

SUSTAINABILITY IN PRACTICE



We all **TALK** sustainability nowadays, but how many of us **DO** it?

Too hard? Too costly? Don't know where to start? Don't know how to measure?

There are many reasons for inaction. In this issue we tackle the issues of knowing where to start and how to measure, for once these are taken care of, the first two won't seem so relevant any more.

However, as far as the mountain of sustainability is concerned, we are still on the nursery slopes. This is only the beginning but for those who would like to take it further, we present the opportunity to get involved in a structured research program.

Case Study	542-544
How Interface has set itself breath-taking goals of zero waste, zero emissions and others and how this modular carpet firm is tracking its progress—whilst producing better products and being financially successful	
Examples	545
Tracking Progress. Actual data from the Interface website	
Where to next?	546
If it works for carpets, where else may this concept be applied? The list is endless, but of particular importance for asset managers are potential applications in buildings	
New terms for a new age –defined	547
'Natural Capitalism'; 'Product Stewardship'; 'Cradle to Cradle'; 'Bio-Mimicry'	
The Best of ..	548
News, articles and websites on sustainability added to the Virtual Asset Management Community Resource Library this month	

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Case Study

Sustainable Development, The Interface Story

By Michael Field

For details on the author, see the back page

How and Why Interface Adopted the Challenge of 100% Sustainable Business Practices

The Interface group is currently the worlds largest producer of commercial grade carpet tiles, operates in 110 countries world wide and is a publicly listed company in the USA. It is also considered to be one of the companies leading the way towards 100% sustainable business practices. Until 1994 Interface ran it's business, as most still do, paying little or no attention to the environmental impact that they caused and paying total attention to the money that they generated. This is a story of how and why Interface decided to make a change in it's business practices and company philosophy.

In 1994, a growing tide of environmental awareness among our clients, coupled with increasingly awkward questions about our stance on the environment, encouraged a group of Interface managers to hold a conference to review their position. They asked Ray Anderson, chairman and founder of Interface, to provide a keynote address. As the conference date drew nearer, Ray realised that he did not have a 'vision' on the environment that he could share with his team, having never given it a second thought before.

However, just before the conference, someone sent him a copy of Paul Hawken's book, "The Ecology of Commerce". This book changed his life; he did not get half way through it before he realised that he had not only the vision he had been seeking, but also a mission that was to become the driving force of his life. He likened reading the book to "having a spear thrust into my chest". Interface had, of course, always complied with legislation, but Ray realised that simply complying was just another way of being as bad as the law will allow.

He quickly found that business and industry was largely responsible for the environmental damage caused to our planet, but that they could also become a major part of the solution. During his address he delivered Interface's new vision;

"We will be the company that, by our deeds, shows the entire industrial world what sustainability is, in all its dimensions: people, process, product, place and profits, by 2020 - and, in doing so, we will become restorative through the power of our influence".

Setting Challenging and Worthwhile Goals

Ray describes Interface's path to sustainability as "a mountain to climb". Interface have identified seven faces of this mountain which must be conquered:

- Eliminate Waste (Zero Waste)
- Benign Emissions (Zero Emissions)
- Renewable Energy (100% of power used)
- Closed Loop Production (Products stay in the loop and never enter land fill)
- Resource Efficient Transportation (Latest transport fleets with lowest emissions)
- Energising People (both internally and externally)
- Redesign Commerce (Change the way the world does business)

“Goal: to be a company that treads so lightly on the earth as to leave no environmental footprint at all.”

Mount Sustainability

Ray defines the top of ‘Mount Sustainability’ as being a company that treads so lightly on the earth as to leave no environmental footprint at all.

