

Environmental Sustainability In A Competitive World

Audrey Spiegel
Professor Gottlieb
Urban and Environmental Policy 411
April 20, 2011

Tables of Contents

Abstract.....1

Executive Summary.....1

Introduction.....6

Greenwashing.....9

Why Should We Care About
Environmental Sustainable Companies?.....10

Sustainable Frameworks.....13

Environmental Sustainability Matrix..... 17

The Convenient Food Industry.....18

Clif Bar.....22

The Cleaning Supply Industry..... 30

Method.....37

The Automobile Industry.....46

Subaru.....50

Conclusion.....59

Recommendations..... 60

Bibliography.....64

Abstract

Science has consistently shown us that global warming, environmental health hazards, and the destruction of nature is becoming a crisis. To reverse this trend, humans must take responsibility. Among many of the most influential players who can potentially address such impacts, are those who run companies. Along those lines, there are now companies who seek to establish an environmental approach. Subaru, Clif Bar, and Method have become sustainable pioneers in their prospective industries. I have researched each company and compared their environmentally sustainable principles to the Natural Step guidelines and “Improving Your Company’s Climate Competitiveness (IYCCC)” guidelines found in *Harvard Business Review on Green Business Strategy*. They all avoid “greenwashing” while finding new alternatives to production and shipment. However, even they have areas that need to become more sustainable.

Executive Summary

We are going through a serious environmental crisis related in part to global warming and other negative environmental impacts, largely due to human activities. Although many remain apathetic and do not acknowledge these problems, there are still passionate individuals dedicated to reversing this environmental apathy. Environmental protection can be more efficient if forces greater than individuals express dedication. These forces can be large influential companies that create and manufacture many of the products we use today. For those companies that started

out sustainably or became sustainable are very significant, and need to have consumer recognition. Those who still exploit the environment need to start contemplating sustainable alternatives, not only for the environment, but also for the benefit of the business. Consumers and producers need to address environmental impacts because of the environmental and health repercussions that are associated with these impacts. These issues include natural disasters that take lives and destroy economies, and the spread of tropical diseases that come along with the deadly catastrophes. Pollution, and other environmental impacts, including those due to global warming, have consistently proven to have adverse health effects on humans all over the world including minor issues like throat irritation and chronic diseases like lung cancer. Ultimately, when pollution levels rise, so do health care costs. If health problems and natural catastrophes emerge from global warming, then it is ultimately in every human's interest to prevent it. This paper analyzes three companies, Subaru, Method, and Clif Bar, that prove to be among the more sustainable within their prospective industries. I analyze their sustainable efficiency by comparing them to The Natural Step model and "Improving Your Company's Climate Competitiveness (IYCCC)" guidelines found in *Harvard Business Review on Green Business Strategy*. The three companies demonstrate impressive sustainability efforts, but still have areas that need to be improved.

The food industry is among one of the highest greenhouse gas emitters, thus contributing greatly to global warming. Land and chemical use also greatly contribute to environmental issues in the food industry. Within the food industry, the

convenient food industry is also particularly unsustainable. The packaging, toxic and chemically enhanced ingredients, and deliveries are just a few of the problems within the industry. With such a large carbon footprint, it is an industry that needs to change significantly and rapidly. Clif Bar, however, is a pioneer among convenient foods. Clif Bar products are mainly granola bars that are distributed in many stores across the nation. Because of their wide range of vendors, Clif Bar converted to Biodiesel trucks. It is also a model food company because they use seventy percent organic ingredients. This not only make the bars healthier for human consumption, but organic farms are better for the environment than conventional ones. The company also focuses heavily on one hundred percent recyclable packaging. They practice sustainable manufacturing, but they also give back to wildlife, as well. One example of this is their partnership with American Forests' Global ReLeaf to plant thousands of trees a year. Clif Bar has demonstrated impressive and promising sustainable practices, however, they are not without controversy. They have admitted to using hexane, found in soy protein, which is a neurotoxin and air pollutant. They are currently finding an alternative, however. The individual petroleum- based Clif Bar wrappers are also problematic because they do not biodegrade.

The automobile industry is also one of the largest greenhouse gas emitters in the world, but it also has come to be embedded in the American way of life. If Americans refuse to stop driving regularly, then automobiles need to be more compliant with the environment, or even if people do start to drive less. Subaru, a vehicle often seen with northwestern environmentalists, is also a leader in

sustainability. It was the first automobile company to convert the manufacturing plant to zero-waste. The production of Subaru vehicles ultimately put less in landfills than most households. Although they are not famous for hybrids, they produce Partial Zero Emission Vehicles, which Subaru claims are as fuel efficient as a hybrid. The company also protects wildlife by establishing the manufacturing plant as a certified natural wildlife habitat. Although these are all significant accomplishments, Subaru still needs to focus on more sustainability initiatives. For example, they have worked on creating an electric car. It was, however, very difficult to find information on it. I concluded that there were only a couple hundred produced and were entirely too expensive for the average buyer. The electric car is ultimately the most sustainable alternative to a conventional car, but it will not be beneficial to the environment if only the extremely wealthy can purchase them. Therefore, the production of an affordable electric car would inarguably make Subaru the leader of sustainable vehicles.

Conventional cleaning supplies have proven to be extremely dangerous to any household cleaner. The hard to identify ingredients should be scrutinized because many of them contain toxins that cause serious health and environmental problems. The packaging for cleaning supplies are also problematic because of their heavy plastic content. Method founders yearned to stay away from any harsh chemicals and substantial generation waste. To counter the conventional practices, they send any new ingredients to the Environmental Protection and Encouragement Agency and McDonough Braungart Design Chemistry who thoroughly test the ingredients for

any adverse health and environmental effects. Method only uses the ingredients if these groups approved them. Method also seeks to achieve environmental sustainability by measuring their carbon footprint. These measurements allow them to know exactly where their problems lie. Like Subaru, Zero-Waste is also an important goal for Method and hope to achieve it in the near future. They also have made changes to packaging and transportation. They use one hundred percent recycled materials for packaging, and their shipping trucks run on 50% biodiesel. This is not a completely ideal form of shipping, so they are currently working on more sustainable transportation methods. Because their ingredients are nature-based and perishable, they have to utilize preservatives. Their preservatives have gone through the testing process and have not been proven to cause any health or environmental problems. However, as in food products, preservatives are always questionable.

Clif Bar, Subaru, and Method's environmental sustainability efforts are similar to the Natural Step and IYCCC guidelines, although not completely. It would be almost impossible for a company to be hundred percent sustainable. However, sustainability efforts and successes are extremely important and are successful in our competitive economy.

“It is a curious situation that the sea, from which life first arose, should now be threatened by the activities of one form of that life. ~Rachel Carson

Introduction

What have we learned from devastating natural disaster, like Hurricane Katrina? The number of deaths and the cost of damages always take a severe toll on the economy. Without a strong and efficient economy, how will the city or country survive in this highly competitive world? In their essay, “What Every Executive Needs To Know About Global Warming”, Kimberly O’Neil Packard and Forest L. Reinhardt reveal that scientists also agree that an increase of as little as two degrees Fahrenheit is likely to cause more severe storms, floods, and droughts, and accelerate the spread of disease. Such catastrophes could devastate not only individuals, and communities, but also businesses and entire economies.”¹ It might be difficult for a college student to argue that global warming and other environmental devastations caused the earthquake in Haiti or Japan or Hurricane Katrina; however, if similar disasters can be mitigated simply by taking better care of the environment, then it would be wise to do such a service for our planet, ourselves, and our economies.

In order to discuss environmental sustainability through this paper, it is first important to understand its meaning. Environmental Sustainability is the effort to conserve the planet and its natural resources to ensure healthy surroundings in the future for us, our children, and every being on this Earth. The EPA defines

¹ Kimberly O’Neill Packard and Forest L. Reinhardt. “What Every Executive Needs To Know About Global Warming” in *Harvard Business Review On Green Business Strategy* (Harvard Business Review, 2007), 23.

sustainability as “policies and strategies that meet society’s present needs without compromising the ability of future generations to meet their own needs.”² At the rate we are going now, our children and grandchildren will most likely suffer from environmental related health problems, and the natural ecosystems will deteriorate. Shamefully, on my carbon footprint test, if everyone lived like me, it would take three Earths to sustain these everyday habits, such as driving and eating. Even the occasional flight home increases my carbon footprint significantly. Sometimes it is just not convenient being green. It is much easier and cheaper to eat a packaged food on the go, rather than cooking a local and organic meal. It is easier and cheaper to get cleaning supplies that are readily available in any convenient or drug store, despite not knowing anything about the ingredients. It is also more convenient and faster to hop in a car to go to the bank rather than walk or bike. Although it is not my excuse, some simply do not have the physical capability to ride their bikes or walk a mile or two to run errands. These are environmentally problematic habits that are so ingrained in the American way of life that is extremely difficult to reverse them. I’m not suggesting that people do not try and change their ways. They should, I should. While we attempt to make these slow changes, the transition could be smoother if there were environmentally sustainable, yet convenient choices that we could make in our everyday lives. Companies and businesses that make the products we use and consume would be a good way to start. If more of these companies were willing to

² The Environmental Protection Agency. “What is Sustainability?”
<http://www.epa.gov/sustainability/basicinfo.htm>.

create sustainable products, it would ultimately make it easier for us to make environmentally conscious choices in our daily lives.

People who know the human contribution to global warming and other environmental impacts, are cognizant of the possibility that companies, corporations, and businesses potentially play significant roles- through shipping, the use of cheap materials, and waste. Over the years, business and companies have both ignored and exploited the environment because it is extremely cost efficient. The less they have to spend on production, the more money the companies receive. Luckily, increased environmental awareness has put pressure on companies to adapt to sustainable principles if they have not already. It is important to note, however, that there are entrepreneurs who have constructed companies purely based on their environmental passion, and some of these companies have proven that it is possible to be successful and adhere to environmentally sustainable principles in our competitive economy. Subaru, Clif Bar, and Method are among those who have followed sustainable guidelines and have remained successful in this economy. Each of these companies share similarities to the Natural Step's philosophy and the guidelines to "Improving Your Company's Climate Competitiveness" in *Harvard Business Review on Green Business Strategy*. These guidelines and strategies include energy sources and conservation, finding alternatives to fossil fuels conserving Earth's natural resources, and reducing the use of toxic chemicals that are hazards to both human and Earth's health, among others that I will elaborate on later in the paper.

Green Washing

Green companies sound great. When they advertise about their environmental efforts, it impresses us. These marketing strategies, however, have proven to be problematic when the companies are not following through with their green promises. This notorious tactic is commonly known as “greenwashing” which is specifically defined as “treating the environment as a marketing tool”³. In the article, “Green is the Color of Money”, Amanda Witherell explains that “over the last thirty years, as environmentalism has slowly shifted from fringe to fact of life, the definition of ‘green’ has morphed into a hip, educated social identity, and a business PR model.”⁴ It is important for consumers to learn the difference between green washing and legitimacy. We must learn about the inside practices and principals of the companies we support. There have been companies whose poor environmental principles were exposed, and to make up for it, they spend an exorbitant amount of money on green marketing. But are they really sustainable? The same article explains Pacific Gas and Electric as a classic example. It was exposed by Erin Brockovich in Hinkley, CA for poisoning the water and it also delayed the closing of coal-fired plant which was the largest single source of pollution in the San Francisco Bay area.⁵ According to the article, they now spend an exorbitant amount of money on their green image. Paul Sheldon, a senior consultant for Natural Capitalism Solutions stated “It’s critical that shareholders, customers and critics hold

³ Kimberly Witherell. “Green is the Color of Money.” *Good*. April 5, 2007.

