Week 3: Cambridgeshire Guided Busway

Source: http://www.cambridgeshire.gov.uk/transport/around/usingbusway/default.htm

**World’s longest Busway**

The Cambridgeshire Guided Busway is the longest in the world. It’s 25 miles long in total with guided sections of just over 16 miles. In the first year of operation it is expected that 3.5 million trips will be made on The Busway. This is around the same amount of trips as the current industry leading and award winning Park & Ride services around Cambridge. Other guided busways around the world are:

• Adelaide, Australia (formerly the longest in the world)

• Bradford, UK

• Crawley, UK

• Edinburgh, UK

• Essen, Germany (first in the world opened in 1980)

• Ottawa, Canada

• Leeds, UK

• Thameside, UK

Luton Borough Council is building a guided busway between Luton and Dunstable.

**The Busway track**

The Busway track will consist of a dual lane track with a bridleway for pedestrians, cyclists and walkers running alongside it. Each side of the track measures 2.6 metres and has guide kerbs providing an outer edge. A central reserve separates the two tracks.   Please use the link below to view a cross section diagram of the guideway.

**Guide wheels**

The guide wheels are set to an exact gauge to ensure that continuous contact between them and the guide kerbs is maintained. The very precise track beams and guide wheels are what makes the ride so smooth for passengers.

**Entry and exit flares**

To enter the track a funnel arrangement has been used. The driver steers so that the offside guide wheel maintains contact with the flare. This leads the bus into the track until the point where the nearside flare commences. The bus will then be securely on the track. When buses leave the track both flares are spread apart equally, releasing both guide wheels at the same time.   Tto view the entry and exit flare designs please click on the link below.

**Crossings**

‘Burst-through’ crossings have been used where there is a break in the track of three metres or less. This is a simplified exit with straight parallel guide rails that enable the bus to come out of guidance for a split second before the bus is once again in guidance. A symmetric funnel arrangement ensures that the bus re-enters the track smoothly as well as having a perfectly straight approach to the crossing.

**Trepass prevention**

Measures have been taken to deter unauthorised vehicles from entering the track. The Busway is clearly signed, along with road markings at all entry and exit points and crossings. Physical deterrent systems in the form of car traps at entry and exit points have been used to prevent vehicles driving onto the track.

**Walking, cycle parking and horse riding**

A path runs alongside the entire length of The Busway track. Built to accommodate walkers, cyclists and horse-riders it can be used to commute to and from work and access the Cambridgeshire countryside.

**Bicycle parking**

At most of the stops along The Busway track, covered and well-lit bicycle storage is available. It will also be monitored by CCTV. Bicycle racks are as follows

|  |  |
| --- | --- |
| Location | Number of cycles accommodated |
| Histon | 40 |
| Longstanton Park & Ride | 50 |
| Oakington | 30 |
| Orchard Park West | 30 |
| Science Park | 20 |
| St Ives Park & Ride | 50 |
| Swavesey | 40 |
| Trumpington | 30 |

**Environmentally Friendly**

The Busway runs through areas of natural beauty and protecting and enhancing these areas was important to the scheme. Before starting to build the track 16 new wildlife areas were identified and now provide over 13 hectares of new habitat. Existing habitats were protected by ensuring that any loss and damage to vegetation was kept to a minimum. The impact on the environment was further minimised by using recycled materials whenever possible.

**Bio fuel and Euro 5 buses**

The Busway’s low emission and bio fuel buses will benefit air quality in Cambridgeshire. Stagecoach’s entire fleet of buses run on 100 per cent bio fuel. Buses that run on bio fuel produce up to 80 per cent less carbon emissions than buses using conventional diesel making them a greener, smarter travel option. The bio fuel is made from food industry by-products and does not use any fossil fuels. Whippet Coaches are the other operator running services on the Busway. Their buses meet Euro 5 emissions standards, the top specification.

**Protected Species**

Surveys for protected species were carried out before the construction of the Busway began. Appropriate measures were taken to make sure protected species were not adversely affected by the building work. Prior to site clearance the rare plants of spreading hedge-parsley (Torillis arvensis) and twiggy mullien (Verbascum virgatum) were carefully removed. The plants were then cared for by the Botanical Gardens in Cambridge before being planted back in one of the new wildlife areas where they enjoy the ground conditions. One of the biggest environmental achievements has been creating a large new area adjacent to Over Cutting suitable for invertebrates, including the Grizzled Skipper a rare butterfly. The number of Grizzled Skippers nationally has been declining in recent years and it is a very positive sign that the butterflies have already been seen in the new wildlife area. (In May 2009 eggs were found in the new wildlife area meaning they had begun to breed). A number of ponds have also been created for great crested newts that are scarce nationally.

**Recycled water**

A total of 5,732 pre cast concrete beams have been used to build the guideway. Each beam is 15 metres long and weighs 15 tonnes. They were manufactured at the scheme’s main site in Longstanton. Recycled water was used in all of the concrete production. The water was collected from the guttering on the main shed at Longstanton. It was then stored and subsequently used to manufacture the beams.

**Shredded tyres**

Nearly 1.8 million shredded tyres fill the spaces along the 16 mile track to help the guideway drain. A mixture of soil, seed and ballast added on top of the recycled tyres to help the grass grow. Shredded tyres are not only an ingenious recycling idea but also comply with European Law; tyres cannot be left in landfill sites and must be recycled.

**Wildlife areas**

16 new wildlife areas have been created along The Busway route. These have been specifically designed to recreate the habitats that existed along the old railway line. To make sure these areas are a place where animals can thrive the right plants have been selected; landscape features created, such as ponds; and much of the ballast from the old railway line reused. The project enhances the environment and contributes to the aims of the Cambridgeshire Biodiversity Action Plan.

Week 4: Justice and Economic Systems

Levi Strauss

Source: http://www.levistrauss.com/blogs/government-approved-child-labor

My 9-year-old son’s list of daily tasks is pretty brief. Make your bed. Feed the dog. Do your homework. Pick up after yourself.

Simple stuff.

If we lived in Uzbekistan, it could be a different story.

Each fall, the Uzbekistan government closes schools and forces more than one million children to work in the country’s cotton fields.

This is child labor, driven not by poverty, but by government policy. And why? It earns the government more than $1 billion annually.

Tomorrow, June 12, is [World Day Against Child Labor](http://www.ilo.org/ipec/Campaignandadvocacy/WDACL/lang--en/index.htm). If you’re a citizen of the developed world, it may seem like a distant problem. But remember what’s happening in Uzbekistan … and think about what happens with cotton once harvested.

It’s often made into clothing – like khakis, shirts and jeans.

That brief list of products should tell you why Levi Strauss & Co. cares about what’s happening in Uzbekistan: We don’t want cotton textiles made with child labor used in our products. That’s why we’ve prohibited the use of cotton from Uzbekistan since 2008, when credible sources brought this issue to our attention.

We were the first U.S. apparel brand and/or retailer to prohibit the use of Uzbek cotton in its supply chain, and we’re proud that others have joined us.

But the fact is prohibiting the use of Uzbek cotton in our products is difficult to verify. As a commodity, cotton is challenging to trace as it moves from farm to textile mill to garment factory. We’re working closely with experts in supply chain traceability to address this challenge. It’s important to us as a company, to those of us who work here, and to our customers.

My uncle was a cotton farmer in West Texas. It’s difficult, backbreaking work – for an adult. From my perspective, forcing children to do this kind of hard labor is cruel, especially when you’re depriving them of an education in the process.

Our hope at Levi Strauss & Co. is that, with mounting international awareness and advocacy, we will see real change by the Uzbek government to end the practice of forced child labor in Uzbekistan.

