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WALMART'S SUSTAINABILITY STRATEGY (A)

We've come to believe through experience that you really can create environmental progress by leveraging corporate purchasing power. And who's got more purchasing power than Walmart?

— Gwen Ruta, Director of Corporate Partnerships at Environmental Defense Fund, in a July 2004 article¹

INTRODUCTION

In October 2005, in an auditorium filled to capacity in Bentonville, Arkansas, Lee Scott, Walmart's president and CEO, made the first speech in the history of Walmart to be broadcast to the company's 1.6 million associates (employees) in all of its 6,000-plus stores worldwide and shared with its 60,000+ suppliers. Scott announced that Walmart was launching a sweeping business sustainability strategy to dramatically reduce the company's impact on the global environment and thus become "the most competitive and innovative company in the world." He argued that, "being a good steward of the environment and being profitable are not mutually exclusive. They are one and the same." He also committed Walmart to three aspirational goals: "To be supplied 100 percent by renewable energy; to create zero waste; and to sell products that sustain our resources and the environment."²

In the past, Walmart had dealt with environmental issues defensively, rather than proactively and as a profit opportunity. In 1989, in response to letters from customers about environmental concerns, the company launched a campaign to encourage its suppliers to provide environmentally safe products in recyclable or biodegradable packaging at no additional cost. As *Discount Stores News* reported, "What Walmart has chosen to do, apart from reaping a large public relations windfall, is to deploy its clout with vendors to influence them to spend more on R&D to develop safer packaging—without passing those costs on to Walmart."³ The company's CEO at the time, David Glass, denied that the program was meant to be self-serving. "I would encourage you not to view being socially conscious and approaching this environmental issue as a marketing ploy," he said. "We don't expect to get rich on this.... Ours is as selfless a campaign as anything I've worked on."⁴

Lyn Denend prepared this case under the supervision of Professor Erica Plambeck as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. It was updated in 2010

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Regardless of the motive, the company did earn some “goodwill among environmentalists [as] the first major retailer to speak out in favor of the environment in 1989.”⁵ When vendors claimed they had made environmental improvements to products, Walmart began promoting the products to consumers with “green” shelf tags (without measuring or monitoring the improvements themselves). At one point, the company had as many as 300 products with green tags in its stores.

However, not all the press received by the company was positive. In response to Walmart's 1989 campaign, Procter & Gamble labeled a brand of their paper towels as “green” when the inner tube was made of recycled content but the towels themselves were made of unrecycled paper treated with chlorine bleach. When the details behind the product were exposed, both organizations were heavily criticized.⁶ By 1991, Walmart's green tags had declined to roughly 200 products.⁷ Within another couple of years, the program seemed to disappear altogether. While Walmart continued some of its other environmental programs (e.g., recycling, charitable giving to environmental causes), the environment as an issue seemed to slip off the company's list of primary strategic priorities.

In contrast to the environmental campaign of 1989, the sustainability strategy launched in 2005 would need to be long-lasting and deeply embedded in Walmart's operations to meet Scott's ambitious public goals. Andrew Ruben had been named by Scott to lead the sustainability strategy. As they looked to 2007, Ruben and Elm knew they had to keep environmental improvement tightly coupled with business value and profitability for the strategy to succeed, and they challenged themselves to find new ways to drive measurable results.

ABOUT WALMART

Sam Walton opened the first Walmart store in 1962 in Rogers, Arkansas. By offering desirable product assortments and unmatched pricing to the underserved markets of middle America, the company grew into a retail giant. By 1985, Walmart Stores, Inc. had reached 882 stores, 104,000 associates, and sales of \$8.4 billion. Thereafter, the company expanded internationally and by the end of 2005 had 6,200 Walmart U.S., Walmart International, and Sam's Club facilities in 15 countries around the world, 1.6 million associates, and \$312.4 billion in sales.⁸

According to a December 2005 poll, 84 percent of Americans had shopped at a Walmart within the past year.⁹ If Walmart were a country, it would be the 20th largest in the world (equating GDP to sales), and if it were a city, its number of associates would be equivalent to the population of the 5th largest in the United States.¹⁰ Commenting on the unprecedented level of power the company had realized in the retail industry, a 2003 article pointed out: “[Walmart] sells in three months what number-two retailer Home Depot sells in a year. And in its own category of general merchandise and groceries, Walmart no longer has any real rivals. It does more business than Target, Sears, Kmart, J.C. Penney, Safeway, and Kroger combined.”¹¹

Industry analysts attributed much of Walmart's dominant retail position to an intense focus on discipline and efficiency in its supply chain. According to AMR Research, “We view Walmart as the best supply chain operator of all times.... Their [prices] can be far lower than other retailers' because they have such an efficient supply chain. The company's cost of goods is 5 to

10 percent less than that of most of its competitors.”¹² As its scale and purchasing power increased, the company developed a reputation for making its 60,000-plus suppliers more efficient, focused, leaner, and faster. However, it also garnered criticism for squeezing supplier margins, causing some companies to lay off U.S. employees or close domestic plants in favor of outsourcing production from overseas.¹³ Walmart also was entangled in controversy over its own employee wages, health care benefits, diversity, and the working conditions in its captive overseas factories.

While Walmart's environmental impact had not been as problematic as these other issues, “The company's environmental record was nothing to boast about either,” said one *Fortune* article. “It had paid millions of dollars in fines to state and federal regulators for violating air and water pollution laws.”¹⁴ Walmart had huge environmental impacts simply because of the scale of its operations. For example, in its retail operations, Walmart was the biggest private user of electricity in the U.S.^a and emitted more than 19.1 million metric tons of carbon dioxide annually¹⁵—an amount equal to the pollution created by roughly 2.8 million households.^b Taking into account the emissions of Walmart's suppliers, the quantity was estimated to be more than 10 times greater.¹⁶

For these reasons, Walmart's reputation among consumers and environmentalists was deteriorating. According to a study conducted by McKinsey and leaked to the public by the public watchdog organization Walmart Watch, between 2 and 8 percent of consumers said they had stopped shopping at Walmart because of the company's practices.¹⁷ Another study, performed by Communications Consulting Worldwide (CCW), claimed that if Walmart had a reputation similar to that of its rival Target, its stock would be worth 8.4 percent more, adding \$16 billion to the company's market capitalization.¹⁸ Compounding Walmart's problems, sales growth was slowing and the company was facing increasing resistance from local communities as it sought to expand geographically.

THE SUSTAINABILITY STRATEGY

Against this backdrop, Scott initiated a review of Walmart's legal and public relations challenges in 2004. One area that the company wanted to evaluate was its environmental impact. “They were looking for help defensively from a strategic standpoint—‘Where are we vulnerable?’” explained Jib Ellison, founder of Blu Skye Sustainability Consulting.^c However, Ellison had bigger ideas for how Walmart could profitably reduce environmental impacts, which he pitched to Scott in June 2004. The basic proposal was that Walmart could obtain a “license to grow,” differentiate itself from its competition, and cut costs through an environmental strategy. “Sustainability represents the biggest business opportunity of the 21st century,” said Ellison. Intrigued by the idea, Scott hired Blu Skye to perform an environmental impact assessment and to help Walmart launch such an initiative.

^a Information provided by Walmart.

^b According to Environmental Defense, an average household with two mid-sized vehicles emits more than 20,000 pounds of CO₂ a year, which equates to 10 tons of pollution; see “Tallying Greenhouse Gasses from Cars,” June 2006, <http://www.environmentaldefense.org/article.cfm?contentID=5300> (January 25, 2007).

^c All quotations from interviews conducted by authors unless otherwise cited.

Getting Started

The next challenge was to figure out where to focus. Over the next four to six months, Walmart worked with Blu Skye, Conservation International (CI) and the Environmental Defense Fund (EDF) to identify which of its products and processes created the greatest environmental impacts. The impact assessment leveraged data compiled by the Union of Concerned Scientists (UCS) regarding environmental impacts in five primary areas (greenhouse gas emissions, air pollution, water pollution, water use, and land use) across 134 product categories.¹⁹ For each of these product categories and impact areas, the UCS estimated an environmental impact score per \$1 spent by a consumer (e.g., greenhouse gas emissions in tons of CO₂ equivalents per \$1 spent on electronics). Walmart then multiplied these environmental impact scores by 2003 sales in each product category to estimate the company's overall environmental impact in each of the five areas. While the results were relatively rough, they provided managers with enough directional data to help them understand where the greatest problems existed and start thinking about pragmatic solutions. (See **Exhibit 1** for the product categories with highest total environmental impact scores.)

By June 2005, a team of top Walmart executives, high-potential employees, and the consultants had identified three primary areas around which it would set environmental goals for reducing Walmart's impact on the environment: energy, waste, and products. In each area, "We recognized early on that we had to look at the entire value chain," said Elm. "If we had focused on just our own operations, we would have limited ourselves to 10 percent of our effect on the environment and, quite frankly, eliminated 90 percent of the opportunity that's out there."

Next Steps

With goals clearly articulated around Walmart's own energy consumption and waste, as well as improving the sustainability of its products through targeted supply chain improvements, the company was ready to take action. Its next step was to pull together sustainability teams to drive environmental change related to energy, waste, and products in the aforementioned high impact areas. Ultimately, 14 *sustainable value networks*, as they would come to be known, were defined (see **Exhibit 2** for a complete listing). An executive sponsor was identified for each network, as well as a network captain. The network captains were typically senior level managers from Sam's Club or Walmart who were considered to be among the company's top performers. Each one was responsible for leading a cross-functional team of Walmart associates that would be focused on driving sustainability in different parts of the business.

Importantly, Walmart decided to make sustainability a new responsibility for people in their existing positions rather than creating new jobs or building a separate sustainability-related organization. This way, sustainability was less likely to be considered a fringe initiative led by a disconnected group of individuals in the home office, but rather an integral part of the way work was performed. Aside from a small core team of five dedicated staff members, which included Ruben and Elm, no Walmart associates were assigned to work on sustainability on a full-time basis (with only a few exceptions in textiles and global logistics). Elm explained the approach: "Business sustainability isn't something you're doing in addition to your job. It is a new way of approaching your job." Ruben concurred: "People are absolutely stretched thin, but there's incredible power that comes from keeping sustainability within the business." To help make the

model viable, in most cases each network was staffed with one or more external consultants from Blu Skye or RMI.

Another essential element of the sustainability strategy was to look outside “the Bentonville Bubble” for input. Over the years, Walmart had become notorious for being internally and operationally focused. To open its door and seek strategic level input from outside parties represented a major cultural change for the organization, but Walmart started “pulling ideas from everywhere”²⁰—consultants, nongovernmental organization (NGOs), suppliers, eco-friendly competitors, academics, and even critics.

The collaborative approach worked so well that the company decided to make it part of its ongoing sustainability model. Across the 14 value networks, hundreds of external entities were asked to join and participate on an ongoing basis. The primary criterion for inclusion was only that, “We want to engage folks who are genuinely committed to desired future outcomes and solutions as opposed to those who are focused on controversy,” Elm added. The network captains managed the involvement of these external participants.

