



CLOSE THE LOOP

Responsible Design For a Finite Planet

Grainne Aldred

Contents

Introduction	3
Consumerism	4
- Consumption Habits	5
- Understanding the Consumption Cycle	5
- Anti-Consumption and environmental Movements	6
- Greenwashing	7
Environmental History	8
- The Environmental Movement	9
- Rachel Carson	9
- First Things First Manifesto	9
- Global Awareness	9
- Earth Day	10
- Victor Papanek	10
- What's Happening Now?	11
Materials and Processes	12
- The Design Process	13
- Myths and Confusion	13
- Is it really Necessary?	13
- Is Digital More Energy Intensive?	13
- Materials	13
- Is Recycled Paper the Best Sustainable Option?	13
- Alternative Materials	15
- Printing	15
- Binding	16
Putting it Into Practice	17
- International Student Poster Competitions	18
- Poster Campaigns	18
- Anna Garforth	20
- Happily Ever After	21
- Up-Cycling	23
- Antiform	24
- Packaging	25
- Scientific Visualisation	26
Conclusion	27
Bibliography	28
Appendix	30
- A: A Feast of Waste	30
- B: Design Council	30
- C: Footprint Interview	31
- D: Glossary	33
- E: Christopher Scott Interview	35

Introduction

I once was told a very inspiring story about a hummingbird (Dirt: The Movie 2009). In this story, there were a group of animals faced with a huge forest fire. Most of them were overwhelmed and could only stare transfixed as they watched their forest burn. It was only the hummingbird who decided to do something about the fire, and went backwards and forwards as fast as it could, collecting water in its beak to drop on the fire to try and put it out. The bigger animals, like the elephant, which could carry much more water in its trunk, watched the hummingbird, helpless. They said to the hummingbird, **“What do you think you can do? You’re too little, this fire is too big, you’re wings are too little and your beak so small, you can only take a small drop of water at a time.”** But as they continued to discourage him, he turned to them without wasting any time and told them, **“I’m doing the best I can.”**

In the news and media we are constantly bombarded with problems facing the earth. In the summer of 2010, the year was on track to be the hottest year on record (Vidal 2010), with rising reports of climate-related disasters, such as the flooding in Pakistan and intense heat-waves in Russia. Like the animals watching the forest burn, all this news can totally overwhelm a person and make them feel powerless, but this doesn’t mean the problem should be ignored. I feel that one person can make a difference, and by making a difference, whether large or small, we can then inspire others to do the same.

Through becoming more aware of climate change and the impact it is predicted to have on our future, I have also realised how the field of graphic design has a big impact on the Environment and its natural resources. In choosing to explore the topic of sustainable design, I aspire to learn how I can make a difference with my own designs and methods of working, now and in the future. I also hope that this will inspire others to do the same.

I intend to begin my research by taking a look at consumerism. Consumerism is something that is without question a big part of every culture world-

wide and I want to find out what effect this is having on the environment and what part design plays in this.

I am then going to look at some of the key figures and events in the history of the environmental movement, such as designer Victor Papanek, the first photograph of earth from space and the Earth Day event in 1970. The green movement has also paved the way for the contemporary sustainability movement, therefore I am going to look at the focus of sustainability in design today and how it has evolved to shape the way of design for the future.

To complete a project with a low environmental impact, there are important things that have to be taken into account throughout the design process. From the design stage, to printing the piece and then onto eventual disposal, there are several key things that need to be considered along the way:

- Is the project even necessary as a tangible form or can it be distributed digitally?
- Can waste be designed out?
- Is the production sustainable? When printing the piece, how can the impact be reduced through choices of inks, materials and processes?
- If the piece is designed to be kept and cherished by the consumer has it been designed to last so that there is no need for it to be replaced further down the line?
- Is the piece recyclable/biodegradable?

I am going to look closely at all of these areas to build up my knowledge of improving the environmental impacts of design and production. This is something that can then be used as a reference guide in my own design projects in the future.

My next task will be to look at some of the innovative design works out there today from designers who are putting sustainability into practice. I will look at what processes and materials they have used, how they are putting out a green message and how they

are raising awareness of environmental problems we face using strong designs with impact. More and more companies are realising the benefits of a focus on sustainability and want to tap into this niche in the market through good design. I am going to look closely at advertising campaigns and packaging to see how it reflects company’s environmental and ethical values successfully.

To conclude my research, I am going to discuss the key things I have found out about sustainability within graphic design. This will include a look at the future of design and what is expected of designers with regards to climate change, and a discussion regarding the technologies in the design practice I believe need to be improved to give it a more sustainable future.



Consumption Habits

Consumerism is something that is now deeply rooted into our traditions and culture. From buying Easter eggs at Easter, rushing out and buying stacks of presents and gift wrap at Christmas (Appendix A) and birthdays to blowing thousands of pounds into the air in the form of fireworks on bonfire night. We are surrounded by advertising that tells us buying things will make us happy. For example, I was recently travelling behind a bus when I noticed an advertisement for the Trafford shopping centre in Manchester. On it were the words "Get Happy", and intertwined into the text were pictures of handbags, shoes, lamps and gifts.



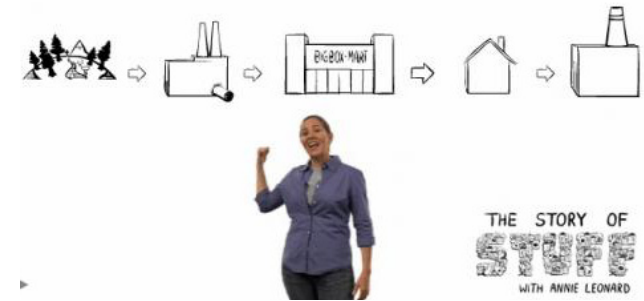
(BJL, 2010)

"Shop till you drop" and "shopaholic" are some of the humorous phrases associated with the compulsive ritual of shopping. However, they become less amusing when you consider the potential consequences of our self-worth being measured by how much we consume. On a larger scale, even a country's success is measured by the amount of goods and services it produces for consumption within a year, which is defined as the country's Gross Domestic Product (GDP). After the September 11th terrorist attacks on America, when George Bush addressed the nation, he suggested that people **"go out and shop."** (Leonard, 2007, p.9)

The problem with this mentality is that while high GDP may mean a healthy economy, it doesn't necessarily mean a healthy society or environment. Resources are being used up and thrown out at an accelerating rate and this is bad for the planet, and essentially, bad for us. Worldwatch Institute (2010, p86) discuss alternatives to this measure saying **"What is really needed is to provide satisfying lives with less economic activity, raw materials, energy, and work required."**

Understanding the Consumption Cycle

The *Story of stuff project* (2009) explains the journey of the products we consume; they move along a system (the materials economy) from extraction, to production, to distribution, to consumption and on to eventual disposal. In this video Annie Leonard explains that this is a **"linear system and we live on a finite planet and you can't run a linear system on a finite planet indefinitely."** She shows the systems interaction with the real world and the people who live and work along it and how it is constantly bumping up against limits all along the way. Even after the journey that all of our stuff has gone through, according to Annie, the amount of products that remain in use six months after purchase is a mere one per cent. It's shocking to think that we work on such a wasteful, damaging system. But this hasn't just suddenly happened. It's been going on for years. In fact, it was designed to happen.



(*Story of stuff project*, 2009)

Braungart and McDonough (2008 p.17) discuss the history of the industrial revolution, specifically RMS Titanic of 1912 and how it symbolises the infrastructure the revolution created:

"This infrastructure is powered by brutish and artificial sources of energy that are environmentally depleting. It pours waste into the water and smoke into the sky. It attempts to work by its own rules, which are contrary to those of nature. And although it may seem invincible, the fundamental flaws in its design presage tragedy and disaster."

So, like the Titanic with its enormous size, building dreams and hopes of technology, future and wealth, we too as humans are building a future based on an industry that creates these dreams and goes against nature in doing so. This way of living, like the Titanic, which was seemingly indestructible, is headed for disaster.

With the industrial revolution, came notions like "planned obsolescence" and "perceived obsolescence". These were penned by American Industrial designers and writers after World War II, to increase the demand for consumer goods and boost the economy.

Planned obsolescence is when a product is designed so that it becomes useless to the consumer as quickly as possible, so that they throw it out and replace it with a new one. But manufacturers weren't satisfied that this was the only way to sell their prod-

ucts **"If we are to create obsolescence...and find ourselves making products that last too long, we must rely on something besides mechanical deficiencies to create a replacement market."** (*Retailing Daily*, 1957 cited in Packard, 1961, p.103) This is when perceived obsolescence came into play.

Perceived obsolescence is when the look of a product is changed so that your current product looks noticeably dated in style, so as to convince us to throw away something that is perfectly useful. This can be seen clearly in the fashion industry, but it also relates to all kinds of products for example mobile phones where the look and style is constantly being updated.

Aren't the fundamentals of design to make something better or improve ways of life? So if products are constantly breaking, ending up in landfill, polluting the air we breath and leaving the customer feeling unfulfilled, then designers aren't living up to their job description. We have to question what we design and how we design it.



(DuraBooks, 2010)

Adopting this cradle to cradle way of design, where by which **"waste does not exist"** and instead prod-

ucts **"provide nourishment for something new"** can be the solution to shape a prosperous future for our planet. This means creating products from materials that biodegrade and become food for the biological cycle. Or create products of technical materials that stay in **"closed-loop technical cycles, in which they continually circulate as valuable nutrients for industry."** (Braungart and McDonough, 2008 p.104)

To set an example of how this *cradle to cradle* way of designing can be achieved, Braungart and McDonough's book was published by *DuraBooks* (2010). This is a patented technology of producing waterproof books that are highly durable and up-cyclable. The synthetic paper can be melted down and reused infinitely as part of a closed-loop cycle. *DuraBooks* are also non-toxic and safe for children.

Klein (2000 p.6) describes how we are surrounded by branding and advertising in our public spaces in her book, *No Logo*. She talks about the extent global corporations go to, to compete for the hearts and wallets of consumers who buy their products and are also seen advertising their brand from head to toe. With items such as food that used to be bought locally from a shopkeeper you had formed a personal relationship with, brands try and use mascots instead to build up a fake personal relationship to the brand **"in an effort to counteract the new and unsettling anonymity of packaged goods"**.

Anti - Consumption and Environmental Movements

On a more positive note, Klein also explains how there are growing anti-corporate movements battling against consumerism. "Culture Jammers" are trying to make people consider and question the branded environment in which they live in, through hacking websites, taking to the billboards with spray paint and creating spoof ads to try and disrupt this mainstream way of thinking. 'Adbusters' are a good example of a magazine which is doing this, and making great impact with a cult following around the world.