As my son grows, his daily chores will change. Still, he and I can both be thankful that his tasks will never be anything like those currently faced by the children in the cotton fields of Uzbekistan.

|  |
| --- |
| **Posted By:** Cory Warren, Editor, LS&Co. Unzipped |

Case 2: Levi’s response to child labour in Bangladesh

**Case Study: Child Labor in Bangladesh**

Shortly after our Terms of Engagement (TOE) were implemented, factory assessors discovered that two factories in Bangladesh were employing workers under the minimum working age.

While a clear violation of the TOE, Levi Strauss & Co., (LS&CO.) management found itself in a difficult situation when it came to addressing the problem.

The issue of underage labor is a complicated one in Bangladesh — a country where it is not uncommon for a child (defined in the TOE as a person younger than 15 or younger than the mandatory schooling age) to support an entire family on his or her wages. Further, many children born in Bangladesh are not issued birth certificates and due to malnutrition, many people can look younger than their age.

Other companies facing the issue of child labor at the time simply instructed their contractors to fire underage workers. LS&CO. management decided to take a different approach — one that would be informed and guided by the company’s values: empathy, originality, integrity and courage.

Several LS&CO. managers and consultants met with the contractors to develop an agreement on what to do in the immediate situation and how the contractors would operate going forward.

Under the agreement, the factories agreed to continue to pay the already employed underage workers their salaries and benefits while they attended school and offer them full-time jobs when they reached the legal working age. LS&CO. agreed to pay for the students’ tuition and books. If there was no room in the nearby public school, LS&CO. and the factories would rent space and hire a teacher for the students.

The factories also agreed that going forward, their personnel would require any youth who applies for a job to present a school certificate stating that the applicant is 15 years old or older. In the event an applicant appears much younger, a dental examination may be used to establish the worker’s age.

Our approach to this difficult situation earned LS&CO. the praise of Bangladeshi and U.S. government officials, academics and several nongovernmental organizations (NGOs). Subsequently, the Bangladesh Garment Manufacturers and Exporters Association along with other groups set aside approximately $1 million for the education of about 75,000 underage girls who previously worked in factories.

Week 5: How Consumers rate Supermarkets on ethical and sustainability issues

**Supermarkets and Convenience Stores**

Source: http://www.ethicalconsumer.org/buyersguides/food/supermarkets.aspx

**Dan Welch asks: can we separate out the green grocers from the greenwash?**

For many environmentalists supermarkets are a bête noire – palaces of unsustainable consumerism where the carbon-heavy, out-of-season fruits of our globalised economy are disgorged into the waiting car boots of wasteful consumers. At the same time, the UK’s biggest retailers are battling it out for the title of ‘greenest’ supermarket, with new eco-initiatives launched every week.

This paradox is nowhere better illustrated than by Wal-Mart (owner of the UK’s ASDA and Netto), long the target of campaigners of every stripe. Wal-Mart’s CEO announced in 2005 to general incredulity that the big-box monster of American retail was going green and pledged to be a “good steward for the environment”. Whilst many expected greenwash, Wal-Mart’s sustainability programme started attracting support from green luminaries like Amory Lovins, founder of the Rocky Mountain Institute, and Adam Werbach, former head of the Sierra Club, the US’ biggest environmental group. The Wal-Mart conversion showed that huge change was afoot in the sector.

Supermarkets’ share of the UK grocery market has been steadily rising. At the beginning of the 1990s, the UK’s then ‘big four’ took just under half of the British shopper’s spending on food. Today, Tesco, ASDA, Sainsbury’s and Morrisons control around three quarters of our grocery market. Tesco in particular has shown extraordinary growth, now taking a staggering one in every three pounds spent on groceries in the UK. Contributions to this extended report from campaign group Tescopoly and the New Economics Foundation below forcefully map out the negative consequences of that growth.

But isn’t the flipside of that dominance that sustainability initiatives from the big players could have a huge impact? In the US Wal-Mart introduced a sustainability scorecard for its buyers, bringing sustainability metrics into the heart of its sourcing practices. And with Wal-Mart representing 3% of the US’ GDP that’s a lot of supply chain.

Charles Craypo, Emeritus Professor of Economics at Notre Dame University, who has followed Wal-Mart’s ‘greening’ in detail, thinks there are clear limits – on the bottom line. Beyond the win-win of ‘low hanging fruit’ according to Craypo “long-time bad habits” remain, such as allowing toxic run-off at its construction sites.(1) No doubt it’s cheaper to pay the fines than change the practice.

So what are we to make of it? There’s no doubting the huge strides on sustainability – if less on overall ethics – that the best of the sector has made. And there continues to be a sharp contrast with the laggards. But many would argue that the entire business model of the supermarkets, from global supply chains to central distribution hubs, is profoundly and inherently unsustainable.

That’s not simply an environmental cost – with 80% of our food in the UK distributed through that network, in a world of oil dependency and oil depletion it’s also a huge social risk. We are, it is said, nine meals away from mass hunger. But while we live in an unsustainable society, whether it’s through preference, convenience or necessity, many of us do shop in supermarkets. And there is a clear divide between the best and the rest.

**Rating the supermarkets**

Supermarkets impact so many social, ethical and environmental areas – from labour rights in supply chains, to sustainable sourcing, to the refrigerants in refrigerators – that they have all always scored poorly in our ethiscore system. Our ratings were originally designed on the model of ethical investment – allowing consumers to screen out companies involved in, say, the arms trade, or implicated in workers’ rights abuses. Over recent years, the proliferation of corporate social responsibility policies, business sustainability initiatives and fast moving developments in areas like labour rights in the supply chain, has meant we increasingly look to supplement our normal scoring with ratings relevant to specific sectors. In researching this report we have used a sophisticated methodology relating the key demands of civil society groups regarding issues relevant to the supermarket sector to actual policies and practice. This allows us to better differentiate between ethical performance in the sector. We have combined the ethiscores on our main Ethical Consumer table with the sector-specific 'Ethical Policies and Practice' percentage scores to give a combined score out of 100 which is reproduced in the scorecard below. The ethiscores were worth 50% of the total and the sector-specific scores also worth 50%.

**How they score overall**

|  |  |
| --- | --- |
| Co-op | 47% |
| M&S | 36% |
| Budgens | 28% |
| Londis | 28% |
| Waitrose | 26% |
| Booths | 23% |
| Sainsbury’s | 23% |
| Farmfoods | 22% |
| SPAR | 20% |
| ALDI | 19% |
| Costcutter | 19% |
| Premier | 19% |
| McColl’s | 19% |
| Morrisons | 19% |
| Iceland | 18% |
| Lidl | 18% |
| Tesco | 11% |
| ASDA | 8% |
| Netto | 2% |
| The figures in the table above are the overall scores for the supermarkets and convenience stores. They are average scores from our usual ethiscore table and our new sector-specific detailed Policies and Practice ratings table below. |

**The Best and the Rest**

This methodology has confirmed the Co-operative as a clear leader on 47% with M&S also opening up a gap on the rest with its 36% score.  The majority of other players cluster around a 20 to 30% score. These are either the larger players with well-developed ethical policies like Waitrose or Sainsbury’s, or convenience stores which have attracted little attention from campaigners to take their ethiscores down. Clearly falling behind the pack, with scores of 11% or below, are Tesco, ASDA and Netto.

