fair price for their harvest, have safe working conditions, and earn a living wage. (Honest Tea 2011)

Concerned with obesity problems in the United States, Honest Tea believes that super-sweet beverages loaded with sugar are part of the problem. So beverages are made without any sugar, such as unsweetened green and black teas (no calories, no sugar). They also produce products that are a “tad sweet,” drinks that contain a paltry fifty calories or fewer, sweetened with organic cane sugar, much less than traditional bottled iced teas on the market.

All Honest Tea beverages and tea bags are certified to the USDA’s organic standards. The certification ensures customers that the product’s raw materials were grown following organic farming techniques; and do not contain antibiotics, pesticides, irradiation, or bioengineering. The farms that provide the raw materials are examined by third-party certification agencies.

**Honest Tea Messaging to the Health-Conscious Consumer**

Organic products are better for your health and better for the earth. That’s why USDA organic certification is a critical part of Honest Tea’s commitment to social responsibility.

Glass, PET plastic, and pouches for children’s drink containers are used for packaging. Improvements have been made to the PET bottle by making it 22 percent lighter, and a recycling program was put in place for pouches, which are not typically recycled in municipal recycling programs. A partnership was made with the company TerraCycle that uniquely converts the drink pouches into fashion bags, tote bags, pencil cases, and other items.

Communicating the greener benefits of their products is done very clearly on bottle labels. As an example, the Fair Trade and USDA Organic logos along with the calories (60) are prominent on the label of their Peach OO-LA-Long “Just a Tad Sweet” tea. A further communication point is the USDA Organic label right on the top of the bottle cap. (Honest Tea 2011)

Honest Tea has a good sustainability story to tell that is backed up with data and third-party certifications. Shelton Group research indicates that the primary driver for organic food purchases is the desire for “better health.” Consumers tend to favor endorsements or certifications for this category of products. Therefore, they are on target in addressing their customers’ desires with the organic and fair trade certifications they obtained and so prominently display. Finally, they are credibly and very clearly communicating to their customers their products’ greener traits.
Timberland®

Being one of the first companies to develop a product-specific scorecard called the Green Index®, Timberland has built sustainability into its core. Supplying footwear and apparel for the outdoors, they feel a direct connection to developing sustainable products—hence their environmental commitment is called “Earthkeeping.”

As discussed in Chapter 4 on developing greener products, the Green Index label is placed directly on their shoebox and looks similar to a nutrition label. This label indicates the climate impacts, chemicals used, and resource consumption (see Chapter 4 for an example of the label). The label conveys criteria that provide consumers with a relative measure of their products’ environmental impacts to spur more sustainable purchasing.

An example of product improvements is the Earthkeepers™ 2.0 boot. This boot uses less raw material and more recycled materials. These product improvements are communicated through the Green Index label. According to Timberland, consumers like the fact that they are being transparent about the good things they are doing and the areas that they struggle with too. They feel that this approach will enable them to win in the marketplace. (Werbach 2009)

Marketing Earthkeepers 2.0 Environmental Improvements

- Designed for disassembly: at least 50 percent of the materials in this shoe can be recycled or reused at the end of its first life.
- Premium full-grain leather from a Leather Working Group certified gold-rated tannery for comfort and durability.
- 100 percent recycled PET laces.
- 45 percent recycled PET linings.
- A detachable and recyclable Green Rubber™ outsole made from 42 percent recycled rubber can go back to a Green Rubber™ factory for recycling. (Timberland 2010)

Timberland has developed products using their Green Index that have better environmental performance. Customers’ demands for transparency about the materials used in their products are being met. Consumer research has been used to identify the most important desires to communicate on. And they have come up with a unique communication tool similar to a nutrition label to fulfill their customers’ desires.

Neutrogena® Naturals

Neutrogena is an international consumer brand that includes facial products, hair care products, cosmetics, and products for the skin. To address
the marketplace’s demands for greener products, they released a new line of natural products in 2011. A lot of good green marketing concepts have been put into this initiative, and it will be informative to evaluate their approach.

The new line of products is called Neutrogena® Naturals and is described as “ecologically friendly skincare products that harness the power of naturally occurring bionutrients to deliver safe and effective results.” There are five products in this group: facial cleanser, pore scrub, makeup remover cleaners, lip balm, and face and body soap bar. The products are based on a natural platform and do not contain petroleum-derived ingredients. The paper outer carton packaging has been greened up and is made from 100 percent recycled paper with a minimum of 65 percent post-consumer recycled content and is Forest Stewardship Council (FSC) certified. Some packaging also uses vegetable-based ink.

All product packaging in this line has the same look and is based on the same natural platform. On the product label and website, their greener position is clearly described and they also dispel the perception that green products are not effective. The desire of natural product consumers to limit their exposure to toxins and chemicals is balanced with a message that this greener product comes from a brand that has been around a while, one that you can “trust.”

**Neutrogena® Naturals Purifying Facial Cleanser Label Messages**

- No harsh chemical sulfates, parabens, petrochemicals, dyes, or phthalates
- Gently removes impurities and improves complexion for fresh, clear skin
- Willobark bionutrient-rich cleanser detoxifies pores

The communication used to convey that the product is natural is “no harsh chemical sulfates, parabens, petrochemicals, dyes or phthalates.” On the product line’s website there is much more information on how they tie sustainability into the core of the brand. Neutrogena addresses head-on the old thoughts about the poor performance of green products by stating that “other natural products have not always delivered the results that you wanted.” This old perception is overcome by bringing out the company’s expertise and history of efficacious products. “By merging the clinically proven expertise of Neutrogena with the best of what nature has to offer, we’re able to bring you the best of both worlds—natural skincare that really works.” This approach is similar to Clorox’s Green Works in that it comes from a brand with a long history of safe and effective products, which helps customers trust that the products will meet the same efficacy standards but have a natural platform.
Further reinforcing the brand’s natural or green aura, a cause marketing partnership with the environmental group, the Nature Conservancy, on freshwater projects has been initiated. Customers can even volunteer to work with the Nature Conservancy through the brand’s website. Additional information can be found about their products’ ingredients, how they were developed using a natural platform, and what the FSC certification for their paper packaging means.

Neutrogena has done a nice job of putting it all together. They have data to back up that their product and its packaging is truly greener. The customers most likely to purchase a natural product are interested in reducing the amount of toxic substance they are exposed to and this product line credibly addresses this with their natural platform and greener packaging. The communication of their efforts is performed plainly on product labeling as well as digitally through their website. Further, the relationship with the Nature Conservancy and the use of an eco-label (FSC) add more appeal to the natural product shopper.

B2B Green Marketing Examples

When we think of green marketing our natural tendency is to think about direct to consumer products. However, there is a far greater opportunity in B2B marketing. Consider the millions of suppliers that are necessary for all the products in the marketplace. As mentioned earlier, P&G has 75,000 suppliers alone! I believe that in the B2B space, green marketing will be an imperative in the future, and for now it is a key product differentiator. So let’s evaluate some successful B2B green marketing campaigns and see how they compare to the B2C approach.

Ecomagination™

Perhaps one of the most successful B2B marketing initiatives is GE’s Ecomagination program. It would be hard to discuss green marketing without mentioning the inroads made by GE. There are Ecomagination television commercials, print advertisements and digital marketing, as well as an annual report that details the program’s success. GE’s CEO is seen at numerous events throughout the world effectively communicating about this program.

Ecomagination was launched in 2005 and has steadily grown into one of the most successful green marketing programs ever, paying dividends to GE and their customers. In fact, in 2009, sales of greener products resulted in $18 billion!

The whole reason for the existence of Ecomagination is to meet customers’ requirements. The 2009 Ecomagination report states: “Ecomagination is a business initiative to help meet customers’ demand for more energy-efficient...
products and to drive reliable growth for GE.” A program can’t get any closer to meeting customers’ needs than that. In addition, if you polled people throughout the world on what is the most important environmental issue facing the world, inevitably you would hear global warming or climate change. GE’s program sets to tackle this issue through this business program.