Walmart also began to engage in dialog with government policy makers regarding climate change. In the U.S., either a tax or a cap-and-trade system for curbing greenhouse gases seemed imminent. Walmart opposed a carbon tax as regressive and costly to its customers. If allowed to participate in a cap-and-trade system, the company could unlock a “virtual gold mine”²¹ of credits for CO₂ reduction in its supply chain. In testimony before the U.S. senate, Ruben testified in favor of immediate, strong federal regulation and the company later publicly endorsed proposals for “market-based programs for greenhouse gas reductions.”²²

More About the Sustainable Value Networks

When Ruben, Elm, and the other members of the sustainability core team set out to launch the sustainable value networks, they gave the captains explicit guidance regarding the focus of the sustainability strategy: “It’s not an environmental initiative, it’s a business strategy,” Elm noted. “Your overall objective is to derive economic benefits from improved environmental and social outcomes. It’s not philanthropy.” Furthermore, the networks were encouraged “to develop a ‘sensing organization’ that is aware of the external business environment, and able to incorporate this perspective into business decisions that create long-term value. And, also to transition the company from an organization that derives value primarily from transactions to one that also derives value from relationships,” said Elm. Beyond that, the networks were given the freedom to define their own sustainability objectives and plot their own course.

To get started, most networks went through a process to “engage, explore, and expand.” *Engagement* meant looking beyond Walmart’s traditional stakeholders (customers, associates, shareholders, and suppliers) to identify and work with a broader community of participants that could provide information, subject matter expertise, and other resources to help Walmart further define and achieve its environmental goals (see **Exhibit 3** for an illustration of network membership). *Exploration* included analyzing the life cycle of particular products or services and investigating the related environmental issues (see **Exhibit 4** for a sampling of issues for each network). “Then you *expand*,” said Elm, “by looking in the value chain to identify which of our business activities are matched to the issues, and considering if we should be doing

business differently. [We ask], ‘Does that business activity need to be undertaken at all? Does it need to be undertaken by someone else? Where are the opportunities to drive improved value for the business and for our stakeholders?’” The idea was to determine where and how the company could change its business model to address the needs and concerns of this broader community, as well as its traditional stakeholders.

Elm continued:

Once we've identified all the issues that are out there, we develop a desired future outcome, and we look at developing a pathway to get from where we are today to that desired future state. We call that the sustainable pathway, which is made up of projects of different sizes. We've got *quick wins* that the business and stakeholders can immediately go after. We have *innovation projects*, which may take one to three years. These initiatives involve Walmart, but often change entire industries. Then we also identify *game changers*.

Game changers would be pursued on an ongoing basis and were intended to result in a radical departure from traditional business practices (see **Exhibit 5**). Elm used the revolution of container cargo shipping in the mid-1950s to set the bar for magnitude of impact expected from a game changer.^d Each network was asked to define six quick wins, at least two innovation projects, and one game changer. (See **Exhibit 6** for a sample from the textiles network.)

Global Logistics

In the early phases of the program, some networks, such as Global Logistics, were able to leverage existing programs to hit the ground running. Tim Yatsko, network captain for that team, described his approach: “Just being in transportation means you’re in the fuel efficiency business. So when Lee [Scott] defined the company’s sustainability goals, we quickly formalized our fuel efficiency processes and rolled them into the business sustainability strategy of the company.”

While Elm concurred that the logistics team already had been making good progress, he commented that information from network partners led them to adopt much more ambitious goals. “The value of the network approach is that the goals grew as the spirit of the possible grew. The involvement of groups like Rocky Mountain Institute (RMI) in our logistics program had a tremendous impact on how much and how quickly Walmart recognized it could drive change. Initially, the logistics team was going after incremental gains, for example improving the efficiency of Walmart’s fleet by a few percent over several years. But now they plan to *double* it within 10 years,” he said. Swisher added, “You have to give Walmart credit for being open-minded and willing to up the ante once they were convinced we had a basis for suggesting

^d Container cargo shipping refers to a system of intermodal freight transport under which goods are loaded into standardized containers, sealed, and then efficiently moved from ship to rail, to truck without labor-intensive, time consuming, and costly unloading and reloading processes. The immense gains in efficiency with this revolutionary approach stimulated international commerce: “In the decade after the container first came into international use, in 1966, the volume of international trade in manufactured goods grew more than twice as fast as the volume of global manufacturing production, and two and a half times as fast as global economic output.” [Marc Levinson, “How the Shipping Container Made the World Smaller and the World Economy Bigger,” <http://press.princeton.edu/chapters/s8131.html> (February 7, 2007).]

more aggressive goals.” By October 2006, the logistics network was moving so quickly that Yatsko said, “I can tell you that we’re already there—with three or four percentage points to spare—in terms of our short-term goal to achieve a 25 percent improvement in fuel efficiency by 2007. That equates to almost \$75 million in annual savings to Walmart and probably 400,000 tons of CO₂ per year out of the atmosphere.”

China

For other networks, like the China network, more time and planning was required to define a focus. In 2005, Walmart’s Chinese exports climbed to an estimated \$23 billion (greater than 1 percent of China’s \$2.25 trillion GDP).²³ In total, the company worked with more than 50,000 Chinese suppliers (those companies providing products to Walmart in the domestic Chinese market, as well as those from which Walmart directly imported products) and was the country’s 7th largest trading partner. Because of this interdependency, Walmart had an interest in helping China avoid an environmental crisis that could affect supply from the country.

However, developing a focused strategy had proven challenging. “Because China is a geography and it touches all of our networks, we had a little bit of an identity crisis as to what we should or could do,” said Rob Kusiciel, vice president of Walmart’s global services and captain of the network. After researching a broad range of environmental issues, Kusiciel and his team realized that Walmart needed to consolidate its supply base and develop a more collaborative, long-term, influential relationship with each supplier. They decided to begin working with the largest 20 of its 50,000 Chinese suppliers (as measured by annual sales volume to Walmart) to improve environmental performance. Kusiciel explained the approach:

We’ve had diverse relationships with lots of factories over a relatively short term.... We’ve worked together one purchase order at a time or one season at a time, but year on year we may switch from one supplier to another... To obtain improvements on issues like environmental compliance has been difficult because our relevance to those particular companies is low. Our goal is to bring people into strong relationships and develop overall business partners that are able to deliver excellence in the ethical standards area, including environmental components, quality, and product safety. We will build a sustainable sourcing model with these 20 companies, and then take what we learn to other sectors.

In addition, Walmart also intended to provide suppliers with valuable knowledge and process assistance through relationships with the NGOs in its networks. For example, when the Chinese government threatened to shut down a number of textile dye houses, including one of Walmart’s suppliers, to reduce pollution in Beijing in anticipation of the 2008 Olympics, Walmart immediately “put the dye house in touch with one of the NGOs in our network, which helped it formulate a more environmentally friendly process that reduced its toxic output very quickly.” recalled Kim Brandner, senior brand manager of sustainable textiles for Walmart. Although other retailers were negatively affected by the shut-down of their suppliers in the field, “we did not have any of our production capacity cut with this vendor,” said Brandner.

Working in Parallel: Walmart’s Ethical Standards and Compliance Team

Walmart had an organization that monitored supplier compliance with local labor and environmental laws and the company’s own code of conduct in China and other countries around

the world. According to Ruben, this organization generally did not participate in sustainability initiatives, but had recently started collaborating with the China network to more closely align their efforts. The compliance team, which was led by Rajan Kamalanathan, Walmart's vice president of ethical standards and director of compliance, was made up of roughly 200 full-time associates in 2006 (and had doubled in size since 2002). It conducted approximately 10,600 supplier audits in 2005, with three third-party auditors performing another 3,000 inspections for the company across a total of 7,200 factories.

The results of audits by the compliance organization directly affected the company's buying behavior. Following each audit, suppliers were given a green, yellow, orange, or red rating, along with an assessment of any necessary corrective actions. These ratings not only determined how soon another inspection would be conducted, but also were communicated to Walmart's buyers. If a supplier received a red rating, Walmart's buyers were instructed to stop purchasing from it. In the case of an orange rating and failure to correct the problem within two years, the same thing happened. In 2005, Walmart terminated relationships with 141 companies as a result of multiple instances of non-compliance.

One problem with the audit process was the potential for corruption. A Stanford MBA who served as a supplier to Walmart in China in 2006 noted that, "Corruption is widespread. The audit companies have the power to hurt the factories, so lots of bribery goes on. Using an internal audit team might be better, but often these people are hired from the local community so the potential for corruption is still there." The audit process also required excessive time and effort from suppliers that worked with multiple retailers. "Some factories may go through 50 audits in a year," said Kamalanathan, "which really doesn't make sense." The ethical standards group was seeking to collaborate with other retailers and brands in the auditing process to reduce the burden on suppliers while maintaining a high standard of conduct. "If we can relieve the auditing burden, our hope is that companies will spend more time working with different stakeholders to actually fix the problems that are identified," said Kamalanathan.

Walmart's compliance audits had primarily focused on health and safety issues. However, the compliance team intended to start measuring suppliers against four Walmart-defined environmental metrics (water treatment, waste management, banned chemicals, and air emissions) in 2007.

OPERATIONAL CHANGES

A closer examination of three of Walmart's sustainable value networks—seafood, electronics, and textiles—demonstrates how the sustainability strategy was being operationalized.

Seafood

According to an international study released in 2006, all species of wild seafood were greatly depleted and predicted to collapse within 50 years.²⁴ Furthermore, fishing was an inefficient industry in terms of its fuel use and, as many scientists argued, was only getting more inefficient as boats were forced to venture further out in search of declining wild fish stocks. In 2000, fisheries around the world burned roughly 13 billion gallons of fuel to catch 80 million tons of fish, accounting for approximately 1.2 percent of global oil consumption.²⁵

As wild fish stocks declined, an increasing percentage of the seafood supply was farm-raised.²⁶ Yet some studies had shown that farm-raised fish provided lesser health benefits in terms of nutrients, as well as increased health risks in the form of harmful chemicals and antibiotics used to fight disease in fish farming environments. For example, farmed salmon had more antibiotics administered by weight than any other type of livestock,²⁷ and more than 10-times the toxins (dioxin, PCBs, and other potential carcinogens) of wild salmon.²⁸ Farmed salmon also required artificial coloring to achieve the appearance of wild salmon and was considered by many to have inferior flavor.

A common perception was that aquaculture relieved pressure on wild fisheries while adding to the global food supply. While this true for most for herbivorous species, carnivorous fish (such as salmon and shrimp) required two to four times the amount of wild-caught fish and fish products to feed as the volume of fish outputs produced.²⁹ The conversion of coastal ecosystems to aquaculture ponds also destroyed wild ocean fisheries by degrading coastal waters with antibiotics, chemicals, feed, and feces, as well as increasing the risk of disease and genetic contamination when fish escaped from the farms.