For many issues, even the best corporate policies fell far short of civil expectations. In this case, the benchmark was set by civil arguments, not best corporate practice. For other issues there was no consensus amongst NGOs as to what supermarkets should be doing e.g. labeling air-freighted food. Criteria were impossible for such issue

For the vast majority of issues, we identified criteria that truly reward best practice and punish hollow rhetoric. These criteria have enabled us to get closer than ever before to mapping the truth of corporate sustainability in the food retail sector.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Animal Welfare %** | **Climate Change %** | **Health %** | **Toxics %** | **Waste %** | **Water %** | **Workers' Rights %** | **Integrity %** | **Total %** |
| **Co-op** | 47 | 47 | 81 | 46 | 21 | 42 | 62 | 100 | 56 |
| **M&S** | 37 | 70 | 40 | 46 | 13 | 45 | 39 | 13 | 39 |
| **Sainsbury's** | 45 | 48 | 45 | 14 | 42 | 0 | 34 | 0 | 29 |
| **Waitrose** | 47 | 43 | 32 | 14 | 29 | 14 | 11 | 13 | 25 |
| **Morrisons** | 35 | 29 | 31 | 8 | 24 | 16 | 2 | 0 | 18 |
| **ASDA** | 31 | 27 | 30 | 0 | 7 | 16 | 9 | 0 | 15 |
| **Tesco** | 16 | 45 | 16 | 10 | 8 | 8 | 15 | 0 | 15 |
| **Budgens** | 4 | 12 | 18 | 8 | 12 | 0 | 4 | 12.5 | 9 |
| **Londis** | 4 | 12 | 10 | 8 | 12 | 0 | 4 | 12.5 | 8 |
| **Booths** | 7 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| **Iceland** | 8 | 0 | 21 | 8 | 0 | 0 | 0 | 0 | 5 |
| **Netto** | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 3 |
| **SPAR** | 2 | 2 | 13 | 0 | 4 | 0 | 0 | 0 | 3 |
| **Lidl** | 9 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 2 |
| **ALDI** | 9.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Costcutter** | 0 | 4.3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Premier** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Farmfoods** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **McColl's** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Information was obtained from publicly available sources as well as from a detailed survey sent to the retailers. Where no information was available from either, the company receives a zero score in that category. We received survey responses from M&S, ASDA, Londis, Budgens, Morrisons, and Sainsbury’s.We received partial responses from Tesco and the Co-op. We did not receive responses from Costcutter, Premier, Booths, McColl’s, Farmfoods, SPAR, Iceland, Netto, Lidl, ALDI and Waitrose.

**The results**

This methodology sets the bar extremely high by using an extensive array of criteria. This is clearly reflected in the results. As you can see from the table on the right no company scores higher than 56% overall and several score zero. Only one company scores 100% in any one category (the Co-op for its reporting standards), most scores are below 50%.

There are however some clear leaders in the sector. The Co-op and M&S fair particularly well, scoring 56% and 39% respectively. Sainsbury’s and Waitrose follow close behind with 29% and 25% respectively.

**Animal welfare** The Co-op scores highest in this category thanks largely to its policy on sustainable fish. It says “our goal is to operate our fish sourcing in line with the aims and objectives of the Marine Stewardship Council”.

**Climate Change** M&S is top in this category. It does well across the board – from reporting its emissions, to having a clear policy to only use sustainable palm oil. It also scores well on refrigeration with, for example, commitments to switch all fridges to those using gases with the lowest climate impact.

**Health** The Co-op is also rated top in this category. It has met the Food Standards Agency’s 2010 salt targets in at least 80% of relevant own-brand products and now aims to meet the targets across its entire own-brand product range (including new products) by the end of 2010. It also uses a significant amount of product labelling (e.g. five a day) throughout its own brand range.

**Toxics** The Co-op and M&S came out top in this category. Both have sound policies on pesticide testing and neither use GM ingredients in their food. Both have also made significant steps in selling organic produce.

**Waste** No company did particularly well in this category with Waitrose coming top with just 28%. It scored best largely due to using anaerobic digestion for its disposal of food waste.

**Water** M&S was again top in this section. It has been working with NGOs in the sector, and its own suppliers, as well as managing its own ‘water footprint’.

**Workers’ rights** The Co-op was top in this category due to commitments to recognise trade unions, using the Ethical Trading Initiative code for its own policy, and its continuous and significant stocking of Fairtrade products. It also carries out regular audits and monitors second tier suppliers.

**Reporting integrity** Here the Co-op was top again, this time for using external assurance to declare a top rating for its Corporate Social Responsibility report and having the AA 1000 Assurance Standard (a credible third party).*.*

**Conclusions**

It would be very easy to be negative about these results. Clearly companies have not faired altogether well. The average total score for all the supermarkets is just 12%. However there are several retailers who are making significant steps forward (Co-op, M&S, Waitrose and Sainsbury’s).  This methodology, in all its rigour, provides a clear signal to all the supermarket and convenience store chains that they must do more across the board to ensure the highest standards that civil society expects from them. We plan to carry this research out again in two years to see how companies improve. We only hope that during this period the civil society groups, from which this methodology is drawn, can apply enough pressure to move supermarkets towards a more sustainable future.

*Methodology devised by Will Hodson and Rob Harrison. Research by Jo Southall, Lorraine Otieno, Heather Webb and Tim Hunt.*

Week 6: Case study – Google

**Google: Don’t Be Evil Unless…**

Source: Pearson Education: Harlow

The Google case is separated into six major ethical issues. They are: the privacy of Gmail; the privacy of individuals; Google in China; Refusing Requests from the Justice Department; Scanning Copyrighted Material; and the Role of Click Fraud

*The Privacy of Gmail*

The ethical issue related to Google email system Gmail is that Google searches the content of the free e-mail service and inserts online ads within the text of incoming e-mails that would correspond to a key word or word within the e-mail. Google claims that this is a completely automated system in which no Google employee actually reads the e-mail. A legal issue pertaining to the insertion of advertising is that the Electronic Communications Privacy Act forbids Internet Service Providers (ISPs) or any other organization from monitoring the content of electronic communications unless they are

specifically allowed to do so.

*The Privacy of Individuals*

The ability of Google to find specific detailed information about any subject is Google’s competitive advantage. This laser like searching capability was evident when a reporter from CNETNews.com obtained a wealth of personal information of Google’s CEO, Eric Schmidt. Of course, there is nothing illegal about this search capability but it appeared that Mr. Schmidt did not like having the table turned on him and banned for a year any reporter from CNET to be able to talk to anyone at Google.

*Google in China*

The ethical issue for Google in China is the freedom of search which is related to freedom of speech. Google prides itself on doing no evil, yet when they expanded in China they agreed with the terms of the Chinese government to filter search results by Chinese citizens using Google.cn. Words such as human rights and democracy were filtered from search results with the net result being that the individual would have a very limited number of controlled websites resulting from searches for these terms.

*Refusing Requests from the Justice Department*

In January 2006, Google refused to agree to the request by the Department of Justice to provide information on Internet searches done on Google by individuals. The purpose of the information was to aid the Justice Department in defending the Child Online Protection Act of 1998. The data that the Justice Department wanted to obtain from Google would have been used to determine the effectiveness of filtering software as compared with the protections that were supported in the 1998 act. The Justice Department would have used the data in aggregate and tested the filtering abilities of the software without any specific identification to any individual user.

*Scanning Copyrighted Material*

Google announced that it would scan the pages of books in libraries such as Harvard, Stanford, the University of Michigan and Oxford and have these books available for free online. The problem with this “Google Print for Libraries” program is that Google is purposely infringing on the copyrights of the books. By having these books available free online, Google would have a large negative impact on the book publishers and book authors. As a result, both authors and book publishers sued Google for copyright infringement. Google also had copyright problems in Belgium when they published online copyright material from Belgian newspapers without permission. Furthermore, Google faced copyright issues when they acquired YouTube, which would upload copyrighted videos without receiving permission.

*The Role of Click Fraud*

Google receives their revenue whenever an individual clicks on a sponsor’s web site on the Google web site. Each click corresponds to a payment which the sponsor will give Google. Therefore, the more clicks that occur on a sponsor’s ad, the more revenue for Google.

Click fraud occurs when an individual clicks on an ad on Google’s website with no intention of considering buying anything from that web site. An unethical competitor could commit click fraud by continuously clicking on a competitor’s ad with no intention of buying any products or services. The net result would be the competitor would have to pay Google for “fraudulent” clicks.

This is a critical problem for Google since their whole business model is based on advertising revenue through sponsors’ clicks. If the sponsors no longer trust the integrity of the calculation of clicks used on their web site, they may either refuse to pay a portion of their charges and/or may no longer use Google as an advertising outlet.