Ray has gone on to give talks to many different groups globally, including a video feed to the world summit in Johannesburg, in 1997 he was appointed Co-Chair of the Presidents Council on Sustainable Development, which advises the White House on environmental policy, he has been described by David Suzuki as an environmental evangelist, in 1996 he received the inaugural Millennium Award from Global Green. It is Rays vision and passion that has spread to every part of Interface, pushing us hard along the path to sustainability. Interface have been recognised with many awards, globally, for our environmental management and progress, this year winning the Queens Award for environmental management in the UK. More detailed information can be obtained by visiting Interface’s sustainability web site at: www.interfacesustainability.com

Setting Goals and Measuring Progress

Whilst a vision and mission gives everyone within Interface a goal to work towards, in order to see any progress towards this goal, Interface needed to put initiatives in place that allowed not only measurement of waste but encourage ways to continually reduce waste and emissions. One such programme, run globally, is called QUEST (Quality Utilising Employee Suggestions and Teamwork). This programme is designed to help Interface in Australia and around the world measure the waste created by manufacture and instigate measures to reduce this waste.

“All of Interface’s waste is eventually calculated into a \$m² (dollar per square meter) format, which enables us to keep an ongoing tally of how well we are performing and makes it very easy to set ourselves targets based on dollar and cent reductions in waste per square meter, per year.”

Once all of these things have been given a dollar figure and totalled, it is simply a matter of dividing this total by the number of square meters produced. This then gives us our \$m² of waste. Some of the things that are measured are:

- **Raw material Usage** – The target is to reduce the amount of raw material used and increase the recycled content.
- **Production Waste** – Target the reduction of waste produced in the manufacturing process.
- **Quality Result** – Reduce the amount of material made to produce first quality product.
- **Non-Renewable Energy** – Any energy purchased from coal fired power plants is considered waste.
- **Natural Gas** – as natural gas is less damaging, only a quarter of the usage is counted as waste.
- **Renewable Energy** – As there are no negative environmental effects, every dollar spent is credited back.

- **Water** – measured and a cost allocated annually. Any increase has a detrimental effect.
- **Transport** – From transport of goods to employee transport the aim is to use the least damaging forms of transport. Employees are encouraged to car pool, walk or ride bikes to work and each person who does so is allocated a dollar figure credit which reduces the running total.
- **Community Projects** – Interface is heavily involved with community projects and any environmental projects that Interface has a financial involvement in, such as tree planting or education programmes, is credited to the running figures.
- **Energy Reduction** – Target the reduction in energy usage. The reduction is credited to the figures.
- **Packaging** – In 2001 packaging was added to the list of things that Interface consider to be waste, as we cannot recover all of the packaging used and can't, therefore, reuse it. This is predominantly made up of timber used in making pallets to ship goods on and cardboard used to package the tiles. Although Interface use recycled cardboard, it is often lost when it passes to the client. Because of this 50% of the costs of packaging is allocated to the figures as a penalty.

“The figures are made available to all employees of Interface and they are encouraged to make suggestions for ways to reduce the waste. This ensures that every employee has ownership of the initiatives.”

The costs of waste for Interface in Australia, from 1997 - 2002 per square meter were;

1997 - \$1.28m² (No packaging cost allocated)
 1998 - \$0.93m² (No packaging cost allocated)
 1999 - \$1.34m² (No packaging cost allocated)
 2000 - \$0.98m² (No packaging cost allocated)
 2001 - \$0.90m² (packaging costs allocated at \$0.18m². Total is therefore \$1.08m²)
 2002 - \$0.77m² (packaging costs allocated at \$0.19m². Total is therefore \$0.96m²)

There is no such thing as smooth sailing on the road to sustainability and every now and then a problem causes the figures to move in the wrong direction (as seen between 1998 and 1999). As soon as these problems are identified, we make changes to remove them.

A number of Interface's production facilities throughout the world run on 100% renewable energy, some have their own solar arrays and others use sky lights to light the facilities during the day. All of these small steps are taking us further along the right path by increasing the amount of renewable energy that we use and decreasing the total energy requirements. The technology used to produce the products is also something which is looked at very closely. Interface are currently the only carpet manufacturer in Australia that operates a 1/12 gauge production machine. This production machine has one of the smallest 'back stitches' of any carpet production machine in the world. The back stitch is the yarn which is behind the primary backing and therefore never walked on. The 1/12 gauge machine allows us to produce far higher quality products, but use less raw materials in the tufting process as it is not being wasted in the back stitch.