Meeting Customer Demands with Greener Products
“Ecomagination is a business initiative to help meet customers’ demand for more energy-efficient products and to drive reliable growth for GE.” (GE 2009)

The program boasts scores of examples of greener products. In the 2009 Ecomagination annual report, there are lists of products in various product categories that have met Ecomagination standards. The examples span various categories in GE’s product portfolio, from household appliances, to jet engines, turbines, locomotive engines, windmills, and solar collectors to lighting, healthcare products, and water desalinization equipment. As an illustration of how a product benefits the customer while meeting the world’s demands for cleaner energy, consider the sale of windmills. GE has sold 139 windmills to the largest onshore wind farm in Central Europe; the energy generated from these will provide enough electricity for 400,000 homes. (GE 2009)

Ecomagination has been an extremely successful green marketing program. They have developed a robust portfolio of greener products (see the case study in Chapter 4). The whole point of the program is to meet customers’ needs. Marketing is positioned and connected right at the core requirements: more energy efficient and clean power generating products. They have revolutionized the way green marketing communication is conducted, and one could make the case that GE has brought B2B green marketing mainstream due to its success and market penetration.

BASF
One industry group you would probably not think is doing green marketing is the chemicals sector. However, this may be one of the most beneficial categories to emphasize the greener aspects of your products. I recall seeing television commercials years ago by BASF saying, “We don’t make a lot of the products you buy; we make a lot of the products you buy better.” Well, today you can say, “We make the products you buy ‘greener’.”

One example of BASF’s green marketing is the manufacturing of bioplastics. They use raw materials for plastics composed of eco-friendly feedstock such as corn and potatoes. Rather than using petroleum-derived materials, renewable agriculturally derived raw materials are generated through the use of enzymes or fermentation to produce plastics that biodegrade at their
end of life if put in a compost facility. These plastics are used to make such items as utensils, plates, cup linings, carpeting, and various other products. Major manufacturers such as Proctor & Gamble and Johnson & Johnson are seeking out these plant-derived resins for use in packaging as well. (Stein and Mali 2010)

Another example of green marketing is BASF’s Irgacure® photo-initiator product. (BASF 2011) This raw material is a critical component of the UV curing process for coatings and adhesives. Its properties help to quickly cure coatings and adhesives faster and more economically than traditional UV curing methods. This makes the production process of BASF customers more efficient and generates “substantial savings in energy, time and labor.” By marketing the greener attributes of less energy and time, one can equate it to a lower environmental impact—and thus a greener product.

Another product that has a green marketing angle is Ecoflex®, a biodegradable and compostable plastic. It is marketed as “ideal for trash bags or disposable packaging as it decomposes in compost within a few weeks or in soil without leaving any residues.” To bolster its eco-friendly credentials, certifications were obtained from the Biodegradable Products Institute in North America, the European Standard EN 13432 on compostability, as well as the Japanese standard GreenPla. These standards certify that the product biodegrades swiftly and safely in the environment. (BASF 2010)

BASF has developed greener products to bring to their customers by meeting the demands of those customers through products that lower environmental impact, such as bio-based packages. Green claims are backed up by data and in some cases third-party certifications. Environmental benefits are clearly communicated when describing their products, yet without overstating greener characteristics.

Sodexo, Inc.

Sodexo, Inc., the largest food service company in the world, has also embraced sustainability through their Better Tomorrow Plan. They have three core pillars to this plan: (1) We are: The fundamentals that are the cornerstone of a responsible company; (2) We do: Three priorities, nutrition/health/wellness, local communities, and the environment; and (3) We engage: dialogue and joint actions with our stakeholders. (Sodexo 2011)

One of their commitments, to source sustainable fish and seafood, has resulted in a good green marketing story. It is reported that seven of the top ten marine fisheries are overfished. Addressing this critical issue, Sodexo committed to an industry-leading Sustainable Seafood initiative, including a goal to have “100 percent of its contracted fresh and frozen seafood certified as sustainable by the Marine Stewardship Council (MSC) or Best Aquaculture Practices (BAP) by 2015.” Making a commitment like this will give Sodexo a competitive advantage for customers who are interested in purchasing a sustainable product.
Sodexo believes that they can truly make a positive impact on the health of the world’s oceans and fisheries by significantly reducing the amount of unsustainable seafood in the food service industry. In addition, NSF Surefish, the only nongovernment seafood specialist in North America, was partnered with to perform independent, third-party seafood product inspections and auditing services against the Best Aquaculture Practice (BAP) standards. (Newswire 2011) Having certified seafood will make it easier for Sodexo to sell to customers that are being pressured by environmental groups because of the over-fishing that has occurred.

Sodexo has developed a greener product to meet customer needs—a certified sustainable raw material. They have clearly committed to sustainably sourcing seafood and communicate their company’s greener benefits. A partnership with an independent NGO to certify their product’s sustainable benefits helps to solidify their products’ credentials and protects against greenwashing.

IBM

If you live in the United States, it would be difficult to say that you have never heard of IBM’s Smarter Planet campaign. There have been numerous television commercials and advertisements about this program. We live in a data-rich society; information on just about anything you could imagine is only a mouse-click away. The Smarter Planet initiative is all about managing the data to make intelligent, more sustainable decisions.

Program ads portray IBM as a company that can help solve the worst environmental problems we face. The green marketing angle is all about making your business more efficient. An increase in efficiency results in less waste, which results in less pollution and, over time, cost savings. If we consider the large environmental impacts buildings have, this point becomes clearer.

Manufacturing facilities, offices, and stores require a lot of resources to keep them running. There is electricity needed for lighting and air handling equipment to keep the building properly heated or cooled; water is necessary for manufacturing operations and to run bathrooms and cafeterias. In the United States, buildings consume a staggering “70% of all electricity, up to 50% of which is wasted.” (IBM 2011)

By using Maximo® software and partnering with other firms that sell monitoring equipment, IBM provides a service that will significantly minimize these environmental impacts. Buildings have thousands of sensors that generate data on temperature, humidity, lighting, and occupancy. IBM states that “smart buildings” can reduce energy consumption and CO₂ emissions by 50 percent to 70 percent and save 30% percent to 50 percent in water usage by managing the data. Automating building management functions will result in shutting off lights when they are not needed and controlling temperature and water to optimize its use. In addition, maintenance programs can be made more efficient to ensure smooth operation of all equipment.
Some examples of what is possible through using expert systems to manage a building’s data include “GIB-Services in Switzerland is using excess heat from its data center to heat a local public swimming pool. A mining company in Canada is using its excess data center heat to warm its warehouses during the cold Canadian winters. IBM’s own green data center in Boulder, Colorado, has replaced energy greedy air-conditioning with cooling from the air outside, which can be used for up to 75% of the year, contributing up to 50% in annual energy savings.” (IBM 2011)

Smarter Planet ads portray IBM as a company that can help solve the worst environmental problems we face.

The Smarter Planet systems are touted as enablers to solve problems besides buildings. For instance, more than 20 percent of all the shipping containers and more than 25 percent of trucks travel empty. Better logistics can assist in reducing these percentages and thus save fuel and reduce emissions. Additionally, only “30 percent of the potential electricity that’s available at the energy source actually reaches the doorstep of the consumer.” (Makower 2011) Providing systems to better manage the electrical grid can reduce energy use substantially, preventing greenhouse gas emissions and other pollutants.

IBM has demonstrated that they can help companies lower their environmental impacts so they have a credible greener product. The use of a branded program, Smarter Planet, connects product offering to customers’ needs and an effective method to communicate benefits. Overall, this campaign has been extremely successful in marketing the green aspects of their processes to other businesses.

Diversey, Inc.

Diversey, Inc., manufactures and markets detergents, cleaners, sanitizers, lubricants, floor care products and systems, carpet cleaners and carpet cleaning and floor care machines, and several other products and services. Their main customers are hotels, hospitals, and companies that operate office and manufacturing buildings. Most companies discuss sustainability on their websites as one of their objectives; however, Diversey has it integrated into their business model. It is clearly stated when describing their company: “Sustainability is embodied in our purpose.”