Week 8: Case study - Enron

**Case 7: Enron: Were They the Crooked-est Guys in the Room?**

Source: Pearson Education: Harlow

Enron has become the classic case on business ethics. Enron formed after the merger of Internorth Incorporated and Houston Natural Gas in 1985. On January 1, 1987, as part of the merger agreement, Ken Lay became the new CEO. In 1990, Ken Lay hired Jeffrey Skilling from McKinsey and Company as the Head of Enron Finance. By 1995, Enron had become the largest independent natural gas company in the United States. In 1997, Skilling became president and Chief Operating Officer at Enron. Ken Lay’s goal was for Enron to have the same brand recognition as AT&T.

Enron’s long term strategy depended on convincing the public and the federal government that deregulation of the energy industry would create a more competitive marketplace. Energy deregulation effectively “unbundled” the industry value chain so that companies were free to choose which parts to operate. Firms didn’t have to generate or transport energy in order to trade in energy.

In July 2000, Enron released its Code of Ethics policies to its employees. The document was 63 pages long with two additional blank pages for notes. From 1998 to 2000, the total compensation paid to the top 200 executives at Enron went from $193 million to $1.4 billion. The top three executives pay went from tens of million in 1998 to over $100 million each by 2000. In December 2000, Enron announced president and chief operating officer, Jeffrey Skilling, would take over as chief executive from Kenneth Lay in February 2001. Ken Lay would remain as chairman. At this time, Enron stock hit a 52-week high of $84.87.

In March 2001, Bethany McLean from *Fortune* magazine wrote an article titled “Is Enron Overpriced?” Ms. McLean asked a simple question, how does Enron make its money? Enron had shifted from a traditional gas-pipeline business to “wholesale energy operations and services”. On August 14, 2001, Jeff Skilling resigned as CEO and president. Ken Lay stated that there was no accounting, trading or reserve issues that were related to Skilling’s resignation. Enron was in its strongest financial shape in history.

After Skilling resigned, Ken Lay asked employees to write him if they had any concerns. Sherron Watkins sent him a letter with the question “Was Enron too risky to work for?” Ms. Watkins worked in the Accounting Department and had a number of concerns about CFO Andrew Fastow’s partnerships that related to off balance sheet transactions. Fastow used Special Purpose Entities (SPEs) to move assets and liabilities off the balance sheet. As a result, Limited Liability Partnerships were formed by Fastow to transfer debt and risk “off line”. The net result was that Enron was able to produce lower debt levels and hide losses in their financial statements. In addition, the deals were financed using Enron stock.

On October 16, 2001, Enron reported a $618 million third-quarter loss and disclosed a $1.2 billion reduction in the value of the shareholders' stake in the company, partly related to the partnerships run by Fastow. Andy Fastow resigned as CFO on October 24, 2001 after the SEC announced they were going to investigate the financial reporting at Enron. By November 2001, it was disclosed that Enron had potentially hidden billions of dollars in debt and that Enron’s financial statements had not been accurate for years. Ken Lay’s response to the off balance sheet transactions from Fastow was that they were over Lay’s head so that Lay could not explain them.

When Enron filed for bankruptcy on December 2, 2001, it was the final event of the downward spiral for a company that was once ranked 7th in size with 25,000 employees. On January 9, 2002, the Justice Department confirmed it has begun a criminal investigation. On January 23, 2002, Ken Lay resigned as CEO but remained on the board. On February 4, 2002, Lay resigned from the board. On March 14 2002, former Enron auditor, Arthur Andersen, was indicted for destroying Enron-related documents. Later, the firm was convicted of obstruction, sentenced to probation and fined $500,000.

On October 2, 2002, Andrew Fastow was charged with fraud and agreed to ten years in jail in return for co-operating with the government. On May 1, 2003, Fastow’s wife Lea was also charged with fraud and was sentenced to one year in jail. On February 19 2004, Skilling was indicted on fraud charges. On July 8, 2004, Ken Lay was charged with fraud and insider trading. On January 30, 2006, the trial of Ken Lay and Jeff Skilling started. On May 25, 2005, Ken Lay and Jeff Skilling were found guilty of conspiracy and fraud.

***Major Players in the Enron Scandal***

**Name Title Charges Result**

Kenneth Lay CEO/Chairman \*fraud \*found guilty

 \*conspiracy \*died before

 sentencing

Jeffrey Skilling President/CEO \*fraud \*24 years

\*falsifying \*4 months in

 documents/ prison

 \*insider trading

Richard Causey Chief Accountant \*securities \*5 ½ years in

 fraud prison

Andrew Fastow CFO \*fraud \*6 years in

 \*conspiracy prison

 \*money

 laundering

Lea Fastow Andrew’s wife \*conspiracy \*1 year in

 \*fraud prison

David Delainey Head of wholesale \*manipulation \*2 ½ years in

 Energy-trading unit of earnings prison

Paula Rieker Corporate Secretary \*insider \*2 years

 trading probation

Week 9: Case studies: IKEA & NIKE

Source: http://www.naturalstep.org/en/usa/ikea

IKEA

**A Natural Step Case Study**

**Overview** IKEA, a Swedish home furnishings retailer, is known as the world's largest designer and retailer of well-designed, inexpensive, and functional furniture for the home. The company is owned by a non-profit foundation and has grown 15% per year in this decade (FY 1990 - FY 1997 average growth rate). Each year, IKEA has over 140 million visitors to the 140 stores in 29 countries and distributes over 80 million IKEA catalogues. IKEA designs all 11,000 items in the product line. Product manufacturing occurs at both IKEA production facilities and at approximately 2400 suppliers in 65 countries. Today, employees number 36,400 and sales for FY 1997 were $5.86 Billion (US dollars).

In 1990, IKEA adopted The Natural Step (TNS) Framework as the basic structure for implementation of its environmental policy and plan. Using the TNS principles and system conditions, IKEA has made a number of changes affecting its products and services. This case describes many of the results of these changes, along with the issues and events that lead IKEA to adopting the TNS Framework and formulating an environmental plan.

**Background** IKEA was founded in 1943 by 17 year-old Ingvar Kamprad. As a young entrepreneur in south Sweden, Kamprad soon turned his business into a mail order operation selling a variety of household products, particularly furniture. The first IKEA showroom/store opened in 1953 in Sweden.

Kamprad's innovative strategy was to design functional furniture that was easy and inexpensive to build, receive it disassembled at stores, and display it on the show room floor with detailed explanation tickets, making salesperson assistance unnecessary. Employees were available for questions but the customers could choose, order, pick up, transport, and assemble their own selections. Cost savings earned by IKEA were passed through to customers in lower prices (estimated cost savings are 20-50%, compared with the competition). His stores soon became home furnishing centers, also offering restaurant facilities and play areas for children. The strategy continues to drive IKEA operations.

From the start, Kamprad's desire to integrate social value into business practice has strongly influenced the IKEA vision. In December 1976, Kamprad wrote, "What is good for our customers is also good for us in the long run." This objective of responsibility drives the company vision to create a better everyday life for the majority of people. The vision is realized by offering a wide range of functional and well-designed home furnishing items, at prices so low that the majority of people can afford to buy them.

**An Environmental Challenge** In the mid-1980s, IKEA ran into an environmental problem that had significant implications on the firm's furniture line. Tests on some IKEA particle-board furniture products showed that formaldehyde emissions exceeded the standard specified by Danish environmental law (Reichert, 1996).

Obviously this situation created a huge problem for IKEA, given the extensive use of particle board in IKEA furniture products. If the particle board from one product violated the standard and was deemed hazardous, then all products using particle board could be deemed hazardous. Negative publicity required a quick response.

While IKEA was searching for solutions, new German environmental law was announced that required formaldehyde emissions from particle board to not exceed .01 parts per million (the German E-1 standard). IKEA elected to apply the E-1 standard, the strictest in the world, to all markets by requiring that all of its particle-board suppliers meet that standard.