Interface in Australia now have products with a significant amount of Post Industrial recycled content, and Interface world wide are investing in research to move towards a product that is fully recyclable.

One of the Primary goals is that none of our carpet goes to landfill. ■

Examples of Measurement and Tracking at Interface

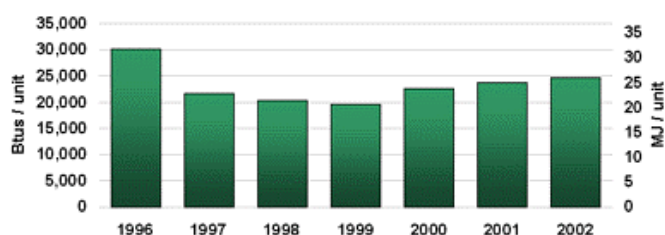
<http://www.interfacesustainability.com/prog.html>

Ed: One page cannot possibly do justice to the wealth of information and ideas that you will find at this excellent website. I personally have spent several hours and I have been enormously impressed by their commitment, shown by the fact that whether the figures go up or down, they are faithfully reported—but if they go up, the company wants to know the reasons why in order to get them back on track. **They do not profess to have all the answers** but you will find dozens of GLOBAL and LOCAL metrics reported—**there just has to be something here for everyone to draw from!**

What Gets Measured Gets Managed

At the core of Interface's Sustainability Efforts is a measurement system that enables us to understand our impact and change our behavior for the good of the environment. At the facility level, the metrics are very specific and detailed. At the corporate level, these numbers are used as indicators which help us answer the question, "Is our business making progress in its quest to become sustainable?" In the next section are some key indicators in the

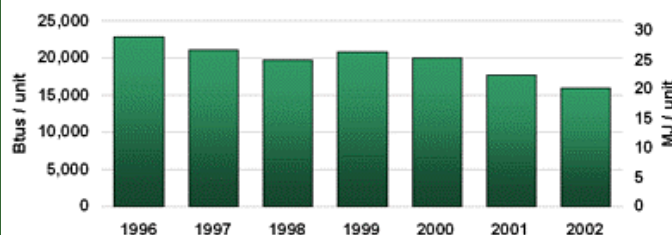
Total Energy Consumption - Fabric Manufacturing
(per linear yard)



Interface Comment:

Total energy consumption per linear yard of manufactured fabric is down 18% since 1996. The upward trend in 2000 was due to the purchase of the Chatham fabric manufacturing facility in North Carolina, which had a higher normalized energy consumption than our other fabric manufacturing facilities. Total energy consumption excluding the Chatham facility is down 31% since 1996. Since Interface's acquisition of the Chatham facility in 2000, energy consumption per linear yard at that facility is down more than 6%.

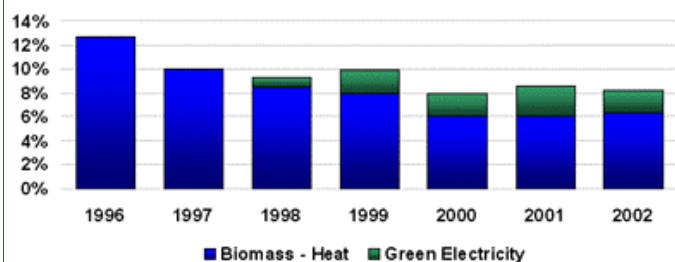
Total Energy Consumption - Carpet Manufacturing
(per square meter)



Interface Comment:

Improved efficiencies and conservation efforts have reduced the total energy required to manufacture carpet by 30% since 1996. *(Ed: Other places on the website tell you, in detail, how they did it!)*

Energy from Renewable Sources
Percentage of Total Energy



Interface Comment:

Today, more than 8% of our total energy consumption comes from renewable sources. The Guilford of Maine facility uses biomass in the form of wood chips that are a waste product of local businesses. The energy derived from biomass has been reduced over the past several years because of increased efficiency in the boilers using biomass as a fuel source.