Within this complex and ominous business environment, Walmart was sourcing approximately \$750 million in seafood annually. Although output from the world's fisheries had declined to 3 percent of production levels in the year 1900,^e the company's volume of seafood business was growing at roughly 25 percent per year. "I was already having a hard time getting supply," said Peter Redmond, vice president for seafood and deli, and captain of the Walmart seafood network. "If we add 250 stores a year, imagine how hard it will be in five years."

Redmond believed that continuity of supply was the single greatest long-term issue facing the seafood network. Because Walmart's seafood business was transaction-based, the company also faced near-term supply-related challenges. The company had difficulty procuring an adequate supply of fish if another buyer offered a higher price, even after Walmart had negotiated an apparently firm agreement. Suppliers might also provide high quality samples but then deliver inferior products, which led to markdowns and write-offs. When Redmond learned about the Marine Stewardship Council's certification program for wild-caught fish, he saw it as a potential solution to Walmart's near-term and long-term supply related challenges.

The MSC program, established by Unilever and the World Wildlife Fund (WWF) in 1997, set forth a broad set of certification standards based on the United Nations' Code of Conduct for Responsible Fishing. These standards were developed with input from fishermen, retailers, government, NGOs, and other stakeholders. The MSC implemented its certification process through independent, MSC-accredited certifying agencies that audited fishery and processor compliance to ensure that products were managed sustainably from "boat to plate."³⁰ Certified fisheries displayed an MSC eco-label on their finished products as a signal that the fish was harvested in a sustainable manner, thus raising consumer awareness, which the MSC hoped would pressure the industry to shift to more sustainable fishing practices.³¹ The MSC would consider making a fishery region eligible for certification only if effective government regulatory

^e According to Peter Redmond, Walmart's seafood network captain.

controls were in place to prevent over-fishing. In various geographical regions, the MSC worked with boat operators and fish distributors and processors to lobby the government for stronger controls.

Redmond recognized the benefits of leveraging a well-defined, established, and objective program. "It is a completely impartial process that is reviewed by a lot of different NGOs, including WWF and Greenpeace—groups that potentially could have been critical of us if we had decided to come out with our own standard and then go police them with our own people," he said. Tapping into the MSC program would also enable the seafood network to make faster progress.

Redmond convened a network kick-off meeting in January 2006 with more than 75 individuals from Walmart, Walmart International, Sam's, various suppliers, NGOs, and top universities. The goals of the session were to rally the group around MSC certification and also to define the other areas in which the network should be working. Coming out of the session, the network had identified five primary initiatives:

- **Certification** – MSC certification would be pursued first to address the sustainability of wild-caught fish. Then, the company would get behind the Aquaculture Certification Council (ACC) standards to address farm-raised fish (getting started in late 2006).
- **Cluster Farming** – Finding ways to create farming cooperatives in areas such as Thailand where 300 small shrimp farmers may each manage one or two ponds so that standards can realistically be implemented and enforced (getting started in late 2006).
- **Marine Reserves** – Working with NGOs to establish no-fishing zones to allow for the repopulation of depleted fisheries (getting started in late 2006).
- **Public Awareness** – Making consumers aware of environmental issues in seafood and educating them on sustainable choices (to begin in 2007).
- **External Collaboration** – Working with external stakeholders, including government, on a global scale to promote more sustainable fishing regulations (future initiative).

Redmond assigned a captain to each of these sub-projects and used monthly meetings to evaluate status, progress, goals, hurdles, and needs. Walmart also went public with an ambitious seafood goal: the company committed to moving its wild catch to *100 percent MSC certified seafood within three to five years*.

More about Walmart's Approach to MSC Certification

To accomplish this goal, Walmart would have to work through its suppliers to increase the number of fisheries and processing plants in the MSC certification program. Suppliers would identify fisheries already using primarily sustainable practices to catch wild fish, refer them to the MSC for certification, and have them use MSC eco-labels on their products within six months of the network kick-off. The idea was to start buying as much certified fish as possible, as quickly as possible. Wild seafood suppliers were also instructed to begin working with the WWF and a group of other experts to identify those fisheries that were potential candidates for certification, but might first need to adjust processes or practices. The WWF could help fisheries and processors prepare to enter the certification process. "In these cases," said Scott Burns, director of the WWF marine conservation program, "we're doing evaluations ... against a set of

sustainability indicators and identifying the specific things that need to be fixed [including strengthening management practices, rebuilding stocks, and reducing environmental impacts] before they can be certified by the MSC. What Walmart has told its suppliers is that, as long as they see reasonable and measurable progress in correcting problems, they will continue to work with those fisheries. But if they don't, they will eventually consider re-sourcing.”

There was a third group of fisheries—many in countries such as Russia with no effective government regulation of fishing—that would require long-term, severe restrictions in the catch to become sustainable. Given the volume of Walmart's demand, the company remained dependent on fish from these areas, at least in the near-term, to adequately supply its customers. Fish from these areas was approximately 20 cents per pound less expensive than MSC-certified fish.

Consolidation in the Chain of Custody

One of the immediate benefits realized through the certification initiative was greater transparency in the seafood supply chain. Fitzpatrick explained: “As a fish moves from the certified fishery through the supply chain to get to the consumer, it has to go through various hands. The MSC requires a chain of custody to guarantee that the fish is coming from a certified source.” This was important because sustainably caught fish was virtually indistinguishable from the rest. For example, certified salmon from Alaska appeared identical to cheaper, uncertified salmon from Russia, which created a temptation for suppliers to cheat. Redmond elaborated on the advantages of better monitoring in the chain of custody:

One of the problems we had was how much of our fish was coming to us third-, fourth-, or even fifth-hand. Sometimes our supplier turned out to be nothing more than a packer that was going out to a market saying, ‘I need 50,000 pounds of salmon no matter where it comes from.’ Through the chain of custody, we started to see when fish was being handled four or five times, and we knew it couldn't be good for the fish [since the texture and flavor of fish is degraded over time, especially through freezing and refreezing]. And it's certainly not good for traceability. It brought us a lot more awareness about our supplier base, so now things can come to us a lot more directly.

As Walmart gained greater visibility to its seafood supply chain, it could consolidate its business with the best available suppliers. Through consolidation, the seafood network believed it could eliminate seafood stock-outs and raw material shortages while reducing supplier costs through standardized packaging, reduced paperwork, and improved transportation efficiencies. These changes were estimated conservatively to result in \$14 million in increased revenues and an additional \$4.3 million in profits per year.

The Role of Suppliers

Because Walmart had delegated the implementation of the MSC certification program to its suppliers (as well as NGO partners), companies willing to take the lead in driving sustainability into the supply-base stood to differentiate themselves from the competition and further strengthen their relationships with the company. For example, Manish Kumar, CEO of the Fishin' Company, Walmart's majority supplier of frozen fish fillets in the U.S., embraced the program even though it added significantly more complexity, time, and effort to his job without

increasing near-term profits. "I had no idea what the MSC was in January," he said. "Today, I spend half my day, every day, working on something related to the Marine Stewardship Council."

Kumar felt that his efforts were helping to secure and expand his business with Walmart in the long term. "It's definitely brought us closer. I think there's a lot more trust now in our relationship," he said. "They're willing to let us talk on their behalf, defend their points, and explain to the businesses we work with how important this effort is. And, because we have the muscle of their business behind us, we can go to a plant or a fishery and persuade them to become certified." Additionally, because Walmart was interested in acquiring as much certified fish as possible, suppliers were able to begin taking a longer-term perspective toward their business with the company.

The Cost of Certification

The direct cost of MSC certification was paid for by boat operators and processing plants. Getting through the rigorous certification process could cost between \$50,000 and \$500,000 and take one to two years to complete. There were other indirect costs associated with certification; for example, fisheries with the most depleted fish stocks were forced to reduce their catches while repopulation occurred. "It's difficult to convince fishermen to accept the economic sacrifices they would need to make in the short run in order to be better off in the long run," noted Burns.

Despite these costs, as Burns pointed out, certified fisheries could expect to achieve certain operational benefits. "Sustainable fisheries tend to produce more fish for fewer inputs or less money than fisheries that are unsustainable. In depleted fisheries, fishermen have to work harder to catch the fish they get—their catch per unit of effort is lower. So there is at least some potential to reduce the cost of production," he said.

Progress as of Late 2006

By the end of 2006, Walmart expected to have 30 to 40 percent of its total wild-caught fish certified under the MSC. And, in the spirit of everyday low prices, there was no price premium, partly because consumers were unwilling to pay extra for sustainably caught fish. At that time, according to Redmond, the company would consider beginning to promote certified fish to its customers. "Right now, we have not put out anything from a marketing point of view," he said. "We want to have a greater percentage of our product MSC certified before we go out with the message."

Electronics

The electronics network was formed to address issues across the company's consumer electronics products, which ranged from TVs, DVD players, digital audio products, telephones, and musical instruments to all computers, monitors, and printers. It also included small appliances (which were added to the network's purview in 2006). Across these product lines, Walmart had approximately 25 domestic electronics buyers, while Sam's had another 15. Within the U.S. electronics industry, the company had the second highest market share, just behind Best Buy.

The electronics network was led by two co-captains: Laura Phillips, vice president and divisional merchandise manager for entertainment/wireless for Walmart and Seong Ohm, vice president and divisional merchandise manager for electronics for Sam's Club. During its initial start-up phase, the team defined six key areas where it would focus:

- **Materials Innovation** – Working on near-term product modifications to reduce environmental impact, e.g., energy efficiency and transparency, elimination of hazardous substances (initiatives underway in 2006).
- **E-waste** – Recovery and safe disposal of electronics (piloting programs in 2006).
- **Legislation** – Collaborating with external stakeholders and governmental agencies to affect policy and regulation related to electronics (preliminary efforts underway in 2006).
- **Green Engineering** – Working with suppliers and their R&D functions to rethink how products are designed and manufactured to drive fundamental change in the industry on sustainability-related issues, e.g., designing for recycleability (started in late 2006).
- **Metrics** – Measuring and monitoring the performance of associates, the network, and suppliers in the area of sustainability (started in late 2006).
- **Training and Education** – Informing internal and external stakeholders about changes in the electronics industry and the potential implications and opportunities related to sustainability (underway internally, but just getting started in late 2006 relative to external customers).

Sub-teams of eight or nine network members were designated to support each initiative. The teams also worked collaboratively since many projects were interconnected and shared common goals. For example, the electronics network collaborated on developing product questionnaires for buyers to use with suppliers. The purpose of these was to help buyers begin asking more questions about the environmental impacts of the products Walmart was purchasing (see **Exhibit 7** for a sample).

Another issue requiring cross sub-team collaboration was related to hazardous substances, such as lead, cadmium, and mercury, contained in many electronics. Computers and other electronics accounted for as much as 40 percent of the lead in U.S. landfills,³² even though 80 percent of the e-waste collected for recycling was being exported to developing countries where the toxic components led to pollution levels that were hundreds of thousands of times higher than those allowed in developed countries,³³ as well as tragic, large-scale human health effects. While the e-waste team was working to dispose safely of lead and other hazardous substances in electronics, the materials innovation group was seeking ways to get them removed from computers in the first place.