This long-term solution proved beneficial when California voters passed Proposition 65, tightening formaldehyde emissions and prosecuting stores selling products exceeding the standard. IKEA avoided the costs of litigation and retooling or revamping the product line because its company-wide formaldehyde requirement exceeded the California requirement. A visit by company executives to the California Attorney General, to inform him of the IKEA standard, even eliminated the cost of investigation.

In the late 1980s, IKEA and other European retailers were receiving pressure, including calls for boycotts from environmental groups, to eliminate the use of tropical rain forest wood in furniture. These pressures made it clear to IKEA-Group Executives that environmental issues would impact the future credibility of IKEA. Therefore, CEO Anders Moberg, who was personally concerned about the pace and extent of environmental deterioration, appointed Russel Johnson as the manager responsible for environmental issues.

**Commitment to The Natural Step Framework** In 1990, Johnson invited Karl-Henrik Robèrt, founder of The Natural Step, to speak at an internal ECO seminar with the board of directors. Dr. Robèrt was viewed as having a new approach to environmental issues. Whereas other environmental groups were good at describing environmental problems, TNS offered clear guidance on how the problems involved IKEA and what the company could do about them from both a strategic and operational point of view. Based on the awareness created by the TNS four system conditions, the relationship with TNS developed into a commitment to work with Dr. Robèrt to develop an environment-friendly business and contribute to a sustainable society.

Throughout the spring of 1990, a series of group management meetings produced an environmental policy that the IKEA board approved in August 1991. (Section III in tool kit.) The implementation and training program of the policy are based on TNS system conditions.

In many ways, the historical values of the company were a natural basis from which to accept the TNS system conditions and adapt business operations. For example, Kamprad had viewed the minimal use of resources essential to keeping a "low-price picture." Furthermore, he valued innovation in employees and encouraged responsibility and decision-making at all levels of the organization. Therefore, as the company began to develop an environmental program, it became a natural extension to the corporate culture. In keeping with the IKEA vision, Anders Moberg, CEO wrote, "Once and for all, IKEA has decided to side with the majority of people: to create a better everyday life. Therefore, it is our responsibility to do what we can to contribute to a better environment. " (Moberg, 1993)

**The IKEA Environmental Program** In 1992, the environmental policy was transformed into an Environmental Action Plan describing concrete and practical measures for the mid-1990s. As part of the Plan's development process, 25 top managers attended a two-day seminar with presentations given by Karl-Henrik Robèrt, the president for Swedish Greenpeace, an environmental legislative expert, and other environmental speakers. Following the presentations, the managers discussed a proposal for the environmental action plan. Working groups were formed to agree upon the detailed activities for the plan.

The plan is a living document and is periodically updated. Unit managers receive the plan and decide how to focus implementation efforts in their business units. Specific implementation tasks fall into six categories: Management and Personnel, Products and Materials, Customers, Suppliers, Buildings Equipment and Consumable Materials, and Transport.

IKEA seeks to achieve substantial environmental improvements by focusing implementation efforts on structural changes, those that impact processes, methods, or material content. By keeping the efforts focused on structural change, IKEA can maximize the impact of resources invested and reduce the energy necessary to address isolated issues. Some examples of structural changes include: a) the use of the E1 standard for all IKEA products in all sales markets; b) the use of ultraviolet (UV) hardened and water-based lacquers to avoid solvents; and c) the process of optimizing transports to reduce exhaust emissions. In a number of cases, the efforts have resulted in long-term cost reductions. The following sections highlight many results from the six implementation areas.

**Management and Personal** This category recognizes the crucial need for individual contribution to successfully realize the environmental policy. Key tasks involve training and communication. Manager training addresses specific issues or problems in the manager's functional area. Co-worker training includes general information about environmental issues and the IKEA environmental policy and action plan, and "function specific" information about the known environmental problems related to the functional area of the employee.

**Results Achieved**

1. By 1995, IKEA North America implemented an environmental training program, with TNS principles at its core. The training program utilizes the "train-the-trainer" principle. In the first step, the trainers are selected from different organizations and functions within the company and then trained at a five-day seminar. In the next step, these trainers are assigned to educate all management teams and all employees, primarily those having a direct customer or supplier contact. For each group, the extent of the program is adapted to the functional needs. The basic modules include:

* Basic environmental knowledge according to TNS
* The company's environmental program: background, policy, action plan
* Education adapted to the tasks of the group; e.g., range, purchase,

distribution, retail

2. Stores receive the IKEA position on different environmental issues to use for addressing questions or concerns raised by customers. 3. An "ECO-facts" database was created that contains brief descriptions of different topical environmental issues with summaries of known facts. (See Exhibit A for an example entry.) Co-workers have access to the "ECO-facts" database to gather information to address customer inquiries or solve other problems. 4. Some co-workers have voluntarily started local environmental working groups.

**Products and Materials**

This category recognizes that products and packaging must convey a clear signal about the commitment to the environment. Key tasks involve evaluating materials and manufacturing methods to identify the environmental impact of the materials or methods. When assessing the environmental impact of product materials, IKEA applies the environmental laws and standards from the strictest market as a minimum requirement for the products sold in all markets.

**Facts about Formaldehyde**

What is it? Under normal conditions, formaldehyde is a colorless gas with a pungent smell. It occurs naturally in all living cells and therefore also in the human body. Formaldehyde is able to combine with a number of substances to form a variety of end-products, and synthetically manufactured formaldehyde is used in the manufacture of paints, lacquers, adhesives, rigid plastics and a number of toiletry items, such as shampoo and soap. Formaldehyde is normally used in bound form or in aqueous solution as formalin. Formaldehyde also occurs as a by-product of incomplete combustion, for example in car exhaust fumes and tobacco smoke where it is present in much higher concentrations than emitted from, for example, furniture.

How is the Environment Affected? Formaldehyde is quickly broken down in nature and is not accumulated in animals and plants. Formaldehyde can, however, cause allergic reactions in contact with skin or if inhaled. In very high doses over a long period of exposure, formaldehyde is suspected of being carcinogenic. There is, however, no scientific evidence for this.

Is it used in IKEA Products? Formaldehyde occurs in IKEA products as a binder in wood-based materials such as particleboard, bentwood and plywood. It also occurs in adhesives and lacquers, and in textile materials as a component in finishing treatments.

What Rules Apply Generally? IKEA has long worked to minimize the use of formaldehyde. Since 1986, IKEA has applied the German formaldehyde requirement, currently the strictest, for all IKEA products on all sales markets, even where no limit exists. The German limit is such that even persons who are over sensitive to formaldehyde should not experience any problems. Denmark and Austria have similar requirements, while Sweden, Norway, Finland and California have their own formaldehyde requirements.

On it own initiative, IKEA has also introduced equivalent requirements on textiles in spite of the fact that formal requirements exist only in Japan and Finland.

**Results Achieved:**

1. Polyvinylchloride (PVC) is gradually being phased out at IKEA. It has been replaced in wallpapers, home textiles, shower curtains, lampshades, and furniture. PVC has also been eliminated from all packaging and is gradually being phased out in electric cables.

2. IKEA is at the forefront of minimizing the use of formaldehyde in its products, including textiles (despite the fact that formal requirements for formaldehyde in textiles exist only in Japan and Finland).

3. Acid curing lacquers have been replaced with alternatives (e.g., ultraviolet (UV)- hardened and water-based lacquers).

4. A version of the IKEA OGLA chair is made from 100% recycled pre-consumer plastic waste.

5. A product called "a.i.r.," consisting of a series of air inflatable furniture products (e.g., a sofa), has recently been introduced into the product line. Individual components are inflated by the customer, using a hair-dryer, and then individually "stuffed" into a slipcover, that serves as the item's frame. The resulting product reduces the use of raw materials for framing and stuffing. In addition, transportation weight and volume are reduced to about 15% of what is required for a conventional sofa.