<http://www.good.is/post/green-is-the-color-of-money/>.

⁴ Kimberly Witherell. “Green is the Color of Money.”

⁵ Kimberly Witherell. “Green is the Color of Money.”

companies accountable. The company will eventually recognize it's not enough to do no harm. It's necessary, as part of the integrated bottom line of the organization, to actively be making the world a better place."⁶ O'Neill Packard and Reinhardt further this idea in their essay "What Every Executive Needs To Know About Global Warming". They explain

While good PR buzz on preventing or preparing for climate change has its appeal, smart companies realize they have to earn the public's trust. They know it's simply bad business practice to make investments, relocate resources, or change strategies solely for the sake of appearance. They also realize that overstating their commitment to reducing global warming won't wash in the long run. The public will eventually see through pledges that are skin-deep. And losing the credibility needed to participate in future debates is a significant price to pay for a short-term public relations gain.⁷

Why Should We Care About Environmentally Sustainable Companies?

So, why is it important for us to invest in environmentally sustainable businesses? Why should we care if a company is treating the environment well? The truth is that the environment will affect our wellbeing and the wellbeing of future

⁶ Kimberly Witherell. "Green is the Color of Money."

⁷ Kimberly O'Neill Packard and Forest L. Reinhardt. "What Every Executive Needs To Know About Global Warming" in *Harvard Business Review On Green Business Strategy* (Harvard Business Review, 2007), 23.

generations. One of the most pressing issues of global warming and other environmental problems, is the harm that it can cause humans due to health and weather issues. Throughout the past decade, we have become more aware that global warming has an effect on weather patterns, and it can be suggested that some natural disasters can be linked to global warming. Natural disasters take lives and ruin economies. In the article “What Every Executive Needs to Know About Global Warming”, Kimberly O’Neill Packard and Forest L. Reinhardt explain that the head of Swiss Re’s environmental management division, Thomas Streiff, “points out that a single hurricane smashing into Miami could do property damage worth sixty billion to eighty billion dollars, of which about fifty percent would be covered by insurance. Overall, economic loss could exceed one hundred billion.”⁸ Along with expensive disasters, more research is coming out that links air pollution to sickness. The EPA analyzed six gases, linked to human health impacts- carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride- and concluded their concentrations are at historical levels because of human activity.”⁹ With the levels increasing, health related problems will certainly increase. These increases will certainly make health care costs even higher than they already are. Influential, wealthy companies need to become leaders during this climate crisis. Their power can create positive change for this generation and for those to come. If a company becomes a pioneer in sustainability, their efforts “give

⁸ Kimberly O’Neill Packard and Forest L. Reinhardt. “What Every Executive Needs To Know About Global Warming” in *Harvard Business Review On Green Business Strategy* (Harvard Business Review, 2007), 25.

⁹ ClimateBiz Staff, . "Greenhouse Gases Endanger Public Health: EPA."

them a distinctive identity in the eyes of government officials, scientists, and environmental groups.”¹⁰ If a company chooses not to be a pioneer in this sustainable industry, then they will find they should eventually begin to adopt environmentally friendly principles. Companies who manufacture products from natural resources will soon realize that natural resources are running out. If and when they do, how will the company still make these products? In his book *Fundamentals of a Sustainable Business: A Guide For the Next 100 Years*, Matthew Teuth explains “Although natural capital is generally considered a *common property resource* (owned by no one but vital to all), clean air and clean water is just as essential to sustained positive business activity as privately held equipment or monetary health.”¹¹ If Natural resources are scarce, the company will inevitably suffer because they are not able to produce what they have in the past. Therefore, it is in a company’s best interest to start relying on alternatives to natural resources. Later on in the paper, I will present examples of what practices an environmentally sustainable business can pursue.

An argument against the alternative route would likely include the company’s profit. They use toxins and natural resources for a reason- they allow the producers to make a product fast, efficiently and satisfactory for the consumer. However if companies are given the tools and resources to utilize alternatives that still allow for

¹⁰ Kimberly O’Neill Packard and Forest L. Reinhardt. “What Every Executive Needs To Know About Global Warming” in *Harvard Business Review On Green Business Strategy* (Harvard Business Review, 2007), 25

¹¹ Teuth, Matthew. *Fundamentals of a Sustainable Business: A Guide For the Next 100 Years* (London, World Scientific), 2010.

a sizable profit and a quality product, it should be difficult for any decision-maker to refuse to convert to these environmentally sustainable practices.

Throughout the paper, I will focus on sustainable pioneers within the automobile, convenient food, and cleaning supply industries. It is important to focus on these industries because of their negative position associated with sustainable factors. Transportation and the food industry are among the highest greenhouse gas emitters, and the cleaning supply industry is notorious for using harsh and toxic chemicals that have been linked to adverse health effects on humans. Therefore, I believe these are three industries that need significant improvement. I have chosen Subaru Automobile, initially because of their Zero-Waste manufacturing facility. Throughout my research, I have found it to have more sustainable initiatives, like preserving wildlife habitats and low-emission vehicles. Although they do work hard to achieve sustainability, there are still areas the companies can improve. Secondly, I have chosen to study Clif Bar initially because of their use of organic ingredients and recyclable packaging. I learned much more about Clif Bar, including their bio-diesel transportation practices. Finally, I chose to focus on the cleaning supply company, Method, because of their focus of not utilizing toxic chemicals in household cleaners. They focus on more than just human health, however. They have learned to measure their carbon footprint and find measures to eliminate it.

Sustainable Frameworks

In order to measure the level of environmental sustainability of these companies, I chose to use The Natural Step and the steps suggested in the *Harvard*

Business Review on Green Business Strategy entitled “Improving Your Company’s Climate Competitiveness” as guidelines. The Natural Step is a well-known and widely used environmental consulting organization that has been the model for many companies globally. Its guidelines are purely for sustainability reasons. The second model, “Improving Your Company’s Climate Competitiveness”, provides guidelines to making a sustainable business successful in the competitive economy. The two guidelines work well together- one focuses purely on sustainability while the other focuses on maintaining success while following sustainable principles. The steps and guidelines are as follows:

The Natural Step

1. Lessening the concentration of substances extracted from the Earth’s crust.
 - a. We must eliminate our contribution to the progressive buildup of substances extracted from the Earth’s crust (For example, heavy metals and fossil fuels)
2. Lessening the concentrations of substances produced by society
 - a. Eliminate our contribution to the progressive buildup of chemicals and compounds, produced by society (for example, dioxins, PCBs, and DDT)
3. Lessening degradation by physical means
 - a. Eliminate our contribution to the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat)

4. People are not subject to conditions that systematically undermine their capacity to meet their needs
 - a. Eliminate our contribution to conditions that undermine people's capacity to meet their needs (for example, unsafe working conditions and not enough pay to live on)¹²

Note: Step Four is an extremely important social justice issue; however, because the topic is so broad and significant, I will not be able to focus on it throughout my paper.

Improving Your Company's Climate Competitiveness (IYCCC)

1. Quantify Your Carbon Footprint
 - a. Measure your carbon footprint
 - b. Create an accurate inventory of their greenhouse gas emissions, Differentiate between direct and indirect emissions (indirect being energy consumption, travel, and other activities).
2. Assess Your Carbon-Related Risks and Opportunities
 - a. Think strategically about how the six risks could hurt- or offer opportunities that better position your business
 - b. Consider direct and indirect financial impact.
 - c. Look at carbon intensity- what percent is derived from products with high carbon dioxide emissions

¹² The Natural Step. "The Four System Conditions".

- d. Or you can look at ways in which climate change could effect your revenues and costs.
3. Adapt Your Business In Response to the Risks and Opportunities
 - a. Changes could be reducing energy consumption and carbon emissions to sometimes whole sale reinvention.
 4. Do It Better Than Your Competitors¹³

My goal is to determine if Subaru, Method, and Clif Bar share similar sustainability principles as these. Before I continue, however, it is important to note that it is almost impossible for a company to become one hundred percent sustainable. There will always be areas that need improvement in green companies. Subaru, Method, and Clif Bar may only partially follow a guideline because there is always room for progress. Below is an Environmental Sustainable Matrix that summarized my approach, based in part on the use of the strategies. The numbers I have chosen for each column will be explained throughout the rest of the paper.

The Rating System:

- 4 = Completely Sustainable
- 3 = Very Good
- 2 = Average
- 1 = Not Sustainable

¹³ Jonathan Lash and Fred Wellington. "Competitive Advantage on a Warming Planet." In *Harvard Business Review On Green Business Strategy* (Harvard Business Review, 2007).

Environmental Sustainability Matrix

	Clif Bar	Method	Subaru
The Natural Step			
1. Lessen the use Earth's Natural Substances like Fossil Fuels	3	2	2.5
2. Lessen our progressive build up of Chemicals	2	3	3
3. Lessen our contribution of ecosystem and nature degradation	3	3	2
IYCCC			
1. Quantify Your Carbon Footprint	3	3	3
2. Assess Your Carbon- Related Risks and Opportunities	3	3	3
3. Adapt Your Business In Response to the Risks and Opportunities	4	3	3
4. Do It Better Than Your Competitors	4	2	2

The Convenient Food Industry

As more movies come out about the non-transparent food industry, we are becoming more educated about the reality of the food we consume. Unfortunately, these realities can be shocking and disturbing, from both health and environmental perspectives. Michael Pollan, a journalist recently focusing on the food industry, conveys the importance of food labeling. Ultimately, if a food has an ingredient that we do not recognize, like Naicinamide in cereal or disodium Phosphate in coffee creamer, we should not consume them. Certain food additives and ingredients have been linked to health problems. For example, one of the more common food additives to avoid is BHT, which keeps a packaged food fresh while it sits on a grocery store shelf for months. We should stay away from BHT because “repeated studies show that BHA and BHT increase the risk of cancer and accumulate in body tissue causing liver enlargement. They also slow down the rate of DNA synthesis and cell development.”¹⁴ BHT is just another common example of ingredients to avoid in processed foods. There are many more obscure ingredients that the average person does not know to avoid. We cannot, however, only blame these food producers for making and selling these foods and ingredients. We demand large quantities of this food, so the producer is only doing his or her job by supplying it to us. Therefore, change needs to be made on the side of both the producer and consumer. Producers need to make a commitment to avoid these toxic

¹⁴ Lisa Musick. “12 Food Additives to Avoid”. The Healthy Reader.

ingredients, and consumers need to start buying from health conscious and honest suppliers.

