

Case study of Interface Carpet and Fabric Company
Nov. 16, 2005

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In 1994, Ray Anderson, CEO of Interface Carpet and Fabric Company and devout Methodist, had an epiphany about the environmental damage his company, his industry and the current form of commerce is doing to the planet. Since then, Interface has made a commitment to becoming an environmentally sustainable business. Ray Anderson's vision of a sustainable business means first being sustainable, and then actually being restorative.

This case discusses some details of how this pioneering company is "going green", the consequences of the endeavor, including costs and cost savings, and what obstacles were encountered in this noble effort, so the path can be made easier for other companies.

Interface's 7 fronts of sustainability are based on The Natural Step. They are:

1. Eliminate Waste
2. Benign Emissions – no toxics
3. Renewable Energy
4. Closing the Loop This is the next step in step one. Nature works in cycles, there is no waste, there is no garbage. Waste is food or a resource. Rather than current industrial system which uses non-renewable resources that end up as waste, either as pollution or in land-fills. Eventually, Interface will reclaim its own products and use them as raw material for new carpets and fabrics.
5. Resource Efficient transportation – move info rather than materials
6. Sensitivity Hook-up Raising awareness in employees and business partners of all this
7. Redesign commerce to de-emphasize production of goods and instead focus on providing services –e.g. lease carpet instead of selling it. Maintain it and take it back and use it as raw material for new product.

Interface has designed a system of Eco-metrics that allows them to measure the energy inputs and the waste outputs per yard of finished product, so they can track their progress and see which areas to prioritize. From 1999 to 2005, in the Maine and Massachusetts plants, solid waste in pounds per yards decreased by 60%, and green house gas emissions have been reduced by 78%. By their own calculations, savings through their waste minimization efforts in the 5 US plants in 2005 were 40 million dollars.

Efforts, as they say, to climb Mt. Sustainability, fall into 3 categories: Conservation/Waste minimization, engineering changes and the most challenging, product and process (chemical) changes. While most save money, not all do. Using recycled soda bottles to make material is more expensive than virgin plastic, but they do it, “because it’s the right thing to do.”

Every employee receives sustainability training, which emphasizes our negative impact on the biosphere and what individuals can do, especially the little things, like recycling, not letting the water run when you brush your teeth, and driving less, to make a difference. The training also encourages employees to be creative in finding solutions to problems, and it is stressed that anyone can make a contribution.

Heightened awareness has resulted in both small and large changes, and even small changes are valued, because over time, they may have a large impact. Here are some examples.

Conservation/Waste minimization Conservation efforts are everywhere. For years, lights have been motion-activated so no empty rooms are lit. Toilets are water conserving. And because the corporate culture motivates people to be vigilant about sustainability, many suggestions come from employees.

An employee noted that in a dark room only the on and off light switches on the machines were still illuminated and proposed figuring out how to shut these 4 watt bulbs off.

Employees suggested that the bulbs in the vending machines be removed because they are unnecessary. People bring their own mugs to Starbucks to conserve paper. An employee suggested that people bring their own dishes and silverware to the Christmas party so that no disposables are used.

They’ve decreased their electrical lighting needs by painting walls bright white, which required researching which white paint reflects the most light.

Everything that can be reused or recycled is: wooden palettes, cardboard, bale straps, plastic bags and sheets, fiber waste, all metal, oils, newspapers and magazines. Tubes are reused and recycled. Paper towels from the rest rooms are burned as fuel. Waste wood chips from a nearby factory and yarn cones are burned for fuel.

At the Guilford, Maine plant, 80 dumpsters used to be sent to the landfill every year; now they are down to one every 5-6 weeks. Solid waste has been reduced from 300 tons per year in 1997 to 18 tons last year in 2004.

Maintenance in the card room used to be done using a preventative maintenance schedule that would be generated and printed out on a computer. It used lots of paper – 6 months of paper would be a foot high –but because of an attentive employee, this system was changed. The maintenance record is now on one piece of paper on the machine.

Because of the huge electricity costs of running machines, a consultant from the electrical company was called in. Some of the machines are now running slower, down from 9000 rpms to 8500 rpms; it makes no difference in production rates and it saves electricity.

Process Redesign

Looms have been reconfigured to produce far less waste fabric.