Materials Innovation Project: Buying RoHS Compliant Computers

One of the first quick wins in the electronics network was related to the issue of eliminating hazardous chemicals from production. Alex Cook, an electronics buyer and member of the sustainability network, was making a standard visit to a computer supplier in China in March 2005 when he noticed that the company was running two manufacturing lines for the same product. Inquiring about the reason, he was told that one line made traditional computers for the U.S. while the other made RoHS-compliant computers for customers in Europe. RoHS (Restriction on Hazardous Substances) was a directive by the European Parliament to restrict the

use of certain hazardous substances in electrical and electronic equipment (effective July 1, 2006). This particular manufacturer was ahead of schedule and planned to ship RoHS-compliant products to Europe in January 2006. On learning more about the program, Cook asked if he could buy these machines on the same timeline.

Ultimately, the supplier agreed to sell the RoHS-compliant product to Walmart as long as Walmart would guarantee the order, essentially eliminating risk to the supplier by making a commitment for 12-weeks of inventory as opposed to the more typical 4-week commitment. "We'll take that risk," said Cook. "We want to be the first one in the U.S. to sell RoHS-compliant PCs." Walmart's commitment also created an economic benefit for the supplier because it did not have to shift its production line between RoHS-compliant and non-RoHS-compliant machines, which was a costly and time consuming process.

Traditionally, Walmart sought to avoid long-term purchasing commitments and maintain very low inventory levels because of high demand uncertainty and high rates of inventory obsolescence in the electronics industry. Introduction of a new version of any key component would make the entire product obsolete. This happened frequently—for example, new microprocessors were introduced every three months or so, making Walmart's PC inventory obsolete. Unfortunately, obsolete electronics immediately became e-waste. According to one environmental organization "electronic products [are] virtually disposable due to rapid product obsolescence. For example, the lifespan of a computer has shrunk from four to five years to about two years. It is estimated that up to 50 percent of computers turned in for recycling in the U.S. are in good, working order. The electronics industry vigorously promotes this fad of increased consumption. It is the largest and fastest growing manufacturing industry in the world."³⁴

However, to make the RoHS compliance deal work, Walmart accepted the additional risk and committed to buying 30,000 units. The company's first RoHS-compliant product sold extremely well based on its quality and price. However, Walmart did not promote its environmentally friendly characteristics. Cook explained: "There wasn't a way that we felt comfortable promoting it at that time, since RoHS compliance meant nothing to U.S. consumers. We also had to take into account that RoHS standards are self-policing, so there's a little risk from a PR perspective. What if we went out and promoted it and found out that [the supplier] had missed something? Because frankly, we were taking their word for it." HP encountered trouble of this nature when Greenpeace issued a September 2006 report indicating that it had conducted independent testing and discovered Deca-BDE in HP laptops, even though HP claimed to have phased out this hazardous substance several years earlier.³⁵

Shortly after Walmart made its first purchase of RoHS-compliant computers, it started to ask other computer manufacturers for RoHS-compliant products. Before long, many of them informed Walmart that they were switching all of their U.S. customers to products meeting RoHS standards. "There were efficiencies to be gained from purchasing all of the materials in larger quantities, running one line instead of two, and reducing inventory. It ended up changing the entire industry and the way other product is coming into the United States," said Phillips. "By July 2006, which was actually when the European mandate took effect, every computer that we bought and every monitor that we acquired from every supplier was RoHS-compliant," said

Cook, despite that fact that there was still no such mandate in the U.S. The network also had started working on meeting RoHS standards for its TVs.

E-waste

E-waste brought the network greater trial and error. Initially, the team tried to leverage return centers within the stores to run recycling take-back programs for electronics, but the return centers did not have adequate space and labor to deal with even small recycling volumes. The next attempt was focused on Walmart's "Box Program," run in partnership with the U.S. Postal Service, HP, and Noranda Recycling. This program offered store customers postage-paid boxes to package and ship their used electronics for recycling. The boxes (including postage) sold for approximately \$15—roughly 35 to 50 percent of the actual cost. Unfortunately, even in affluent geographic areas, customers appeared unwilling to pay to participate in the program.

Walmart then sponsored a series of electronics recycling days at stores across the country. "We collected just over 70 tons of electronics at five events in September 2006," said Jenni Dinger, a Walmart music buyer and leader of the e-waste sub-team. However, even with the continued participation of HP and Noranda, the events were costly and there was no measurable connection between customer participation and increased in-store sales. Even when Walmart marketed a "green laptop" that included a recycling kit with every purchase (similar to the box program above, but at no extra charge), customers generally were unresponsive. "I think that program has had a 1 percent participation rate, and we couldn't imagine making it any simpler than that," said Dinger. "We still haven't figured out how to change people's behavior." She continued, "We'll proceed with some take-back programs but, because they're so expensive, they'll have to be relatively sporadic."

Legislation

As of 2006, the U.S. had no federal electronics regulation, but states were taking action, with 19 bills in play in eight states and at least three states with e-waste laws. However, each state was implementing a different policy. For example, California required retailers to collect a \$6 to \$10 fee when selling any laptop, monitor, television, or similar "covered" electronic device, used to certify and compensate other firms for the collection (\$0.20 per pound) and recycling (\$0.28 per pound) of used electronics. The advance recovery fee would increase as needed to cover all collection, recycling, and administrative costs.³⁶ California also imposed RoHS for laptops and monitors (effective January 2007).³⁷ In contrast, Maine and Maryland required producers to take responsibility for collecting and recycling used electronics.

Against this backdrop, Walmart focused primarily on advocating for national standards for both hazardous substances and e-waste. "We can't effectively manage a national program with state-by-state solutions. It's burdensome and very costly for us. There's also a need to do something at the national level since some states are doing nothing," said Phillips. U.S. Environmental Protection Agency (EPA) administrators were interested in the take-back programs sponsored by Walmart, HP, and Noranda. By demonstrating successful and cost-effective collection and recycling, the partners could influence the federal government to pursue "producer responsibility" rather than the California model of advanced recycling fees and government administration of collection and recycling. Steve Rockhold, HP global program manager for product reuse and recovery, argued publicly that "government control of collection and recycling significantly increases cost."

Progress as of Late 2006

Commenting on the overall progress of the electronics network, Phillips noted, "We've made a lot of progress because most of the changes make business sense to our suppliers. Where they push back is when they have to take on added costs," she added, citing e-waste as an example of a project where cost savings had not been realized through increased efficiency.

Another complicating factor in the electronics arena was supplier sensitivity around intellectual property. "There are all sorts of concerns about confidential business information and suppliers being reluctant to supply information to Walmart because it might somehow end up in the hands of their competitors," said Scot Case of Blu Skye, who had been working with the electronics network. He continued, "For example, if one factory is significantly more energy efficient than others, it's got an advantage. And if it shares that information, the competition might gain a much better understanding of its production costs and, therefore, its profit margins." Some even feared that this type of information potentially could be used by Walmart in its price negotiations with the supplier.

On the other hand, "Anything that can be easily tested, most suppliers are more comfortable providing," said Case. "Information about how much energy a product consumes is not particularly sensitive." This hesitancy to disclose was challenging to Walmart not only from a performance management perspective. Ohm added, "If someone comes up with a better, more sustainable way to do something, we want to encourage them to share that with other suppliers to increase the impact." One way the network was encouraging its suppliers to accomplish this was by encouraging suppliers to license their environmental innovations. The opportunity to derive additional revenue from an environmental innovation would increase the incentive to suppliers for investment in innovation, while licensing the innovation also would lead to improved environmental performance across the industry and more widespread benefits for Walmart.

Textiles

In some respects, the textiles network had a head start relative to many of the other sustainable value networks. In spring 2004, Sam's Club placed an order for organic cotton yoga outfits. Customers were immediately drawn to them by the high quality of the fabric (even though Walmart did not promote the outfits as organic beyond the labels inside the garments). Within 10 weeks, it moved 190,000 units, selling out of the \$10 yoga tops and \$14 pants in record time.³⁸ As stated in a *Fortune* article, this was "an early sign that Walmart's working-class and middle-income customers would be willing to buy 'green' products, so long as they were affordable."³⁹ In addition to pursuing organic products through its textiles network, Walmart also began exploring organic food products through the food and agriculture network (see **Exhibit 2**).

Conventional cotton crops received more than 25 percent of all chemical insecticides used and more than 10 percent of chemical pesticides in agriculture. Of these chemicals, many of which had been shown to cause cancer, birth defects, and nervous system damage, researchers estimated that as little as .1 percent reached the targeted pests, while 99.9 percent were dispersed into the soil, water, and air.⁴⁰

To address challenges such as these, the network developed a strategic plan that included a 5 and 10-year outlook for Walmart's textiles business. "We have a long-range vision of where we want to go," said Brandner. "That gives us the framework for everything we do. All of our sub-projects—our quick wins, innovation projects, and game changer—have to feed into this master plan or else they're not going to get done." (Refer to **Exhibit 6** for an overview of the sub-projects defined in textiles.)

Organic Cotton

The organic cotton innovation project quickly became the network's top priority. An in-depth life-cycle analysis of the cotton supply chain confirmed that the environmental impacts of cotton were felt across three different stages of the supply chain: farm, factory, and post-production. According to Rebecca Calahan Klein, president of the Organic Exchange, a nonprofit organization focused on increasing the use of sustainable agricultural practices, roughly 20 percent of the environmental impacts in the cotton life cycle came from the growing process and were driven by direct and embedded energy use, toxicity (the volume of chemicals used as well as their toxicity levels), and water usage. Another 20 percent came from cotton processing. These environmental impacts were related largely to the toxicity of the chemicals and dyes used, and were roughly of the same magnitude as the impacts associated with the processing of conventional cotton. Surprisingly, as much as 60 percent of the environmental impact came from the post-production stage, which included the energy usage and waste associated transportation, consumer washing habits, and product disposal. By shifting from conventional to organic cotton, Calahan Klein indicated that most or all of the toxicity impacts could be eliminated. Simultaneously, organic practices could drive a reversal of some of the negative impacts felt in the other areas (e.g., organic growing used less water and increased the capacity of the soil to retain water over time).

Previously, Walmart had never looked so deeply into its supply chain. "It used to be that if Walmart was buying Champion t-shirts, they wouldn't look past Sara Lee [who held the license for Champion products]. They didn't think about the spinner, and the dyer, the ginner, or the farmer," said Diana Rothschild (GSB 2007), a former Walmart employee and Blu Skye consultant to the early textiles team. After several failed attempts to purchase organic garments from suppliers at reasonable rates (by Walmart's standards), Claire Watts, Walmart's executive VP of merchandising for apparel, led the effort to talk directly with farmers about acquiring organic cotton. By expanding its supply of organic cotton to an economic scale for downstream manufacturing operations, Walmart would be able to significantly reduce costs, and move aggressively into organic textiles.