Many ingredients in conventional processed food also come from unsustainable places. For example, peanuts found in granola bars can come from monoculture farms that use an exorbitant amount of toxic pesticides. Monocultures also utilize a significant amount of land, which can have a negative impact on the surrounding ecosystem. Pesticides can also negatively impact plant and animal ecosystems. Pesticides are overly used today. According to the Organic Consumers Association,

Currently, more than 400 chemicals can be regularly used in conventional farming as biocides to kill weeds and insects. These pesticides are used on the crop, but can end up in our bodies- organophosphate pesticides (OP) are now found in the blood of ninety-five percent of Americans tested. OP levels are twice as high in blood samples taken from children than in adults. Exposure to Ops is linked to hyper activity, behavioral disorders, and learning disabilities.¹⁵

Unhealthy ingredients and pesticides are not the only problem with the convenient food industry today. Convenient, processed foods sit on the shelf of a grocery store or gas station completely covered. Packaging is necessary to “protect food products from outside influences and distribution damage, to contain the food,

¹⁵ Organic Consumers Association, “Another Take: Exposure to Pesticides” in *Food Inc.* ed. Karl Weber (New York: Public Affairs, 2009), 104.

and to provide consumers with ingredient and nutrition information.”¹⁶

Unfortunately, however, this packaging is often made from unsustainable materials. Unsustainable materials can be explained as packaging that does not biodegrade, therefore taking space in landfills indefinitely. 31% of municipal solid waste was generated from “packaging –related materials.”¹⁷The Institute of Food Technology explains that a larger amount of municipal solid waste is caused by the disposal of newspapers, magazines, books, etc. Although packaging is not as exorbitant as other materials in landfills, it still accounts for a significant amount of waste that could be reused or biodegradable. Therefore, packaging is a significant indicator of a sustainable convenient food industry. More consumers are becoming aware of the environmental impacts of packaging. The article “In with Green Packaging, Out With Convenience” hypothesizes that “consumers may be more willing to ditch convenient packaging for greener packaging, while the food itself should include fresh ingredients and deliver health benefits.”¹⁸

Shipping is another important aspect of the convenient food industry. The main point of convenience is that a consumer can purchase foods, like a conventional

¹⁶ "Food Packaging and its Environmental Impact." *The Institute of Food Technologists*, April 1, 2007, <http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/editorial/food-packaging-and-its-environmental-impact.aspx>.

¹⁷ "Food Packaging and its Environmental Impact." *The Institute of Food Technologists*, April 1, 200, <http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/editorial/food-packaging-and-its-environmental-impact.aspx>.

¹⁸ “In With Green Packaging, Out With Convenience, Consumers Say.” *Greenbiz*. June 11, 2009. <http://www.greenbiz.com/news/2009/06/11/green-packaging-out-convenience-consumers-say>

granola bar, almost anywhere. Because they are so widespread, the companies establish negative environmental shipping practices, such as large trucks that drive all over the country to deliver the products to as many stores as possible. According to the EPA report “Greenhouse Gas Emissions for Freight Trucks”, trucks contribute up to 19.1% of the United States’ total greenhouse gas emissions. This percentage is lower than passenger cars at 59.5%, but it is higher than commercial aircrafts, non-road transportation, and refrigerants and lubricants.¹⁹

All of these unsustainable factors make the food industry one of the least environmentally friendly industries. In fact, it makes up for one-third of the human contribution to global warming.²⁰ In her essay *The Climate Crisis At The End Of Our Fork*, Anne Lappe agrees that the aforementioned practices contribute to global warming. She explains the food industry plays such a significant role in global warming because of “the emissions created by industrial farming processes, such as fertilizer production, and the carbon emissions produced by trucks, ships, and planes as they transport foods across nations and around the world.”²¹ These shipping methods have proved to be a problem to our environment and our health. Health problems exist within these greenhouse gas emissions. The EPA’s report “Health Assessment Document For Diesel Engine Dust” assesses three diesel exposure effects on humans. The report recognizes that it is difficult to directly link diesel

¹⁹ John Davies, “Greenhouse Gas Emissions from Freight Trucks” (presentation, National Emissions Inventory Conference, May 16, 2007).

²⁰ Anna Lappe, “The Climate Crisis At The End Of Our Fork” in *Food Inc.* ed. Karl Weber (New York: Public Affairs, 2009), 106.

²¹ Anna Lappe, “The Climate Crisis At The End Of Our Fork” in *Food Inc.* ed. Karl Weber (New York: Public Affairs, 2009), 108.

exhaust emissions to the health effects listed below. Their evidence comes from repeated animal and human exposure studies.

Acute (short-term) Effects- can include throat and bronchial irritation, lightheadedness, nausea, and respiratory systems (coughing and phlegm).

Chronic (long-term) respiratory effects- chronic respiratory inflammation

Chronic (long term) Carcinogenic Effects- possible lung cancer risks²²

To combat these compelling health problems, both short-term and long-term, companies need to invest in trucks that use less fuel or biodiesel.

Because the food industry does play such a significant role in global warming and cause other negative environmental impacts such as the destruction of ecosystems, more companies within the industry need to strive to counter this trend. Based on this information, the food industry should work with small, local farmers who use smaller quantities of pesticides. They should also attempt to change packaging materials to be biodegradable, and use more fuel-efficient trucks. There are more ways to reduce carbon footprints, which will be discussed later in the Clif Bar case study.

Clif Bar

As aforementioned, , the use of toxic pesticides and genetic engineering within monoculture farming is becoming disastrous to the environment and our health. Therefore, farming without the use of these toxins in smaller areas is one way

²² (EPA). "Health assessment document for diesel engine exhaust". Springfield, VA, 2002, 1-4, 1-5.

to reverse this devastating trend. Clif Bar's commitment to sustainable farming practices has helped define them as a sustainable business. According to the 2009 Annual Report, Clif also "[runs] farm vehicles on biodiesel. [They] offset emissions generated by energy use in our office, and our business travel."²³ The company ultimately wants their sustainable farm practices to "protect the soil, water and air. They're also a powerful tool in the fight against global warming."²⁴

Cathy Knowles, the package sourcing manager for Clif Bar, explains the different levels of packaging for the products. There are individual wrappers, caddies, master cases, and pallets that they put in the trucks. Efficiency is the packaging goal because it is important for environmental sustainability. It is important to fit as many bars as possible on a single truck, so the trucks will make fewer trips- and fewer trips means fewer gas emissions.²⁵

The "caddies" (smaller boxes that the individual bars come in) are made out of recycled paperboard. The company now uses "100% recycled paperboard (minimum 65% post-consumer) for all of [their] caddies and (that's 4 million pounds of recycled paperboard a year)."²⁶ They receive their cardboard from a plant by the San Jose Airport²⁷ that takes curbside cardboard, put it into a pulper that liquefies its consistency and runs it through a machine that creates sheets of cardboard. After

²³ Thoa Pham, Elysa Hammond, and Mija Riedel. "Raising the Bar: All Aspirations Annual Report". (Berkeley: Clif Bar 2009), 14.

²⁴ Thoa Pham, Elysa Hammond, and Mija Riedel, 2.

²⁵ Cathy Knowles. Personal Interview. October, 18, 2010.

²⁶ Thoa Pham, Elysa Hammond, and Mija Riedel. "Raising the Bar: All Aspirations Annual Report". (Berkeley: Clif Bar 2009), 12.

²⁷ Cathy Knowles. Personal Interview. October, 18, 2010.

this process, the recycling company sends the sheets of cardboard to Clif Bar. This efficient use of recycled materials “generate an environmental benefit equal to saving 31,000 trees, 12 million gallons of water, and enough energy to run 117 homes for a year.”²⁸

The “master case” holds many caddie cases and is a corrugated box in which 73% of the corrugated made in the United States is recycled.²⁹

The discussion with Knowles reinforced how important it is for a company to commit to recyclable materials. The statistics from Clif Bar’s 2009 Annual Report discussed above demonstrate how much paper and cardboard would be wasted if recycling was not practiced. For example, if Clif Bar did not receive their caddies from recycled cardboard, then 4 million pounds of cardboard a year would be thrown into a landfill. That would also mean that millions of more trees would be cut down, thus creating tremendous harm to the environment. It may not be effective or sustainable for a business to have a recycling bin in the office, however, these statistics show that it is extremely environmentally efficient to have recycling for such a major part of production.

Not only are Clif Bar’s employees sustainable, but they also work in an environmentally sustainable building. In 2010, the Emeryville, CA employees moved to a new building that is LEED certified Gold.³⁰ Along with the company’s Cool Commute program to urge employees to commute in a more sustainable manner,

²⁸ Thoa Pham, Elysa Hammond, and Mija Riedel. “Raising the Bar: All Aspirations Annual Report”. (Berkeley: Clif Bar 2009), 12.

²⁹ Cathy Knowles. Personal Interview. October, 18, 2010.

³⁰ Cathy Knowles. Personal Interview. October, 18, 2010.

they have also switched their trucks to run on biodiesel fuel.³¹ Shipping has always had a tremendously negative effect on the environment because of the amount of toxic gas that is released in the air. Therefore, by switching to biodiesel, Clif Bar has significantly decreased that environmental burden.

Many of Clif Bar's practices are similar to the Natural Step guidelines. Clif Bar complies with the 1st Natural Step guideline that discusses the eliminating the contribution of progressive buildup of substances extracted from the Earth's crust. They have converted their delivery trucks and farm vehicles to run on biodiesel. Through this change, less harmful carbon dioxide is emitted into the air, thus reducing the use of fossil fuels. Their shipping methods are also important to this step. As aforementioned, they strategically place the master cases and pallet into the trucks to fit as many products as possible. The goal of this planning is to reduce the amount of trips necessary. Fewer trips ultimately mean less gas. Also, seventy percent of Clif Bar ingredients come from organic farms. This lessens their use of fossil fuels because "Organic Farming uses on average, thirty to fifty percent less fossil fuels than conventional farming".³²

It can also be argued that Clif Bar only partially complies with Natural Step's second guideline, eliminating their contribution to the progressive buildup of chemicals and compounds. As a company and manufacturer, it would be very difficult to completely eliminate the build up of chemical compounds, so it is safe to

³¹ Cathy Knowles. Personal Interview. October, 18, 2010.

³² Elysa Hammond and Mija Riedel. "Moving Toward Sustainability: Working to Reduce Our Ecological Footprint." *Clif Bar Sustainability Newsletter* 4 (Winter, 2006).

say Clif Bar limits these buildups rather than completely eliminating them. Their ingredients are seventy percent organic and they are, therefore, likely to use fewer chemicals in their products than conventional convenient foods. However, there is controversy over the use of a chemical compound, hexane, which will be discussed later.

The third natural step, lessening degradation by physical means, is also seen in Clif Bar's sustainability principles. As aforementioned, farming can be extremely detrimental to nature and ecosystems. This degradation is apparent when farms are intended to feed people from all over the world. By choosing to use smaller, organic farmers, the company relies on less farmland than if they were partnering with massive monoculture farms that had destroyed many ecosystems through their operations. Clif Bar also gets involved with protecting wildlife and ecosystems through various partnerships. Specifically, since 2003, they have partnered with "American Forests' Global ReLeaf to plant over 30,000 trees. In 2009, the Clif Bar Family Foundation sponsored American Forests' new version of CITYgreen software . [It] allows city planners, community leaders, and students – and anyone else looking to evaluate a tree's worth beyond its obvious, leafy, green merits- to calculate the financial and ecological benefits of urban forests."³³ Through partnerships like these, Clif Bar shows their dedication to preserving forests and avoiding wildlife destruction. Although it is impossible to be completely sustainable and avoid wildlife

³³ Thoa Pham, Elysa Hammond, and Mija Riedel. "Raising the Bar: All Aspirations Annual Report". (Berkeley: Clif Bar 2009), 13.

destruction as a large profit-making company, Clif Bar at least attempts to make up for any devastation they may have caused.