(Adbusters, 2010)



(Adbusters, 2010)

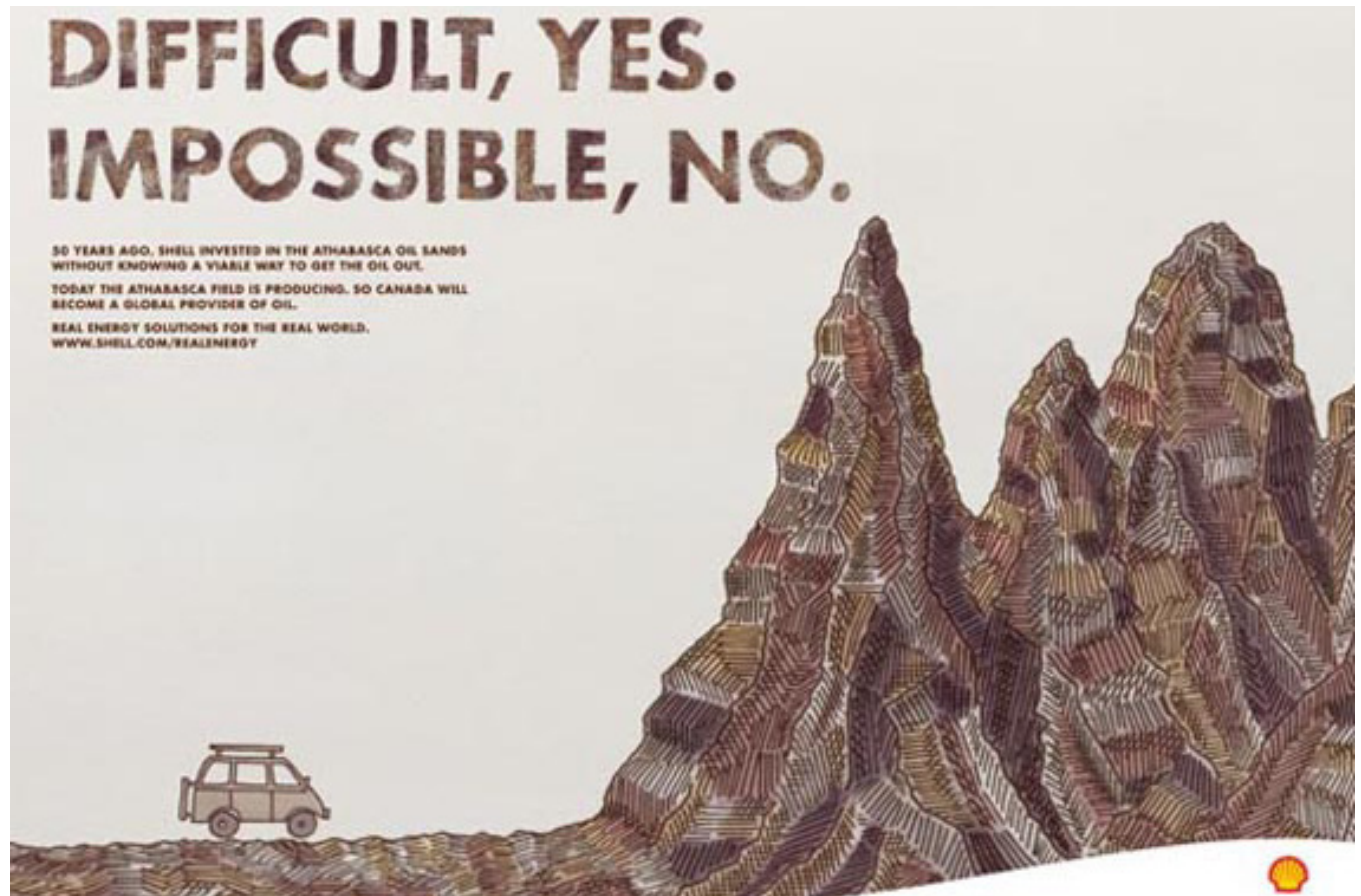
Greenwashing

Because of the impact of these anti-corporate and environmental movements, a lot of companies are realising that having a green image is becoming quite important. However, instead of changing their practices to become more sustainable, Boehnert (2007, p.44) tells how **“Illustration can be used as an effective green-washing tool by companies more eager to appear to be working towards a green agenda than actually doing anything about it.”** All this confusion for the consumer as to whether to believe a company is green or not is jeopardising the effectiveness of real green companies and design.

“Scepticism about Greenwashing means that only three per cent of consumers think that retailers are open and honest about their actions. However, A third of those surveyed believe green credentials are exaggerated to curry customer’s favour.” (Naish 2008 p.38)

A fine example of greenwashing is from petrochemical giant Shell. Their adverts, showing flows coming out of their factories, is very misleading to customers. Friends of the Earth agree and have said that **“it is insulting to those communities in Nigeria and Durban that are suffering as a direct result of Shell’s polluting activities”** (Griffiths, cited in Creative Review, 2007, p45).

Shell also tell us in another advertisement that the company is extracting oil from sand in Athabasca Canada. Griffiths observes again that **“Shell are investing in ways to extract increasingly difficult-to-find oil”** and would be better putting that money into **“developing a bigger renewables department, when everyone recognises what a pressing issue climate change is.”**



Above: (Brown, 2007, p.45)

Right: (Parra and Paul Cathedral, 2007, p.45)





The Environmental Movement

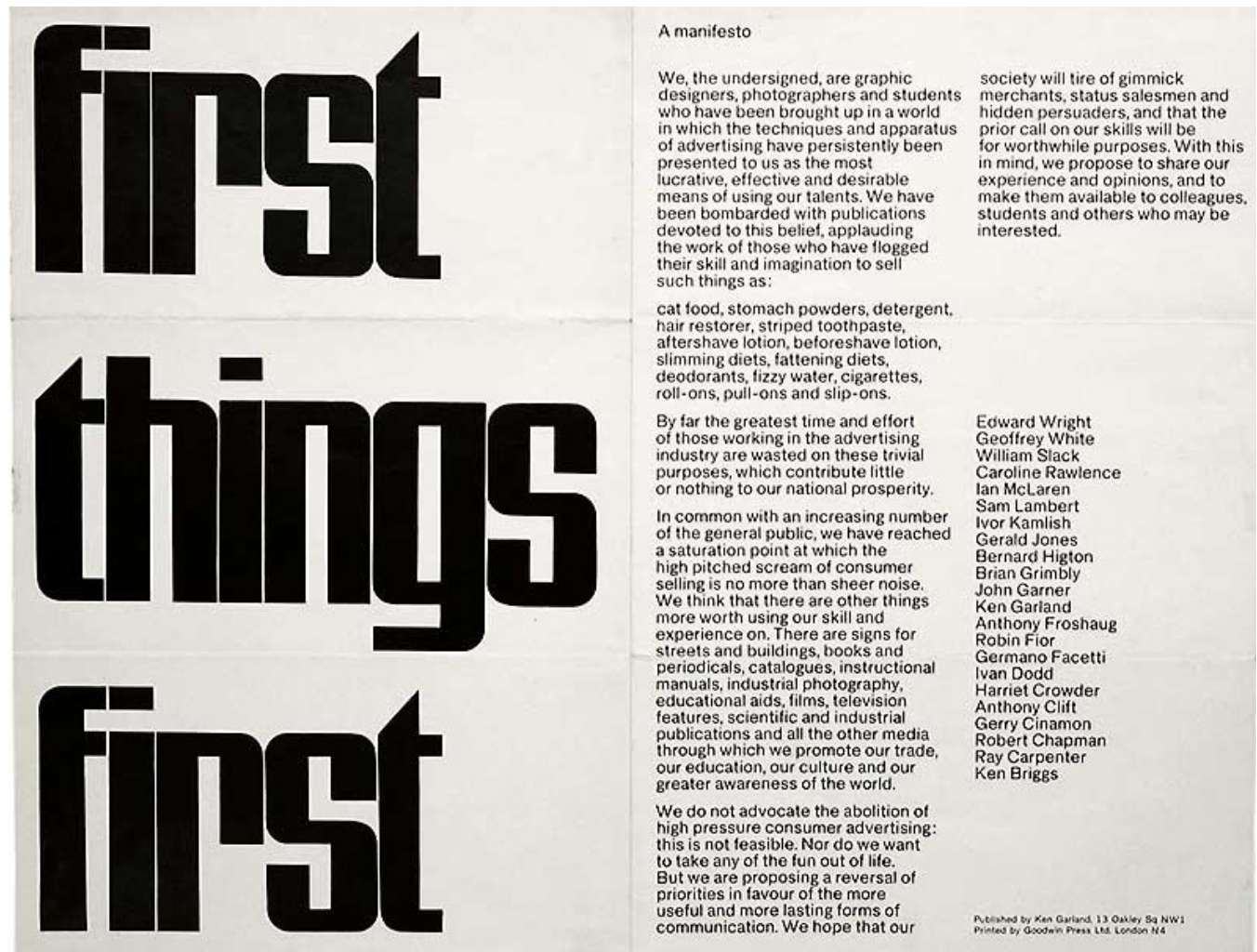
Now that we have a better understanding of the system we work on and its threat to the planet, we can look at some of the positives. From as far back as 1730 in India, when 363 courageous members of the Bishnois tribe were slain for protecting their forest by "tree hugging" (Good News India, 2000), There are people and movements that have made history by reacting to this squandering of resources and demonstrating the importance of nature.

Rachel Carson

Carson (1963) brings to life the concept that the planet we live on is fragile and that we as human beings are destroying our life system. Her book, that went on to be printed in 30 different languages, touched a lot of people and caused a lot of controversy. American biologist Paul Ehrlich said that "**Rachel Carson has to get the main credit for the start of the modern environmental movement because she was one of the first ones to point out one of the really serious environmental problems, that was the over use of pesticides.**" PBS (2010) A lot of scientists in the pesticide industry tried to mock and discredit her work, but she was later backed by President Kennedy, which resulted in the chemistry industry being put on the defensive, and later resulted in the nationwide banning of DDT.

First Things First Manifesto

British Designer, Garland, et al. (1964) helped draft a manifesto *First Things First* on an evening in December 1963 at the Institute of Contemporary Arts. This manifesto was then published in 1964. Ken and the other 21 creative signatories expressed how graphic designers skills and talents are wasted on "**trivial purposes**" to sell things like hair restorer, slimming diets and cat food "**which contribute little or nothing to society**" they hoped that society would instead give up on "**gimmick merchants, status salesman and hidden persuaders and call on our skills for better use.**" This links back to con-



(Garland, et al. 1964)

sumerism, and shows that for a long time graphic designers have had concerns over the negative effect of what it is they are advertising. They propose a "**reversal of priorities in favour of more useful and more lasting forms of communication**" that would see their skills being put to use for the greater good.