The first step was to adopt clear standards for organic cotton farming and manufacturing processes. Brandner described Walmart's approach:

We've worked with the Organic Trade Association and the Organic Exchange to make sure that we are upholding the most stringent guidelines and standards. For the growth of cotton, we have chosen the USDA [U.S. Department of Agriculture] standards. So, regardless of where the cotton is grown around the world, the farmers have to follow USDA guidelines for organic growth. For processing, we're following the Global Organic Textile Standard [GOTS]. This is probably the toughest standard out there in the industry for organic processing and

handling, and it's the only certification process that can be followed for organic products coming to Walmart.

Under GOTS, numerous chemicals traditionally used for processing cotton were prohibited. However, certain hazardous chemicals were allowed simply because safer substitutes were not yet commercially available at industrial scale.

Third party organizations were used to certify practices at each link in the supply chain as the cotton moved from farm to factory. "There are about 150 certification agencies but we recognize only the seven that we think are the most strict ... Since we're not doing that paperwork, our reputation is resting on who is certifying for us, which is why we picked the toughest certification companies," said Brandner. Certification paperwork was completed at each step in the process and finally reviewed by Consumer Testing Laboratories (CTL) in conjunction with final product testing. The cost and labor requirements of certification were largely absorbed by Walmart's suppliers.

In addition to the cost of certification, farmers faced reduced yields with organic cotton farming (in the first three to seven years) and the need to diversify crops. "Organic farmers can't grow cotton in the same field for an extended period of time because it depletes the soil of nutrients," said Rothschild. This forced farmers to alternate the planting of cotton with legumes, vegetables or other cover crops to rejuvenate the soil.⁴¹ "Those alternate crops often are not sold as organic and are not as lucrative as organic cotton. This creates the temptation for farmers to turn to non-organic farming," she explained. However, to meet organic standards, a farm needed to remain free of non-organic pesticides or similar materials for a period of three years prior to the harvest of any organic crop.⁴² Most farmers were only able to sell the cotton fiber, not the cotton seed, as organic. (Each cotton crop yielded 40 percent cotton fiber and 60 percent cotton seed by weight.⁴³) Cotton seed could be used to feed dairy cows or to make cotton seed oil, a common ingredient in cookies, potato chips, and other processed food products. The price of cotton seed was low, with no premiums typically offered for an organic product, even though in some places like California it was illegal to feed conventional cotton seed to livestock because of concerns about pesticide residue.⁴⁴

In 2006, Walmart became the world's largest purchaser of organic cotton. To increase and secure its supply of organic cotton, Walmart started to make long-term quantity commitments to farmers. In the past, organic cotton farming was considered relatively risky due to the variable nature of demand. If farmers were unable to find buyers for their crops, they could be forced into selling the higher-cost organic cotton at lower conventional cotton prices. Walmart made a five-year verbal commitment to buy organic cotton from farmers. "It gives them confidence and stability," said Lucy Cindric, senior vice president and general merchandise manager of Walmart's ladies' wear division and captain of the textiles network.

The price of conventionally grown cotton ranged from \$0.35 per pound to \$1.10 per pound, depending upon location and quality⁴⁵ and Calahan Klein estimated that organic cotton fiber cost approximately \$0.20 more per pound. Processors also commanded a premium because production lines had to be dedicated to organic processing (or be shut down and thoroughly cleaned after handling conventional cotton),⁴⁶ which Calahan Klein estimated could add an additional 5 percent to the cost of a garment. For these reasons, Walmart expected to pay

slightly more for its organic cotton products and would pass this differential on to its customers. Using an early example of an organic baby outfit, Schommer described the pricing strategy: “A little organic shorts set was maybe \$10.94, while a similar non-organic outfit would have been priced at \$6.94. So, yes, there was a price premium compared to other Walmart products. But when you consider a \$10.94 organic shorts set out there in the marketplace, that’s not expensive.” Over time, as more farmers moved into organics and greater efficiencies were achieved in processing, the premium associated with organic products would likely decline.

Restructuring the Buyer Role

To better manage relationships with suppliers, the textiles network implemented a major organizational change: It redesigned its buyer role. In the past, textiles buyers had been generalists, handling a wide variety of responsibilities (as buyers did in other product categories). The textiles network divided this function into four different job categories:

- **Merchandising** (buyer) – Focused on the customer and understanding what the product assortment should be to best meet the customer’s needs.
- **Product Development** – Focused on product design and trend execution—marrying what the buyer says the customer wants with what the trends are in the marketplace to help drive the development of the product.
- **Technical Services and Sourcing** – Focused on creating the technical specifications for each product, deciding how to package it, and determining the best sourcing strategy, including supplier negotiations, pricing, and quality.
- **Planning and Execution** – Focused on financial planning and in-store execution (how to get the product to the stores, quantities, product flow, store layout, etc.).

In the new model, representatives from each of these four “centers of excellence” were co-located as members of a tightly integrated product team. Each one was given the opportunity to become a specialist and to take a more strategic approach to their role. For example, buyers were intended to develop a more in-depth understanding of customer needs and behaviors. Sourcing specialists were meant to develop and nurture the longer-term relationships with suppliers that were necessary to support activities such as the organic cotton project and other sustainability initiatives. According to Brandner, as a result of this organizational change as well as the company’s focus on the environment, “We’re asking better questions, and it’s helping us become smarter merchants.”

Progress as of Late 2006

The textiles network appeared to be making progress against its quick wins and innovation projects, and improving supply chain efficiency. For example, Brandner recalled “We used to buy cotton from Turkey, ship it to China for spinning and knitting, and then ship it again to Guatemala to be cut and sewn. Now, by looking deeper into the supply chain, we’re finding opportunities to do things like eliminate the shipment to China and have all processing done in Guatemala.” This saved time and money, and reduced the environmental impacts associated with transportation.

However, the game changer project—to reduce the environmental impacts of textile manufacturing—had only just begun. According to Calahan Klein, to realize the full potential

for reducing environmental impacts, the industry would need to invest in new, disruptive technologies that would dramatically alter the textile manufacturing process. Innovative start-ups, such as Aura Herbal Wear in India, were pioneering new processes with the potential to drive this type of game-changing progress, but had not reached the scale necessary to supply Walmart and, as a result, were not on the company's radar screen. Furthermore, while innovations such as the Aura process eliminated more than 8,000 chemicals used in traditional textiles manufacturing, replacing them with natural herbs at a competitive cost and quality, Walmart's large suppliers had limited incentives to experiment with such innovative processes when no one in the industry was demanding it.

MEASURING SUSTAINABILITY

As of late 2006, sustainability metrics and monitoring processes were still under development. At the network level, each team had been asked to define the "sustainability attributes" of its products and services. For the textiles network, said Calahan Klein, the attributes of an environmentally friendly garment might be that "it's made of renewable materials, it's produced using a process that is efficient and minimizes waste, and it uses inputs with minimal toxicity." These sustainability attributes would become the "North Star" toward which each network would direct its improvement efforts. Next, each network would define specific performance metrics that corresponded to its sustainability attributes to support decision-making (e.g., regarding product assortment and pricing) and to enable communication with customers and the public, as well as to motivate suppliers and associates.

Product Assortment, Pricing, and Communication with Customers

In past product assortment and pricing decisions, Walmart was focused narrowly on its customers' desires. Now, Walmart needed metrics to drive sustainability into its product assortment and pricing decisions. Expanding the product assortment would increase the company's sourcing and inventory costs. While new green products might draw new customers or result in additional purchases, they also cannibalized sales of conventional products. As Walmart considered adding green products, new metrics were needed to help the company decide how many and which of these green products to offer, which conventional products should be retired, and how to price the related green and conventional products.

Walmart had to consider multiple perspectives when devising these new metrics. For example, many NGO partners advocated against the use of PVC due to negative human health effects associated with toxins (such as dioxin) generated by the production and incineration of PVC, as well as the leaching of carcinogens from PVC additives (e.g. plasticizers used to make PVC flexible). These groups urged Walmart to measure the PVC content in products and give preference to products without PVC content. On the other hand, some suppliers argued that the negative health effects of PVC were unproven and that customers demanded the strength and flexibility in certain products (e.g., shower curtains, inflatable swimming pools) that only PVC could provide. Walmart had to manage this tension as it decided on what metrics would drive its product assortment and pricing decisions.

Walmart also needed new metrics for communicating with customers. Walmart was quietly promoting its organic cotton apparel (through the use of hang-tags). However, Walmart faced

two primary problems with communicating other products' sustainability-related attributes. First, the networks had to be careful about promoting the performance of green products in such a way that conventional alternatives would appear undesirable (e.g., MSC certified versus non-certified fish). Second, Walmart often did not have enough reliable information to definitively explain or defend a product's environmental and health benefits to customers. If the company was uncertain about the safety, effectiveness, or environmental impact of a product, for example because it relied on suppliers to self-police (e.g., RoHS-compliant PCs), it could not promote those attributes. These two problems were evident in the compact fluorescent light bulb (CFL) initiative (coordinated by the global greenhouse gas network) and the chemical intensive products network.

Compact Fluorescent Light Bulbs

In 2006, driven by the sustainability attribute of improved energy efficiency, Walmart announced a goal to sell 100 million energy-saving CFLs per year by 2008. If the company accomplished this objective, total sales of the bulbs in the U.S. would increase by 50 percent and the corresponding savings to Americans in electricity costs would be approximately \$3 billion.⁴⁷ It would also result in a dramatic reduction in CO₂ emissions since lighting accounted for approximately 8 percent of total U.S. CO₂ output⁴⁸ and each CFL used 75 percent less electricity.⁴⁹ From August 2005 to August 2006, Walmart sold only 40 million CFLs compared to roughly 350 million incandescent bulbs.⁵⁰

Light bulb manufacturers like GE, Philips, and Osram Sylvania had not advertised the benefits of CFLs to customers because sales of CFLs would cannibalize their business in incandescent bulbs. In transition to CFLs, these companies would watch their sales deteriorate (because each CFL lasted 10 times longer than an incandescent bulb⁵¹) at the same time that their existing manufacturing facilities for incandescent bulbs were rendered obsolete, requiring costly clean-up and remediation upon closure.

Sales of CFLs would directly cannibalize Walmart's own lighting business, as well. The company expected its lighting aisle to shrink from 60 to 40 to 20 feet over the next several years as its product assortment became dominated by CFLs and customers purchased bulbs less frequently. Nevertheless, Walmart lowered its prices on CFLs from roughly \$8.10 for a three-pack of bulbs to \$7.59 (versus approximately \$1.50 for three incandescents), expanded the presence of CFLs in the stores by moving the bulbs to eye level on the shelves, and heavily promoted CFL technology through creative marketing partnerships, media product placements, and other less traditional communication strategies. Walmart further invested in in-store displays to help educate consumers on the benefits of CFLs, giving up precious selling space to showcase information about the value of the bulbs (each CFL was expected to save the consumer \$30 in energy costs over its lifetime).⁵² Concurrent with these promotional efforts, Walmart was closely monitoring the reduction in CO₂ emissions achieved by its CFL initiative and other energy efficiency projects, but had not yet shared the detailed CO₂ emissions data with policy makers and the public.