The steps in the *Harvard Business Review* to successfully compete as a sustainable company are also apparent in Clif Bar. Because Clif Bar has been an environmentally conscious company for years, they have already established these guidelines. The first step, Quantify Your Carbon Footprint, is something Clif Bar has been dedicated to for years. They identify what areas are causing the most harm to the environment, and then try to find more sustainable options. The individual wrappers and hexane are examples of this. The second and third steps, Access Your Carbon-Related Risks and Opportunities and Adapt Your Business in Response to The Risks, Clif Bar has already achieved. They changed their trucks to use biodiesel, started to use organic ingredients, began using recycled materials for packaging purposes, etc. Clif Bar realized these changes needed to be made, and the company adapted successfully around these changes. The company still makes a profit while using these more sustainable alternatives. However, new alternatives are found for the petroleum based wrappers and hexane. The company will need to access the situation and adapt to these changes in a financial and competitive way.

Although Clif Bar is an influential leader in their sustainability efforts, there are still areas that they acknowledge need improvement, such as the individual bar wrappers. The raw materials that make up a wrapper are petroleum based and, therefore, do not compost. The company's goal is to eventually create a compostable wrapper that can go through an aerobic reaction in order to biodegrade. Knowles

explains that the technology to develop the compostable wrapper is “about three to five years away.” Although corn-based biodegradable products have already been developed and widely used, Clif Bar does not use these products because the corn has been genetically modified. Genetically modified organisms have caused much controversy because no one knows if they are harmful to human health and the environment. Therefore, Clif bar intends to avoid the use of corn based products. Specifically, they are looking for starches made from Eucalyptus trees.³⁴ Because the wrappers are not yet compostable, the company asks consumers to send back the wrappers to prevent them from being in landfills. Two cents of each returned wrapper goes to various charities.³⁵ The company also works with Terracycle, a sustainable business that takes waste and transforms it into other useable products. Because of this “partnership, [Clif Bar] recycled nearly five million wrappers (86% pre-consumer, 14% post-consumer), keeping 10,000 pounds of waste out of the landfill, and generating more than \$13,000 for not profit organizations.”³⁶

There has also been controversy in the use of hexane in their products. According to cornucopia.org, hexane is a “byproduct of gasoline refining. It is a neurotoxin and a hazardous air pollutant. Soybean processors use it as a solvent- a cheap efficient way of extracting oil from soybeans, a necessary step to making most conventional soy oil and protein ingredients.”³⁷ This product is not permitted in the

³⁴ Cathy Knowles. Personal Interview. October, 18, 2010.

³⁵ Cathy Knowles. Personal Interview. October, 18, 2010.

³⁶ Thoa Pham, Elysa Hammond, and Mija Riedel. “Raising the Bar: All Aspirations Annual Report”. (Berkeley: Clif Bar 2009), 12.

³⁷ “Hexane Soy.” *The Cornucopia Institute*. November 28, 2010.

USDA certified organic products. The use of hexane could be why Clif Bars are only labeled as seventy percent organic. Hexane is risky for workers and consumers. It is a “volatile compound that can react with other air pollutants to create ground-level ozone, poses both short-term and longer-term occupational health hazards to those in close contact with it and may present risks to consumers who are potentially exposed to residue in foods.”³⁸ Clif Bar is aware of the dangers of this ingredient and is working to find an alternative. The company says they are “working hard to find an organic alternative to soy protein isolate.”³⁹

The convenient food industry proves that convenience is not as important as the harm it causes to the environment. While many companies work with large, polluting monocultures, like many companies in the regular food industry, they also package and deliver foods in an unsustainable way. Clif Bar recognizes sustainable alternatives are important if we do not want to speed up global warming, environmental devastation, and negative health issues. It has reached goals similar to those in the Natural Step. In order to compete in this competitive economy, Clif Bar has also reached goals like those in the *Harvard Business Review*. It has proven to be a successful company, selling granola bars all over the United States, while also using organic ingredients, biodiesel trucks, recyclable materials, and have joined forces

<http://www.cornucopia.org/2010/11/hexane-soy/>

³⁸ “Soy They Say”. *Crossfit Victrix*. February 14, 2011.
<http://crossfitvictrix.com/2011/02/14/cliff-bars/>

³⁹ “Soy They Say”. *Crossfit Victrix*. February 14, 2011.
<http://crossfitvictrix.com/2011/02/14/cliff-bars/>

with community organizations to combat global warming and the degradation of ecosystems.

Cleaning Supply Industry

Bleach. When you smell it, are you comforted by the cleanliness that must have come from such an intense cleaner? Bleach has been known to kill most bacteria, and cleaners everywhere have relied on bleach to keep their work and/or households clean. Now we are learning, however, that such cleanliness can come with a price- a price to our health and to our environment. What is traditionally thought of as clean, like the smell of cleaning products in our kitchens and bathrooms, are made up of various chemicals and toxins that have been consistently linked to human health and environmental problems. To combat these chemicals surfacing in our homes and workplaces, resulting in indoor air pollution, it is important to buy from companies that do not use these harsh toxins in their cleaning products. One successful and sustainable cleaning company, Method, has focused on eliminating the use of harsh chemicals and produce cleaners in an environmentally friendly manner.

In his book, *Environmentalism Unbound: Exploring New Pathways for Change*, Robert Gottlieb discusses the social and health problems associated with janitorial cleaning in office places, hospitals, and other public areas. In the book, he discusses that janitorial companies use harmful cleaning products, like bleach bleach, because it is extremely effective and cheap. As more studies come out linking these popular cleaning ingredients to indoor and outdoor air pollution and sickness, companies continue to ignore warnings. They need to take responsibility and make safer

products, even if that means making less money in the short term. Human health and the livelihood of the company could depend on this transition. Gottlieb explains that “the focus on household chemicals, such as cleaning products and lawn pesticides, has touched on key elements of environmental advocacy since Earth Day 1970- the search for a green consumerism and the concept of individual responsibility contributing to, and resolving environmental problems” and that “publications that spoke of ‘fifty things to do to save the planet’ identified a shift to less toxic household cleaners as high on the list for opportunities for environmental change.⁴⁰” Ultimately, some consumers are becoming more aware and, therefore, apprehensive about chemicals used in household cleaners. Here I will provide a list of all the potential hazards found in everyday cleaning products.

1. petrochemical solvents- including methylbenzene and toluene (found in furniture polishes)- are colorless flammable liquids that have been linked to cancer and other serious illnesses

2. chlorinated solvents- including methylene chloride (found in some air fresheners, spot removers, and furniture waxes), and PERC (found in some spot removers and dry cleaning fluids)- are organic solvents composed of chlorine atoms. These strong respiratory irritants are huge environmental contaminants.

3. Aerosol Propellant- compress inert gas propellants include isobutene, butane, propane, and hydrocarbon compounds. They are found in carpet

⁴⁰ Robert Gottlieb, ““Janitors and Justice: Industry Restructuring, Chemical Exposures, and Redefining Work” in *Environmentalism Unbound* (Cambridge: The MIT Press, 2001), 157.

cleaners, air fresheners, and many other products. These eye, throat, and respiratory irritants can aggravate asthma and cause other lung diseases. Exposure to propellants can also lead to eye injuries and chemical burns.⁴¹

According to the Natural Resources Defense Council, there are six ingredients to avoid in cleaning products. They are: Ammonia, Monoethanolamine (MEA) and Diethanolamine (DEA), Glycol Ethers, Alkylphenol Ethoxylates (APEs), Phthalates, Triclosan

- **Ammonia**- causes asthma
- **Monoethanolamine (MEA) and Diethanolamine (DEA)**- irritate respiratory tracts and
- cause asthma
- **Glycol Ethers**- in glass cleaners, and has been linked to decreased fertility.
- **Alkylphenol Ethoxylates**- surfactants that have been linked to hormone disrupters and breast cancer. “One lab test found that certain APEs caused breast cancer cells to multiply in test tubes.”
- **Phthalates**- “Phthalates, components of synthetic fragrances, are considered hormone disruptors. A recent study suggested that men with high levels of phthalates were more prone to obesity, and other studies have found that baby boys of mothers with high phthalate levels had problems with reproductive development. These chemicals

⁴¹ Deirdre Imus. *Green This!: Greening Your Cleaning* (New York: The MIT Press, 2007), 49-53.

have also been linked to hypothyroidism (when the thyroid fails to produce enough hormones). Products don't often advertise themselves as "phthalate-free," so look for "unscented" or "fragrance free" products or those scented only with natural essential oils"⁴²

Like the car industry, it is possible that consumers will look for more sustainable companies, like car buyers and hybrids. There are, however, still many people who have no way of knowing the difference between conventional cleaners and environmentally friendly cleaners.

These chemical ingredients are one of the major issues surrounding cleaning supplies. When harsh chemicals are used, indoor air pollution becomes a major health risk to the people and even children living in the households. Gottlieb explains "concerns about chemical exposures in cleaning compounds were most identified with two other arenas distinct from the question of occupational exposures. These have involved household and consumer exposures and indoor air quality concerns."⁴³

One of the problems regarding indoor air pollution is the lack of regulatory intervention on indoor air quality. The Environmental Protection Agency explains on its website that the EPA "does not regulate indoor air, but [they] do offer assistance in protecting your indoor air quality."⁴⁴ This is extremely problematic because very

⁴² "Six Ingredients to Avoid in Cleaning Products" *Natural Resources Defense Council*. <http://www.simplesteps.org/labels/six-ingredients-avoid-cleaning-products>

⁴³ Robert Gottlieb, "Janitors and Justice: Industry Restructuring, Chemical Exposures, and Redefining Work" in *Environmentalism Unbound* (Cambridge: The MIT Press, 2001), 157.

⁴⁴ "Air." *Environmental Protection Agency*.

few average renters or homeowners are going to check the EPA website for the air quality of their home. People who have had high education levels are more likely, as aforementioned, to choose more sustainable products, but they are still in the minority. Without any mandatory regulation, people will remain ignorant about such issues. Adequate governmental regulation would force people to learn about the dangers of indoor air quality and to buy cleaning products that do not contribute to poor indoor air quality. In her book, *Green This: Greening Your Cleaning*, Deirdre Imus clarifies the regulatory situation further, “While the Clean Air Act and other laws legislate standards for outdoor air quality, we alone control the quality of the air inside our homes.”⁴⁵ Our responsibility to control the air quality in our own home is problematic because many people are unaware of the harm that many of the widely-used household cleaners have on humans. Indoor air pollution is an issue that needs to have strict regulations because it is dangerous. The World Health Organization has suggested that indoor air pollution is linked to 1.6 million deaths per year and the EPA has ranked indoor air pollution as one of the top five risks to public health. Contaminants in the air have been linked to pregnancy loss, reduced birth weight, SIDS, acute respiratory infection, reduced lung function, asthma, cancer, and neurocognitive function.⁴⁶

<http://www.epa.gov/lawsregs/topics/air.html#indoorair>

⁴⁵ Deirdre Imus. *Green This!: Greening Your Cleaning* (New York: The MIT Press, 2007), 45.