One of the keys to green marketing is to know your customers’ needs and to help them with their sustainability goals. This commitment is plainly stated in the company mission: “We are about creating more profitable, sustainable enterprises for our customers that help them improve performance and efficiency while contributing to the well-being and greater good of our communities.” (Diversey 2011) Based on an interview with their CEO Ed Lonergan that
I read, he really gets it. Seeing sustainability as a major trend that customers will want, he has positioned Diversey as a greener products provider.

“I learned from my years in the consumer goods business that one way retailers can win is to know what customers want before customers know they want it. I believe sustainability is one of those trends. If we can find ways to make our products more sustainable, and deliver the same or better value in the process, then customers will get on board.”
—Diversey CEO Ed Lonergan (King 2010)

A perfect illustration of Diversey putting sustainability into practice to generate revenue is their alliance with Green Globe Certification, Inc. The Green Globe seal is an independent certification based on auditing against international sustainability standards. According to Green Globe, hotels that receive their certification on average have better performance: 3 percent to 7 percent higher occupancy rates, 7 percent to 11 percent lower operating costs, and 68 percent greater market visibility among environmentally conscious patrons. (Diversey 2011)

Diversey will assist its hotel customers in achieving the coveted Green Globe seal. In return, the Green Globe will promote use of Diversey’s sustainable products (i.e., chemicals for carpet care and floor care, general cleaning and disinfection, laundry, and odor control) as a preferred pathway for hospitality and lodging companies to achieve their sustainability standards. (Bloomberg Businessweek 2011) This approach benefits all three parties: the customer, Green Globe, and Diversey.

As an example of how Diversey demonstrates that their products are truly greener is their use of various independent organizations to test or certify that they meet high marks. Some of the certifications and eco-labels that demonstrate this performance include the Green Seal™, Environmental Choice, GreenGuard, EU Flower, and Nordic Swan. The types of products that have received these seals include glass cleaners, general-purpose cleaners, restroom cleaners, industrial degreasers, carpet cleaners, floor finishes/sealers, and floor finish strippers. (Diversey 2011)

Diversey has built sustainability into the core of their product offerings. Getting third-party certifications to reinforce to their customers that they indeed have greener products is a good move. Partnering with a certification firm for one of their key customer bases is an innovative way to meet a customer need and promote their products at the same time. The green story is convincing due to their greener product credentials, top management support, and the fact that sustainability is woven into the company’s DNA.

Philips

Philips has three main product groups: consumer products, health care, and lighting. Their greener product development program applies to all three sectors. Improvement categories called Green Focal Areas—energy, packaging,
hazardous materials, weight, recycling and disposal, and lifetime reliability—used to develop greener products are also employed in marketing. These categories help focus improvements across all Philips brands in the areas; so why not use them to market the eco-improved aspects of products?

A visit to Philips’ website will enable a customer to see the greener products in each of their categories. To communicate the sustainable characteristics, each product has a profile that indicates what the benefits are in the applicable Green Focal Areas. As an example in the health products category, the A HD9 Ultrasound System lists the following benefits in the Green Focal Areas of energy consumption, product packaging weight, and recyclability: Compared to its predecessor product, there is 18 percent reduced energy consumption and 25 percent less packaging material weight.

The use of a product profile coupled with a communication tool such as the Green Focal Areas makes it easy for business customers to find greener products that have the benefits they are looking for. In addition to the profiles to communicate improvements, a branded logo “asimpleswitch.com” is used to “clearly identify products that have a significantly better environmental performance than their competitors or predecessors.”

A smart way to help their customers and sell greener products under asimpleswitch.com is by offering a free energy audit on their website. This audit helps their customers by generating an assessment of their facility, and an action plan with savings options. No doubt the audit will help the customers see which Philips products will help them save energy and money.

Philips’ green marketing program combines product development guidelines (Green Focal Areas) joined with the branded simpleswitch.com program to help customers see the environmental benefits of products that meet their needs. The product profiles lend credibility to the products’ improved environmental performance. Philips’ program covers all the keys to an effective green marketing program—credible greener products, meeting their customers’ needs, and effective communications of their greener products.

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**Key Elements of Effective Green Marketing**

We have seen that effective green marketing programs, whether B2C or B2B, have certain key elements:
1. Commitment of top management.
2. Greener products are woven into the business strategy.
3. Understand customer desires and goals and align greener product communications to address these needs.
4. Clearly communicate greener characteristics with third-party certifications or company-branded programs. Use communication tools such as environmental product profiles or company-generated labels.
5. Be authentic and credible in all marketing efforts, substantiate all claims, and be transparent.
6. Sustainable branding is an enhancement to other brand qualities—the idea that it’s a great product and it has these sustainable attributes. A product’s greener quality should never overshadow its purpose.

These elements span across all business categories. We have seen in our analysis of green marketing approaches that these elements have been successfully put into practice by consumer packaged good firms, food suppliers, chemical manufacturers, electronics, and many others. The most successful green marketing programs include these key elements. As stated at the beginning of this chapter, a brand must be built on the foundations of (1) having a credible greener product story, (2) meeting the customers’ demands, and (3) appropriately communicating the greener attributes.

References


Aspects of Green Marketing

Greenwashing

With the advent of green marketing comes a new word coined “greenwashing.” I was taught long ago that anything that has value would be mimicked with a counterfeit. This holds true for greener products. It’s a lot easier to slap a label on a product that has some general term like “eco-friendly” or “eco-conscious” than to develop a truly greener product based on a strict set of criteria. Daniel Goleman, the author of Ecological Intelligence, states that greenwashing “pollutes the data available to consumers, gumming up marketplace efficiency by pawning off misleading information to get us to buy things that do not deliver on their promise.” Additionally, he states that it “undermines consumer trust, it devalues sound data, instilling doubts and cynicism in customers…” (Goleman 2009)

Green-wash (green’wash’, -wôsh’) — verb: the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service. (TerraChoice 2011)

During training courses, I have cautioned environmental, and health and safety professionals, to never forget the basics. Everyone loves the accolades and notoriety given by top management for winning some external environmental performance award; however, all of that is so easily forgotten when a fine is issued for a regulatory violation. Similarly, marketers must be cognizant of making sure all the I’s are dotted and T’s are crossed when it comes to environmental claims. An increase in market share will be quickly forgotten when a major story hits the press with accusations of greenwashing.

Greenwashing can range from outrageous and bordering on the ridiculous to crossing a very fine line with good intent. Perhaps one of the funniest I have seen while researching this topic was an image of a Hummer, the poster child of vehicles with bad gas mileage (some models with ten to twelve miles per gallon), painted in green logos advertising “eco-smart” and “go green” on it. On the other hand, a tough call involves the class-action
lawsuit filed against SC Johnson for using “GreenList” labels on its Windex® and Shout® cleaning products. The lawsuit asserts that the label was misleading because it gave the impression that the product had been certified by a third party when the certification was actually the company’s own. (Vega 2010) SC Johnson was one of the pioneers of green chemistry, bringing it to the mainstream and being able to demonstrate through their processes that they are indeed making their products greener. This is one of those cases where claims are being made against a good program because they may not have had all the caveats associated with the use of GreenList as a label on packages, a good lesson for us all.

In a report by the marketing consulting firm OgilvyEarth titled “From Greenwash to Great,” they make the case that “most greenwash is the result of marketers rushing to respond to consumers’ desire for greener goods and services and in the process falling prey to the overwhelming complexity of achieving corporate sustainability.” (OgilvyEarth 2011) Anyone who has worked with marketers knows that they move fast and try to get information into the customers’ hands before the competition does.

By nature, marketers are extremely competitive; therefore, their exuberance must be tempered with a team effort to be sure that all the facts are credible and that the firm is not “crossing any lines” with the claims being made.

One of the most prominent discussions of greenwashing comes from the consulting firm TerraChoice. Their annual greenwashing report has been helpful in shining light on the many slip-ups by companies trying to market green. As their 2010 report indicates, the more companies do green marketing, the better they get at it. An evaluation of their Seven Sins of Greenwashing gives a really good idea of what not to do when communicating about sustainable products. I have found this useful to share with marketing teams so they get a good idea of what greenwash really is.