Water consumption in the fiber dyeing operation was dramatically reduced. The fluffy, crimped polyester fibers need to be packed into dense 650 lb. cakes in order to be dyed. Warm water is used to relax the wooly polyester fibers which allows them to be compressed. Both the temperature and the weight of the water falling on the fibers are needed for the compression. By redesigning the flow pattern from the water nozzle, using an employee's ingenuity and a brass nozzle purchased for \$8.50, the company reduced water use by over a million gallons of water per year, and saved 10K annually in water and steam cost savings. Through other QUEST (employee staffed) initiatives, water consumption was reduced further by 2 million gallons in the dye house.

Tapping into employee knowledge and creativity are key components to innovations. Sometimes these initiatives are driven from the top – someone notes, for example, that an excessive amount of water is used in the dye process and a team of people will be assigned to brainstorm on the problem. Other suggestions will come from below, like for the Christmas party, for everyone to bring their own place setting, rather than using disposables.

There are numerous ways to make suggestions - through QUEST boxes or telling the team leader. QUEST problems are generally large, and people meet once a week for many weeks. The risk in this process is the frustration that occurs when a problem continues unsolved for a long time. REQUEST is a different, newer format - people meet for a concentrated period of time, for a few consecutive days or solid week, to work on problem. It deals with smaller issues. But the main idea behind both formats is to use employees' problem-solving skills. Further, it is important to have a variety of people in the group, "a bunch of different eyes looking at a problem" so a problem in the weave room will not be composed of only weave room employees, but of a variety of employees. To increase employee effectiveness, one employee requested more training,

because the training gives everyone more tools. Like electricity, it's easy to train people to turn off a light switch, but you need to teach them how to look for air leaks [electricity savings in pneumatic systems]. You need to teach them to recognize other areas of opportunity hidden beneath something else.

Clearly, an educated, aware workforce is one of Interface's resources.

Product and Process/Chemical Changes

A crucial step towards sustainability is product and process redesign. Using recycled soda bottles was an early initiative. It is more expensive than using virgin material, and recycled material has different properties from new plastic. Both the fiber making process and the dyeing process had to be redesigned.

A new design initiative is carpet tiles engineered so that the tile backing can be separated from the front of the carpet and then both can be recycled. Technical challenges exist, but the project continues.

Using recycled material is only an interim step on the climb up Mt. Sustainability. The ultimate goal is not to be making material that needs to be recycled, but rather, to make materials that will behave like nature, and eventually degrade. Interface is pioneering a fiber from corn, that will do just that. There are significant technical limitations in both the material and the dyeing of it. “You need a lot of chemistry that lets you keep the strength for as long as you need it, until you want it to decompose.” But they persevere because it is fundamental to their mission.

The Dye and Chemical Protocol is a crucial feature of Interface’s mission. In the words of Wendy Porter, Director of Environmental Programs at Interface,

We will not use ingredients that are considered toxic and/or harmful to human health, other organisms, and the environment. This includes, but is not limited to carcinogens, mutagens, SARA313 toxic chemicals, clean water act priority pollutants, clean air act hazardous air pollutants, aquatic toxicity, oral toxicity, etc.

While some of our criteria is found on regulatory lists (like the EPA SARA313 list), our assessment is not limited to materials that have succeeded in making it through the public comment process to be included on a list.

In this approach, we not only screen ingredients against certain lists, but we obtain scientific information about the ingredients and/or mixtures that address the criteria we have established. We feel this process allows us to make decisions based upon affirmative information about chemicals to the best ability of the available science today. Often, materials are not listed until long after there is evidence of a concern.

Lack of information about chemicals is a tremendous obstacle for Interface. Even if Interface gets over the “proprietary information” hurdle, and the supplier agrees to tell Interface what’s in the dye, sometimes even the supplier doesn’t know. So, as someone who has worked in the dye lab for 23 years said, “Someone has to harass the dye companies to pay for the test” that would reveal toxic components. And if Interface is not

going to purchase a large amount of the dye, then there's no incentive for the company to pay for the test. Apparently, Interface is now working with 20 dyes that have been approved, but if there were regulations in place that would make this often secret information available, the struggle between the suppliers and Interface would be unnecessary.

The Director of Product Development of the Fabric Division, Patrick Hawks, points out a few challenges that the commitment to climbing Mt. Sustainability entails. Creating excellent fibers, dyes & chemicals that are not petroleum based is a steep challenge. The goal of no longer drawing from the earth to make materials, whether it's to make the material or fuel the process, is "so overwhelming." Commitment of the entire company to Ray Anderson's vision is the only way it can be done, and as previously noted, working with the supply chain is crucial.

And yet an anxiety remains. Once a chemical is thought to be borderline too hazardous to use, there is a worry about changing "to an unproven choice that we know less about." This underscores the necessity of toxicological information before the chemical is in commerce.