There was some question about how much detail to provide consumers about CFL operating costs and mercury content. If Walmart confused people, the plan could backfire. For example, when the company added information to its pricing labels in the food department regarding a product's cost per ounce, some customers found it misleading and reacted negatively. Ruben

recalled, "I've worked at the register when customers thought a product cost 26 cents. But what you quickly realize is that they were looking at the price per ounce. When you clarify the price, they understandably get upset." Walmart also needed to inform customers about the mercury contained within the bulbs and their safe disposal without raising undue alarm (see **Exhibit 8**). While avoiding lighting products that contained hazardous substances might have been an alternative sustainability attribute that guided the team's efforts, this issue was given secondary priority relative to the its chosen "North Star" of energy efficiency.

Chemical Intensive Products

The chemical intensive products network was focused on identifying potentially harmful chemicals and motivating manufacturers to eliminate those chemicals from their products. Indoor pollution caused by common household paints, solvents, cleaning products, and pesticides had severe environmental effects as well as significant human health consequences. The health-related costs associated with this indoor pollution had been estimated to be in the tens of billions of dollars in the U.S.⁵³ Despite the magnitude of this problem, the EPA required testing for fewer than 200 of roughly 62,000 chemicals used in commerce since 1979.⁵⁴ Manufacturers were hesitant to invest in testing health effects of commonplace or alternative chemicals because competitors would quickly capitalize on the findings (without making a commensurate investment) since the same chemicals were used in many products across the industry.

In October 2006, the network identified three chemicals for which it would encourage suppliers to seek more sustainable substitutes (at no additional cost to Walmart). These chemicals were chosen based on their negative ratings against defined metrics such as carcinogenicity and affects on reproductive health. However, in announcing the program, the network did not widely share these metrics (or the corresponding ratings) and was careful to avoid references to concepts such as toxicity and safety for fear of negatively affecting other chemical-based products on Walmart's shelves. Even though metrics and data related to personal and family health were compelling to customers, they were considered risky in terms of potentially inviting lawsuits, alienating consumers, or damaging the company's reputation if inaccurate information was later uncovered (as discovered with Procter & Gamble's paper towels during the 1989 environmental campaign).

Even if suppliers eliminated the three undesirable chemicals, Walmart could not advertise the improvement to customers. "Since we don't know the formulation and own the label, we can't really call attention to the products that meet our preferred chemical principles," said Joan Menke-Schaenzer, vice president of food safety and food security for Walmart, and co-captain of the network. "I think the only thing that we can say to customers is that we care about them and that we're pushing to bring them preferred products." The company faced the risk that other chemicals in these products, perhaps even the substitutes for the three undesirable chemicals, could have negative health or environmental implications. As a result, Walmart would not move back to a system of putting its own "green tags" on products and would not force the manufacturers to take responsibility for promoting the environmental and health benefits of their products on their labels. Manufacturers would decide to do this based on their own level of confidence in the sustainability-related attributes of their products (which hinged on whether or not they had completed the necessary scientific research to back their claims and/or the level of risk they were willing to bear in communicating directly with customers).

Supplier Performance Measurement

More than ever before, Walmart was dependent on the cooperation of its suppliers to meet its public goals. As a result, effective supplier measurement and motivation was essential. The packaging network, under captain Matt Kistler, VP of package and product innovations, was furthest ahead in this area. This group was in the process of implementing a web-based scorecard that would evaluate each product's packaging against nine metrics such as cube utilization (percentage of total space used within a storage area, trailer, or container), recycled content (percentage of recycled material contained within the packaging), and product to package ratio (amount of packaging relative to size of product). The scorecard was developed with input from the 200+ members of the packaging network, including NGOs, the EPA, Walmart's direct suppliers, packaging suppliers, and other stakeholders.^f

On February 1, 2007, Walmart's 60,000+ suppliers would be asked to begin using the scorecard for a one-year trial period to determine how their packaging innovations, environmental standards, energy-efficiencies, and use of materials rated relative to their peers. Beginning in 2008, Walmart would formally use the system to "measure and recognize its entire supply chain based upon each company's ability to use less packaging, utilize more effective materials in packaging, and source these materials more efficiently relative to other suppliers."⁵⁵ The scorecard was perceived as an important enabler for helping the company achieve its public goal of reducing the packaging used by all of its suppliers by 5 percent between 2008 and 2013. If achieved, this five-year program was expected to generate \$3.4 billion in savings. The textiles network also was getting close to making a similar online scorecard available to suppliers.

Ruben highlighted the importance of choosing the right metrics to measure suppliers, using the electronics network as an example:

With metrics, what's always been difficult is to figure out the things that you can start with that are relevant either to the business or ultimately to the customer. Because if you start measuring too many things that are not relevant to the customer, you'll push your suppliers in the wrong direction. For example, in electronics, phantom load [the amount of energy consumed when a product is on but not being used] is probably a metric that makes sense to customers because it results in a benefit that goes right to the customer. However, recyclability may not have a customer benefit today. Although it's the right thing to do, if we push our suppliers to do it but our competitors don't, then we'll just end up losing market share and have less ability to influence our suppliers later.

Ruben also explained how Walmart would seek to exert more influence over supplier behaviors as it sought to consolidate its business with a more select group of high performing direct suppliers. "Right now we account for 2 percent of a lot of people's business, especially overseas. We know that needs to be a lot larger—maybe in the 50 or 60 percent," he said. This positioning would motivate suppliers to participate to maintain or expand the amount of business they received from Walmart. "We're trying to stimulate a race for the top," said Phillips.

^f As of February 2007, there was a waiting list of interested parties seeking to join the packaging network.

Associate Performance Measurement

Internally, Walmart planned to translate sustainability attributes into an objective measurement system to track the performance of associates in important functions such as merchandising, strategic sourcing, and other roles that were directly linked to its sustainability efforts. However, as of late 2006, decisions regarding how (and if) to measure these contributions had been left to the discretion of the networks captains. In some areas, such as electronics, broad preliminary metrics had been put into place. For example, electronics buyers for Sam's Club were required by Ohm to have at least 25 percent of the products they bought (by SKU) involved in some form of sustainability initiative (e.g., packaging reduction, RoHS compliance, improved energy efficiency). However, in most areas of the business, a formal system for measuring associate involvement in sustainability did not exist, which meant that individuals were forced to try distinguishing their sustainability-related contributions against largely subjective criteria.

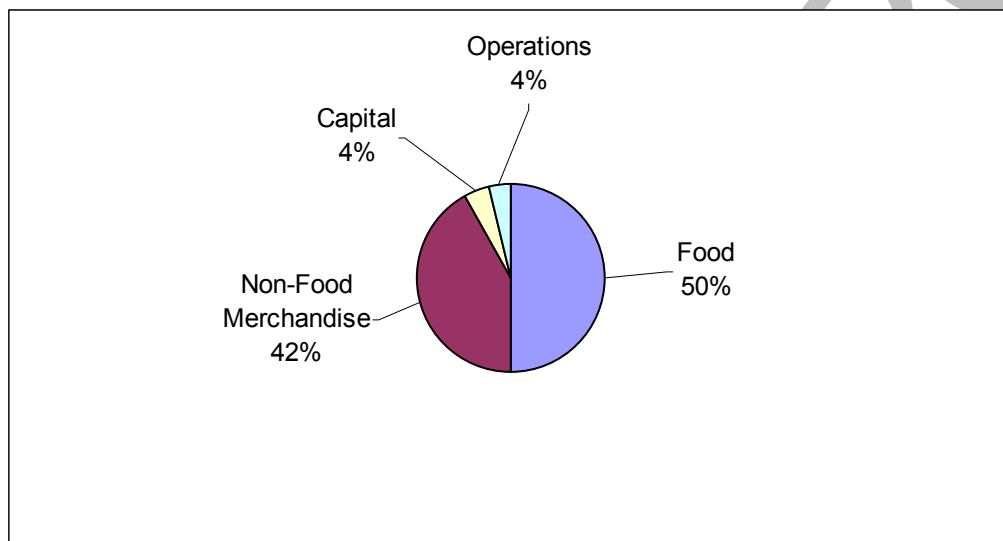
LOOKING FORWARD

At the end of 2006, Ruben and Elm estimated that the profits generated by the sustainability strategy's quick wins in the first year were roughly equivalent to the profits from several SuperCenters (see **Exhibit 9**). They saw an overwhelmingly large array of opportunities that remained untapped, and resolved to continue to identify and pursue the opportunities with greatest environmental benefits and business value.

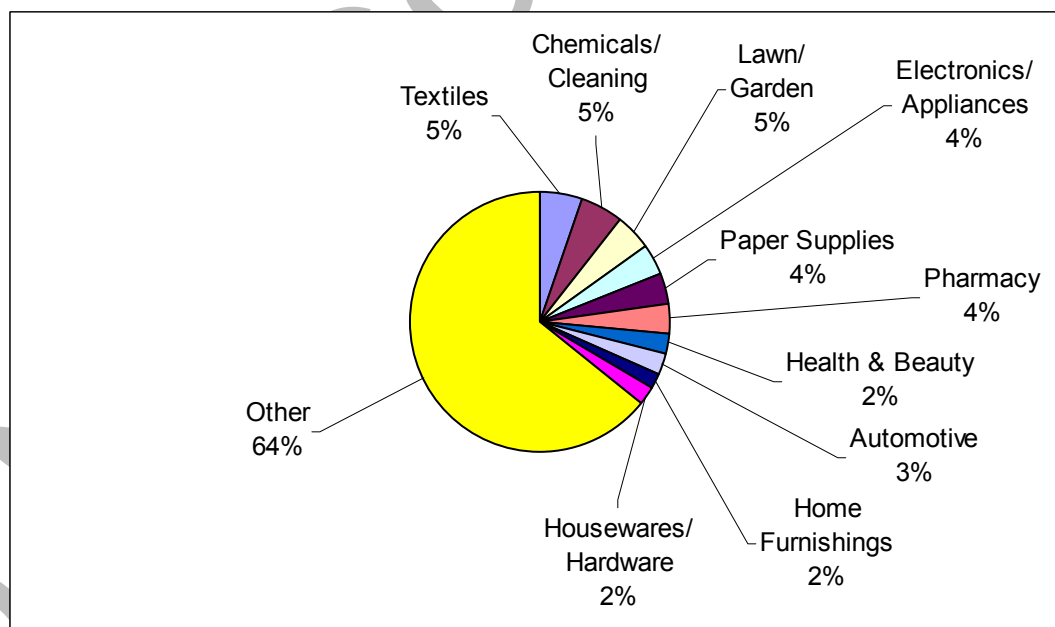
Exhibit 1

Directional Results from Walmart's Environmental Impact Assessment

Overall Impact



Impact by Product Category Within Non-Food Merchandise



Source: Compiled by authors based on information by Walmart.