**TerraChoice’s Seven Sins of Greenwashing**

1. *Sin of the Hidden Trade-Off:* Committed by suggesting a product is “green” based on an unreasonably narrow set of attributes without attention to other important environmental issues. Paper, for example, is not necessarily environmentally preferable just because it comes from a sustainably harvested forest. Other important environmental issues in the paper-making process, including energy, greenhouse gas emissions, and water and air pollution, may be equally or more significant.

2. *Sin of No Proof:* Committed by an environmental claim that cannot be substantiated by easily accessible supporting information or by
Aspects of Green Marketing

reliable third-party certification. Common examples are tissue products that claim various percentages of post-consumer recycled content without providing any evidence.

3. **Sin of Vagueness:** Committed by every claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer. “All-natural” is an example. Arsenic, uranium, mercury, and formaldehyde are all naturally occurring—and poisonous. “All natural” isn’t necessarily “green.”

4. **Sin of Irrelevance:** Committed by making an environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products. “CFC-free” is a common example, because it is a frequent claim despite the fact that CFCs are banned by law.

5. **Sin of Lesser of Two Evils:** Committed by claims that may be true within the product category but that risk distracting the consumer from the greater environmental impacts of the category as a whole. Organic cigarettes might be an example of this category, as might fuel-efficient sport-utility vehicles.

6. **Sin of Fibbing:** The least frequent sin is committed by making environmental claims that are simply false. The most common examples were products falsely claiming to be Energy Star certified or registered.

7. **Sin of Worshiping False Labels:** Committed by a product that, through either words or images, gives the impression of third-party endorsement where no such endorsement actually exists: in other words, fake labels. (TerraChoice 2010)

We find that over 95% of “greener” products commit one or more of the seven Sins of Greenwashing. (TerraChoice 2010)

In evaluating the 2010 Sins of Greenwashing report, the top three mistakes made by marketers are no proof, vagueness, and worshiping false labels. Based on the high percentage of greenwashing found (over 95 percent of products in the study), it is a fair statement to say that it isn’t easy to avoid. Although there are some marketers that are purposefully trying to mislead customers, the majority are struggling due to the newness of this type of marketing.

According to TerraChoice, one of the areas that has resulted in significant greenwashing is what they call false labels. “These are labels associated with a product that are typically self-generated and intended to create the appearance of third-party endorsement.” Most use the terms “eco,” “environment,” “environmentally–friendly,” or something similar to that. To ensure that false labels are not used, it is recommended that a company use third-party standards and certifications. (TerraChoice 2010)
One of the organizations that give guidance on environmental labels is the International Organization for Standardization (ISO). This is an association of standards bodies from over 130 countries that promotes the development of standardization of technical terms, specifications, and units. This includes environmental labeling standards. ISO standards are maintained for five different types of labels and claims: ISO 14020 through 14024. (BSD 2010)

According to TerraChoice, companies that have their claims endorsed by certifiers that are in line with ISO 14024 are safe from greenwashing. (TerraChoice 2010) This ISO standard provides guidance on developing third-party labeling programs that verify the environmental attributes of a product via a seal of approval. The standards and certifications that TerraChoice deems the most credible are listed in Table 8.1.

I should mention that B2B marketing is not exempt from this concept. Consider the scorecards and proposal requests that are asking for all kinds of sustainability data. I am sure there will be repercussions for misleading or erroneous information given to their business customers. I would think that the same amount of care should be taken with this information as is taken for consumer-facing sustainability claims. At a minimum, if greenwashing is found out, damage to the business relationship and reputation of the supplier will occur.

Before leaving this topic I would like to give a good example of how a credible, well-thought-out green marketing campaign can be developed. Hellmann’s UK, a division of Unilever, wanted to make their mayonnaise more sustainable. They evaluated their raw materials and determined that eggs were one

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<tr>
<th>TerraChoice Listing of Recommended Environmental Standards and Certifications</th>
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<td>Biodegradable Products Institute</td>
<td>Natural Products Association</td>
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<td>Chlorine Free Products Association (CFPA)</td>
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<td>CRI Green Label</td>
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<td>EcoCert</td>
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<td>EcoLogo</td>
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of the three main ingredients. Looking at the supply chain, it was determined that the way to improve the egg supply was to switch to free-range eggs.

This initiative resulted in many benefits: better farming practices, a quality product consumers feel good about, and a great green marketing story to tell. Hellmann’s saw some tangible benefits, positive media coverage, and NGO attention. “Leading animal welfare organization Compassion in World Farming (CIWF) recognized this initiative—which involves sourcing 475 million free-range and barn eggs every year—by awarding Hellmann’s two of its prestigious Good Egg Awards.” The greener product positioning was put in advertisements as “Hellmann’s Mayonnaise is now made with free range eggs.” (Ogilvyearth 2011) This is a good example of making positive changes and appropriately communicating these greener product enhancements to customers.

Regulatory Standards for Green Marketing

There are three main governmental regulatory schemes that cover environmental product related claims: (1) United States Federal Trade Commission (FTC) Green Guides, (2) Canadian Competition Bureau (CSA) Environmental Claims: A Guide for Industry and Advertisers, and (3) the United Kingdom’s Department for Environment, Food and Rural Affairs (DEFRA). Green Claims Guidance have been enforcement actions taken against firms that have made misleading claims. I anticipate that enforcement actions will increase along with the many green claims being made in commerce. Any company considering making green marketing claims must be fully aware and compliant with these guidelines.

FTC Green Guides

The Green Guides were first issued in 1992 to give guidance to ensure that environmental marketing claims are true and substantiated. “The guidance they provide includes:

1. General principles that apply to all environmental marketing claims;
2. How consumers are likely to interpret particular claims and how marketers can substantiate these claims; and
3. How marketers can qualify their claims to avoid deceiving consumers.” (FTC 2010)

The rules make deceptive acts and practices unlawful and the FTC has brought cases against companies that have crossed the line with their green
marketing claims. In October 2010, proposed changes to the Guides were made to address new areas of marketing. The proposed changes would update the Guides by addressing claims about the use of “renewable materials” and “renewable energy” and address carbon offset claims.

### Example of FTC Enforcement Action

The FTC announced that it has reached an agreement with a company called Tested Green that will require the company to stop selling allegedly worthless environmental certifications that do not test or otherwise investigate whether the recipient companies have environmentally friendly products. (Arnold & Porter 2011)

The categories included in the Guides are Qualifications and disclosures; Distinction between benefits of product, package and service; Overstatement of environmental attributes; Comparative claims; General environmental benefit claims; Degradable/biodegradable/photodegradable; Compostable; Recyclable; Recycled content; Source reduction; Refillable; and Ozone safe and ozone friendly. (FTC 1998)

As we can see, the Guides are very comprehensive and not only is the FTC taking action against companies, but competitors are keeping an eye out too. As noted above, there have been class-action lawsuits against firms using this law as the basis.

### Canadian Competition Bureau (CSA) Environmental Claims Guide

Similar to the FTC Guides, Canada developed a guide for making environmental claims. It gives voluntary guidance on how to comply with the Competition Act, the Consumer Packaging and Labeling Act, and the Textile Labeling Act. These acts are enforced by the Competition Bureau, an independent law-enforcement agency of the Government of Canada whose mission is to protect consumers from misleading advertising.

To prevent companies from greenwashing, best practices are presented for the use of labels and Type II self-declared environmental claims. These claims are usually based on a single attribute (e.g., a manufacturer’s claim that a product is “biodegradable”) without independent verification or certification by a third party. The guide advises that claims must be “verifiable, accurate, meaningful, and reliable if consumers are to understand the value of the environmental information they represent (e.g., their ability to protect the environment).” (Competition Bureau Canada, 2010)

### Competition Act

The Competition Act is a federal law governing most business conduct in Canada. It contains both criminal and civil provisions aimed at preventing
anti-competitive practices in the marketplace. The act addresses false or misleading information and deceptive marketing practices in promoting a product or service.