6. Powder lacquer is substantially reducing the use of chromium for metal surface treatment.

7. The use of substances such as cadmium, lead, PCB, PCP, and AZO pigments is prohibited or strictly limited.

8. IKEA strives to use only wood from known, well-managed sources: forests that replant and care for the protection of biological diversity.

9. IKEA uses only recyclable materials for flat packaging. In addition, using "pure" (nonmixed) materials for packaging enables easy sorting/recycling.

**Customers**

This category recognizes the need to make it easy for customers to incorporate environmental considerations into purchase decisions. Tasks seek to give customers sound environmental information and provide environmentally-friendly alternatives for acquiring IKEA products.

**Results Achieved:**

1. In 1992, IKEA worked with Greenpeace to develop guidelines for catalogue production. Today, over 80 million IKEA catalogues are printed on non-chlorine bleached paper and use pulp from farmed wood (no old growth). In addition, the company issues only one catalog per year, utilizes 10-20% post-consumer recycled paper, and accepts old catalogues back at stores for recycling. Additional environmental highlights of catalogue production include the use of:

* Digital engraving at the print shop, rather that traditional film reproduction. This process reduces the use of plastic film and heavy metals, and there are no chemicals in the reproduction process.
* Low-toluene content ink and heavy-metal-free ink, resulting in less use of solvents.
* Adhesives that are free from injurious chemicals.

2. Several European stores offer free bus transportation from selected city areas to the store, as an alternative to use of private cars. When public bus transportation became available to a German IKEA store, 33,000 additional individuals visited the store in the following year.

3. Stores will accept product packaging that the customer wants to leave. 4. Organic cotton fabrics are available for custom upholstery.

**Suppliers**

This category recognizes the need to encourage suppliers to adopt environmentally responsible production methods. Key tasks are to encourage suppliers to strengthen their awareness of environmental issues and to support the development of more environmentally sound production technologies.

**Results Achieved:**

1. The process of working with suppliers for the North American market has been challenging. Robert Paolozza, IKEA NA manager responsible for quality and environmental issues, said that most suppliers were "somewhat surprised" at the environmental requirements of the IKEA product specifications. It has been necessary to work closely with suppliers to help them understand and adapt to key environmental product specifications, including restrictions on formaldehyde, lacquers, wood sources (no rain-forest wood). Also, packaging is to be recyclable or reusable and contain no PVC.

2. In Northern Europe, IKEA has organized 2½-day environmental workshops for suppliers. The workshop is offered to suppliers at cost. Participating companies send one or two individuals to be trained to train others on environmental issues. Afterwards, the participators are prepared to conduct training at their own company and to help establish their own environmental program.

3. Several IKEA suppliers in European countries now act according to established environmental standards and use an environmental management program. Standards used for certification are ISO 14001 or the Eco Management and Audit Scheme (EMAS), a European Union regulation. Many more suppliers are in the certification process.

**Buildings, Equipment and Consumable Materials**

This category recognizes the need to work for a better environment in all "we" do. Efforts in this area include evaluating the environmental impact of property, property enhancements, waste, equipment, and materials. For example, the environmental impact of office machines and materials is evaluated, and if more environmental compatible alternative products are available, they should be chosen at the time of next procurement. Similar practices are also used for other kinds of equipment (e.g., fork lifts) and consumable supplies.

**Results Achieved:**

1. Newly built IKEA stores and other owned property are constructed according to environmentally adapted requirements. Every effort is also made to adapt to these requirements when renovating old property.

2. Many European IKEA stores have adopted a "Trash is Cash" program. Trash is Cash takes IKEA packaging materials (e.g., cardboard, plastics), recyclable office waste (e.g., paper), and other store waste (e.g., paints, glass, wood) and recycles it.

3. In 1993 the Gothenburg, Sweden store set up its own on-site recycling facility and today the store recycles almost 85 % of its waste. Its annual solid waste bill, about $35,000 (US dollars) in 1992, is now a small profit. On-site recycling facilities are now established at all Swedish IKEA sites (including stores, offices, and warehouse/distribution centers). Waste is sorted into 16 to 22 fractions, and 80 to 85 % of total waste volume is sorted. The program considerably reduced waste handling costs; total cost today is close to zero. The goal is to reach 100% sorting/recycling within a few years. There also is a prototype in use for on-site composting of restaurant waste.

4. In Switzerland, stores offer customers the ability to deposit old furniture when replacing it with new IKEA furniture. By depositing old furniture with IKEA, customers can save about half of the waste disposal cost (e.g., nearly $100 for a sofa). A recycling contractor dismantles the furniture and sorts the materials into different fractions: wood, metal, textile, plastic, etc. The IKEA goal is to offer this service at a break-even cost point.

5. In 1995, the Philadelphia store was retrofit with fluorescent lighting at a one time cost of $151,000 (US dollars) and expected yearly savings of $85,322 (US dollars) through less energy (in KWH) use. By the end of 1998, all IKEA North America facilities will be retrofit with fluorescent lighting.

6. Some buildings are experimenting with alternative energy sources (e.g., photo voltaic solar systems and use of ground water to heat/cool the indoor climate).

**Transport**

This category recognizes the need for environmentally sound transportation methods. Efforts seek to reduce the demand of non-renewable natural resources such as oil and direct damage to the environment as a result of emissions. Specific tasks achieving positive results over time include:

* Using flat IKEA packaging that takes up little transport volume.
* Using railroads for long-distance transportation.
* Maximizing the efficiency of shipments: reduce the number of transports and the number of empty transports, make maximum use of cargo vehicle space, utilize return transportation, and avoid rush-hour traffic.
* Choosing transportation companies that meet EC-standards on emissions and noise.

**Results Achieved:**

IKEA has continually applied logistic solutions to all distributed goods (e.g., product, catalogue, and fixtures). These items have resulted in real cost savings for IKEA, through the reduction of waste and the efficiency of transport. For example:

* recycling shrink-film.
* using returnable pallets.
* using combi-transports, i.e., goods are conveyed by rail for part of their journey and by road for the remainder of the journey.
* using transportation units in both directions when possible.
* creating a "smart" goods logistics, e.g., using a bookbinding contractor between the printing house and the distribution center, to minimize total transportation distance.

**Benefits, Challenges & Lessons Learned**

To date, IKEA has not focused on measuring tangible benefits of its environmental program. Plan implementation costs have been viewed as operational or product costs. Intangible benefits have affected the employees, customers, suppliers, and product line.

The environmental training program received a fantastic response from employees and good support from management. Employees are motivated to work for a company with an environmental commitment.

Consumers, in all markets, are benefiting from the IKEA adherence to strict environmental standards, regardless of the regulations in that market.

Supplier relationships are strong. IKEA has worked closely with suppliers to help them modify production processes to meet revised product specifications. Such modifications have often resulted in production efficiencies and a reduction in total product cost.

IKEA has made the strategic decision to focus its energy internally on continuous improvements that support the environmental policy and plan. Therefore, external communication of the plan's implementation is made through "proving results."

The greatest challenges that lie ahead are in the areas of sustainable forestry, producers' responsibility legislation (Sweden and Germany), and transportation. The following insights share some lessons learned from the IKEA experience:

* create awareness by involving as many people as possible from the start.
* align your environmental work with your business vision; it must fit your business reality.
* keep it simple in simple words!
* put the environmental issue deep into the line organization - don't departmentalize it; it concerns everybody.
* start with visible actions that show concrete results.
* have a champion, someone whose job it is to focus on the key issues. Managers and coworkers will absorb the "functional view;" a champion can advocate a "systemic view."

"Even on a day-to-day operation," says Russell Johnson, director of environmental affairs, "there is a lot to be done." Basic tasks that will help achieve objectives include:

* avoid complicated specialist terms by using 'every-man' wording and explanations.
* try to find 'down-to-earth' changes and solutions. communicate to employees and others involved.
* encourage employee volunteer activities and behavior changes at home as well as at work.