Global Awareness

Stewart Brand, writer of *Whole Earth* magazine, as a student visualized what Earth would look like from space. He was certain that a photograph of earth from space would be entirely different to a painting of Earth and would show the earth in a new light, almost show it as an Icon. In 1966 he produced simple badges with the slogan "**Why haven't we seen a**

“photograph of the whole Earth yet?” PBS (2010) and distributed them to students, senators, NASA and as many places he could think of, to get the message out there. So that when people did get to see a photograph of Earth they would know it was important. In 1969, Apollo 9 captured the first images of Earth from space. This made people put into perspective how small our earth is and made them relate it to weather and climate.

The Sierra club is an organisation dedicated to protecting what remains of the forests, wildlife and marine eco-systems of the British Columbia in Canada. When looking back at their history, they state that it is no coincidence that they emerged the same year that pictures were taken of earth from the moon. They go on to say:

“The first photographs of a beautiful green and blue globe, spinning slowly in the blackness of space, pointed to the fragility and solitude of the planet we call Earth. For the first time, many realized that the Earth’s resources were not limitless--and that we could not continue to squander them with abandon.” (Cox, 2009)



(NASA, 1969)

Earth Day

Many environmental movements sprang up as a result of the photograph of earth from space. Within a year, Gaylord Nelson, governor of Wisconsin and passionate conservationist, suggested that there be teachings of environment all over the country. And that is how the preparations for earth day started. On April 22nd 1970, Earth day was celebrated in cities all across America. Collectively it was the largest demonstration in American history, with some events gathering half a million people and an estimated 20 million across the country. It really brought to life the Environmental movement. People from all different sectors of the environment, who didn't realise they had anything in common before, saw that they shared common values and suddenly felt part of this revolution. After the event a great support was shown from the government as well, and Earth Day resulted in the birth of the Environmental Protection Agency of the United States and the passing of the Clean Air, Clean Water, and Endangered Species acts. Earth Day has also gone on to be a yearly celebration on April 22, worldwide.

Victor Papanek

Papanek (1971) is renowned in the history of environmental design. He passionately explains his message of how design should be about creating solutions that address key problems, without creating new ones for the future. There is a raw, controversial truth to his writing, that got his messages noticed and why his book is a must-read for designers today. He states that:

“Advertising design, in persuading people to buy stuff they don't need, with money they don't have, in order to impress others that don't care, is probably the phoniest field in existence today. Industrial design, by concocting the tawdry idiocies hawked by advertisers, comes a close second.” (Papanek, 1971, ix)



(AP/Wide World Photos, 1970)

(top) Students at Tulane University in New Orleans branded the oil industry as “polluter of the month,” spraying a white-clad demonstrator with oil from squirt guns.

(bottom) At Pace College in New York, a student protesting air pollution in City Hall Park “smelled” a magnolia blossom through a gas mask.

What's Happening Now?

Today, an increasing number of clients approaching graphic design agencies are realising that becoming more sustainable is as beneficial for them as it is for the planet. This means that the Environment is becoming a source for innovation and provides a unique competitive edge for designers that can give clients this advice and experience. (Appendix B)

DesignWorks (2010) set in the green, "**inspirational landscape**" of the Lake District say that "**As a business we're aware of how important sustainability is and we support organisations that protect the environment**". They have done many projects that focus on or promote sustainability like work for Friends of the Lake District, Big Green Event and SLACC (South Lakes Action On Climate Change.) Also Carbon Creative set in Salford, Manchester pride themselves as a low carbon company and as part of their tree planting scheme they plant a tree for every new customer.

Design plays a big part in the way people see the world, and influences people's choices on what they consume. We have an opportunity as designers to make positive differences in the world through effective design with a message. In an interview by Heller (2003 p.56) his interviewees say "**design can change the world. It may not be huge, all-at-once, sweeping change, but over time we can chip away with one idea at a time.**"

Big corporate companies like Coca Cola, in the word's of Papanek, use advertising to "**persuade people to buy stuff they don't need**". However, they are now changing many of their methods to become more eco-friendly. They have invested in huge bottle recycling plants in America and are constantly looking into ways to make their packaging more sustainable.

Coca Cola have introduced a "PlantBottle" which is made from 30% plant based material and is 100% recyclable. This is one of the big steps they are taking towards a sustainable future. They are also seen supporting environmental causes "**Coca-Cola is proud to support Hopenhagen, a movement to**



(Ecosalon, 2009)

empower citizens to help create a better future for our planet by working together to combat climate change." (Coca Cola, 2009)

In these advertisements Coca Cola use natural colours and textures to give a positive, green feel. They have created an image that shows that a sustainable future is a much more happy picture, and gives something to hope for.





Materials and Processes

The Design Process

When I first started thinking about sustainability in relation to design, one of the biggest things that daunted me and made me really question whether design could ever be a sustainable practice was the materials and processes we routinely use in our work.

I started my research process by visiting Footprint in Leeds. They are a workers co-operative that was set up to provide printing to the highest environmental and ethical standard. My concerns were acknowledged when I was told in an interview (Appendix C) **"the printing process itself, making something permanent, is in itself not eco as it is anti-nature."** However, even though Footprint admit this, they still want to offer a **"less bad"** option to people. I admire them in stating **"(We) struggle to say that we are an eco-friendly printers as we're not, we are just less bad, we are just striving to be as sustainable as we can be."**

I have realised along the way that graphic design itself can never really be an eco-friendly profession, as it is in itself making something that is **"anti-nature"**. The best thing I can do is to try and find out the most sustainable choices and methods available for designers. Looking closely at the processes of design and thinking about the final designed artefact. The more aware and familiar designers become with using these choices as part of the design process, then it will increase their availability and be easier to figure out which technologies need to be improved to try and strive to make the profession as sustainable as it can be.

Myths and Confusion

This section has been particularly hard for me to figure out. I have been faced with people arguing myths about recycled paper being bad for the environment. I have been told by one designer from a successful UK graphic design agency; Scholey (2010), that people are bombarded with sustainability too much and it gets boring. Also he stated eco-friendly printing

inks may be made from natural dyes, but they are probably cutting down forests somewhere to grow the crops to make them. All these myths associated with eco-friendly choices can make trying to be sustainable quite confusing and difficult. I have been at the stage where I'm questioning, what is the point? And more importantly this brought me onto the question of what is the point of graphic design?

Is It Really Necessary?

One of the biggest things I feel graphic designers need to get used to doing at the start of any project is questioning what is the real use and intent of the end piece. Does it really need to exist? And if so, in what form does it deserve to exist?

"So much of what designers produce is wasteful. Do we really need those 10,000 new leaflets, any more than we really need the snazzy new product they're advertising?" (Thomas.Matthews, cited in, Roberts, 2006, p.130)

With the advance in the use of technology and internet it might work just as well as a digital format. So, for example, with publications like newspapers and magazines that are usually only read once or twice is it really appropriate for them to be printed if they are going to have to be disposed of pretty quickly? With new technologies such as the kindle and iPad maybe the future of such publications is a digital one? The term 'junk mail' is a testament to where designers really can make the wrong choices.

As part of Creative Review's (2007, Vol 27 No.4) *Its about time we did something about sustainability and the environment* Issue, Grundy (2007, p.22) designed a spread to show the ecological issues involved in producing an edition of the magazine. This is a really simple, well presented, visual diagram which shows the issues of chemicals, paper, ink and plates in a format that is really easy to take in. In weighing up all these consumptions the carbon footprint of Creative Review is equivalent to 1.17 tonnes per edition.

Is Digital More Energy Intensive?

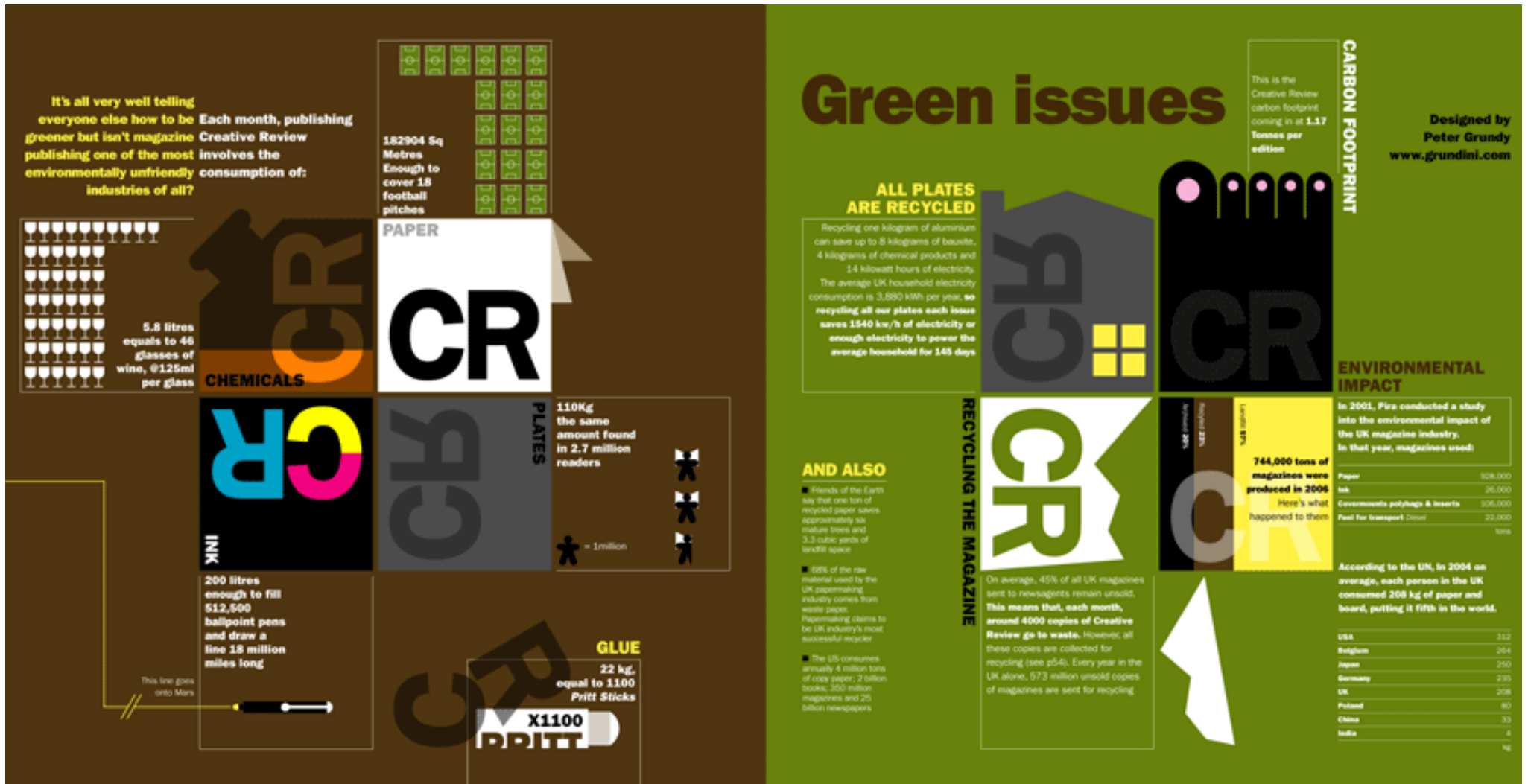
With the digital option comes the debate about whether digital or print is most energy intensive. With a lot of technology and investment going into improving renewable energy sources, the option that stands out the most as the simplest sustainable choice is the digital option. If you switch on your computer and log on to the internet to read your monthly magazine subscription, it does use up a lot of energy, but if this energy is coming from a renewable source such as wind or solar power then surely less damage has been done. Also, in the digital world, things like 'junk mail' can be blocked whereas in the print world the user has the problem of disposing of the item themselves.