**The Consumer Packaging and Labeling Act**

The Consumer Packaging and Labeling Act requires that consumer products have accurate labeling to help consumers make informed purchasing decisions. “The act prohibits the making of false or misleading representations and sets out specifications for mandatory label information such as the product’s name, net quantity, and dealer identity.” (Competition Bureau Canada 2010)

**The Textile Labeling Act**

The Textile Labeling Act requires that consumer textile articles bear accurate and meaningful labeling to help consumers make informed decisions. The act prohibits false or misleading portrayals and sets mandatory label information, such as the generic name of each fiber present and the dealer’s full name and postal address or identification number.

> “In self-declared environmental claims, the assurance of reliability is essential. It is important that verification is properly conducted to avoid negative market effects such as trade barriers or unfair competition, which can arise from unreliable and deceptive environmental claims.” (Competition Bureau Canada 2008)

An example of advice given in the guide is to avoid claims like “environmentally friendly,” “ecological (eco),” and “green” due to their vagueness. For example, labeling a consumer product as “environmentally friendly” or “environmentally safe” implies that a product is environmentally benign or is environmentally beneficial. (Competition Bureau Canada 2008) Use of these very broad terms is misleading because they project an image of a product with minimal environmental impact without substantiation.

**Enforcement Example**

The Competition Bureau has issued a fine of $130,000 to EcoSmart Spas and Dynasty Spas and ordered them to stop making misleading statements that make consumers think that their spas were Energy Star certified when they were not. The compliance order required that advertising published in stores and on their website that is misleading customers is to cease, and a compliance program is to be implemented to ensure adherence to the regulation. (Hot Tubs Works 2011) This type of public rebuke can damage
a company’s reputation and sway customers away from purchasing their products.

**United Kingdom’s Department for Environment, Food and Rural Affairs (DEFRA)**

Published in 2011, one of the most current regulatory agency guidelines on making green claims is from the United Kingdom, the Green Claims Guidance by the Department for Environment, Food and Rural Affairs (DEFRA). The document gives some very good guidance to firms that want to make claims about the green characteristics of their products. There are three main themes: *claims should be clear, accurate, and substantiated*. These three focus areas are the essence of good green marketing. The following steps and explanations are recommended by DEFRA and make a lot of sense for any marketer that would like to make their customers aware of the environmental benefits of their products. (DEFRA 2011a)

**Step 1: Ensure the Content of the Claim Is Relevant and Reflects a Genuine Benefit to the Environment.**

First consider the full environmental impact of your product (and supply chain), service, or organization. Check that the claim is relevant to those environmental impacts, and/or your business and consumer interests. Ensure that the claim does not focus on issues of low significance or importance. When comparing products, ensure that the comparison is fair and relevant.

**Step 2: Present the Claim Clearly and Accurately.**

Ensure the claim is presented in a way that is accurate, clear, specific, and unambiguous, and is easily understood by consumers. A claim should not be easily misinterpreted or omit significant information. The scope of the claim should be clear: Does it address the whole product or only one part? Do not use vague, ambiguous words (e.g., “environmentally friendly”) or jargon that may be easily misinterpreted or confuse consumers. All imagery must be relevant to the claim and not likely to be misinterpreted.

**DEFRA Example of a Poor Practice**

A product sold widely in the United Kingdom claimed: “this product is recyclable” when most areas of the United Kingdom do not have the correct infrastructure to recycle it. The term “recyclable” should only be used when there is actually an infrastructure in place that enables recycling of the product. (DEFRA 2011)
Step 3: Ensure the Claim Can Be Substantiated.

There must be data to substantiate all claims. (DEFRA 2011)

Green claims are enforced by the Advertising Standards Authority (ASA), the United Kingdom’s regulator of advertising. They monitor claims to ensure that they are “legal, decent, honest and truthful according to the advertising standards codes.” (DEFRA 2011b)

Misleading Claims and Enforcement

DEFRA does not enforce the regulations for making green claims other than for the European eco-label that they administer in the United Kingdom. The Consumer Protection from Unfair Trading Regulations (2008) requires that all information to consumers be fair and honest. Enforcement of this regulation is done by the Office of Fair Trading. Therefore, false or misleading claims can be taken up with this office. An example of how the threat of action by the Office of Fair Trading resulted in significant changes in marketing practices is associated with sustainably sourcing seafood.

Sustainable Seafood Example

An environmental law organization, ClientEarth, conducted a study of claims made about sustainably sourced seafood in UK supermarkets. Their study indicated that “over 80% of seafood sold in the UK is by supermarkets; 25% of global fish stocks are overfished; 88% of stocks in EU waters are overfished; and 19% of stocks in EU waters are in such a bad state that scientists advise that there should be no fishing at all.”

Supermarkets were making various claims indicating that the fishing methods were protective of the environment and fish stocks, such as sustainably sourced, dolphin safe/friendly, responsibly farmed, responsibly sourced, environmentally friendly farms, and protects the marine environment. When comparing these to the DEFRA Green Claims Guidance, it is obvious that there are some very general terms used. In fact, ClientEarth determined that “32 of the 100 products reviewed, from seven supermarkets and one brand, carried claims that we consider misleading or unverified.” (ClientEarth 2011)

Major retailers, including Tesco, Asda, The Co-operative, Lidl, Marks & Spencer, Sainsbury’s, and Waitrose, were accused of carrying misleading claims on seafood items such as tinned tuna, haddock, and cod. Under threat of enforcement through the Office of Fair Trading, ClientEarth requested that all supermarkets having misleading claims removed as soon as possible.

As a result of this potential enforcement, and no doubt the public relations effect of losing customer trust, retailers and seafood providers responded. In fact, the largest supermarket in the United Kingdom, Tesco, pledged that
all their canned tuna will be caught by the pole-and-line method by the end of 2012. Tesco also signed an agreement with the Sustainable Fisheries Partnership to independently review their fisheries. (Click Green 2011)

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**Cause Marketing**

Cause marketing is a partnership between a for-profit corporation and a non-profit organization. These relationships are mutually beneficial in that the firm receives a “halo” effect when consumers choose their brand because they will be helping a worthy cause. The nonprofit organization benefits because they receive income to forward their organization’s mission. (Selfish Giving 2011) Cause marketing can be an important element in advancing a brand’s sustainability story.

The reason to consider associating your brand with a cause was evident in a 2010 study conducted by the Edelman public relations firm. “Despite the prolonged recession, nearly three out of four Americans (72 percent) report that they are more likely to give their business to a company that has fair prices and supports a good cause than to a company that provides deep discounts but does not contribute to good causes. In fact, more than half of consumers say that they are willing to pay more for a product that donates a portion of its profits to a good cause.” Purchasers believe that they can make a difference with their dollars.” 75 percent of Americans believe projects that protect and sustain the environment can help grow the economy.” (Edelman 2010)

72 percent of American consumers report that they are more likely to give their business to a company that has fair prices and supports a good cause than to a company that provides deep discounts but does not contribute to good causes.

The desire to support causes with your pocketbook is not limited to the United States. Research performed by the UK-based retailer Marks & Spencer indicates that when making a purchase decision, two-thirds of their customers care about ethical choices. (Goleman 2009) I believe that smart companies will consider partnering with worthy nonprofits as part of their green marketing program—when it makes sense and connects well with their brand.

Caution should be taken when developing a cause marketing relationship. As noted by Carol Cone, a company can be considered greenwashing if the cause is not perceived as authentic and a natural fit with the brand.
Whenever I have seen effective sustainable brand cause marketing, there is always a direct link to the cause with the purpose of the brand. This concept is supported by research performed by Kotler and Lee, in which they determined that full marketing benefits of a cause campaign are realized when the cause is directly related to one or more of the company’s products or services. (Kotler and Lee 2004)

Clorox does a good job of finding the nexus of brand purpose with the cause it supports. The Green Works® brand of natural cleaners has partnered with the Sierra Club as part of its launch. This not only gave credibility to the brand’s image, but also enables purchasers to support the oldest and largest grassroots environmental organization in the United States.