**Works Cited**

FY 1990 - FY 1997 average growth rate. Estimated cost savings are 20-50 percent, compared with the competition.Kamprad, I., "Testament of a Furniture Dealer," December 20, 1976. "IKEA and the Natural Step," by Joel Reichert, Darden Graduate School of Business Administration, University of Virginia, Feb. 1996 and from IKEA sources. Anders Moberg, Feb. 24, 1993 from Introduction of IKEA and the Environment.

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**Nike**

A cradle-to-cradle approach

Source: http://www.mcdonough.com/writings/inspiration\_innovation.htm

From Inspiration to Innovation: Nike’s Giant Steps Towards Sustainability

By William McDonough & Michael Braungart

Ever since Nike co-founder Bill Bowerman used a waffle iron to cook up a new sole for a pair of running shoes more than 25 years ago, innovation has been Nike's bread, butter, and glory, the not-very-well-kept secret of the company's enduring success.

Bowerman's waffle sole revolutionized the athletic shoe, bringing energy, creativity and new technology to a field that had been running in place for years. Suddenly, runners everywhere were trading in their worn out flats for fast, light-as-air Nikes. First out of the blocks, Nike never looked back. Several years after the premier of the waffle sole came the famed "Air" cushioning system. First introduced in running shoes, it stormed the basketball shoe market on the wings of Michael Jordan and became a standard of both high performance and street fashion.

Now Nike is applying its innovative spirit to a new standard of performance. In the early 1990s, when Air Jordans were all the rage, a small group of Nike's designers and managers were quietly exploring the idea of sustainable development. Centered in the Nike Environmental Action Team (NEAT), this cadre of pioneers began to study Nike's operations through the emerging lens of sustainability, asking questions that would ultimately transform the company's understanding of itself and its mission. What, they wondered, are the long-term environmental and social impacts of the athletic footwear industry? How does a company with annual revenues in the billions (over $9 billion in 2001) and more than 700 contract factories worldwide profitably integrate ecology and social equity into the way it does business, every day at every level of operation?

**Inspiration and Ecological Intelligence**

Sarah Severn, Nike's Director of Corporate Sustainable Development, led NEAT in its early years. Working closely with Heidi McCloskey, currently Global Sustainability Director for Apparel, and Anne Peirson-Hills, Senior Manager of Environmental Affairs, based at Nike's European headquarters, Severn sifted through emerging theories of sustainability and was drawn to the concepts that we have come to call cradle-to-cradle thinking.

Rather than trying to limit the impact of industry through the management of harmful emissions, cradle-to-cradle thinking posits that intelligent design can eliminate the concept of waste, resolving the conflict between nature and commerce. By modeling industrial systems on nature's nutrient flows, designers can create highly productive facilities that have positive effects on their surroundings, and completely healthful products that are either returned to the soil or flow back to industry forever. It's a life-affirming strategy that celebrates human creativity and the abundance of nature-a perfect fit with Nike's positive, innovative culture.

This was key for Severn. "So much of the environmental debate had addressed end-of-pipe problems and end-of-pipe solutions," she said. "And here was a strategy that was turning that on its head. It was not about restriction or reaction. It created positive solutions at the front of the design process. That meshes very well with the culture here. And it's an exciting message. If you talk about environmental management systems and eco-efficiency, people just roll their eyes. But if you talk about innovation and abundance, it's inspirational. People get very, very excited."

And get excited they did. Severn, McCloskey, and Peirson-Hills all began to feel that design for sustainability offered a compelling path to a new level of performance for Nike. Their enthusiasm was contagious. In 1996, just three years after the formation of NEAT, Nike contracted William McDonough + Partners to design a new, state-of-the-art campus for its European headquarters in The Netherlands. A complex of five new buildings, the campus was designed to integrate the indoors with the surrounding environment, tapping into local energy flows to create healthy, beneficial relationships between nature and human culture.

The buildings are organized around a central green and form four smaller courtyards around the perimeter, each landscaped with native plants. The orientation of the buildings and the window design maximize daylight while minimizing heat gain. Ground-source heat pumps use the constant temperature of the Earth for heating and cooling. On the roofs, cisterns collect 3.9 million liters of storm water annually for landscape irrigation and other greywater uses. Outdoors there are volleyball, basketball and tennis courts; indoors, a bistro and restaurant, sunlight and copious fresh air. In short, it's an exceptionally pleasant place to work, to connect with colleagues and friends, to come to know the surrounding natural world-to find inspiration.

Yet, as inspiring as Nike's European headquarters can be, the company soon understood that even the best facilities in the world would not change the design of their products. Could Nike integrate cradle-to-cradle thinking into product design, manufacturing, and customer connections, too?

**Change and Integration**

In the Nike culture, people tend not to flinch at the prospect of change. Like the elite athletes they serve, Nike's leaders are more likely to embrace a challenge and set new standards than look for easy excuses or piecemeal improvements. Sparks of inspiration flying up from new ideas about sustainable business had to be translated into action and innovation across the board, into long-term strategies, new common goals and novel ways of measuring success. Nike was changing yet again.

"We had come to see that our customers' health and our own ability to compete are inseparable from the health of the environment," said Darcy Winslow, one of the early leaders of the sustainability movement within the company. Product innovation and performance remained Nike's first priority, she said, "but our sense of design excellence had expanded to include a commitment to ecological intelligence, to fully understanding the impacts of our products on the natural world."

Nike's first steps toward ecologically intelligent product design began with materials assessments undertaken with McDonough Braungart Design Chemistry (MBDC). Together they sought to determine the chemical composition and environmental effects of the materials and manufacturing processes used to produce Nike's line of athletic shoes. Focusing primarily on Nike's global footwear operations, the process began with factory visits in China, where teams collected samples of rubber, leather, nylon, polyester, and foams to begin assessing their chemistry.

In this ongoing partnership, when Nike and MBDC identify materials that meet or exceed the company's emerging criteria for sustainable design, those components are added to a growing palette of materials that Nike will increasingly use in its products. These 'Positive List' ingredients are those designed to either be metabolized by nature's biological systems at the end of a product's useful life or be perpetually recovered and reutilized for new products. We call the former biological nutrients and the latter technical nutrients. Using natural flows of energy and nutrients as models, these product materials are designed to flow in closed loop cycles, eliminating the concept of waste while enhancing and replenishing both nature and commerce. Biological and technical nutrients, and the systems in which they flow, are the foundation of our concept of Cradle to Cradle Design SM.

Ultimately, Nike is working toward a cradle-to-cradle manufacturing and product life cycle system. Already, a two-phase collaborative effort between MBDC and Nike, launched in 2000, is setting new design guidelines and auditing all of the company's major material suppliers. Since 2001, research has focused on the chemicals used in the manufacturing process and the development of a list of materials that will comprise a positively defined materials palette.

"Our goal," said Winslow, "is to take responsibility for our product through its entire life cycle." To do so, Nike has begun to "align the life cycles of all its footwear, apparel, equipment, and accessories as closely as possible with natural cycles." When that goal is reached, Nike and MBDC will have identified a palette of chemicals and materials with wholly positive effects and designed systems for their perpetual retrieval and re-use. Products will then flow in discrete biological and technical cycles, nourishing the soil or circulating as high quality technical nutrients from producer to customer and back again.

Sound ambitious? It is. But, as we have seen, innovation is what Nike is all about. And the company's publicly stated corporate goals strongly suggest it means business. By 2020 Nike aims to:

"Eliminate the concept of waste in product design, using materials, energy, and resources that can be readily recycled, renewed or reabsorbed back into nature.

"Eliminate all substances that are known or suspected to be harmful to human health or the health of natural systems.

"Close the loop and take full responsibility for its products at all stages of product and process lifecycle, including the end of a product's useful life when consumers are likely to dispose of it.