We continue to use green electricity as part of our overall strategy to increase the use of renewable energy. Two facilities currently have photovoltaic arrays onsite, and four facilities purchase certified green electricity.

WHERE TO NEXT?

Could the 'cradle to cradle' concept applied by Interface (pp 542-546) be extended to **Office Fit-Out**? A small group of researchers have joined together to produce a background paper and seek expressions of interest and support by others. In brief, the idea is this:

Towards the Goal of Zero Waste

Whilst recycling and resource recovery will assist in the reduction of waste, 'zero waste' or waste avoidance represent a long-term goal. A key element of this strategy is the elimination of waste through optimal design of products and activities, with product stewardship being at the top of the waste hierarchy. Product stewardship schemes, whereby products may be recycled for new applications rather than going to waste, have substantial promise in terms of reduced raw materials and waste - especially where products remain the property of the producer and are *leased* to client organisations. However, whilst there are reportedly some successful examples in the consumer product area such as photocopiers (Fuji Xerox), such schemes are not widely practised. The exploration and application of this concept presents opportunities to position Australia at the leading edge, internationally.

Possible Application to Office Fit-Out

The idea is to explore how barriers associated with the application of this product stewardship / leasing concept, pioneered by Interface Inc, may be overcome, and the theory and practice applied more widely in the building industry and beyond (e.g. manufacturing). It is proposed to focus initially upon the products, materials and processes associated with office fit-out and refurbishment, as these appear to generate a large amount of the building and construction waste stream. Recognising that achieving the goal of product stewardship may be a longer-term exercise, the project is also being structured to gain shorter-term evolutionary improvements in present practices.

Proposed Scope of Project

It is proposed to confine the study initially to a typical office floor (say 1000 m² area) of a multi-storey building (say 15 stories). Assume the floor consists of shell only, namely perimeter envelope of external walls and windows, floor slab, and ceiling slab. The lifts and toilets will not be part of the scope of this investigation.

The research project will focus on the **fit-out** of this theoretical interior and its components (modular and demountable where possible), including floor coverings, ceilings, light fittings, partitions, screens, workstations, shelving, loose furniture, filing cabinets, reception counter, electrical and telecommunications services, hardware, signage, landscaping, environmental technologies and the like.

The scope of the research will involve the following disciplines:

- Business/management/accounting: financing, interest rates, cash flow, risk;
- Design: product design, interior design, architecture;
- Building: project management, procurement process, building economics;
- Environmental economics;
- Asset and facility management: refurbishment, life cycle costs, churn.

Want to be advised of, or be involved in, the project?

Contact Dr David Ness on 0401 122 651 Or by email to <ness, david@saugov.sa.gov.au)

NEW TERMS FOR A NEW AGE

Natural Capitalism

According to Paul Hawken 'Most businesses still operate according to a worldview that hasn't changed since the start of the Industrial Revolution. Then, natural resources were abundant and labor was the limiting factor of production. But now, there's a surplus of people, while natural capital – natural resources and the ecological systems that provide vital life-support services – is in decline and relatively expensive. The next Industrial Revolution, like the first one, will be a response to changing patterns of scarcity. It will create upheaval, but more importantly, it will create Opportunities. Business must adjust to these new realities. Innovative companies are already doing just that. They're profiting and gaining considerable competitive advantage – and their leaders and their employees are feeling better about what they do, too. They're in the vanguard of a new business model – **natural capitalism**.

This is also the title of a new book on the subject by Paul Hawken, Amory Lovins (the inventor of the long lasting, energy saving lightbulb!) and L. Hunter Lovins. You can buy it, or access it online at <http://www.natcap.org/>

Editors Note: Although I trained as an economist, I seldom read economics books, I find most of them too boring. A major exception has always been Paul Hawken. Read him! Read anything by him: it's worth it!