Materials

The paper industry is at the heart of the graphic design profession, and it is also one of the biggest polluters of the natural environment in the modern world. A big demand for paper is meaning that masses of forests are being chopped down. According to WWF (2010) **"12-15 million hectares of forest are lost each year, the equivalent of 36 football fields per minute"** Anyone who has seen imagery of earth from space and understood that we don't live on an infinite planet and in fact the earth we live on is pretty small in scale, should be able to realise that this is a big problem. Not only do forests act like the lungs of our planet, they also sustain natural habitats, animals and communities worldwide. According to Smith (cited in Sherin, 2008, p.43) it is: **"no secret in the print and paper trade that the role graphic designers play is incredibly important. I know this to be true, and I believe the responsibility for environmental progress rests heavily with the design community."**

Is Recycled Paper the Best Sustainable Option?

There are lots of myths related to recycled paper,



(Grundy, 2007, p.22)

one being that its impacts on the environment in its extraction and production are similar to that of virgin paper. When I visited Footprint I also asked them about the paper they choose to use. They admitted that **“recycled paper leaves a huge pile of toxic sludge, which is masses of energy, masses of pollution but it’s still the best that we can manage.”** They are right about this - the recycling paper process does involve a lot of energy and end waste, but compared to virgin paper extraction and production it is a lot less harmful to the environment. Firstly, it creates less demand for logging and deforestation. It also uses less energy and fewer chemicals, reduces the amount of paper sent to landfill and supports our country’s recycling plants. This reduces the future need for more incineration plants, which put dioxin, the most harmful man-made toxin known to science (Pravada, 2005) into the atmosphere.

Alternatives Materials

Footprint stated that their ideal paper choice would be **“tree-free, made out of cotton, wheat, hemp, rags, all of that stuff is much better”**. The reason Footprint don’t often use these materials is that it is very hard for them to get hold of. This is mainly due to low demand, which means that there is less choice about the quantities and the prices are usually a lot higher. So to make these choices much more readily available more people need to be aware of the benefits and use them.

In my research I have found out that there are lots of exciting new ways to make paper, from more raw and sustainable materials. The core ingredient in paper is cellulose which is found in all plant types. Leaves, cotton, hemp, straw, bamboo, sugar cane, vegetable starch and even elephant and reindeer dung have all been successfully developed as an alternative ingredient when making paper.

One of my favourites examples is “plantable seed paper” (Botanical Paper Works, 2010). The paper is made from post-consumer waste, collected from local schools and businesses, and infused with wildflower seeds. The seed paper composts away when planted, leaving flowers and no waste. This adds a really



(Ele Dung Gift Bags, 2010)



(Botanical PaperWorks, 2010)

natural texture and gives meaning to an environmental concept.

There are key things to question when choosing materials of any type:

- Where the materials are sourced, is this a sustainable resource?
- What are the impacts of the extraction and production of these materials?
- Are the materials harmful or toxic for people who come into contact with them in the production stage, the target audience it is designed for and also for the environment in which it is eventually disposed into?
- Could the use of materials be reduced in any way?

These same rules can be considered when choosing plastics, card, labels and all sorts of packaging. The more people ask these questions along the design process the more aware they become of their projects impacts. Also, asking these questions to others such as suppliers and printers raises awareness of the need for this information.

Printing

When researching environmental printing, I was pleased to find out that the print industry has an activist movement all of its own (Start Radical Printshops, 2010). There are several well established and successful printers across the UK that have set up on the values of providing printing at the highest environmental standard.

These printers are the pioneers of the environmental print world, have developed and grown with the new technologies in greener printing and have been given well deserved accreditations such as Greenmark, ISO 14001, EMAS Green Dragon and FSC, (Appendix D). They have set the standards for other printers to follow with many printers now using energy from renewable sources.

es and taking steps to reduce their carbon footprint.

Some of the innovating new ways to print to look out for are waterless printing, low-alcohol printing, temperature regulated printing and plate-to-plate technology. Sherin (2008) has a great section on some of these innovating new printing technologies in her book *SustainAble*.

It's always worth looking for a printer that is local and has green accreditations, and asking what they are doing to reduce their environmental impacts. Clark (2010) runs UK based website *Lovely as a Tree*, which lists printers that she has personally checked against environmental standards herself.

In an Issue of *Eye magazine*, Esterson (2007) discusses how green issues are redefining the world of print:

"In the future we will see more development in the way printing technology can help the industry print fewer copies using sustainable materials, while causing less waste and creating the smallest possible carbon footprint in the process."

Binding

I really like the eco binding idea for *Concrete Hermit* magazine by Studio Emmi (2010). It shows another fun use for elastic bands and paper clips, it also allows for the magazine to be easily updated and edited using the same durable cover for minimal waste.

One of the other most environmentally friendly methods of binding is staples. They are a good choice as they are easy to remove during the recycling process and then can be recycled themselves.

The binding methods which are bad news for recycling is glues as they can be pretty toxic and can contain VOC-releasing solvents. Also cotton thread can be difficult to remove so stitching is not a good option.



(Footprint Samples, 2010)



(Studio Emmi, 2010)



Putting it into Practice

International Student Poster Competitions

Along this journey of finding out about the potential that graphic design has to make a positive difference for a sustainable future, I have started to find more confidence in my own design work and find my own voice. I have realised as a student that there are lots of competitions out there to inspire students to take on these issues and raise awareness through the forms of visual communication such as poster designs.

I recently entered my own poster design "lung tree" into Skopje international "ecoLogic" poster competition. I was overwhelmed to find out my poster design was selected as one of 100 finalists out of 1610 entries from across the world. As one of the finalists, my poster is currently in exhibition in the museum of the city of Skopje, Macedonia. Not only has this given me a great confidence boost it has also connected me to other designers with a similar interest in designing to communicate change and raise awareness.

"This cultural project is unique of its kind in Macedonia (sic), aimed at uniting the creative potential of students from academies worldwide and using their design and language of art in social awareness campaigns." - (Macedonian Information Agency, 2010)

Through the power of social networking sites one of the other finalists, Christopher Scott from Northern Ireland, came into contact with me. Through this connection I have been able to find out about his similar journey with design and sustainability (Appendix E) and have found great influence in his work and success.

I can relate to the fact that he was **"never happy with any of the boring 'brand me' projects"** he was being given. He has advised me to enter lots of competitions and always take advantage of any success you have and use any failure to inspire to do better. He also feels that **"concept is paramount to good design...research and understanding your**

subject matter is important."

I like the simplicity of Christopher's designs and they show how simple designs that are backed up with good research into the subject matter usually can be the most powerful. This power to create visuals also means we **"have the power to make people aware of issues and problems."**

This poster competition is formed under the basis of giving students the opportunity and fulfilment of putting their skills to a worthwhile use. It shows that there is a need for more opportunity for students to be able to work on more rewarding projects.

Poster Campaigns

Posters are a powerful visual tool to catch peoples attention and raise awareness of issues. Environmental groups such as Friends of the Earth have had some great success in raising public awareness with some of their Poster Campaigns.

The Poster *Acid Rain* (Friends of the Earth, 1994) won the graphics prize in the 1994 BBC Awards. Made from litmus paper with the plastic text stuck over the top. The poster showed red when acid rain was falling, shocking passers-by about the consequences of acid rain. **"Careful selection of an appropriate site in which to exhibit the poster played an important role in ensuring its effectiveness in communication terms."** (Mackenzie, 1997, p.133)

They have had similar success with their *Sticky Poster* (Friends of the Earth, 2007). Again the materials used for the poster let the environmental concern **"speak for itself"**. This time being polluted air that has built up over time on the sticky coating of the headline and visual.



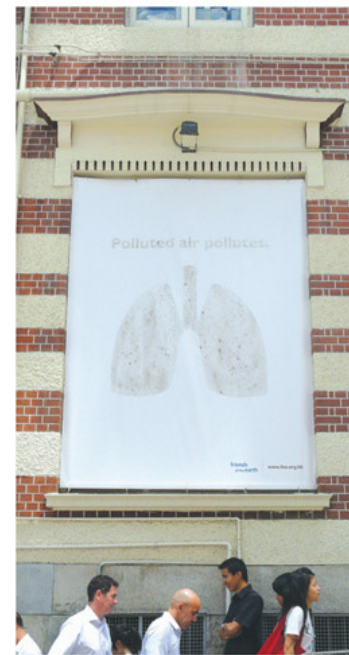
(Scott, 2010)



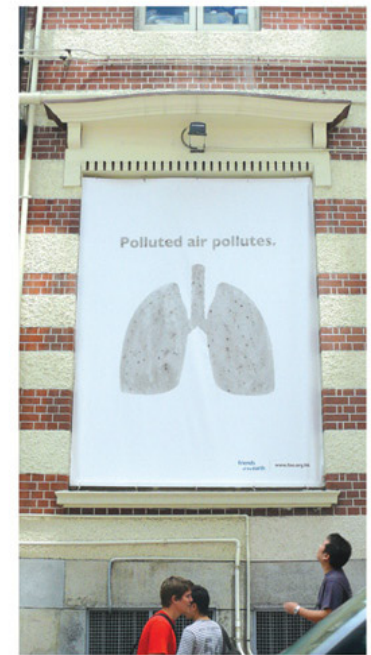
▶ DAY 1



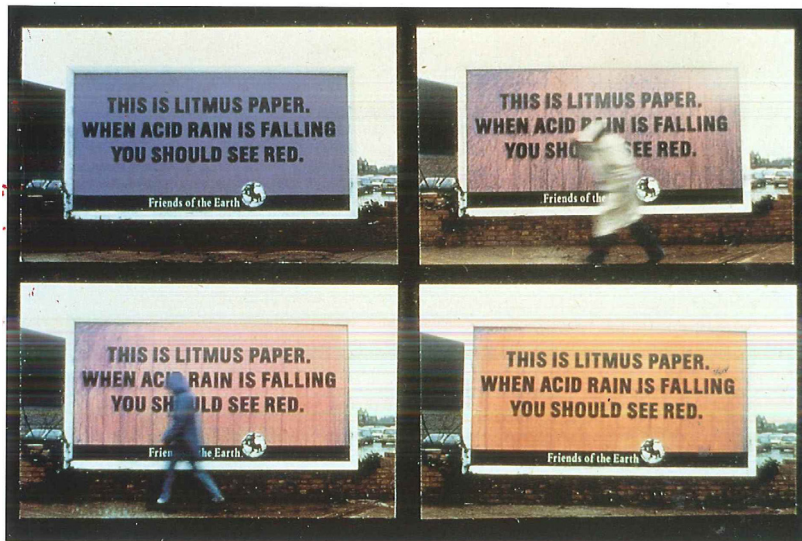
▶ DAY 5



▶ DAY 11



▶ DAY 16



(Friends of The Earth, 1994)



The poster is blank with a clear sticky coating over the headline and visual. Over time, dust and dirty particles on the street get stuck on the poster, gradually revealing the message. In doing so, we let polluted air speak for itself.