Another Clorox brand, Burt’s Bees®, has partnered with The Greater Good™ Campaign. Purchases of this brand result in 10 percent of sales going to worthy causes through the Greater Good Foundation. This connection is an excellent fit with the brand; in fact, it is part of the tag line, Burt’s Bees – Earth Friendly Natural Personal Care for The Greater Good. (Clorox 2010)

“Cause related-marketing, as we know it, is dead. Purpose must now be engrained into the core of a company or brand’s proposition. It is no longer enough to slap a ribbon on a product. It must be authentic, long-term and participatory,” said Carol Cone, proclaimed “mother of cause marketing” and managing director, Brand & Corporate Citizenship, Edelman. (Edelman 2010)

Another very successful cause marketing initiative is the Pepsi Refresh campaign. This program brings much attention to the brand through the support of various sustainability initiatives. A $20 million fund has been set up for backing good works. The interesting aspect of this program is that anyone can submit a project and Pepsi gives grants to fund great ideas. A visit to the Refresh Project’s website enables you to submit an idea and vote up to five times a day for whatever project you feel is worthy. This ensures plenty of traffic to their website. Some of the projects supported include building playgrounds and community wellness centers, and supporting honey bee yards and food for the needy. The Pepsi Refresh Project demonstrates how green marketing can bring benefit to the brand when it connects with consumers through causes. (Pepsi 2011)

The home improvement company, Home Depot, initiated a program to help address water shortage during a drought in Arizona. Their stores participated in a program called Use It Wisely, a water conservation campaign initiated by the Arizona Department of Water Resources. Water conservation connected well with products that minimize customers’ water use and help address a community concern. As part of the campaign, Home Depot
provided information on how customers can save water, such as sweeping the driveway rather than hosing it down and installing low-flow showerheads. This also provided the opportunity to showcase water-saving products available in stores, such as organic mulch, which reduces watering needs by 25 percent. Home Depot benefited by supporting this cause through connecting water conservation with their products. (Kotler and Lee 2004)

Types of Cause Marketing Campaigns

- **Transactional campaigns** unlock a business donation upon point of purchase whether via actual product sale or subsequent post-purchase consumer activity.
- **Digital campaigns** utilize online micro-sites or social media platforms to unlock business donations and/or encourage consumer donations or other online task.
- **Licensing** legally permits the use of an aspect of a nonprofit brand to be used by a company in exchange for a licensing fee.
- **Message-focused campaigns** can take many formats but focus on utilizing business resources to share a specific cause-focused message.
- **Events** partner a cause and a company to raise money via runs, walks, celebrations, etc. or raises awareness via clean-ups, health screenings, etc.

(Cause Marketing Forum 2010)

Perhaps one of the cause marketing programs that has the strongest nexus with a product is Häagen-Dazs® ice cream’s Help the Honey Bees campaign. Häagen-Dazs only uses all-natural ingredients in their products and bee pollination is essential for many of these ingredients. In recent years there has been a mysterious, significant decline in the global honey bee population. More than one in three honey bee colonies have died in the United States; this puts natural food supplies in jeopardy. Häagen-Dazs has initiated a campaign to fund research into understanding the cause for the decline. Whenever a customer purchases one of their “bee-built flavors,” a donation is made to fund this research. (Haagen-Dazs 2011)

Cause marketing is an important aspect of green marketing. When there is a strong connection between a brand’s purpose and a cause, a sweet spot—of greater customer loyalty and making the world a better place—is hit. Firms should be cautious when initiating a cause relationship to be sure the brand is coming from a place of authenticity and is not perceived as buying its greener attributes.
Eco-Labels

Along with the increase in green marketing there has been an escalation in the development of eco-labels. Some of them are meaningful while others are not. Most consumers want to make greener product purchases but they want it easy—so a logo indicating that a product has environmental benefits is one of the things they are looking for. However, according to the Eco-label Index, there are currently “349 seals and certifications for marketing green products worldwide, with 88 used in North America alone.” (Vega 2010)

Eco-label proliferation makes it confusing for consumers, business customers, and marketers alike. As an illustration, consider that most companies use some type of wood product for packaging or paper. Some of the labels available include the Green-e certified paper, Forest Stewardship Council, the Sustainable Forestry Initiative, the American Tree Farm System, Rain Forest Alliance, Recycled Paper symbol (chasing arrows), Printed With Soy Ink, and the Tropical Forest Foundation. Which one would you choose?

To add to the label confusion, there are government-issued labels such as Energy Star, WaterSense, Design for the Environment, USDA Organic, the EU Flower, and Canadian EcoLogo. Companies also issue labels: Home Depot has Eco Options, Staples has EcoEasy, Office Depot has Green Depot, and P&G has Future Friendly. Furthermore, there are independent companies and organizations that issue their own eco-labels or certifications, such as Underwriters Laboratories (UL), Cradle-to-Cradle, Green Seal, GreenGuard, and Fair Trade, to name a few.

A study conducted in 2009 by the Natural Marketing Institute indicated that the most identifiable eco-labels in the United States are the following (percent recognized listed in parentheses):

1. Recycled logo (93 percent)
2. Energy Star (93 percent)
3. USDA Certified Organic (75 percent)
4. Fair Trade Certified (44 percent)
5. Rainforest Alliance Certified (35 percent)
6. Carbon Trust (24 percent)
7. LEED Certified (24 percent)
8. Green-e (19 percent)
9. Marine Stewardship Council (18 percent)
10. Sustainable Forestry Initiative (16 percent)

It is interesting to see that only the top three had consumer awareness above 50 percent. (Ottman 2011) This may make marketers pause when
pursuing a logo for consumer-facing products. However, the endorsement received from a third party does lend more credibility to a brand and may be helpful in bolstering its green appeal and be a defense against greenwashing. According to the TerraChoice Seven Sins of Greenwashing study, products certified by an ISO 14024-based program (e.g., EcoLogo, Green Seal, and Nordic Swan) were “more than 30% sin-free (compared to the 4.4% study-wide result). In other words, good eco-labeling helps prevent (but doesn’t eliminate) greenwashing.” (TerraChoice 2010)

The question marketers need to ask is this: Will an eco-label make a difference to my customer? If a label is desired, then which one should I pursue? One way to help make this decision is to consider the labels most widely used by the leading companies studied in this book. A review of Figure 8.1 indicates the most commonly used eco-labels.

Eco-labels can be helpful in demonstrating to consumers and B2B customers that environmental improvements have been built into a product. This

![Figure 8.1](image)

**FIGURE 8.1**
Most commonly used eco-labels by leading companies. Recycling symbol, DfE, Cradle-to-Cradle, Energy Star, Forest Stewardship Council, the Sustainable Forestry Initiative, WaterSense, USDA Certified Organic, and Fair Trade.
is especially true for third-party certified labels. However, marketers must determine if a label will help emphasize a product’s greener benefit. As in most situations, it depends on what the ultimate goal of a product is. I know for the company that I work for (Johnson & Johnson), getting an eco-label makes sense for certain brands, but not all. Several factors must be accounted for, including the actual market perception of a brand and resonance of a specific label to the targeted customer segment. The use of company-generated labels can also be helpful to highlight to customers that their products go through rigorous greening before coming to market; however, there must be rock-solid data to back up all sustainable attributes.

References


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Best Practices and Conclusions

The Greener Product Imperative

Interest in greener products is on the rise. We have seen through numerous studies that customers want products that are environmentally friendly and want to purchase from businesses that operate in an ethical manner. The 2010 Green Brands Survey proves this point out by reporting that even in a down economy, consumers are buying products with eco-benefits. This is not limited to Western countries either; we see significant interest in emerging economies, with more than 70 percent of consumers in China, India, and Brazil saying they will spend more on sustainable products. This truly is a global phenomenon because over 60 percent of those surveyed expressed a desire to purchase products from environmentally responsible companies. In the United States, 75 percent of consumers indicated that it is important to them that the brands they buy come from green companies. (Globe-Net 2010)

Why are consumers interested in purchasing greener products? Both B2C and B2B customers are responding to the global green explosion. I believe that the heightened awareness of global environmental issues such as climate change, scarcity of water, air pollution, and the use of toxic chemicals is prompting a focus on doing some good with your purchasing power. Companies are responding by meeting customers’ needs with their sustainability programs.