Exhibit 2

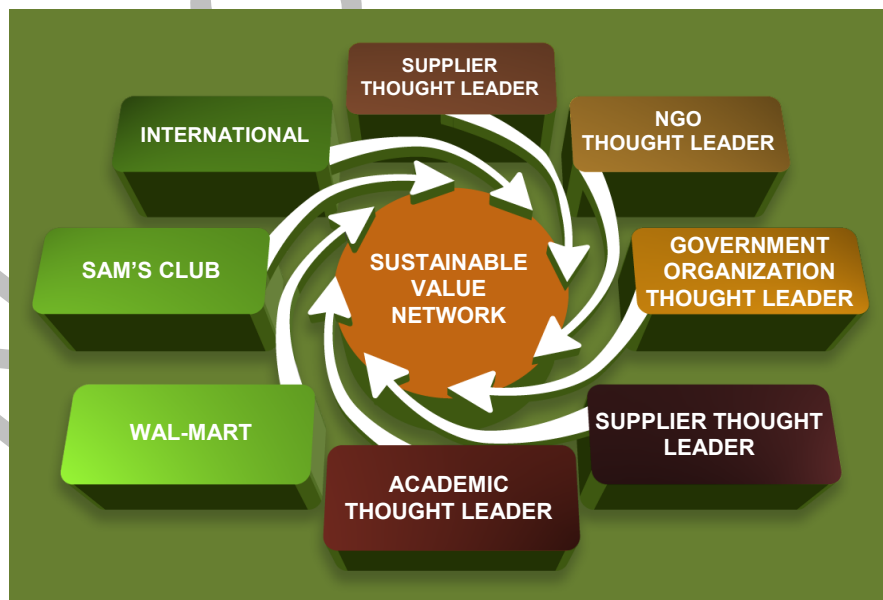
Walmart's 14 Sustainable Value Networks

Renewable Energy	Global Greenhouse Gas Strategy
	Alternative Fuels
	Energy, Design Construction & Maintenance
	Global Logistics
Zero Waste	Operations & Internal Procurement
	Packaging
	Textiles
Sustainable Products	Electronics
	Food & Ag
	Forest & Paper
	Chemical Intensive Products
	Jewelry
	Seafood
	China

Source: Information provided by Walmart.

Exhibit 3

Walmart's Sustainable Value Network Structure



Source: Information provided by Walmart.

Exhibit 4

Sampling of Issues and Opportunities facing Walmart's Sustainable Value Networks

PRODUCT NETWORKS

Chemical Intensive Products Network

No basic health of environmental data exists for 71 percent of the most widely used chemicals in the U.S. today.

—World Watch Institute

A random blood test of Americans will show measurable amounts of 200 chemicals that did not exist a century ago.

—Lester Brown, Plan B 2.0

China

China has surpassed the U.S. as the world's leading consumers of coal, steel, grain, and meat.

—Earth Policy Institute

Pollution costs the country more than \$54 billion per year; six of the world's ten most polluted cities are in China; and acid rain falls on one-third of the country.

—CommonDreams.org

In China, the number [of people] living in poverty dropped from 648 million in 1981 to 218 million in 2001—the greatest reduction in poverty in history.

—The World Bank

Electronics

The U.S. generates 2,124,400 million tons of e-waste per year.

—EMPA Materials Science & Technology

On average, 75 percent of the electricity used by home electronics is consumed while the products are not in use.

—U.S. Department of Energy

This “phantom energy” costs Americans more than \$5.8 million annually.

—Union of Concerned Scientists

Food and Agriculture

Agriculture accounts for over two-thirds of the world's water withdrawal.

—United Nations Food & Agriculture Organization

In the U.S., fresh produce travels an estimated 1,500 miles from the farm to the dinner table.

—World Watch Institute

Forest Products

Every second an area of forest the size of a football field is cleared—that's 86,400 football fields a day.

—Global Forest Alliance

In tropical forests, it's estimated that 137 species become extinct every day.

—Global Forest Alliance

Jewelry

Mining the amount of gold needed to yield one gold ring generates 20 tons of mine waste.

—Earthworks

The OK Tedi mine in Papua, New Guinea generates 200,000 tons of waste per day—more than all the cities in Japan, Canada, and Australia combined.

—David McKay, Mineweb

Seafood

1 billion people rely on seafood as a primary source of protein.

—Janet Larsen, Earth Policy Institute

Since 1950, as many as 90 percent of the ocean's largest fish have disappeared.

—Meyers & Worm, Nature Scientific Journal

Textiles

Global retail sales of organic cotton are projected at \$2.6 billion by the end of 2008, reflecting a 116 percent average annual growth rate.

—Organic Exchange

WASTE NETWORKS

Operations & Procurement

Every day in the U.S., for each garbage can placed on the curb, the equivalent of 71 cans is generated by industrial processes.

—GrassRoots Recycling Network

Recycling 35 percent of our trash would save enough energy to fuel 6 million homes and reduce the equivalent of 36 million cars worth of greenhouse gas emissions annually.

—White House Task Force on Recycling

Packaging

The global market for packaging is estimated at \$500 billion.

—World Packaging Organization

One-third of all municipal solid waste in the U.S. is packaging waste—the largest of any segment. That's 800 pounds of packaging per person annually.

—Dan Immhoff, Paper or Plastic

ENERGY NETWORKS

Sustainable Buildings

Every day the earth absorbs more solar energy than the total amount of energy the planet's population would consume in 27 years.

—National Renewable Energy Laboratory

In the U.S., the energy needed to operate buildings accounts for roughly one-third of all energy use and more than 35 percent of all pollution.

—Sustainable Energy Coalition

Greenhouse Gas

Half of the electricity in the U.S. is generated by burning coal.

—Energy Information Agency

Power plants are the nation's industrial source of global warming pollution.

—U.S. Public Interest Research Group

Global Logistics

Nearly 100 years ago, the Ford Model T averaged 25 mpg. In 2004, American passenger cars averaged 20.8 miles per gallon.

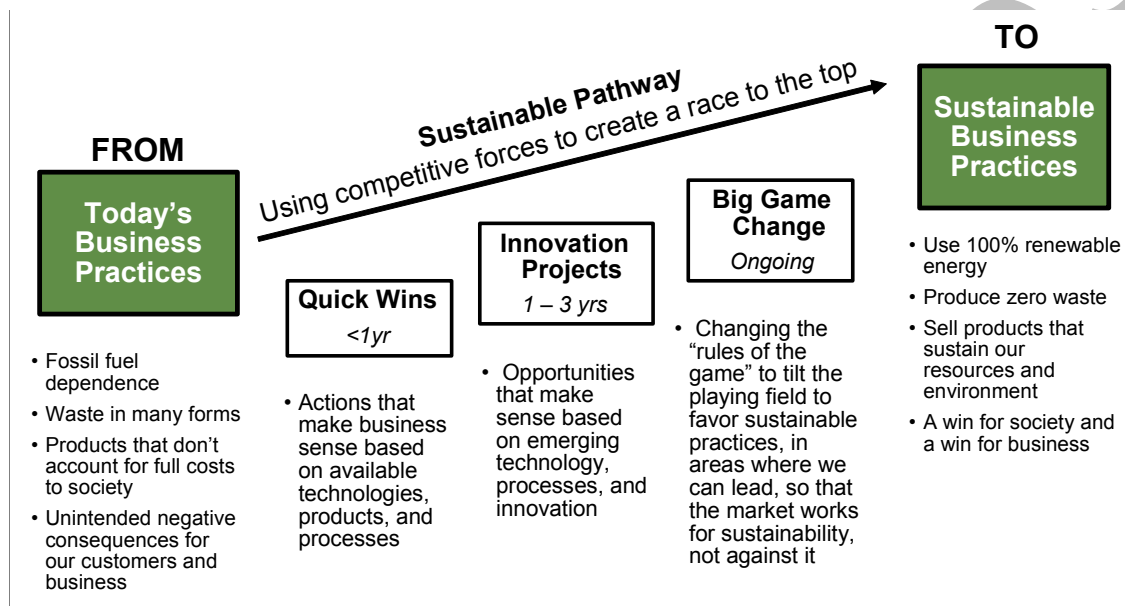
—Source not cited

If the U.S. raised car fuel economy by an average of 2.7 mpg, the amount of oil saved would equate to 100 percent of the imports from Iraq and Kuwait combined.

—Robert F. Kennedy, Jr.

Source: From Walmart's Sustainability DVD (version 1.0) and other publicly available sources.

Exhibit 5 How Networks Drive Sustainability Goals



Source: Information provided by Walmart.

Exhibit 6 Sample Network Goals (Textiles)

Quick Wins	Innovation Projects	Big Game Changer
Messaging Simple, clear, compelling communication about sustainability to customers Education/Training Educating internal associates and engaging external stakeholders Post-Purchase Care Care Instruction Rewrite (collab. w/ Chemical Intensive Products Netw.) Recovered Raw Materials recycled + post processing material Packaging Shift Home products & post-consumer waste in hangtags, POP, PDQs, etc. (collab. w/ Packaging network) Dye & Process Chemical Inputs Lower toxicity/impact chemicals	Organic Cotton Project Incorporate organic products into our assortment to broaden our customer appeal. Alternative Fibers Explore additional types of sustainable fibers such as, recycled yarns, bamboo etc.	Supply Chain Improvement Collaborate with our Network Members to build capacity for efficient, sustainable manufacturing

Source: Information provided by Walmart.

Exhibit 7

Sample Product Questionnaire for Buyers (Electronics)

Product Packaging:

1. What percentage of product packaging is postconsumer recycled content? _____
2. What are the primary packaging materials? (Please identify approximate percentage by material type.)

3. Complete the product packaging scorecard available at <insert URL>. Enter resulting score: _____

Product Certifications:

4. Is the product certified/recognized by any of the following programs? Please provide a copy of the certification/license/listing.
 - ☐ Energy Star
 - ☐ TCO Development
 - ☐ Electronic Product Environmental Assessment Tool (EPEAT)
Please specify: ☐ Bronze ☐ Silver ☐ Gold
 - ☐ Underwriters Laboratory (UL)
 - ☐ Green Seal
 - ☐ Environmental Choice
 - ☐ European Union Flower
 - ☐ Blue Angel
 - ☐ Nordic Swan
 - ☐ Other (Please specify: _____)

Product Recycling and Takeback:

5. Does the manufacturer offer a take-back program so consumers can easily return the product for reuse, remanufacturing or recycling?
 - ☐ Yes ☐ No ☐ Limited (Please explain: _____)

If yes, what is the additional cost to the consumer? _____

6. Are all of the product components clearly labeled to facilitate product disassembly and recycling?
 - ☐ Yes ☐ No
7. Can any hazardous components be easily separated from the other materials to facilitate product recycling? ☐ Yes ☐ No
8. Is the product designed for easy disassembly by recycling facilities using standard industry tools?
 - ☐ Yes ☐ No

Energy Consumption:

9. What is the total energy consumption when the device is in each of the following modes:

- a) _____ (watts) in the "off" setting
- b) _____ (watts) in the "standby" or "sleep" mode
- c) _____ (watts) in the fully operational mode

10. What is the default time limit before the unit automatically powers down? _____ minutes
11. Is the unit solar powered? ☐ Yes ☐ No

12. Can the unit be recharged with a solar powered recharger included with the unit?
☐ Yes ☐ No

Material Use:

13. Is the product RoHS Directive compliant? (The European Union RoHS Directive stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment".) ☐ Yes ☐ No ☐ Not Applicable (Please explain: _____)

14. What are the total volumes of the following materials in the product?

- a) Cadmium _____ (ppm)
- b) Mercury _____ (ppm)
- c) Lead _____ (ppm)
- d) Hexavalent Chromium _____ (ppm)
- e) Polybrominated Biphenyls (PBB) _____ (ppm)
- f) Polybrominated Diphenyl Ethers (PBDE) _____ (ppm)

13. Do any of the product components contain paints, coatings, plastics, or other materials containing short chain chlorinated paraffins (SCCPs)? ☐ Yes ☐ No

14. Does the product contain any polyvinyl chloride (PVC)? ☐ Yes ☐ No

15. What percentage of the product contains postconsumer recycled content? _____ % (by weight)

16. What percentage of the plastic components is made from rapidly renewable plant-based sources? _____ % (by weight)

Durability and Upgradability:

17. Can the unit be easily upgraded/maintained by the consumer? Examples include the ability to add additional memory/storage capacity, access/replace rechargeable batteries, clean heads/moving parts, obtain replacements for parts that break or wear out (keypads, controllers/remotes, gaskets/seals, cables, fuses, etc.). ☐ Yes ☐ No
If yes, please describe how: _____

18. What is the duration of the factory warranty? _____ (days)

Company Performance

19. Is the company ISO 14001 or EMAS (European Union Eco-Management and Audit Scheme) certified? ☐ Yes ☐ No

20. What percentage of the company's vendors are ISO 14001 or EMAS certified? _____ %

21. Does the company publish an annual corporate sustainability report consistent with the Global Reporting Initiative (GRI) guidelines? ☐ Yes ☐ No

22. What percentage of the energy consumed by the company is derived from the following sources:

Solar _____ % Wind _____ % Other: _____ %

23. What percentage of the energy consumed by the company's five largest suppliers is derived from the following sources:

Solar _____ % Wind _____ % Other: _____ %

Source: Information Provided by Walmart.

Exhibit 8

Fact Sheet: Mercury in Compact Fluorescent Light Bulbs (CFLs)

FACT SHEET: Mercury in Compact Fluorescent Lamps (CFLs)

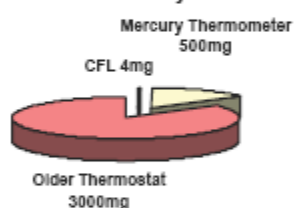
The US Environmental Protection Agency has prepared this fact sheet to respond to questions/concerns about mercury in energy-efficient lighting that uses compact fluorescent technology.

What are the Health Risks of Mercury and How do CFLs Fit In?

Mercury is an essential ingredient for most energy-efficient lamps. The amount of mercury in a CFL's glass tubing is small, about 4mg. However, every product containing mercury should be handled with care. Exposure to mercury, a toxic metal, can affect our brain, spinal cord, kidneys and liver, causing symptoms such as trembling hands, memory loss, and difficulty moving.

As energy-efficient lighting becomes more popular, it is important that we dispose of the products safely and responsibly. Mercury is released into our environment when products with mercury are broken, disposed of improperly, or incinerated. If you break a CFL, clean it up safely. And always dispose of it properly to keep CFLs working for the environment.

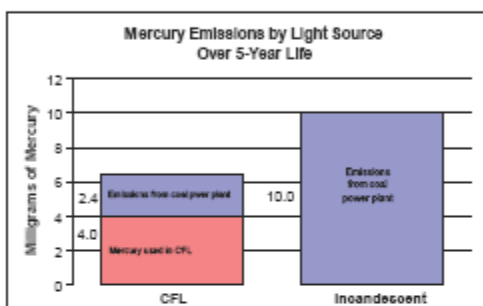
Household Mercury Amounts



Mercury is an ingredient in several household products. Recycling programs exist for mercury in older non-digital thermostats and mercury thermometers, but residential CFL recycling programs are just now appearing.

CFLs Responsible for Less Mercury than Incandescent Light Bulbs

Ironically, CFLs present an opportunity to prevent mercury from entering our air, where it most affects our health. The highest source of mercury in our air comes from burning fossil fuels such as coal, the most common fuel used in the U.S. to produce electricity. A CFL uses 75% less energy than an incandescent light bulb and lasts at least 6 times longer. A power plant will emit 10mg of mercury to produce the electricity to run an incandescent bulb compared to only 2.4mg of mercury to run a CFL for the same time.



Source: US EPA, June 2002

Always Dispose of Your CFL Properly

While CFLs for your home are not legally considered hazardous waste according to federal solid waste rules, it is still best for the environment to dispose of your CFL properly upon burnout. Only large commercial users of tubular fluorescent lamps are required to recycle. If recycling is not an option in your area (see below on how to find out), place the CFL in a sealed plastic bag and dispose the same way you would batteries, oil-based paint and motor oil at your local Household Hazardous Waste (HHW) Collection Site. If your local HHW Collection Site cannot accept CFLs (check Earth911.org to find out), seal the CFL in a plastic bag and place with your regular trash.

Safe cleanup precautions: If a CFL breaks in your home, open nearby windows to disperse any vapor that may escape, carefully sweep up the fragments (do not use your hands) and wipe the area with a disposable paper towel to remove all glass fragments. Do not use a vacuum. Place all fragments in a sealed plastic bag and follow disposal instructions above.

Resources for Recycling or Proper Disposal of CFLs

NOTE: Residential recycling programs are not yet available in most regions.

1. Earth911.org (or call 1-800-CLEAN-UP for an automated hotline): Online, enter your zip code, press "GO," click "Household Hazardous Waste," then "fluorescent light bulb disposal." The site will identify your nearest residential mercury recycling facility or mail disposal method. If you find no specific information on CFL disposal, go back and click on the link for "Mercury Containing Items."

2. Call your local government if the Web site and Hotline number above does not have your local information. Look on the Internet or in the phone book for your local or municipal government entity responsible for waste collection or household hazardous waste.

Source: U.S. Environmental Protection Agency, "Fact Sheet: Mercury in Compact Fluorescent Light Bulbs," <http://www.nema.org/lamprecycle/epafactsheet-cfl.pdf> (January 25, 2007).

Exhibit 9

Sample of Results Achieved through Sustainability Quick Wins

Note: This exhibit includes a sample of Walmart's quick win projects. This information is in no way all-inclusive of the company's sustainability-related improvement projects or its total results.

Walmart used to spend approximately \$16 million a year to haul plastic waste from its stores. However, by compressing plastic between layers of cardboard in what is called a "sandwich bale," the company eliminated 6 million pounds of plastic from reaching landfills per month (72 million pounds per year). It also added \$28 million a year to the company's bottom through cost avoidance and by pelletizing the plastic it used to throw away and reselling it to suppliers. (See **Exhibit 13** for photographs.)

In logistics, Walmart reduced the fuel usage of its 7,000 trucks by 8 percent by putting auxiliary power units in the rigs so they can stop idling engines during loading or breaks. That saved \$25 million in annual fuel bills and cut 100,000 metric tons of carbon dioxide emissions.

Walmart worked with Unilever to introduce All Small & Mighty triple concentrate laundry detergent in its stores. Moving to a triple concentrate formula was somewhat of a risk for Unilever. It had tried introducing a similar product, a double concentrate formula called Double Power Wisk, in the mid-1990s. However, when the smaller containers hit the shelves, many customers perceived that they were getting half the product for the same price as competitive brands and the new detergent failed to catch on. In 2005, Unilever brought the idea for All Small & Mighty directly to Lee Scott shortly after he announced the sustainability strategy. Scott rewarded this supplier by personally embracing the product and making a commitment that Walmart would aggressively promote the triple concentrate formula and help educate customers. As a result of the joint effort, sales of All Small & Mighty grew rapidly. By removing two thirds of the water from this product, the same number of uses fit into a package just one third of its original size. The annualized savings impact associated with Walmart's sales volume are estimated at 3.3 million gallons of water being shipped, 1.4 million pounds of plastic for packaging, and 7.6 million pounds of corrugate. This resulted in transportation fuel savings of 6,887 gallons, 613 fewer trucks, and an estimated overall Supply Chain savings \$1.3 million.

Just in its Sam's Club division, the company eliminated a layer of pallets in its normal configuration for paper towels by using a new, stronger type of packaging and then stacking the product differently. In doing so, it saved 940,000 wood panel pallets a year equating to \$3.1 million in pallet savings and 35 million board feet of lumber (roughly 180,000 trees). With fewer pallets the company was able to fit more of the product in a truck, so it also saved \$1.3 million in truckload savings and \$855,000 in corresponding labor costs.

Walmart changed the packaging of its large bags of dog food to a new nylon-based packaging material. This reduced the amount of packaging material used by over 50 percent, decreased the amount of product damage and disposal due to torn or compromised bags by 50 percent, and resulted in an annual savings of \$1 million.

When Walmart achieves its goal to sell 100 million compact fluorescent light bulbs (CFLs) by the end of 2007, it will potentially save customers as much as \$3 billion in electrical costs over the life of the CFLs.

Walmart. outfitted more than 500 of its stores with low- and medium-temperature refrigerated display cases and installed occupancy sensors and LED dimming capabilities to reduce the time the LED refrigerated display cases were at 100 percent light levels (from 24 to 15 hours a day). As a result of the changes, the company expected to realize a net 66 percent energy reduction from its traditional lighting solution, save more than \$2.6 million a year in energy costs, and cut its carbon dioxide emissions by 35 million pounds.

By making the packaging just a little bit smaller on its Kid Connection product line, one of Walmart's private label toy brands, the company required 497 fewer containers to ship the products, generating a freight savings of more than \$2.4 million per year. The savings also reduced the company's environmental impact by more than 3,800 trees and saved more than 1,000 barrels of oil a year. (See **Exhibit 13.**)

When Walmart replaced produce packaging on just four products (cut fruit, herbs, strawberries, and Brussels sprouts) with corn-based (PLA) packaging, the change saved the equivalent of 800,000 gallons of gasoline and prevented over 11 million pounds of greenhouse gas emissions.

Traditionally, Walmart bought rotisserie chickens in wax-coated cardboard boxes (which were not recyclable). When the company switched to uncoated, recyclable corrugated cardboard, Walmart realized a savings of \$2.2 million dollars a year in the cost of packaging. It also prevented 2.4 million cases from being put into a landfill and began generating approximately \$245,000 in annual income from the associated recycling. The change also resulted in an annual savings of 1,700 trees.

By rightsizing display packaging for Shower Soothers, the company fit 21 "shippers" on a pallet (instead of just three), reducing the number of trucks required to transport them to Walmart's stores from 196 to only 28. Additionally, the change reduced cost of goods sold by over a quarter of a million dollars in freight costs alone, reduced fuel use by 5,975 gallons, and eliminated over 66 tons of CO₂ emissions. (See **Exhibit 13.**)

Source: Compiled based on information from Walmart and publicly available sources.

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