The poster received wide press coverage in Hong Kong.

(Friends of The Earth, 2007)

Anna Garforth

Anna Garforth visited our university to give a lecture about her experience as a “freelance environmental designer”. (Garforth, 2010) Her work focuses on the co existence of nature and city. After she completed her degree in Graphic Design at central St Martins in London, she went on to Sweden, where she spent time in nature, trekking through forests and living on organic farms. This time surrounded by nature gave her the experience of using her hands to make craft out of wood and other natural things she could find. She said that this gave her a **“better understanding of materials and being resourceful.”**

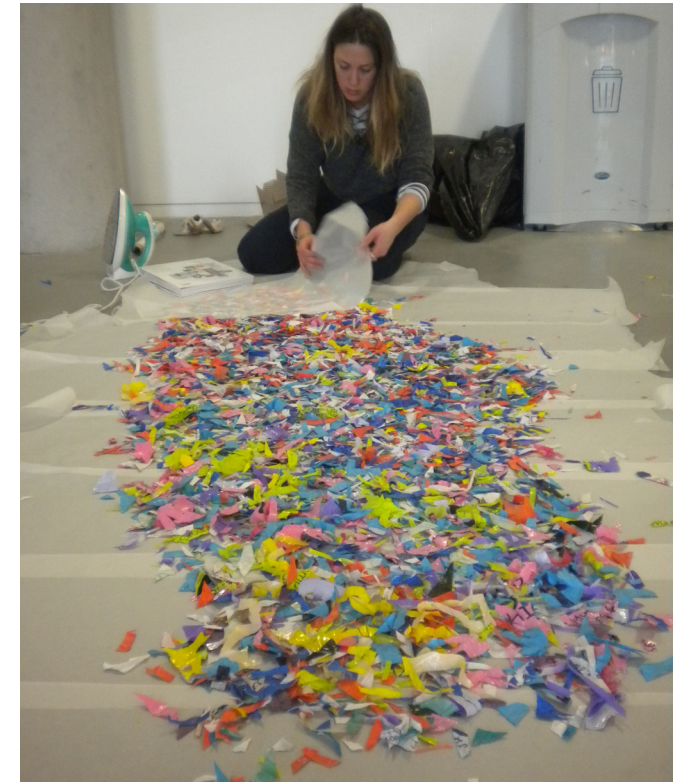
Back living in London, she feels that in a city environment, people forget that the forces of nature are all around, in disused spaces, cracks in walls and sides of pavements. She wants to find ways for people to engage with nature on a fun and humorous level. She stitches leaves together on park fences to make lettering, opening up interaction with passers-by while doing so. She makes giant “Trash Type” out of rolled up bags showing the potential of rubbish.

Talking on the issue of making money from environmental design, she believes there is an emerging scene in green art. It’s a niche market with a great deal of potential, and companies who are realising the importance of becoming more sustainable want to tap into this. She has had a great positive response from her work and has found the tool of social networking through the internet a great way to get her work seen. Her designs have also been seen in books, *Creative Review* and on the cover of *Design Week*.

Garforth also ran a one day workshop for graphic arts and fashion students, which I was lucky enough to attend. We worked together as a team to create a piece out of plastic bags that would show the danger they cause to natural eco-systems. This was done by ironing layers of bags together, showing us the potential of this material and how it can be re-used to make something new.



(Trash Type, 2010)



(Aldred, 2010)



(Rethink, 2010)



(Aldred, 2010)

Happily Ever After

One way of giving the planet a brighter future is by educating and influencing the next generation. Children's books are a great visual way of introducing children to the concept of climate change. *The Great Paper Caper* (Jeffers, 2008) was a commission by Harper Collins to illustrate the story of their company's commitment to using more eco-friendly choices in their paper. Book publishing puts a big demand on the paper industry so these switches to more sustainable choices of paper make a big difference.

Rebecca Morch's book, *Who Will Save Us*, has been a great success in the eco-books for kids market. Penguins are one of her favourite subjects in her paintings and she felt helpless at the knowledge that climate change is putting their population in great danger. This inspired her to self-publish her own children's book to raise awareness about the issue. Since her books publishing she has had great support and praise from organisations like Greenpeace, WWF and Oxfam. She has also developed a *Who Will Save Us, Children and Young Persons Project*, where the books are sent to schools, with information packs on how to tackle climate change. School children can then sell the books at fundraisers to make a profit for their own environmental projects. She says the projects aim is **"to give children and young people an educational and empowering opportunity to help resolve climate change and to help with other related issues."** (Clode, 2008, p.67)

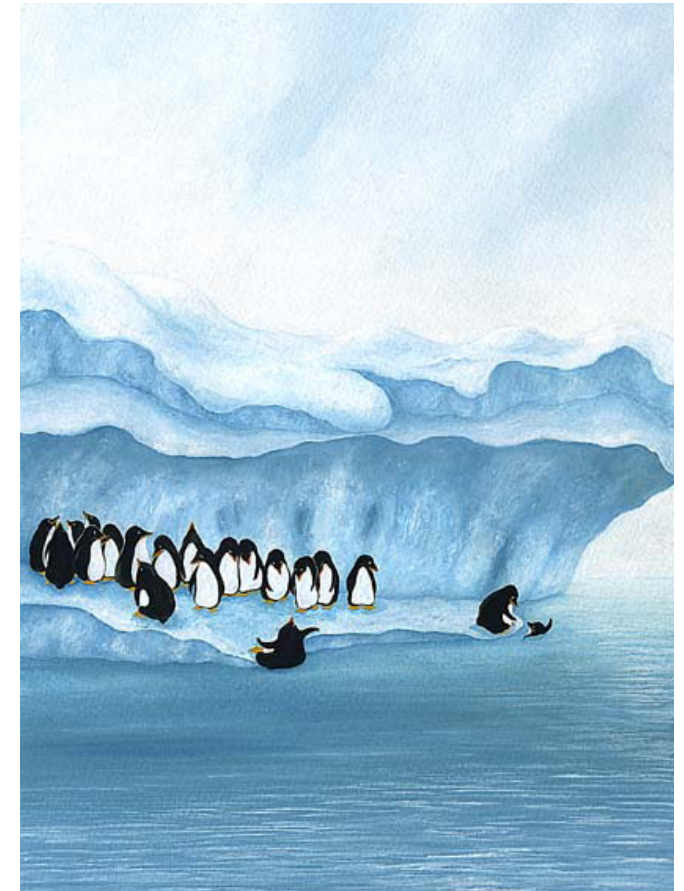
I also talked to Macbeth (2010), Product Design teacher and 'Sustainability Co-ordinator' He says that **"It is important that teachers understand their responsibility in shaping their pupils attitudes to sustainability."** Since teaching he has involved pupils in fundraising towards classroom recycling schemes and renewable technologies for the school. He has also brought sustainability into the classroom through practical projects such as bird box making, designing recycling bins and designing a bridge for the schools nature garden. He believes **"Design and Technology plays a key part in demonstrating how innovation can make a positive change in the wider world."**



(Jeffers, 2008)



(Jeffers, 2008)



(The Shelter, 2007)



(The outing, 2007)



(Ripley St. Thomas, 2010)

Up-Cycling

Up-cycling is the new eco trend of the product, textile and fashion industry. It takes a product that is no longer of use and gives it a new value by transforming it into something more useful. This reduces the demand for raw materials, saves energy and also keeps old products out of landfill.

A fine example is company Worn Again (2010). They have realised that there is a large amount of waste in the clothing and textiles industry each year and believe that **"some things are just too good to waste."** So they work with leading product designers and companies to give unwanted garments and fabrics a new life in the form of wearable clothes and accessories.

For one of their collections designer Christopher Raeburn uses old Virgin hot air balloons to make new bags and hoodies. The hot air balloon is the perfect material for these as it is water and wind proof it also has a very vibrant colour. Worn Again works with lots of companies like Eurostar and Royal Mail to try and find ways of using their decommissioned uniforms and materials and give it a new use within the company. This helps their company save money, reduce waste and meet their sustainability goals.

Another example is from textile and interior designers Weitzner Limited. Making an impact with textured wall covering made from 100% up-cycled newspaper which has a fitting title of *Newsworthy*. The strips of newspaper are woven together by hand to make this highly sustainable wallpaper. This comes from the Weitzner Nature Collection for Autumn 2010 which centres around a sustainable future with green production principles. Weitzner Limited (2010) believe **"an environmental story enhances an interior space as much as luxurious materials. Our mission is to create wallcoverings that balance our unique aesthetic with the eco-conscious attributes we all value."**

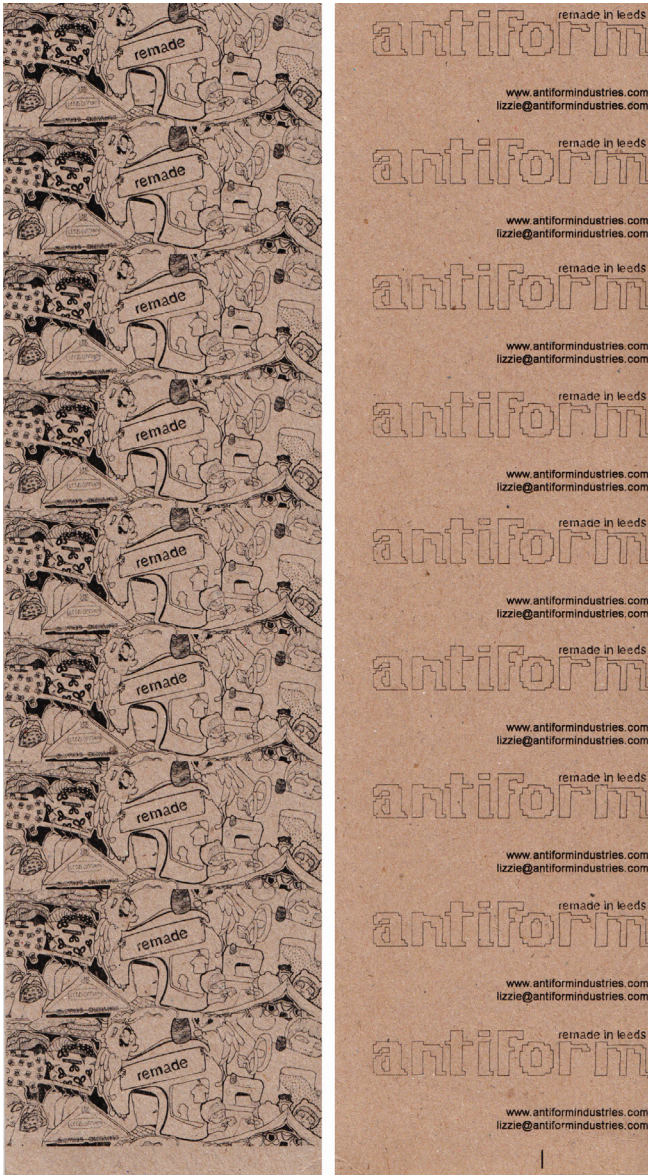
Other Wall coverings in this collection are made from tree bark, banana leaf and other natural fibres.