⁴⁶ Deirdre Imus. *Green This!: Greening Your Cleaning* (New York: The MIT Press, 2007), 49-53.

Another issue surrounding the industry is the practices used when manufacturing the product. Cleaning supplies are often sold in plastic containers, shipped across the country, and the waste resulting from production often ends up in landfills. Therefore, when buying a product, it is important to look at the ingredients and the way it was produced.

The EPA introduced Environmentally Preferable Purchasing guidelines to help safer cleaning supplies compete with conventional cleaning supplies. The EPA website defines “environmentally preferable” based on Section 201 of EO 13101, an Executive Order issued by the President, that states the products and services “have a lesser reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service.”

⁴⁷The article provides these guiding principles, stating that they are broad and not intended to be a step-by-step program. The guiding principles are as follows:

1. Environment+ price + performance= Environmentally Preferable Purchasing
 - a. Environmental considerations should become a part of normal purchasing practice, consistent with such traditional factors as product safety, price, performance, and availability.
2. Pollution Prevention

⁴⁷ “EPA’s Final Guide on Environmentally Preferable Purchasing.” *Environmental Protection Agency*. <http://www.epa.gov/epp/pubs/guidance/finalguidance.htm>

- a. Consideration of environmental preferability should begin early in the acquisition process and be rooted in the ethic of pollution prevention, which strives to eliminate or reduce, up-front, potential risks to human health and the environment.
3. Life Cycle Perspective/Multiple Attributes
 - a. Federal Agencies should strive to purchase products or services with as few negative environmental impacts in as many stages as possible.
 - b. Environmental preferability should reflect the consideration of multiple environmental attributes such as increased energy efficiency, reduced toxicity, or reduced impacts on fragile ecosystems
4. Comparison of Environmental Impacts
 - a. Federal Agencies should consider: the reversibility and geographic scale of the environmental impacts, the degree of difference among competing products or services, and the overriding importance of protecting human health.
5. Environmental Performance Information

- a. Comprehensive, accurate, and meaningful information about the environmental performance of products or services is necessary in order to determine environmental preferability.⁴⁸

These non-regulated federal guidelines offer good suggestions for companies and consumers when making environmentally friendly decisions. With government involvement and these helpful guidelines, the move away from conventional cleaners may become more rapid and even necessary for consumers and producers. This Environmentally Preferable Purchasing code just reinforces the importance of sustainable cleaning products.

Method

Method is a cleaning supply company geared toward individual consumers, dedicated to using non-toxic, environmentally friendly ingredients unlike other cleaning supply counterparts. Method was created on the idea that cleaning products did not have to be dangerous for humans and the environment. Adam Lowry, co-founder of Method, explains that the business started on the idea that “business, as the largest and most powerful institution on the planet, had the greatest opportunity to create solutions to our environmental and health crises.

⁴⁸ ⁴⁸ “EPA’s Final Guide on Environmentally Preferable Purchasing.” *Environmental Protection Agency*. <http://www.epa.gov/epp/pubs/guidance/finalguidance.htm>

Since the dawn of the industrial age, business has traded off people's health and the state of the planet for growth and profit, but it doesn't need to be so."⁴⁹

Method's website states that in order to correct any significant carbon footprint, they need to first understand where they are not being sustainable. To track this information they use a program called Rapid Carbon Modeling created by Planet Metrics. The program works by using "lifecycle data" and "macro-economic data to fill in gaps and give an accurate picture of a product's total carbon footprint."

⁵⁰Method's goal is to find where their carbon footprint is the greatest. For shipping purposes, the company started "using trucks that run on biodiesel with a whole host of fuel efficiency improvements. It originally ran on 20% biodiesel blend, but [they] are now increasing that to 50%, meaning a significant portion of the diesel is replaced by renewable, lower emission biodiesel from secondary waste vegetable oil sources."

⁵¹They have also found that 80 to 90% of the footprint comes from 'upstream', which are 'indirect' emissions, such as byproducts of the manufacturing and transportation process. Therefore, they pay extreme attention to that area of their production. They still pay attention to and eliminate even the smallest areas of carbon dioxide emissions. For example, the Rapid Carbon Modeling program showed that the multi purpose cleaning wipes were not packaged sustainably. The plastic canister that the wipes came in proved to have a high carbon footprint, so they switched it to a

⁴⁹ Adam Lowry. "Behind the Bottle." *Methodhome*.

<http://www.methodhome.com/behind-the-bottle>

⁵⁰ "Carbon Footprint Modeling." *Methodhome*.

<http://www.methodhome.com/behind-the-bottle/carbon-modeling>

⁵¹ "Biodiesel is how we Roll." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/biodiesel>

flat package. The results showed that the change reduced the carbon footprint of the multipurpose wipes by 65%.⁵²

Packaging for the rest of their products is also an important area of sustainability. The company strives to use 100% recycled plastic for all of their bottles. One of the many problems with plastic is we do not always know what happens when we throw it away, even when we recycle it. An unfortunate amount of plastic ends up in landfills. The plastic's lifespan is important. Method studies these life cycles and chooses plastics based on their findings. They also explain that they only use a plastic that they know will be recycled. They have concluded through research that “ post-consumer PET has a very low carbon footprint and is commonly accepted for recycling.”⁵³

Method aims to eliminate their products from ending up in landfills. Their ultimate goal is to have zero-waste. They call this process elimination process “Method Greensourcing”, in which they “monitor and audit [their] suppliers to find ways to reduce waste, save energy, to eliminate water use, and to use closed-loop manufacturing practices wherever [they] can.”⁵⁴ They strive to reduce landfill size and use less energy and water. They are 100% carbon neutral in manufacturing, and employees use less energy in the office and commuting. Method also focuses on water savings. Method's factories “put nothing down the drain and recycle 100% of

⁵² “Carbon Footprinting Modeling.” *Methodhome*.

<http://www.methodhome.com/behind-the-bottle/carbon-modeling>

⁵³ “Sustainable Packaging.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/sustainable-packaging>

⁵⁴ “Greensourcing.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/greensourcing>

the water [they] use to make method products, but [they] have some that don't. [They] are working on making every factory waste free.”⁵⁵

Method exclusively uses ingredients that have not been shown to cause harm to the environment or human health. As aforementioned, cleaning companies readily use harsh chemicals and compounds in their products, which have been linked to many health problems among children and adults. As shown above, the various toxins and the health and environmental problems they have been linked to. Method chooses not to use any of these chemicals in their products. They select their ingredients based on the “Precautionary Principle” which states that “unless [they] can conclude that an ingredient is safe for people and the planet, [they] don't use it. This means that for many of the ingredients that [they] choose not to use, the science of their possible risk isn't fully established, but the potential hazard is enough for us to avoid them.”⁵⁶ They also go through the Environmental Protection and Encouragement Agency and McDonough Braungart Design Chemistry to determine what ingredients they can use. These organizations study the substances and determine whether or not they are safe for humans and the environment. Method's website state that, “These agencies are a tandem of an environmental research institute and design firm specializing in material science, product design and

⁵⁵ “Greensourcing.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/greensourcing>

⁵⁶ “The Dirty Ingredients List.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/dirty-ingredients-list>

environmental systems optimization.”⁵⁷ They work to avoid the use of substances shown to have endocrine disruption, mutagenicity reproductive toxicity, teratogenicity, acute toxicity, chronic toxicity, sensitization, irritation of skin/eyes/mucous membranes, aquatic toxicity persistence/ biodegradation, bioaccumulation potential, content of halogenated organics, metal content, climate relevance/ozone depletion” (methodhome.com).

Judging by the appearance of their products, Method products look too chic to be sustainable. The hand soaps, for example, are extremely bright and aesthetically pleasing. It is easy to think that nothing natural or healthy could produce these dye colors. When it comes down to it, Method intends to make a profit, making their items marketable is important. Colors are beneficial for marketing. Method goes through a process to get the dyes assessed as well. The company makes sure that the colorants are "not carcinogenic, not bioaccumulative, not mutagenic, free of heavy metals, free of halogenated organic compounds.”⁵⁸

Since the products are made from natural ingredients, the company must use preservatives in order to keep the products fresh. Many believe preservatives are problematic and unhealthy because of the chemicals used to maintain freshness. However, method explains that they use methylchloroisothiazolinone and methylisothiazolinone as preservatives and have “rigorously investigated the health and environmental effects of both and have found them to be safe for people and

⁵⁷ . “Behind the Bottle.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle>

⁵⁸ “Designing Safe Colors.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/color>

the environment.”⁵⁹ Method sent these proposed preservatives to the EPEA and MBDC to be reviewed and tested before using them. After EPEA and MBDC reviewed these products, Method selected this combination because it is highly effective, biodegradable, non-carcinogenic, and has not shown and signs of negative health or environmental repercussions.⁶⁰

Method does more than manufacture eco-friendly products. Three days a year, the employees are required to go into the community and volunteer with a local organization. Many employees volunteer at Save the Bay, a “wetlands restoration project” at Blair Island in San Francisco. As volunteers, they “planted 1,000 seedlings of native alkali heath, removed the non-native and highly invasive ‘pepper weed’ plant, removed trash, and tested the water’s phosphate levels.”⁶¹ Many also volunteer at Slide Ranch, a sustainable farm in the Bay Area that teaches people about the relationship between our food choices and our health and environment.

The Natural Step’s first foundation is lessening the concentration of substances extracted from the Earth’s crust such as fossil fuels. There are similarities between the Natural Step’s first step and Method’s sustainable practices. These similarities come from Method’s awareness of transportation externalities and carbon dioxide emissions. The company’s use of alternative energy exhibits their

⁵⁹ Preservatives.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/preservatives>

⁶⁰ “Preservatives.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/preservatives>

⁶¹ “Method Cares.” *Methodhome*. <http://www.methodhome.com/behind-the-bottle/method-cares>

dedication to “extract” fewer resources from the Earth; however, they admit that their sustainability efforts are still a work in progress. Drummond Lawson, working with sustainability at Method explains “there are many areas where factors outside our control need to improve – for example, the efficiency of recycling systems to take materials back. We are introducing renewable fuels across much of our distribution chain but this is a slow battle and a massive footprint.”⁶² Another way that Method complies with the first Natural Step principle is by using their Carbon footprint tracker. By limiting their use of fossil fuels during manufacturing and shipping, they rely less on the Earth’s natural resources than other conventional companies do. Although Method is very adamant about restricting their plastic use, 100% recycled plastic is still plastic. Making plastic is harsh on the environment, and even though they use recycled plastic, its initial making had an impact on the environment. There are many controversies that come along with plastic use, and Method explains that they are still looking for more innovative ways to store their products. Perhaps they are searching for glass alternatives, which would be better for the environment than plastic.

Method also follows the Natural Step’s second principle, which is to lessen the contribution to the progressive buildup of chemicals and compounds, produced by society, by focusing on eliminating the use of chemicals and toxins in their cleaning products. The third Natural Step can also be seen in Method’s sustainability principles. The construction of Method’s facilities and manufacturing plant must have

⁶² Drummond Lawson. Email Interview. February 8, 2011.

had a negative impact on ecosystems and the natural environment. Therefore, it is impossible to say that the company has completely eliminated their contribution to their destruction of nature. Method does attempt, however, to offset some damage by giving back to the environment. Their participation in Save the Bay and Slide Ranch exemplifies these efforts.