Walmart has been the most influential company in driving the development of more sustainable products, requiring suppliers to complete scorecards that measure their sustainability performance, and seeking greener products for their stores. Other major companies have followed suit; Kaiser Permanente, the large U.S.-based hospital chain, developed a sustainability scorecard for their suppliers, and Proctor & Gamble did the same. Retailers Tesco and Mark’s and Spenser, and home improvement and building supply chains Lowe’s and Home Depot, have also emphasized offering greener products to their customers, and have set aggressive sustainability goals that impact companies selling in their stores.

These initiatives have influenced product development processes and are instigating competition based on greenness. The desire for greener products touches all types of businesses and has made green marketing an imperative
in B2B sales. We have seen chemical companies trying to help their customers develop more sustainable products, food industry providers focusing on fair trade and sustainably sourced raw materials, and building product companies having offerings that can help customers achieve green building certifications.

Further adding to the necessity to build sustainability into the new product development process is the fact that you are being rated. The GoodGuide allows consumers to scan your product in a grocery store and give a rating of its sustainability performance. NGOs have also gotten into the rating game: The Environmental Working Group has evaluated tens of thousands of products and makes it easy for the growing number of ecologically conscious consumers to choose the most wholesome product for themselves and their families. Socially responsible investment rating systems are considering the impact of products as well.

Robust greener product development programs address customer, regulatory, and stakeholder demands

Regulatory drivers have also caused a shift in product development with the advent of product environmental standards. It started in the European Union with requirements on packaging design and takeback programs for electronic products. Then it moved into restrictions of certain toxic metals, flame retardants, and other chemicals. There have been many new regulatory areas with significant impact on the way business is conducted (e.g., the EU REACH, RoHS, Packaging and WEEE Directives). These product-based regulations have expanded into all regions of the world with the advent of Extended Producer Responsibility regulations, banning of chemicals such as BPA in Canada, California’s Proposition 65, China REACH, Korea RoHS, Brazil packaging regulations, and the UN Globally Harmonized system for the Classification and Labeling of Chemicals (GHS), to name a few.

It seems that the regulations keep coming; and then there are the nonregulatory pressures from NGOs that are campaigning against a specific chemical or compound. We have seen effective campaigns against PVC, Bisphenol-A (BPA), triclosan, phthalates, DEHP, etc. Some are based on science and some are not so scientifically based. The thing companies have to realize is that perception is reality, and Risk = Hazard + Outrage. Therefore, monitoring emerging issues becomes a more critical part of a product stewardship program. Identifying these issues and trying to shape them with sound science and dialogue is essential to mitigating risks. One thing is for sure: There will be more of these kinds of pressures on companies in the future.

All these forces add up to it being an imperative to make and market greener products. So what have we learned about how leading companies respond to all these new pressures and customer demands? We have seen that robust greener product development programs address customer, regulatory, and stakeholder demands.
Best Practices for Making Greener Products

Based on our review of leading companies, there are some common aspects to their greener product development programs. The most effective programs have top management endorsement, and they are viewed as a business initiative rather than an environmental program. A case in point is the GE Ecomagination program. GE’s CEO frequently mentions this program, and it is evident that this is a company priority based on the investment in R&D ($10 billion over five years).

Part of the business value of their programs is connecting to the customers’ needs by assisting them with their sustainability initiatives. Ecomagination provides cost savings along with the environmental benefits of energy and water reductions. Samsung’s CEO oversees their Green Management Committee and they also tie in cost savings of their eco-innovative programs to customers when marketing more energy efficient products like televisions or other electronics. Other companies have built green right into the foundation of their brand to the extent that it is part of the company’s mission, like Seventh Generation and Method.

Having third-party involvement in the development and endorsement of eco-innovation programs is also a key best practice. GE developed Ecomagination with the help of the consulting firm GreenOrder, and they have an independent advisory board that includes academics and NGOs. BASF’s eco-efficiency approach and tools are verified through two independent third-party organizations: TÜV (German technical inspection and certification organization) and NSF (National Sanitation Foundation). Johnson & Johnson’s Earthwards™ process was developed with the assistance of the consulting firm Five Winds International and their review board includes two NGOs.

The use of scorecards, focus areas, and tools to help identify the most important product lifecycle steps to improve upon is an important part of developing sustainable products. Examples include the Green Index® environmental rating system used by Timberland, which help developers see a clear pathway to improve a product’s environmental performance. Philips has Six Green Focal Areas to make products greener: energy efficiency, packaging, toxic materials, weight, recycling and disposal, and lifetime reliability.

Samsung products are rated through the “Eco Design System (EDS)” and issued an Eco Rating. Products are put into three categories based on their eco grading scheme: Eco-product, Good Eco-product, and Premium Eco-product. Method, Inc. has five key design elements: Clean — effective formulas that work, Safe — people and pet friendly, Green — safe and sustainable materials that are manufactured responsibly, Design — attractive product designs, Fragrance — use of flowers, fruits, or herbs for product scents.

Leading companies have enterprisewide product stewardship goals in addition to systems and processes to green up individual brands. These goals
are important in helping the entire organization rally behind and drive further greener product design. Clorox has Eco Goals to generate one-third of growth from environmental sustainability initiatives and make sustainability improvements to 25 percent of their product portfolio. Philips has EcoVision5, which requires improving the energy efficiency of Philips products by 50 percent, doubling global product collection, recycling, and incorporation of recycled materials in products. Seventh Generation has a goal to have all paper packaging contain 100 percent PCR. Unilever has objectives to cut in half the environmental footprint of the making and use of their products, help more than a billion people take action to improve their health and well-being, and source 100 percent of agricultural raw materials sustainably.

Revenue from greener products is also part of some enterprisewide goals; P&G has a $50 billion cumulative sales target for sustainable innovation products. DuPont wants to increase annual revenues by at least $2 billion from products that create energy efficiency and or significantly reduce greenhouse gas emissions.

The use of lifecycle analysis or lifecycle thinking has been adopted to focus improvements on the most impactful areas. Philips has identified the key lifecycle aspects for each of their product categories to focus on making the most significant improvements. For healthcare products, it’s reducing energy consumption, weight, and dose; for consumer lifestyle, it’s energy efficiency and closing material loops (e.g., increasing materials recycling); and for lighting, it’s energy efficiency.

Method considers life cycle impact through their Cradle-to-Cradle approach. P&G looks at a product’s full life cycle (raw materials, manufacturing, and product use) to help identify the most important areas on which to focus. Unilever used lifecycle assessment to identify that the use of hot water during the use of soaps and shampoos is the biggest impact area; this led to their “Turn off the Tap” campaign. This program educates customers to turn off the shower while they lather to make the greatest environmental impacts.

Making all ingredients used in products available publicly has been an activity to which several companies are committed. Transparency helps gain public trust and reinforce the credibility of the company. People trust companies that voluntarily provide more information to them. Clorox is listing all ingredients on product labels for the Green Works® line of naturally derived cleaners while it is not required by law. Similarly, SC Johnson has made a commitment to make their ingredients available. Both Method and Seventh Generation also have transparency commitments as well.

Meeting customers’ needs is another key characteristic of a leader in product stewardship. Providing end-of-life solutions for your products is an important way to address customer requirements. This is especially true with electronic products. Apple and Samsung have established product takeback programs to facilitate recycling; Johnson & Johnson has also established electronic product takeback programs.
**Best Practices for Making Greener Products**

- Top management support and greener products are part of the business strategy.
- Third-party input in developing design criteria.
- Use scorecards, focal areas, and tools to make it easier for product developers.
- Enterprise-wide goals to augment individual brand improvements.
- Use of lifecycle analysis or lifecycle thinking to focus on the most important impact areas.
- Transparency of ingredients used in products to build more trust.
- Meet customer requirements by providing end-of-life solutions for products.