(Dean, 2009)



(Newsworthy, 2010)



(Footprint Samples, 2010)

Antiform

Another good up-cycling example is from Antiform (2010) Antiform is a forward thinking fashion project in the Hyde Park area of Leeds that challenges current fashion, working within a community to share dress-making skills and resources.

Clothes that are usually destined for landfill are donated and remade into fresh new garments. The collection is supported by a monthly clothes exchange event, which sources local materials and also gets local people involved with the project **“creating a whole new system for local fashion.”**

I heard about Antiform through my visit and interview at Footprint ethical printers. They showed me some off cuts of recycled card which Antiform had requested they have their clothing tags printed onto, in keeping with the concept of re-using resources.

“This project comes at a time of not only increasing awareness of sustainable issues but also against a backdrop of economic depression. The very principles of this project hopes to encourage re-learning of skills, repairing techniques and the collective reuse of clothing through swapping to promote an inclusive system open to everyone.” (Antiform, 2010)

When thinking back to the *cradle to cradle* way of thinking and designing, the rise of ‘fast fashion’ goes against this with most clothes ending up wasted in landfill. ReMade offer a system that gives clothing a second life by closing the loop with their innovative fashion community working on a system that brings the clothing back through the loop instead of out of it to its grave.



(Antiform Collection, 2010)

Packaging

With the extent of greener materials and new printing technologies on offer now, packaging is a good opportunity for designers to experiment with trying out these new choices and showing them off. Or in the case of Sardi (2009), trying to design-out the use of materials at all.

The 'edible cup' design is from Italy and it is the first coffee cup that can be eaten after it is drunk. It is made from biscuit and sugar which are both materials associated with coffee drinking, and the design is applied to the surface with a wafer that is manufactured using edible non-flavoured ink. This saves the need for disposable coffee cups or using up water and energy washing cups. This innovative design is featured in magazines and books on green design. Denison (2009, p.102) states that the design "**presents a veritable environmental revolution in the ritual of coffee drinking.**"

The *Method Omop Starter kit* (2010) contains environmental cleaning products that are made from non-toxic, biodegradable ingredients. The mop is also designed to be washed and re-used, all packaging can be recycled and is presented in a box made of bamboo fibre. This is in keeping with the *cradle to cradle* way of thinking - designing with materials that stay in a closed-loop system.

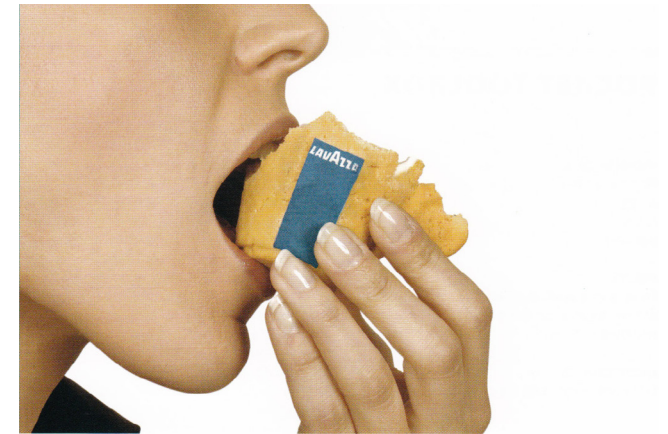
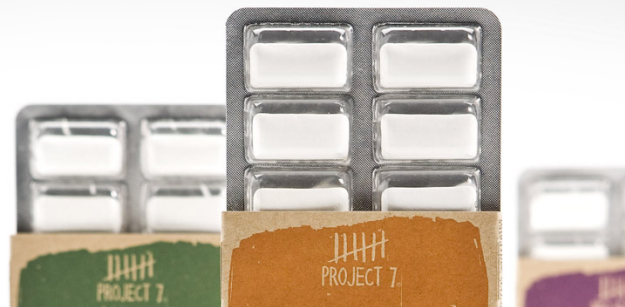
Project 7 uses their profits to help with 7 global areas of need. 29 Agency (2010) make full use of showing off the causes Project 7 helps, with their packaging designs for their gum. The causes are all incorporated into the light-hearted design that is printed onto 40% post consumer recycled material.



(Method Omop starter kit, 2010)



(29 Agency, 2007)



(Sardi, 2009)

Scientific Visualisation

Scientific climate change Data and environmental technologies can come across as very boring, with not much impact. Leaving scientists struggling to get people to take notice.

That's where designers can really make a difference, as Boehnert (2007, p.48) describes "**Illustration works where words fail.**"

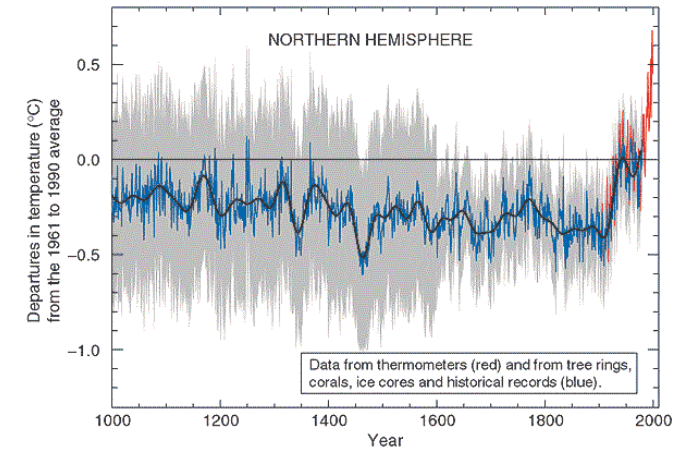
Al Gore brings to life Global Warming in his film *The Inconvenient Truth* (2006). Shocking audiences by showing them his own version of the *Hockey Stick Graph* (1998). The controversy of this film and of the graph itself since it was originally made, show that information graphics really can make an impact.

London Futures Exhibition (2010) again really brings to life what global warming could result in by creating an image of what the future holds if we don't act.

Gregory (2009) put together an *Anthology of Illustration* where illustrators work came together to show the potential of new environmental technologies for the future. One of these exciting technologies included in the book is *Solar Ink* (2009)



(*London Futures Exhibition*, 2010)



(*Hockey Stick Graph*, 1998)



(*Solar Ink*, 2009)

Conclusion

So the issue of sustainability shouldn't be one of doom and gloom for graphic designers. It should be an exciting chance to contribute towards saving the world and change this system we work on through the powers of visual communication and responsible design practices. Visual communication is known to be the strongest form of communication there is, and designers should realise the power of their skill and put it to the best use.

We have the paper industry in our hands. If the graphic design world as a whole decided to become more sustainable, we could significantly reduce the harmful impact of one of the biggest contributors to modern day climate change. All it takes is a better understanding of the materials and processes we use, and asking for better. Questions are important. Question everything.

When considering how to present this research project I had to think carefully about whether it deserved to exist as a printed format. As the piece is only intended to be used for a short amount of time I came to the conclusion that is wasn't really appropriate for it to be printed. Therefore I have chosen the digital option and made my project available as a Pdf to be viewed digitally.

Maybe the future of graphic publications is going to be a digital one. But in the print industry there are lots of emerging technologies being seen to make it easier for designers to become more sustainable in their practices. These technologies aren't perfect yet though as Footprint told me, you may invest in a greener printer but the inks made for that printer you don't always get much choice about, and can sometimes not always be that green. This along with lower availability of sustainable choices, shows that there is a need for technological improvement in the field.

We can try and work with big corporations rather than against them to help them design a more sustainable infrastructure to their business. Searching through books, magazines and the internet has given me a great insight into the vast amounts of design-

ers who are managing to do this really well. This also shows that a designer having this knowledge can be a valuable asset.

One of the biggest positives in the move towards a sustainable future is that we now have a Green Party MP in government. I have been lucky enough to have been brought up to appreciate the kind of principles Caroline Lucas stands for. My mother emailed me a copy of a recent article where Caroline Lucas talks about "the future of green campaigning" as she thought it might be useful in the conclusion of my research. I think that this is the perfect way to end my dissertation, as it links back to my family, where my passion for sustainability came from, while also providing an important look towards the future.

"We are all equal. And equality does not stop at the borders of the UK. Nor does it stop with the present generation. And those whose world we are destroying, whose precious resources we are burning up, whose species we are making extinct, whose seas we are poisoning, and whose beauty and tranquillity we are sacrificing - those who are yet to be born - we owe them just as much as those around us today."
(Compass, 2010)



Bibliography

Adbusters, 2010. *Joe Chemo Bed*, [image online] Available At: <<http://www.adbusters.org/gallery/spoofads/tobacco>> [Accessed 15 November 2010]

Adbusters, 2010. *Think Globally*, [image online] Available At: <<http://www.spikemagazine.com/0400nologo.php>> [Accessed 15 November 2010]

Aldred, G., 2010. *Anna Garforth Workshop* [personal photographs] Liverpool ADA, 02 December 2010.

Antiform, 2010. *About Antiform ReMade in Leeds* [online] Available At: <<http://www.antiformindustries.com/about/remadeinleeds/>> [Accessed 20 November 2010]

Antiform Collection, 2010. Antiform Industries [photograph online] Available At: <<http://www.antiformindustries.com/collection/10/>> [Accessed 20 November 2010]

AP/Wide World Photos, 1970. *Earth Day Across America* [photo gallery online] Available At: <<http://www.pbs.org/wgbh/americanexperience/features/photo-gallery/earthdays/>> [Accessed 14 September 2010]

BJL, 2010. *Get Happy* [image online] Available at: <http://www.thedrum.co.uk/news/2010/11/10/16525-video-bjl-s-trafford-centre-christmas-campaign/> [Accessed 20 November 2010]

Boehnert, J., 2007. *The Greening of Illustration*, Varoom Magazine, Issue 04 (June 2007) p.44.