Method is a successful environmentally- conscious company, that aims to protect the environment and individual consumers. They have followed guidelines similar to those identified in the *Harvard Business Review*. The first step, Quantify Your Carbon Footprint, is apparent through their use of the Rapid Carbon Modeling device. The use of this device helped them find areas that could be improved sustainably, and allowed them to fix the problem. An example they used on their website was the switch from a plastic canister to a flat package. The other two steps, Assess your carbon- related risks and opportunities and Adapt your business in response to the risks and opportunities, are contribute to their success as a green company. When the company was started, the founders knew how important it was that there be non-toxic sustainable cleaning supplies. They believed that the real risk involved in cleaning supply companies were toxin used. To adapt to the sustainable principles, the company started small by only distributing to one grocery store. Method “land[ed] its first sale: four cleaning sprays to Mollie Stone’s grocery store in Burlingame, Calif” which demonstrates “Method’s primitive early invoicing process” and these cleaning sprays have only “improved over time.”⁶³ Step four, Do it better

⁶³ “Behind the Bottle.” Methodhome. <http://www.methodhome.com/behind-the-bottle>

than your competitors, might still be in the future for Method. Their Seventh Generation competitors have been biobased certified by the USDA. This is a Biopreferred program has “identified more than five thousand biobased products in the past eight years for federal agencies to give purchasing preference to”. The program just “launched a certification program so companies can slap a label on products to show their biobased content.”⁶⁴ This certification will be appealing to eco-friendly consumers. I have not found Method to have this certification. Overall, consumers need more education on the dangers of everyday household cleaners. When more people learn more about these dangers, they then may opt out of buying the less expensive, yet harmful choice.

Through research, one can learn to read household cleaning labels. Reading these labels can be crucial in order to create change in the cleaning supply industry. With more awareness of toxic ingredients and environmental hazards, consumers will start demanding safer products. Through this consumer demand, conventional companies may learn that it is more morally acceptable and safer to create products that are not so dangerous. Although no company is completely sustainable, Method proves to be a good role model for cleaning supply companies that need to improve their practices. These practices are very similar to those that the environmental consulting company, the Natural Step, advises. Therefore, Method exhibits the possibility of making a profit while also adhering to eco-friendly principals.

⁶⁴ Jonathan Bardelline. “Seventh Generation, NatureWorks First to Earn USDA based Label.” *Gree Biz* April 7, 2011. <http://www.greenbiz.com/news/2011/04/07/seventh-generation-natureworks-among-first-earn-usda-biobased-label>).

The Automobile Industry

There are many reasons why the automobile industry needs to step-it- up a notch when it comes to environmental issues. One reason is that transportation is one of the leading greenhouse gas emitters significantly contributing to global warming. It is ultimately important for industries, like the automobile industry, to take a progressive approach to offset global warming and other environmental hazards not only for the environment, but for humans, as well. According to the Natural Resources Defense Council fact sheet about Health and Global Warming, ““Approximately 158 million Americans live in counties where air pollution exceeds national health-based standards. Rising temperatures increase ozone smog formation in many areas. Increasing levels of smog are associated with increased hospital admission rates and death for people with respiratory diseases such as asthma, and worsens the health of people suffering from cardiac or pulmonary Disease.”⁶⁵ While trains and planes do strongly contribute to those statistics, cars cannot be ignored. The second reason is our, and the cars’ dependence on oil. In her book *Soil Not Oil: Environmental Justice in a Time of Climate Crisis*, Vandana Shiva explains “with efficiency, accessibility, and reliability of public transportation in most urban areas lacking, people have turned to buying their own vehicles, and private vehicles are providing for a larger portion of travel. For this exploding car population, gasoline consumption is set to increase from 6 million tons in 1997 to 25 million tons by 2015. Diesel consumption will increase from 30 million tons in 1997 to 100 million

⁶⁵ “Climate and Your Health: Assessing the Most Serious Health Effects of Climate Change” (National Resource Defense Council, 2011), 1.

tons in 2015.”⁶⁶ This rapid increase is frightening because oil will run out, and “a much more serious problem looms in the future. Most of the world’s large, economically viable oils fields have already been found, so a permanent oil shock is inevitable early in the twenty-first century.”⁶⁷ Oil is also constantly and aggressively extracted from the earth’s crust- thus also depleting the planet’s natural resources. A third environmental issue regarding the automobile industry is waste. Cars are made of many things- like metal, plastic, steel, etc; however, the extra substances that companies end up not using go into landfills. There are many millions of cars on the road, imagine how much waste must have been produced while building all of the vehicles on the road today. Mark Foster, a historian suggests in the article “The Automobile and the Environment in American History” that “fully one-third of the total environmental damage caused by the automobiles occurred before they were sold and drive.”⁶⁸ This estimation comes from a study that has found “fabricating one car produced 29 tons of waste and 1,207 million cubic yards on polluted air. Extracting iron ore, bauxite, petroleum, copper, lead, and a variety of other raw materials to process steel, aluminum, plastics, glass, rubber, and other products necessary to construct automobiles consumes limited resources, uses great amounts

⁶⁶ Shiva Vandana, *Soil Not Oil* (Cambridge: South End Press, 2008), 52.

⁶⁷ L.F. Ivanhoe, “Global Oil Reserves Are Being Exhausted,” in *Global Resources: Opposing Viewpoints*, ed. Charles P. Cozic (San Diego: Greenhaven Inc., 1998), 18.

⁶⁸ Martin V. Melosi, “The Automobile and the Environment in American History,” *American Life and Society*, http://www.autolife.umd.umich.edu/Environment/E_Overview/E_Overview2.htm.

of energy, and has serious environmental repercussions.”⁶⁹ So when making a conscious effort to purchase an environmentally friendly car, consumers need to look at hybrids and beyond. To look beyond would require research of manufacturing methods that are not as harsh on the environment as seen above. Energy consumption and waste should be two priorities when purchasing a greener vehicle.

If the world was perfect, which has been increasingly proved to not be, most of Earth’s inhabitants would use public transportation. From my studies at Occidental College, I have learned that there are various reasons why people simply do not care to use public transportation. For anyone living in Los Angeles, it takes almost two hours to travel on a bus to what would be a fifteen minute drive in a car. The city is so spread out, that it seems almost impossible to have an efficient mass transit. Ultimately, our transportation, land use policies favor car use. New highways are often discussed, thus validating personal car use. So, the first reason for ignoring public transit- efficiency. Another reason that most avoid buses and metros are simply the comfort of having a private vehicle. Since public transportation can easily be associated with lower-income commuters, the wealthy might not be willing to use it. If people continue to turn away from public transportation, then another strategy must be implemented.

Cars are consistently being proven to have significant impacts on our health and the environment, and consumers are becoming more aware of this devastation.

⁶⁹ Martin V. Melosi, “The Automobile and the Environment in American History,” *American Life and Society*, http://www.autolife.umd.umich.edu/Environment/E_Overview/E_Overview2.htm.

So car companies are too. The car industry, just like any other, is about profit, so economically, it only makes sense to make fuel-efficient cars attractive to consumers. As a result, many car companies today are doing their part to offset environmental damage, whether it is from making hybrid cars or growing trees. An article on Environmental Protection online, “Environmental Issues Top Challenge for Automotive Industry” further explains this phenomenon: “environmental considerations are driving system and vehicle design and development and are a differentiator in the consumer marketplace. Automotive designers and engineers are working with suppliers like DuPont to address these issues and to design and develop cost-effective, fuel-efficient vehicles with reduced environmental impact.”⁷⁰

Therefore, it is safe to say that some automakers feel that environmental concerns should take priority because, as humans, we should take responsibility for our contribution to environmental destruction, while also pleasing their loyal customers. As environmental destruction and global warming become more significant problems, however, finding sustainable alternatives in the auto industry might become essential in order to exist in the competitive market. The report “Meeting the Challenge: U.S. Industry Faces the 21st Century: U.S. Automobile Manufacturing Industry” explains:

Especially in the developed world, public sector pressures to make vehicles safer and more environment-friendly are unlikely

⁷⁰ “Environmental Issues Top Challenge for Automobile Industry.” *Environmental Protection*, April 18, 2008, <http://eponline.com/articles/2008/04/18/environmental-issues-top-challenge-for-automotive-industry.aspx>

to abate. These pressures will drive research and innovation in powertrains, fuels, electric vehicles, and lightweight materials. Given the twin pressures of government regulation and product competition, car companies that can develop and implement innovations in their supply chains are likely to benefit significantly in finding low-cost ways to meet requirements and put customer-desired features on the vehicles.⁷¹

Subaru

Toyota, Honda, and Ford are a few companies to acknowledge their need for a greener automobile industry (although I do recognize there are other companies striving to compete in a greener economy). All have various hybrids, like the Prius, Civic, and Escape that have been widely recognized. Another company, not as widely known, is Subaru. Many outdoor-loving, environmental drivers tend to drive Subarus. An article in Businessweek explains that “Subaru’s research shows [consumers] to be an eco-friendly bunch” and has been “long popular with a core of professional drivers tweed in the Northwest and flannel-clad outdoor enthusiasts in the Northwest.”⁷² This consumer profile could be possible because northwestern cities are filled with environmentalists, hikers, climbers, and kayakers. The northwest regional vice president of Subaru, Jim Pernas, explained “while the northwest states

⁷¹ U.S. Department of Commerce Office of Technology Policy. *Meeting The Challenge: U.S. Industry Faces The 21st Century- The U.S. Automobile Manufacturing Industry*. 1996, 77.

⁷² Jeff Green and Alan Ohnsman, “At Subaru, Sharing the Love is a Market Strategy,” *Business Week*, May 20, 2010, http://www.businessweek.com/magazine/content/10_22/b4180018655478.htm.

make up less than seven-percent of the U.S. car buying population, the northwest region makes up fifteen percent of the nation's Subaru buyers."⁷³ Subaru is one of the first automobile companies to start making environmental changes. According to the Subaru website, it was the first automobile plant in the United States to reach zero landfill status, was the first United States automobile plant to establish a wildlife habitat, and it received the Gold Achievement award as a "top achiever in the agency's WasteWise recycling program to reduce waste and improve recycling."⁷⁴ The company explains that they are "committed to establishing and maintaining an effective environmental management system that goes beyond just meeting the standard environmental laws and regulations, and that encompasses the integration of sound environmental practices in all of [their] business decisions." It is very easy to claim environmental responsibility, but proving it can be different.⁷⁵

Subaru's main area of sustainability comes from their zero waste manufacturing plant. In fact, it became the first automobile plant to be "Zero-landfill" and have not disposed anything into a landfill since May 2004. The website states "everything is reused and recycled. Each year SIA actively recycles 99.3% of excess/leftover steel, plastic, wood, paper, glass, and other materials. The remaining

⁷³ "Subaru of America's Northwest Region Posts January Sales." *Subaru*. <http://media.subaru.com/index.php?s=43&item=45>

⁷⁴ "Subaru and the Environment." *Subaru*. <http://www.subaru.com/company/environment-sustainability.html>

⁷⁵ "Subaru and the Environment." *Subaru*. <http://www.subaru.com/company/environment-sustainability.html>

0.7% is shipped to the city of Indianapolis and incinerated to help generate steam.”