"Develop financial structures that promote greater product stewardship in design, engineering, and manufacturing, as well as create new financial models to reflect the full cost of doing business.

**New Directions**

Many Nike leaders are energetically pursuing this new direction. As Ed Thomas, Director of Advanced Materials Research, said with typical Nike exuberance: "You've got to take the stake and you've got to plant it somewhere big and you've got to say that's what we're driving for. It's not just going more slowly. It's not just going to zero. It's actually turning around and picking a new direction."

Nike has responded to this self-imposed challenge with a series of far-reaching initiatives aimed at integrating principles of sustaining design into all its day-to-day operations. While ongoing learning programs usher sustainability into Nike culture, the company is also reaching out to its partners-from suppliers to factories to distributors-to develop "a driver of continual improvement" and "a common understanding of the goals of sustainability."

With its Management of Environmental Safety and Health program, for example, Nike has merged health and safety metrics with a Nike management model to create a framework for sustainability suitable for its Asian contract factories. Through a series of training workshops, Nike is helping factory managers and employees in four countries learn how to employ sustainable work practices and eliminate the problematic impacts of manufacturing athletic shoes and apparel.

What has all this training added up to? It is difficult to measure the impact of a cultural shift within a company, and harder still to measure the impact of such a shift on a company's supply chain. But Nike's systematic effort to develop a positive materials palette has begun to produce tangible results, such as the phasing out of polyvinyl chloride (PVC).

PVC, commonly known as vinyl, is a cheap, durable material widely used in building construction and a variety of consumer products, including toys, apparel and sporting goods. As Nike's web site explains, the vinyl chloride monomer used to make PVC is a suspected carcinogen, while incineration of PVC can result in dioxin emissions. MBDC is also very concerned about the many problematic additives commonly used in PVC.

After two years of scientific review, Nike set its sites on the elimination of PVC from footwear and non-screenprint apparel by the end of 2002. In Spring 2002 Nike highlighted two of the company's PVC-free products, Keystone Cleats and Swoosh Slides, as a way to begin a dialogue with consumers about its PVC-free commitment.

Another example of positive materials development at Nike is its increasing use of organic cotton in its apparel products. By 2010 Nike plans to use a minimum of 5% organically grown cotton in all cotton apparel and will introduce its first collection to incorporate100% organically grown cotton this Fall.

A key element of the cotton program is the positive perspective that drives it. "When we looked at what type of beneficial impact we could have on the environment," said Heidi McCloskey, "organic cotton was a key area."

Unlike many apparel manufacturers, Nike is aware that nine of the most toxic pesticides are used on cotton, producing a huge amount of groundwater contamination and community pollution. From a responsible business perspective, those are costs no company would want to bear.

As McCloskey says: "By taking responsibility for the chemicals and materials that make up Nike's products and designing out the things that have long-term cost to people's health and the environment, we're in a much better business position." In the case of agricultural products like cotton, designing in positively defined cotton fiber is, in effect, designing out toxic characteristics and larger negative impacts. For example, by 2000, Nike was purchasing nearly 1 million pounds of cotton annually from organic farmers. This positive alternative to managing the use of toxic pesticides helps build a safe, new industry, provides a quality product to customers, and creates a new niche market for Nike.

**Ongoing Challenges**

As promising as all these changes are there is still much work to do. While the integration of sustainable design principles continues at a remarkable pace, sustainability has yet to truly find a home in the minds of all of Nike's designers. "The task of taking design concepts that are new and complex and putting them into the repertoire of all the decisions a designer has to make in a hectic environment is extremely challenging," said Bill Malloch, General Manager of Footwear Sustainability.

"Nike's in-line designers understand the concepts of sustainability but they don't necessarily know how to apply them today," he explained. "We hope, in the next couple of years, that we will be able to simplify sustainability into core ideas that allow designers to consistently make the right decisions."

There are also the challenges surrounding the management of more than 700 contract factories worldwide. No one is quite certain how to guarantee that every producer is using materials selected from Nike's preferred palette. The story of Keystone Cleats and Swoosh Slides, however, suggests that successfully monitoring product materials is certainly within reach, and could well lead to a deep and profitable understanding of Nike's vast supply and manufacturing network.

Managing materials presents some of the same logistical challenges Nike is facing in its management of labor practices in the factories of its suppliers. These efforts can go hand in hand; as Nike implements its palette of positively defined, healthful materials it creates healthier workplaces and communities.

Though questions abound, we have no doubt that Nike can reach its ambitious goals. It has already shown, time and time again, its ability to turn inspiration into fruitful action. It will do the same as it takes on each new challenge on the path to sustainability. As Nike VP Tinker Hatfield said, the company's discovery of the concepts of sustainable design "woke up this sleeping giant."

"It is a wonderful thing," he said, "for us to take this aggressive, ambitious, powerful group of people….and just change that basic level of expectation to a better place."

We agree. And whether the once-sleeping giant is now striding along in Swoosh Slides, Air Jordans, or organic cotton socks, we've been delighted to see it rise to its feet.

**Week 11: Water**

**An opportunity for growth**

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| Ikognane, the vice president of a group of kitchen gardeners from Mohairiry in Madagascar. |
| Credit: WaterAid / Jeremy Horner |

Ikognane, the vice president of a group of kitchen gardeners from Mohairiry in Madagascar describes the differences that the water project has brought to her community.

"Before the well we had no kitchen garden. Before the well was installed there wasn't anything you could eat on this bit of land there just wasn't enough rain to make things grow. We still don't have the rain, but now at least we can water the plants ourselves. Fifteen people work here now.

The great thing is that, now we have a garden we are able to eat a much greater variety of vegetables than before rather than just manioc, which means we are eating a more varied diet. It is much healthier than before - we know our families will be healthier. We also sell some of our vegetables so make some money in that way too."

**Out from the depths**

Nakwetikya from Ndedo, Tanzania, used to have to collect the scarce water available, polluted with animal and human waste, from the bottom of deep and dangerous hand-dug pits. Sickness and deaths were common. But life changed with the WaterAid project.

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| Nakwetikya, a Masai woman, collects water. |
| Credit: WaterAid / Alex Macro |

"The situation here used to be bleak," she explains. "There was no water and we had to dig pits to find some. Can you imagine what it was like? My legs used to shake with fear before climbing down those holes. There was no choice. If I didn't get water my family couldn't eat, wash or even have a drink.

When I heard that we were going to get clean water I remember laughing, it was so funny. I can only compare it to someone who is in prison for a long time. When they are set free it's the most fantastic experience.

Since having the new water source life has changed in so many amazing ways. My status as a woman has been finally recognised. I have the time to look after my family as we have more time and energy.

Before we formed a committee and prepared ourselves as a community, men just saw women as animals. I think they thought of us as bats flapping around them. They had no respect for us and no-one would allow you to speak or listen to what you had to say. When I stand up now in a group I am not an animal. I am a woman with a valid opinion. We have been encouraged and trained and the whole community has learnt to understand us."

**Changes in Chipongwe**

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| Christin Pede at handpump, Zambia. |
| Credit: WaterAid / Jon Spaull |

The community in Chipongwe village, Zambia, have formed a strong water committee which looks after the handpump and hygiene issues in the village. Christina Pede explains the changes that the new water supply has brought:

"I collect water from here every day. This water is much better and cleaner than the water we used to collect- it is also much closer to my home now, and so this hand-pump is a great improvement on what we had before. Previously when we used to drink the water from the damn we used to get diarrhoea and really itchy skin when we used it to bathe in it. These health problems have stopped now - we don't have diarrhoea or itchy skin anymore.

This water has really helped my family. The distance we walk to collect water and carry heavy loads has reduced a lot. My children are now able to go to school, but in the past by the time they had gone down and collected water they couldn't go to school. Now they can go with no problems at all.

I have even started growing a garden for some food. I am growing tomatoes, rape and other vegetables for my family. Having the water so close means that I can use the water to grow this food too, before we just couldn't do this."