Boehnert, J., 2007. *The Greening of Illustration*, Varoom Magazine, Issue 04 (June 2007) p.48.

Botanical PaperWorks, 2010. *Edmonton Tourism Plantable Promotion Piece* [image online] Available At: <<http://www.botanicalpaperworks.com/blog/read/article/52/getting-fresh-for-edmonton-tourism>> [Accessed 12 September 2010]

Braunhart, M. and McDonough, W., 2008. *Cradle to Cradle Re-making the way we make things*. London: Jonathan Cape.

Brown, C., 2007. *Shell ad* [image] cited in, Creative Review, 2007. Promoting The Earth, Vol 27 NO 4, (April 2007) p.44.

Carson, R., 1963. *Silent Spring*. London: Hamish Hamilton.

Clark, C., 2010. *Glossary, Lovely as a Tree Website* [online] Available At: <<http://www.lovelyasatree.com/glossary.htm>> [Accessed 15 September 2010] (Appendix D)

Clark, C., 2010. *Lovely as a Tree, choosing a printer*. [online] Available at: <http://www.lovelyasatree.com/choose_print.htm> [Accessed 16 July 2010]

Clode, R., 2008. *Black and white and read all over*, The Ecologist Magazine, Vol 38 No 5, p.67.

Coca Cola, 2009. *Hopenhagen*. [online] Available At: <<http://www.thecoca-colacompany.com/hopenhagen/index.html>> [Accessed 12 September 2010]

Compass, 2010. *Caroline Lucas MP on the future of green campaigning*. [online] 27 October, Available At: <<http://www.compassonline.org.uk/news/item.asp?n=11429>> [Accessed 05 December 2010]

Cox, C., 2010. *Design Industry Insights 2010*, Design Council, p.19 [online Pdf] Available At: <http://www.designcouncil.org.uk/Documents/Documents/Publications/Research/DesignIndustryResearch2010/DesignIndustryInsights2010_Design_Council.pdf> [Accessed 20 October 2010]

Cox, s., 2009. *Happy Birthday Sierra Club BC*. Blog Sierra Club BC [blog] 01 December, Available At: <<http://www.sierraclub.bc.ca/wild/happy-birthday-sierra-club-bc>> [Accessed 15 September 2010]

Creative Review, 2007. *The It's About Time We Did Something About Sustainability and the Environment Issue*. Creative Review April 2007, Vol 27 No.4

Dean, K., 2009. *Worn Again Virgin Hot Air Balloon* [image collection online] Available At: <<http://www.wornagain.co.uk/pages/gallery>> [Accessed 20 September 2010]

Denison, E., 2009. *Print and Production Finishes for Sustainable Design*. Switzerland: RotoVision

Design Works, 2010. *We are Designworks* [online] Available At: <<http://www.thedesignworks.co.uk/>> [Accessed 16 July 2010]

Dirt: The Movie. 2009 [DVD] USA: Common Ground Media

DuraBooks, 2010. *Big Bowl*. [image online] Available At: <<http://www.durabooks.com/>> [Accessed 26 December 2010]

Ecosalon, 2009. *Coca Cola Hopenhagen* [image online] Available At: <<http://ecosalon.com/coca-cola-at-copenhagen-can-a-multinational-work-in-the-environments-best-interest/>> [Accessed 6 January 2011]

Ele Dung Gift Bags, 2010. Shared Earth [image online] Available At: <<http://www.shareearth.co.uk/kolist/1/5/PAP006.htm>> [Accessed 07 January 2011]

Esterson, S., 2007. *Where digital tools changed design, global communications and green issues are redefining the world of print*, Eye Magazine, Issue 66 [online] Available At: <<http://www.eyemagazine.com/feature.php?id=152&fid=655>> [Accessed 3 March 2010]

Footprint Samples, 2010. *Samples I was given at Footprint interview* [image] Footprint Workers Co-op, Leeds, 27 July 2010. (Appendix C)

Friends of the Earth, 1994. *Acid Rain*. [image] Cited In, Mackenzie, D., 1997. *Green Design: Design for the Environment*. London: L. King. P.133

Friends of the Earth, 2007. *Sticky Poster* [image online] Available At: <http://adsoftheworld.com/media/ambient/friends_

of_the_earth_the_sticky_poster?size=_original> [Accessed 01 December 2010]

Garforth, A., 2010. *Anna Garforth talk*. Liverpool ADA, 01 December 2010.

Garland, K., et al. 1964. *First Things First, Manifesto* [image online] Available At: < <http://www.kengarland.co.uk/KG%20published%20writing/first%20things%20first/>> [Accessed 27 December 2010]

Good News India, 2000. *Bishnois Are Probably The World's First Environmentalist's* [online] Available At: <<http://www.goodnewsindia.com/Pages/content/traditions/bishnoi.html>> [Accessed 15 September 2010]

Gregory, A., 2009. *Amelia's Anthology of Illustration*. UK: Amelia's House

Griffiths, H., 2007. cited in, *Creative Review*, 2007. *Promosing The Earth*, Vol 27 NO 4, (April 2007) p.44.

Grundy, P., 2007. *Each Month, Publishing Creative Review Involves The Consumption of* [image] Cited in *Creative Review* April 2007, Vol 27 No.4, p.22.

Heller, S. and Vienne, V., 2003. *Citizen Designer: Perspectives on Design Responsibility*. New York: Allworth Press.

Hockey Stick Graph, 1998, Michael Mann's 'hockey stick graph' that describes the reconstruction of temperatures since 1000 CE on the Northern Hemisphere. [image online] Available At: < <http://www.guardian.co.uk/environment/2010/feb/03/climate-scientist-michael-mann>> [Accessed 03 January 2011]

Jeffers, O., 2008. *The Great Paper Caper*. [illustrations] UK: Harper Collins.

Klein, N., 2000, *No Logo*. London: Flamingo.

Loenard, A., 2007. *The Story of Stuff* (Referenced and Annotated Script) [online] Available At: <http://www.storyofstuff.com/pdfs/annie_leonard_footnoted_script.pdf> [Accessed 5 July 2010]

London Futures Exhibition, 2010. *London As Venice*. [image online] Available At: < <http://www.postcardsfromthefuture.co.uk/>> [Accessed 12 November 2010]

Macbeth, J., 2010. *Discussion on engaging pupils in sustainability issues through product design teaching* [conversation] (Personal Communication, 27 December 2010)

Macedonia Information Agency, 2010. *International Student Poster Exhibition Ecologic* [press release] 26 November 2010, Available At: <<http://www.mia.com.mk/default.aspx?vId=78953047&Id=2>> [Accessed 01 December 2010]

Mackenzie, D., 1997. *Green Design: Design for the Environment*. London: L. King.

Method Omop Starter kit, (2010) Method [image online] Available At: < <http://www.johnlewis.com/164571/Style.aspx>> [Accessed 12 Decemebr 2010]

Muller, C., 2010 *Footprint Interview*, Interviewed by Aldred, G. [transcript] Footprint Workers Co-op, Leeds, 27 July 2010. (Appendix c)

Naish, J., 2008. *Corporate Greenwash*. The Ecologist Magazine, Vol 38 No 5, p.38.

NASA, 1969. *Earth from space* [photograph] Available At: <<http://www.sierraclub.bc.ca/wild/happy-birthday-sierra-club-bc>> [Accessed 15 September 2010]

Newsworthy, 2010. Weitzner Limited [images online] Available At: <<http://www.ceciliahalling.com/inspiration/post/newsworthy-wallcovering>> [Accessed 05 December 2010]

Papanek, V., 1985. *Design for the Real World*. 2nd ed. London: Thames and Hudson.

Parra and Paul Cathedral, 2007. *Shell Ad* [image] cited in, *Creative Review*, 2007. *Promosing The Earth*, Vol 27 NO 4, (April 2007) p.44.

PBS, 2010. American Experience, *Earth Days*. [Online video] April 2010. Available At: <<http://video.pbs.org/video/1463378089/>> [Accessed 12 September 2010]

Pravada, 2005. *Dioxin Becomes Most Dangerous Man-made Poison* [online] Available At: < <http://english.pravda.ru/science/tech/01-06-2005/8345-dioxin-0/>> [Accessed 07 January 2011]

Retailing Daily, 1957 Cited in Packard, V., 1961. *The Waste Makers*. Great Britain: Longmans, Green.

Rethink 2010. Garforth, A., [image online] Available At: < <http://crosshatchling.co.uk/>> [Accessed 05 December 2010]

Ripley St Thomas, 2010. *School Sustainability photographs* [photograph collection] Ripley St. Thomas School, Lancaster.

Sardi, 2009, *Lavazza Edible Cup* [Image] Cited In, Denison, E., 2009. *Print and Production Finishes for Sustainable Design*. Switzerland: RotoVision, pp.102-103

Scholey, R., 2010. *All You Need to Know About Design: Facts and Figures, Themes and Issues*. Liverpool, 22 November 2010. Liverpool Design Festival, ADA.

Scott, C., 2010. *Christopher Scott Interview*, Interviewed by Aldred, G. [email correspondence]

Scott, C., 2010. *White tiger Melts and Dead Leaf* [images online] Available At: <<http://www.csgraphi.com/#>> [Accessed 02 December 2010]

Sherin, A., 2008. *SustainAble, a handbook of materials and applications for graphic designers and their clients*. Massachusetts: Rockport.

Smith, D., cited in Sherin, A., 2008, *SustainAble, a handbook of materials and applications for graphic designers and their clients*. Massachusetts: Rockport.

Solar Ink, 2009. Barnes, L., [image online] Available At: < <http://www.ameliasmagazine.com/gallery/?album=all&gallery=1>> [Accessed 27 November 2010]

Start Radical Printshops, 2010. *database and history of late 20th century radical and community printing collectives in the UK* [online] <Available At: <http://www.radicalprintshops.org/dokuwiki/doku.php>> [Accessed 03 December 2010]

Story of stuff project, 2009. The Story of Stuff. [video online] Available at: <<http://www.youtube.com/watch?v=9GorqroiqqM>> [Accessed 5 July 2010]

Studio Emmi, 2010. *Binding for Concrete Hermit magazine* [image online] Available At: <<http://www.emmi.co.uk/work/identities/concrete+hermit>> [Accessed 05 December 2010]

The Inconvenient Truth. 2006 [DVD] USA: Lawrence Bender Productions.