Some examples of their reuse and recycle methods directly from the website are:

- SIA’s wheel supplier uses brass lug nuts to hold wheels in place during shipping. Previously, these were thrown away- 33,000 pounds of brass per year. They are now reused until they’re no longer serviceable, then they’re recycled.
- Paint sludge formerly thrown away is dried to a powder, then shipped to a plastics manufacturer that mixes the dried sludge with other plastic compounds. The manufacturer’s end products are useful devices such as parking-lot bumpers and guardrail safety blocks that absorb impact when struck by a vehicle
- Solvents used in the painting process are cleaned and recovered through SIA’s on-site recovery system. The pant shop then reuses the solvent (Subaru’s Green Manufacturing Plant- www.treehugger.com).

76

Their limited waste efforts have resulted in saving 670,000 gallons of oil, along with water and energy. To save water, after priming the vehicle, they seal it to keep water from collecting so they can save the water and use it again, mostly for cleaning.⁷⁷

⁷⁶ “Subaru and the Environment.” *Subaru*.
<http://www.subaru.com/company/environment-sustainability.html>

⁷⁷ “Subaru and the Environment.” *Subaru*.
<http://www.subaru.com/company/environment-sustainability.html>

Subaru is also concerned lessening the use of toxic chemicals. Subaru's main success following this guideline comes from their Partial Zero Emissions Vehicles, which adhere to the state of California's Super-Ultra-Low-Emission Vehicle exhaust emission standard.⁷⁸ According to Greenmotorist.com, "certain models of the Legacy, Outback, and Forester can be purchased as a PZEV" and "have also been listed in the United States Environmental Protection Agency Green Vehicle Guide."⁷⁹ This standard has the exhaust emission standard for 15 years/150,000 miles, as well as its zero-evaporative emission standard, and have a 15 year/150,000 mile emission defects and performance warranty."⁸⁰ Although it is not a hybrid car, like the Prius, the PZEV emissions are known to "have even lower emissions than hybrid or alternative fuel vehicles."⁸¹ The company has also found interest in the electric car. The concept behind an electric vehicle is that it takes absolutely no gas, all it requires is a plug-in after a certain distance. Many articles have been published online discussing the new Subaru R1e, and the expected release date. The car will include an "electric motor that produces the equivalent of 54 horsepower, which is about the

⁷⁸ "Subaru and the Environment." *Subaru*.

<http://www.subaru.com/company/environment-sustainability.html>

⁷⁹ "Subaru's Dedication to Green Motoring." *The Green Motorist*, August 13, 2008, <http://www.thegreenmotorist.com/index.php/subarus-dedication-to-green-motoring/>.

⁸⁰ GreenBiz Staff. "Interface and Subaru Partner to Advance Sustainable Transportation." *GreenBiz*, October 24, 2006, <http://www.greenbiz.com/news/2006/10/24/interface-and-subaru-partner-advance-sustainable-transportation>.

⁸¹ "Subaru and the Environment." *Subaru*.

<http://www.subaru.com/company/environment-sustainability.html>

same as what the regular gas-powered R1 makes. Its battery pack affords the car a small-ish range of fifty miles, but the car can be recharged to eighty percent capacity in just eight minutes. A full charge takes about six minutes.”⁸²

Along with their Zero waste manufacturing plant, and the PZEV vehicles, Subaru explains that they take environmental care beyond manufacturing cars. At the Subaru headquarters, employees also spend time in the “Subaru Share the Love Garden” that partners with a local gardening organization, Greensgrow. Once the produce is ready to be picked, about 25 crates of fruits and vegetables are donated to the Food Bank of South Jersey. The company also explains that the automotive plant is a Backyard Wildlife Habitat certified by the National Wildlife federation. They explain, “SIA’s 800+ acres serves as a home for various wildlife including: white-tail deer, rabbits, Canadian Geese, Mallard Ducks, squirrels, beavers, coyote, snapping turtles, frogs, red-tail hawks, blue heron, and the Bald Eagle.”⁸³

Subaru’s practices and technologies are very similar to the Natural Step guidelines and those found in the Harvard Business Review on Sustainable Business. Because Subaru is a zero-waste manufacturer, they recycle more and use less, thus extracting less from the Earth’s crust. Their zero-waste practices help them comply to Natural Step’s first guideline. Subaru also claims to avoid or lessen the amount of toxic chemicals used, which complies to the Natural Step’s second guideline,

⁸² “Subaru’s Electric Car On Sale Next Year.” *Automobile.com*, <http://www.automobile.com/subarus-electric-car-on-sale-next-year.html>.

⁸³ “Wildlife Habitat.” *Subaru of Indiana Automotive, Inc*, <http://www.subaru-sia.com/Company/Wildlife/index.htm>.

eliminating the contribution to the progressive buildup of chemicals and compounds. Natural Step's third step is also apparent in Subaru's practices and ideals. This step involves "eliminating our contribution to the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat)." ⁸⁴ It is tremendously difficult to find direct natural degradation Subaru has caused; however, having such a large community garden and a eight hundred acre natural wildlife preserve indirectly relates to those guidelines.

The second model, "Improving Your Company's Climate Competitiveness", Subaru seems to have also thought along these guidelines because they have managed to make environmentally sound decisions, while also making a profit. One way the company has complied with the first guideline, Quantify Your Carbon Footprint, is recognizing all of the materials that Subaru wastes, but can actually reuse and recycle, creating their zero-landfill status. Information that has not been so readily available is the way Subaru transports their vehicles from the manufacturing plant to the dealerships. Trucking transportation has been notorious for pollution and greenhouse gas emissions, and I have not found information regarding their transportation practices. If Subaru is searching for new methods to improve their image and their environmental practices, quantifying their footprint based on shipping methods should be a priority. The second guideline, Assess Your Carbon-Related Risks and Opportunities, Subaru seems to have followed. This is apparent

⁸⁴ The Natural Step. "The Four System Conditions".

when Subaru entered the low vehicle emissions race along with other car companies. They were able to assess the financial risks and opportunities of making some vehicles low-emission, and decided they can successfully manufacture low emission vehicles and make a profit. This idea leads to the fourth guideline, Adapt Your Business in Response to the Risks and Opportunities. They realized that by taking the risk of spending more money on making PZEV vehicles, they could compete with other companies and that is how they would be able to adapt to the risks and opportunities. Subaru still has room for improvement regarding the fourth guideline, Do it Better Than Your Competitors. While Subaru is one of the few car companies to have zero-waste and a natural wildlife habitat, there seems to still be the need for improvement in their sustainable vehicles. Many would argue that the Toyota Prius is among the most popular hybrid, which concludes that Subaru is not. In order to compete with Toyota and other companies, Subaru needs to re-introduce the PZEV vehicles and prove that they rely even less on fuel use than hybrids.

Although it is known that Subaru intends to come out with the aforementioned electric car, it seems to be a mysterious vehicle. I searched the Subaru website for the R1e, but it was nowhere to be purchased. An article on Automobile.com explains that the vehicle will be expensive and rare, at least for now. The company is not being “overly optimistic about the EV’s take-rate either, so for its first year only 100 units will be produced.”⁸⁵ On a more positive note, however, “in

⁸⁵ “Subaru’s Electric Car On Sale Next Year.” *Automobile.com*, <http://www.automobile.com/subarus-electric-car-on-sale-next-year.html>.

about four years, Subaru predicts that the EV market will have progressed sufficiently to allow the R1e to sell for the equivalent of \$17,500, and perhaps a decade later, the price of such technology would allow the car to be sold for \$13,100.”⁸⁶ This article, although does not specify the year it was published, came out before 2009 because it explained that the electric car was originally supposed to be released in 2009. It is still difficult to find the status of the car today. However, those that are produced are in Japan, because the vehicle was “manufactured to Japanese safety standards and is not legal to import to the U.S. yet.”⁸⁷ Apparently the manufacturers are finding many limitations with the Subaru design. Unfortunately, “For cars like the Stella and R1e, the only way to increase performance right now is to increase the size of the battery pack. Increasing the battery pack size increases weight and cost. It appears that the manufacturers have well noticed the performance limitations inherent with the current Subaru designs, and seem to be working on solutions.”⁸⁸ If Subaru moves forward with the R1e and makes it affordable for a consumer with an average income, it could be a leader among more sustainable automobile companies.

There is also criticism regarding the natural wildlife habitat located at the manufacturing site. According to the article “Greenwash of the week: Subaru’s Wildlife Parking Lot”, it is as simple as filling out a form with your name and address

⁸⁶ “Subaru’s Electric Car On Sale Next Year.” *Automobile.com*, <http://www.automobile.com/subarus-electric-car-on-sale-next-year.html>.

⁸⁷ Mike Allen. “Subaru R1e Electric Microcar Could Be Headed to NYPD: 2008 New York Auto Show Exclusive Test Drive”, *PopularMechanics.com*. October 9, 2009, <http://www.popularmechanics.com/cars/news/4255284>.

⁸⁸ “Subaru Electric Car.” *EVs Roll*. http://www.evscroll.com/Subaru_electric_car.html.

to get a plot of land certified as a natural wildlife habitat. In order to become certified, the application says the applier needs to provide elements of food sources, water sources, places for cover- like a birdhouse, places to raise young-like vegetation and shrub, and sustainable gardening.⁸⁹ This is not an intense application, and it certainly does not prove the company's dedication to the environment. It seems like almost any person could become certified. Therefore, the author believes that it takes no effort or environmental concern to advertise that you work on and maintain a wildlife habitat."⁹⁰

Subaru is doing its part to make up for the fact that it manufactures cars, one of the most environmentally unfriendly products on the Earth today. Cars are currently necessary in certain locations, and as long as there are cars, then it is important for car companies to create the most sustainable vehicle that is technologically feasible. Making cars can be almost as bad for the environment as driving them, so it is also important for companies to manufacture cars in a way that is conducive for a healthy environment. Although there are areas that could be improved, Subaru's zero-waste status, low-emission vehicles, community gardens

⁸⁹

http://www.nwf.org/gardenforwildlife/certify.cfm?campaignid=WH09HSEM&s_src=GoogleAdWordsGrants_Toggle&s_subsrc=habitats_habitatcertification&source=GoogleAdWordsGrants_Toggle&kw=habitat_habitatcertification&gclid=CMGKqJ7SmKgCFRphgwod33KhBg.

⁹⁰

"Greenwash of the Week: Subaru's Wildlife Parking Lot." *The Understory*, August 8, 2007, <http://understory.ran.org/2007/08/08/greenwash-of-the-week-subarus-deer-park/>.

and wildlife habitats, makes it a progressive car company aiming for high environmental standards.