Employee Response to Interface's mission

It's one thing for the CEO of a company to have found the religion of environmentalism, it's another project to convert the employees.

For some, sustainability is easy to embrace. An employee, has who worked at Guilford long before Interface bought it, for nearly 30 years said,

"At Guilford, we dropped a lot of shit in the river. It tore us up. We'd tell our friends and relatives, hoping maybe they'd tell somebody. (like the authorities, who didn't do anything to stop it) It broke our hearts. And then, to have a guy come and say, 'We're going to do what's right, well', and she started to cry, "Itmeans a lot."

Another employee described spilling acid into the river and watching the fish try to jump out of the water before they died.

A high level manager said that the sustainability initiative is a "a morale booster, people feel good about it...Most people remember when the river ran red. In general people are proud of it."

Also, the work environment is better. "With the chemicals way back when, you could hardly breathe, there was a wicked odor." Another said, "You don't have to be as nervous around chemicals, because they're friendly."

For most employees, the sustainability mission is a challenge, sometimes exciting and sometimes very daunting. For very few employees, it was annoying, as in “why is all this money going to these initiatives and why can’t we just get a raise?” In general, employee pride and loyalty was evident. The benefit of employees’ feeling that they are part of something important and bigger than themselves is hard to quantify, but certainly adds to the health of the company.

Policies that would further the mission

Discussions with Interface employees also revealed policies that would facilitate Interface’s goals. While the focus of this paper has been reduction of toxics and waste, these other topics are worthy of brief mention.

1. A take back policy, i.e. product stewardship, would have a huge beneficial impact on the way products are made.
2. The electricity generation and distribution system needs to be overhauled to provide incentives to produce energy from renewables. Right now, electricity produced from coal and other dirty sources get first crack at getting on the “energy highway” and electricity from renewables is a last resort rather than getting first priority.
3. Get information on chemicals into the hands of users , which means decent, complete, informative MSDSs, and minimum standards for the people who prepare them.
4. Right now, there is no coherent chemical policy, and most importantly, there is no scale of toxicity, so companies don’t know whether a SARA 313 chemical is worse than a CA prop 65 or a persistent bioaccumulative toxic (PBT) is worse than an endocrine disrupter. A ranking of toxic chemicals would be useful for targeting chemicals for phase-out.
5. Educate the public about sustainability. This has at least 2 components. Currently, consumers are totally blind to the environmental impact of anything they buy. A certification, much like the way organic food is certified, will inform the consumer about the environmental footprint of a product. In addition to certification, Interface employees suggested making sustainability part of core curriculum in schools, so that the next generation would not consider making the destructive manufacturing choices that our, and previous generations, have made
6. Tax incentives to use cleaner production methods and renewables. Or, as a few employees said, “tax things you don’t want, like pollution, and not things you want, like income.”

7. more information about chemicals – ideally – pre-market testing, to assure that the chemicals they use are safe.

8. And finally, recognize companies that are taking risks and doing the right thing.

Lessons from the Market

Mark LaCroix, Vice President of Sustainability at Interface, has interesting observations about the market and how Interface can influence it. “The customer defines value,” he said. “If there are equal products, on quality, price, etc, perceived environmental value is the tie-breaker.” Hence, sustainability is woven into every conversation with customers.

The office furniture business had shrunk by 40% around 2000, but LaCroix said that it was the sustainability efforts that the company started before the downturn that saved them and after the downturn. More recently, Interface won the big contract for the Ford hybrid because the company’s mission. “I’m not a scientist or a biochemist. In some circles, it puts me at a disadvantage, but I know how people think – I know what has meaning in the marketplace”.

Making environmental choices is often a complex balancing act, with no clear good solution. One choice might be using an undesirable chemical, while another might add more green house gases or acid rain. Concerns about PFOA from Teflon that is used to treat fabric have arisen. “You can’t go into a hotel room and not have fabric treated with teflon – you need it for soil repellency. We don’t have an alternative – what do you do? “Commit to get rid of it and hope that innovation kicks in.” For Teflon, Interface doesn’t use it unless a customer requests it.

La Croix notes, “There’s a gap –there are certain performance requirements that the market demands and the only way to meet them is to used materials that we’d rather not be using.” For example, flame retardants in furniture– “you want to create a barrier between the foam and the fabric but the barriers have environmental problems.so there’s a trade off between public safety and long-term public health.”

These are difficult problems, but “we want our customers to ask tough questions. We benefit from that, competitively. We have a great story to tell.”