Product Stewardship

This is a production method whereby manufacturers retain responsibility for the raw materials that they use, ensuring that they do not end up in landfill. Manufacturers that commit to product stewardship design for a longer initial life, and design for re-use of product and of components. See EOI from the Academy of Sciences exploring the current development of this concept in Australia and overseas — back page.

Cradle to Cradle

Another expression of product stewardship - that products never find their way to 'the grave' or landfill, but are continuously 'kept in the loop' being reprocessed and re-used.

Bio-mimicry

Nature is designed as a circular flow, from seasonal re-birth where last year's growth dies and becomes food for the next season of growth, to the food chain itself. Industrial sustainability aims to mimic this circular flow instead of the linear flow – from nature to product to land-fill – that we are currently following.

'On Ikley Moor Baah'tat'

Incidentally, man may think he is at the 'top' or 'end' of the food chain. But there is no end! It is a circular flow. This is expressed in the old Yorkshire folksong "On Ikley Moor Baah'tat" [On Ikley Moor without a hat] where a young lass, Mary Jane, is advised not to go out on the moor without a hat because she will catch her death of cold, die, be eaten by worms and the worms would be fed to the fish and the fish, in turn, eaten – and so we come to the end of the song "And so I will have eaten thee!" Circular flow!

THE BEST OF..

Articles, Websites and News on **Sustainability**
posted this Month to the Resource Library at www.amqi.com

Contributor of the Week

Michael Field is the National Sustainability Manager for Interface and he has been working in the environmental area for about 2 1/2 years. He has had a number of papers published in the 'Sustainable Development Insight Magazine and has just finished co-writing a paper with David Ness for the CIB 2003 conference, to be held in Queensland in November. Originally a Finance Director, he now regards himself as an Industrial Ecologist. He would love to discuss environmental issues with anyone! Michael is also a member of the Virtual Asset Management Community.

Article: **Business of Today and Tomorrow.** By Michael Field

The Problem

To produce US\$802 million worth of products, 1.224 billion pounds of materials from Earth's stored natural capital is needed. Of the roughly 1.2 billion pounds, about 400 million are from relatively abundant inorganic materials, mostly mined from the Earth's lithosphere (its crust). However, about 800 million pounds are petro-based, coming from either oil, coal or natural gas. The worst statistic of all is still to come: roughly two-thirds of that 800 million pounds of irreplaceable, non-renewable, exhaustible, natural resource was burned up - two-thirds, that's about 540 million pounds per year! - to produce the energy to convert the remaining one-third, along with the 400 million pounds of inorganic material, into products.

The fossil fuel is gone forever! It has been changed into carbon dioxide and other substances, many of them toxic, from burning it to create energy to drive the industrial process. These waste products are, of course, dumped into the atmosphere, to accumulate and contribute to global warming, to melting polar ice-caps, and some day, in the not too distant future, to the flooding of many coastal cities and pacific islands. This is not to mention the airborne pollutants that we all inhale on a daily basis that contribute to the number of cancer and respiratory disorders that we see increasing year by year.

The Solution? Well, for this you are going to have to read the article!

Keyword: sustainability

Websites:

Both the Natural Capitalism and InterfaceSustainability websites can be directly accessed from "Great Links" on the www.amqi.com website.

News:

An Expression of Interest was released yesterday (Aug 4) by the Australian Academy of Technological Sciences and Engineering for an investigation into "The Stewardship Feedback Loop—the impact of extended producer responsibility on design and production'. In brief, the academy proposes that the study will examine how a selection of OECD countries experience regulated or voluntary actions that link the design and material phase of production with extended producer responsibility and the propensity for recycling of goods. It will then analyse the obligations placed on or taken up by Australian industry to facilitate recycling of material in their products, and a report on progress made and future prospects. Finally, recommendations for improving the feedback loops will be developed from the study material. Access the EOI with full details in the Resource Library at www.amqi.com;

keywords; sustainability; product stewardship; product design