Conclusion

Businesses and Companies are extremely influential because the world is focused on competition and economics. Therefore, humans and the environment are at risk of disease and destruction, and corporate influence needs to create positive change. Increasingly environmental issues will push companies to become environmentally sustainable, in order to respond to this downward spiral. Fortunately, we can already see companies becoming sustainable simply through their connection to the environment. Subaru, Clif Bar, and Method are sustainable pioneers in their industries. They may not be one hundred percent sustainable, but they offer many promising sustainability efforts. I compared them to the well respected Natural Step guide and “Improving Your Company’s Climate Competitiveness (IYCCC)” guidelines found in *Harvard Business Review on Green Business Strategy*. Each company follows each guideline, though not completely. These efforts reveal that the companies are doing more than simply marketing their sustainability. They veer away from “greenwashing” because they legitimately follow the principles produced by environmental professionals. These companies prove that sustainability and success within this competitive economy is possible.

Recommendations

The companies I have studied all have chosen to adhere to sustainable principles because they believe it is their responsibility to do so. Other companies, however, are not so compassionate. It might take more than competition to push companies in an environmental direction. Government involvement may become essential. Companies that are exceptionally large, and have notoriously high carbon footprints, or produce other serious environmental impacts, should be required to have a carbon emission ceiling that only allows a certain amount of carbon emissions per year. Taxes have been previously placed on high carbon emitters who pass their carbon limit. Some companies just find it more convenient to pay the tax than to reduce pollution. Therefore, I do not believe surpassing the carbon should be an option.

Smaller companies may have difficulties becoming sustainable because of their size and budget. They could have the means to follow sustainable guidelines, but they may not have the ability to hire a professional environmental consultant. They would ultimately need to work with a professional in order to see what environmental possibilities are right for them. Therefore, it would be helpful for state governments to have a program, led by environmental professionals, that guides smaller businesses through sustainable processes. Environmental sustainability should be attainable for smaller and larger businesses.

As discussed throughout the paper, local and organic foods are ultimately better for human consumption and the environment. However, these products are

usually more expensive than their conventional counterparts, so companies are less likely to use them. The government should establish policies that provide incentives for companies to source more local and organic ingredients.

Companies should be held accountable just like restaurants. Food Safety professionals give restaurants health rating based on the cleanliness of the facility, and the restaurant is required to post the rating so it is visible to customers. If the restaurants are in horrendous condition, it is usually publicized to warn the public. Companies should be treated the same way. Like LEED certification, environmental professionals could establish and implement an environmental sustainability rating system for companies and businesses. Poor environmental ratings will be announced and publicized, thus discouraging consumer support. Until the company follows sustainable principles, their sales will suffer.

Companies can only succeed in sustainability if they have consumer demands. It would be ideal for consumers to have government incentives to purchase from environmentally sustainable companies, however, with budget cuts and different priorities, the government cannot always be reliable. Increasing consumer awareness is an important initial step. Therefore, non-profit community organizations, like SustainableBusinessAlliance.org, that aim to educate the public about sustainability, could work to increase the knowledge about sustainable companies and products. These mechanisms could include anything from setting up booths in local fairs, to mailing out newsletters discussing alternative companies and products. Coalitions are also important to increase consumer awareness to create change. With enough

organizations like SustainableBusinessAlliance.org working together, environmentally unfriendly companies would more likely be exposed, while environmentally preferable companies will be encouraged. It is crucial for organizations to reach out to individuals who are not aware of sustainable companies and products.

Bibliography

Introduction

ClimateBiz Staff, . "Greenhouse Gases Endanger Public Health: EPA." Greenbiz.com. <http://www.greenbiz.com/news/2009/04/17/greenhouse-gases-endanger-public-health-epa>.

Davies, John. "Greenhouse Gas Emissions from Freight Trucks." Presentation at the National Emissions Inventory Conference, May 16, 2007.

Environmental Protection Agency. "What is Sustainability?." <http://www.epa.gov/sustainability/basicinfo.htm>.

Lash, Jonathan, and Fred Wellington. "Competitive Advantage on a Warming Planet." In *Harvard Business Review*, : Harvard Business Review, 2007.

O'Neill Packard, Kimberly, and Forest L. Reinhardt. "What Every Executive Needs to Know About Global Warming." In *Harvard Business Review on Green Business Strategy*, 21-39. : Harvard Business Review, 2007.

Teuth, Matthew. *Fundamentals of a Sustainable Business: A Guide For the Next 100 Years*. London: World Scientific, 2010.

The Natural Step. "The Four System Conditions." <http://www.naturalstep.org/the-system-conditions>.

Witherell, Kimberly. "Green Is The Color Of Money." Good: Business. <http://www.good.is/post/green-is-the-color-of-money/>, April 5, 2007.

THE FOOD INDUSTRY

Hammond, Elysa, and Mija Riedel. "Moving Toward Sustainability: Working to Reduce Our Ecological Footprint." *Clif Bar Sustainability Newsletter* 4. Winter 2006.

"Hexane Soy." *The Cornucopia Institute*. November 28, 2010. <http://www.cornucopia.org/2010/11/hexane-soy/>

Knowles, Cathy. Personal Interview. October 18, 2010.

Lappe, Anna. "The Climate Crisis At The End Of Our Fork." In *Food Inc.*, Karl Weber, 103-104. New York: Public Affairs, 2009.

Musick, Lisa. "12 Food Additives to Avoid." *The Healthy Reader*.
<http://www.healthyreader.com/2008/06/07/12-food-additives-to-avoid>

Pham, Thoa, Elysa Hammond, and Mija Riedel, eds. "Raising the Bar: All Aspiration Annual Report" 2-14. Berkeley: Clif Bar, 2009.

"Soy They Say". *Crossfit Victrix*. February 14, 2011.
<http://crossfitvictrix.com/2011/02/14/cliff-bars/>

The Institute of Food Technologists. "Food Packaging and its Environmental Impact." April 1, 2007, <http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/editorial/food-packaging-and-its-environmental-impact.aspx>.

The Organic Consumers Association. "Another Take: Exposure to Pesticides." In *Food Inc.*, Karl Weber, 103-104. New York: Public Affairs, 2009.

U.S. Environmental Protection Agency (EPA). "Health assessment document for diesel engine exhaust". Prepared by the National Center for Environmental Assessment, Washington, DC, for the Office of Transportation and Air Quality; Available from: National Technical Information Service, Springfield, VA, 2002, 1-4, 1-5 <<http://www.epa.gov/ncea>>.

CLEANING SUPPLY INDUSTRY

"Air." *Environmental Protection Agency*.
<http://www.epa.gov/lawsregs/topics/air.html#indoorair>

Bardelline, Jonathan. "Seventh Generation, NatureWorks First to Earn USDA based Label." *Gree Biz* April 7, 2011. <http://www.greenbiz.com/news/2011/04/07/seventh-generation-natureworks-among-first-earn-usda-biobased-label>).

"Biodiesel is how we Roll." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/biodiesel>

"Carbon Footpring Modeling." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/carbon-modeling>

"Designing Safe Colors." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/color>

¹ "EPA's Final Guide on Environmentally Preferable Purchasing." *Environmental Protection Agency*. <http://www.epa.gov/epp/pubs/guidance/finalguidance.htm>

Gottlieb, Robert. "Janitors and Justice: Industry Restructuring, Chemical Exposures, and Redefining Work" in *Environmentalism Unbound*. 145-180. Cambridge: The Mit Press, 2001.

"Greensourcing." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/greensourcing>

"In With Green Packaging, Out With Convenience, Consumers Say." *Greenbiz*. June 11, 2009. <http://www.greenbiz.com/news/2009/06/11/green-packaging-out-convenience-consumers-say>

Imus, Deirdre. *Green This!: Greening Your Cleaning*. New York: Simon and Schuster, 2007.

Lawson, Drummond. Email Interview. February 8, 2011.

Lowry, Adam. "Behind the Bottle." *Methodhome*. <http://www.methodhome.com/behind-the-bottle>

"Method Cares." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/method-cares>

"Preservatives." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/preservatives>

"Six Ingredients to Avoid in Cleaning Products" *Natural Resources Defense Council*. <http://www.simplesteps.org/labels/six-ingredients-avoid-cleaning-products>

"The Dirty Ingredients List." *Methodhome*. <http://www.methodhome.com/behind-the-bottle/dirty-ingredients-list>

AUTOMOBILE INDUSTRY

Allen, Mike. "Subaru R1e Electric Microcar Could Be Headed for NYPD: 2008 New York Auto Show Exclusive Test Drive". *PopularMechanics.com*, October 1, 2009, <http://www.popularmechanics.com/cars/news/4255284>.

"Certify Your Wildlife Garden." *National Wildlife Federation*. http://www.nwf.org/gardenforwildlife/certify.cfm?campaignid=WH09HSEM&s_src=GoogleAdWordsGrants_Toggle&s_subsrc=habitats_habitatcertification&ssource=GoogleAdWordsGrants_Toggle&kw=habitat_habitatcertification&gclid=CMGKqJ7SmKgCFRphgwod33KhBg.

"Climate and Your Health: Assessing the Most Serious Health Effects of Climate

Change”. National Resources Defense Council, 2011.

“Environmental Issues Top Challenge for Automobile Industry.” *Environmental Protection*, April 18, 2008, <http://eonline.com/articles/2008/04/18/environmental-issues-top-challenge-for-automotive-industry.aspx>

“Greenwash of the Week: Subaru’s Wildlife Parking Lot.” *The Understory*, August 8, 2007, <http://understory.ran.org/2007/08/08/greenwash-of-the-week-subarus-deer-park/>.

GreenBiz Staff. “Interface and Subaru Partner to Advance Sustainable Transportation.” *GreenBiz*, October 24, 2006, <http://www.greenbiz.com/news/2006/10/24/interface-and-subaru-partner-advance-sustainable-transportation>.

Ivanhoe, L.F. "Global Oil Reserves Are Being Exhausted." In *Global Resources: Opposing Viewpoints*, edited by Charles P. Cozic. 17-24. San Diego: Greenhaven Press, 1998.

Melosi, Martin V. “The Automobile and the Environment in American History.” *American Life and Society*. http://www.autolife.umd.umich.edu/Environment/E_Overview/E_Overview2.htm.

Shiva, Vandana. *Soil Not Oil*. Cambridge: South End Press, 2008.

“Subaru’s Dedication to Green Motoring.” *The Green Motorist*, August 13, 2008, <http://www.thegreenmotorist.com/index.php/subarus-dedication-to-green-motoring/>.

“Subaru Electric Car.” *EVs Roll*. http://www.evscroll.com/Subaru_electric_car.html.

“Subaru’s Electric Car On Sale Next Year.” *Automobile.com*, <http://www.automobile.com/subarus-electric-car-on-sale-next-year.html>.

“Subaru and the Environment.” *Subaru*. <http://www.subaru.com/company/environment-sustainability.html>

“Subaru of America’s Northwest Region Posts January Sales.” *Subaru*. <http://media.subaru.com/index.php?s=43&item=45>

Green, Jeff and Alan Ohnsman “At Subaru, Sharing the Love is a Market Strategy,” in *BusinessWeek*. May 20, 2010, http://www.businessweek.com/magazine/content/10_22/b4180018655478.htm.

U.S. Department of Commerce Office of Technology Policy. *Meeting The Challenge: U.S. Industry Faces The 21st Century- The U.S. Automobile Manufacturing Industry*, 1996.

“Wildlife Habitat.” *Subaru of Indiana Automotive, Inc*, <http://www.subaru-sia.com/Company/Wildlife/index.htm>.