**Best Practices for Green Marketing**

The first step toward effective green marketing is to have a scientifically based improved, greener product. In some cases, companies fear making green claims; they think it will backfire because they are not perfect. When addressing this issue, the point I try to emphasize is that there is no such thing as a green product. The only true green product is the one you didn’t use. Every product has an environmental impact. It takes raw materials, energy to manufacture and transport the product, and there are disposal or recycling impacts. What we need to be focusing on is greener products, continuously improving, and continuously reducing environmental impacts. Customers understand that you are not perfect as a company, but they do want to see that you are trying and moving in the right direction.

Once you have a greener product, there are some common marketing approaches being taken by leading companies. One of the key components to successful green marketing is having an effective communication method to make it clear how your product is meeting the customers’ needs. Timberline communicates with something similar to a nutritional label that indicates how
the product fares in the areas of climate impact (greenhouse gas emissions), chemicals used (presence of hazardous substances), and resource consumption (use of recycled, organic, or renewable materials). Ecomagination is itself the vehicle of communication for GE. If a product has the Ecomagination designation, it is accompanied by the actual reasons why (e.g., less energy or water use).

Future Friendly is a branded way for P&G to communicate the greener products that they have. A trip to their website (www.futurefriendly.com) offers you tips on how to save energy and water at home; also available are Future Friendly products that can help you accomplish this. Several companies also used their greener product development focus areas to communicate to customers. An example is the SC Johnson GreenList®.

Another effective method of communication is the use of product environmental profiles. Apple maintains Product Environmental Reports for each device. The report informs customers of the impacts in several areas important to them: climate change, energy efficiency, material efficiency, packaging, restricted substances, and recycling. This gives the producer a concise way to inform others about product improvements and demonstrate their commitment to environmental protection.

**Eco-labels** are regularly used by leading companies to add validity to their green claims and make it easy for customers to see that the product is greener. However, deciding on which eco-label to use is not that easy to do, as there are over 300 eco-labels and only a few are actually recognized by consumers. The eco-labels that were most used by the leading companies we studied included the Recycling symbol, U.S. EPA Design for the Environment, Cradle-to-Cradle, Energy Star, Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), WaterSense, USDA Certified Organic, and Fair Trade. So if you think that an eco-label can help your brand, choose wisely. An illustration of good use of an eco-label is Honest Tea’s use of USDA Organic, Apple’s use of Energy Star, and WaterSense-labeled toilets and bathroom faucets sold at Lowe’s.

Individual company-branded greener product lines are being employed by several leading firms. Products can be greened up with incremental improvement or developed as new, greener products from the foundation up. In both cases, it is helpful to bring attention to sustainability characteristics that have been enhanced. Some of these programs have taken on eco-label-like status. Illustrations of using branded programs for products greened from the ground up are the SC Johnson’s Nature Source® line of cleaning products based on natural ingredients, Clorox’s Green Works®, and Timberland’s Earthkeepers™ line of footwear.

The Philips asimpleswitch.com logo is a way to highlight products that have undergone eco-innovation and are greened up for better performance. These programs seem to resonate well with B2B customers because they highlight improvements that are meaningful to them, such as energy efficiency, reduced weight, or less hazardous substances. The IBM Smarter
Planet initiative is also a good example of a branded B2B greener product communication program.

**Cause marketing** is an important consideration for a green marketing program—and with good reason too. Despite the prolonged recession, nearly three out of four Americans (72 percent) report that they are more likely to give their business to a company that has fair prices and supports good causes than to a company that provides deep discounts but does not contribute to good causes. (Edelman 2010) Doing good through purchasing products spans the globe; customers care about making ethical choices. There are some great examples of using cause marketing to enhance a brand.

The Sierra Club and the Green Works line of products is one such example. Clorox, wanting to bring greener products mainstream, needed added endorsement to their natural product claims and the Sierra Club did just that. Care must be taken when entering a cause relationship; it must be authentic and must not be perceived as buying your greener product credentials. There must be a nexus between the product and the cause it supports. Häagen-Dazs has a good example in that their natural product ice cream relies on bees for their ingredients. Because there has been a reduction in the bee population, their cause is support of research to save the honey bees.

The final best practice for green marketing is a defensive maneuver, that of preventing greenwashing. Being accused of greenwashing can devastate a brand and bring a hit to your reputation that can be very difficult to overcome. So it makes a lot of sense to put processes in place to avoid greenwashing and ensure that all claims are authentic and do not overstate environmental benefits. Some companies have relied on third-party eco-labels to bring rigor to green claims and defuse greenwashing, such as Cradle-to-Cradle, Energy Star, and WaterSense. Cause relationships with well-known NGOs also help to mitigate false or misleading claims as they must be comfortable with lending their name to a brand.

The other aspect of preventing greenwashing is to ensure that the sustainability claims do not overshadow the essence of the brand. Green claims should complement the key aspects of the brand. Even one of the darkest green companies studied, Method, integrates their green claims with the basics of the product. This is evident in how they communicate about their laundry detergent:

Delivers big cleaning power with just a few squirts. A 35% smaller carbon footprint than conventional detergent, this lightweight pump is designed for easy, one-handed use, made from 50% recycled plastic, it’s a lean, mean, stain-fighting machine. (Method 2010)

Notice that the greener benefits complement the most important product features—that is, cleaning power and ease of use.
Green Marketing Best Practices

- Effective communication of greener characteristics to meet customers’ needs through reporting environmental benefits using product stewardship focus areas and product profiles.
- Use of well-known and -respected eco-labels or third parties to endorse products.
- Company-branded greener product lines and internal eco-label-like designations.
- Appropriate cause marketing relationships that have a direct nexus with the brand.
- Sustainability, communications do not overshadow the essence of the brand.
- Prevent greenwashing by being authentic and not overstating green product attributes.

Conclusions

Things will never be the same regarding greener products. It’s safe to say that making and marketing greener products is an imperative. The stresses on the earth’s systems are very evident, and people are becoming more aware of this fact. There is increased concern regarding the amount of pollutants that are found in our food and even in our bloodstreams. The global demand for natural or organic products is growing and does not seem to be stopping.

Natural products like Method and Seventh Generation that once were considered fringe and sold in health food stores only, are now being sought in mainstream supermarkets. The old stereotype of green products’ sub-par performance has been shattered with game changers like Green Works®, proving that large multinationals can develop and win in the marketplace with a naturals-based product platform.

The pull for sustainably minded products is not limited to consumer marketing. We have seen B2B marketing of greener products picking up pace. When chemical companies are making it a point to differentiate their products based on eco-innovation, it is time to realize that there is something here that we must pay attention to. Companies are seeing, through lifecycle assessments, that in many cases their biggest environmental impacts come from the acquisition of raw materials, product use, or its end of life. This new knowledge is causing a shift toward greening up products in nontraditional ways. In recent years, sustainable innovations have encompassed cold-water laundry detergents, bio-based plastics, takeback programs, and sustainably sourced raw materials, to name a few.
Greener is moving toward being a requirement along with efficacy and quality. Reduced environmental impact is being viewed as an “and.” There are some exceptions, but greener products will not command a higher price; customers want a product that works and is greener too, yet not pay more for it. This customer requirement has spanned all types of businesses; numerous examples have been discussed in this book: chemicals, building products, paper products, food, medical equipment, and packaging.

Building an eco-innovative product requires a team effort. Signals from the field must be gathered to gauge customers’ needs. R&D, procurement, operations, and product stewardship groups need to collaborate to build in the desired attributes. A balanced, clear communications program must be melded together by marketing and delivered by sales groups.

Care must be taken when communicating about greener products. There must be an authentic science-based story to be told. The message must be simple and transparent to demonstrate how the product or service helps customers with their sustainability needs.

Both customers and companies can make a difference by what they purchase and sell. Fewer resources can be used, good causes are supported, and costs are reduced. When you hit this sweet spot of having a truly greener product that is communicated in an appropriate way, everyone wins. Customers’ needs are met and brand loyalty is built.

The focus on greener products is here to stay. We can expect that in the coming years, there will be a steady demand for eco-innovative products. The companies that provide these products without increasing costs will be the big winners.

References