The Outing, 2007. Morch, R., [image online] <<http://whowillsaveus.co.uk/index.html>>

The Shelter, 2007. Morch, R., [image online] <<http://whowillsaveus.co.uk/artworkpages/Penguins/pages/13%20-%20The%20Shelter%20-%20Gouache.htm>>

Thomas.Matthews, Cited in, Roberts, L., 2006. *Good: An Introduction to Ethics in Graphic Design*. Switzerland: AVA Publishing SA

Trash Type 2010. Garforth, A., [image online] Available At: < <http://crosshatchling.co.uk/>> [Accessed 05 December 2010]

Vidal, J., 2010. 2010 *Could be Amongst Warmest Years Recorded by Man*. Guardian [online] 2 June. Available at: <<http://www.guardian.co.uk/environment/2010/jun/02/2010-could-be-warmest-year-ever>> [Accessed 10 September 2010]

Waste Online, 2005. *A Feast of Waste* [online] Avail-

able At: < <http://www.wasteonline.org.uk/resources/information-sheets/christmasrecycling.htm>> [Accessed 27 December 2010] (Appendix A)

Weitzner Limited, 2010. *Weitzner Limited companies mission* [online] Available At: <<http://www.weitzner-limited.com/>> [Accessed 20 November 2010]

Worldwatch Institute, 2010. *State of The World 2010, Transforming Cultures from Consumerism to Sustainability*. London: Earthscan.

Worn Again, 2010. *Every Product has a Story to Tell* [online] Available At: <<http://www.wornagain.co.uk/pages/our-story>> [Accessed 20 September 2010]

WWF, 2010. *Deforestation* [online] Available At: <http://wwf.panda.org/about_our_earth/about_forests/deforestation/> [Accessed 12 November 2010]

29 Agency, 2007. *Project 7 Gum*. [image online] Available at: < <http://www.29agency.com/#>> [Accessed 27 December 2010]

Appendix

Appendix A

(Waste Online, 2005)

A feast of waste

- Overflowing dustbins and extra bags of rubbish are a common sight in the streets after Christmas. We all create more waste over the holiday period.
- The Royal Mail delivers around 150 million cards and packets each day during the pre-Christmas period. It is estimated that up to 1 billion Christmas cards (17 for every man, woman and child) could end up in bins across the UK.
- 7.5 million Christmas trees were bought in 2001. Some councils reported their Christmas tree recycling activities for early 2001 to EnCams. The total number of Christmas trees reported to be recycled was nearly 1.2 million.
- It is estimated that over Christmas as much as 83 square km of wrapping paper will end up in UK rubbish bins, enough to cover an area larger than Guernsey.
- We could use an extra 750 million bottles and glass containers, and 500 million drinks cans. About 20% to 30% more glass and cans are collected each year over the Christmas period.

Appendix B

(Cox, C., 2010) **Design Industry Insights 2010**

The big green design debate

So it is essential that designers are able to provide green advice and being able to do this gives designers a competitive edge

Many clients are now embracing sustainability and building their brands around greener practices, so why do so few designers feel their ability to provide green advice is important? Chris Cox reports.



As the UK shifts to a low carbon footing, the next 30 years are going to see radical changes in the way we do business. The question of what role designers can play in reducing our environmental impact is going to be a crucial one. European researchers have said that 80% of a product's environmental impact is determined at the design stage, and there have been growing calls for designers to adopt more sustainable practices to help businesses reduce their carbon footprints.

And there are plenty of designers taking notice. Almost half of designers say they use resources in an environmentally conscious way. Forty-one per cent say they are minimising their transport requirements, while 29% have been trying to increase the lifespan of the materials they use.

For some designers, these practices are simply becoming part of good design. 'I think we're getting to a time when we're not going to be talking about sustainability any more,' says Jason Bruges, founder of the Jason Bruges Studio. 'It's just going to become part of the checklist.' Bruges says that he's interested in 'the overall intelligence of the design process, which means considering everything from its environmental impact through to its benefits for the client.'

In spite of the encouraging signs, however, very few designers feel that their ability to provide green advice is important to clients: only 16% of design consultancies told the Design Council that it was an important factor for winning work, while 18% of freelancers said the same. So are we witnessing a sustainable design revolution – or are designers just providing clients with business as usual?

Where branding is concerned, there has definitely been a visible change. Jon Hewitt, Senior Designer at Moving Brands, says clients increasingly see sustainability as 'part of their responsibility as good corporate citizens'. In recent years, he says, clients have matured from simply 'giving a nod' to greener practices towards building their brands around them. Hewitt says Moving Brands' designers have undertaken training sessions with environmental consultants, to help them persuade clients to consider sustainable approaches.

But while shaping up environmental messages is one thing, reducing the overall impact of products and services is hugely complex – and not yet fully understood by designers or clients.

Fifty-nine per cent of designers say they feel well equipped to advise clients on sustainable design practices; but there are still underlying problems that need to be resolved.

For example, making a green choice can have negative knock-on effects. 'We tend to move a client away from heavy print solutions as much as possible now,' says Neville Brody, founder of Research Studios. 'But at the same time we're learning more and more about the energy resource drain caused by continual use of the internet – which could potentially be far more damaging than paper.' These kinds of problems will keep coming up for designers – the challenge will be keeping themselves, and their clients, educated and moving forward with the best solutions.

Appendix C

(Muller, 2010)

Footprint Interview

What inspired Footprinters to set up in the beginning?

We were just looking for a way to get of the dole, which was ethical and gave us enough time still to do what we wanted to do. It could have been anything, a shop or a manufacturers etc, but Footprinters was what came about at the time.

How long has the business been running?

We looked for ideas starting from around 1996. The printing press came up in about early 1997 from Aberystwyth, It took about 16 people to carry it into the cellar, and it was quite difficult to use. There was a 6 year apprenticeship for becoming a printer and we were trying to teach ourselves. We didn't learn to use it at that point and I went travelling in 1998 and the other people moved out.

When I got back from travelling I started a printing course in college in September 1999, and we started trading in July 2000. So we have just had our 10th anniversary!

What range of clients do you generally attract? Are they mostly ethical minded?

Yes mostly, that's why people come to us, they don't come to us for quality of print, they might come to us because of cheapness, but most people who come to us like who we are and what we do, and they are happy with the quality of print and the cheapness rather than the other way round. Yeah I'd say that that is our major selling point and it's national as well. I think about 50/60% of our work is local and the rest is all over the place even Ireland.

Most commercial printers rely on speed for their selling point and have their own delivery vehicle service,

but because we are in a national market we just use a courier to have it go wherever it's going. We don't like the idea of it travelling all the way to Ireland, they should have their own local eco printing set up over there really, but we have had enquiries from Europe and even as far as America.

Yes in my research I've noticed there aren't a lot of places to print sustainably in the UK. You seem to have quite a unique ethical selling point with your business?

Well there's a few, Manchester area resource centre has got a similar set-up to us but with more sort of DIY, but they have a bigger range of colours and it's cheaper as you have to do it yourself.

Again there's the Oxford Green Print, and they have the same sort of equipment that we have got, but they work longer hours than we do and they are not a co-op.

Then there's Calverts in London which is a workers co-op and they have a really big press and design studio, they've got big scale litho machinery that is alcohol free and is temperature regulated, they are a good example of a sustainable printers and an interesting place to visit.

When we started we had litho machinery and we were trying to work out how you could make it greener but we realised that we really couldn't, it had to be different it would have to be temperature regulated which we couldn't do anything about at the time really.

We also came across beacon press, based in Uckfield, who were pioneering in greener printing technologies and we went for a visit there and the machinery and their setup was really impressive, but at the time they were in the middle of printing the Shell annual report, which made us think 'actually we don't want to be really big and high quality because we want to provide printing for smaller campaigning groups and we don't want to be constantly deciding whether the company that has approached us is ethical enough.'

We don't really get approached by big companies

anyway really, although voluntary sectors sometimes want us to do their annual reports. So the range of clients is lots and lots of DIY and zines, then voluntary sectors and campaign groups across the country, local bands, recently a lot of anarchist bands from across the country, Bristol Manchester, Northampton and also things like corporate watch which produces reports.

We have been trying to keep a blog, which we aren't very good at updating, and whenever we are printing something really cool we add it to there, and we have realised that mostly all the stuff we print is pretty cool.

What would you say is the most eco-friendly ink/papers you have come across?

Well we've got Risograph printers made by a Japanese company called Riso. They make everything to go with it including the ink cartridges and the ink so you don't get a choice about the ink you use.

The ink does have Soya oil in it, but it's not true to say it's totally Soya it also has petroleum in it as well. The Soya oil comes from America, and I wouldn't be surprised if it was gm, then it goes from the states to Japan where it gets sent here so you can factor that in to how eco-friendly it is. But then we don't have to make a metal plate for every page that we print. We don't use any solvents and there's no heat energy involved so all of that kind of makes it an eco process.

We avoid any papers that are glossy or shiny as they are either covered in plastic or china clay has been used in its production. China clay is relatively eco as it's biodegradable but they are causing massive destruction to the environment digging it up.

The only totally eco printing we have come across is potato and beetroot. The printing process itself, making something permanent, is in itself not eco as it is anti-nature. So I struggle to say that we are an eco-friendly printers as we're not, we are just less bad, we are just striving to be as sustainable as we can be.

The papers on the other hand, the most eco-friendly

paper I'd like to use would be tree-free, made out of cotton, wheat, hemp, rags all of that stuff is much better but it's just impossible to get hold of. Hemp paper you can get, but it's just so expensive, we did get some a while ago but the supplier stopped supplying it in the quantities we wanted and made it a lot less affordable for us to continue using it. So we use recycled paper but even the process of recycling paper is very energy intensive, de-inking all of that recycled paper just leaves a huge pile of toxic sludge, which is masses of energy, masses of pollution but it's still the best that we can manage.

Does being eco-friendly affect the costs of printing?

Yes it does, printing on recycled paper, because its not made in huge quantities, is quite expensive. If more people bought it it would be cheaper.

Duplicator printing is really cheap and easy to print but it's not the greatest quality, it comes off in your fingers similar to newspaper print.

We offer full colour laser printing which has LED fusing, which gets less hot so less energy, but it's quite expensive compared to litho, but we only do short runs of stuff. If we were doing 5000, 10000, 20000 of anything on a regular basis then we would be using entirely the wrong equipment. We make our savings because of low setup costs, and in litho there's a lot of setup cost but once it's running its running and its like quarter of a penny a sheet, so you will get the same price up to a thousand then it will slowly edge down. But in ours it's the same price up to a hundred, so there's that gap where we are economically competitive between 100 and 5000.

It's all to do with scale really and the reason Footprinters is so successful is we have this very small scale market.

Does it work as a successful business?

Yes it does work as a successful business but only because of the ethos that we have given ourselves. We have a policy that if people are working more than 22/23 hours a week then we need another member

of staff, the purpose of Footprint is to get people of the dole and not get people rich or be peoples main activity, we don't have to pay rent to cornerstone (housing co-operative) so we don't have to work terribly hard to earn the money we do. So it's successful in that it gives us what we need and we are expanding.

Can you achieve the same high finish with recycled paper?

You can't get the gloss finish with recycled paper that you would with industry style paper. But Soya inks you can't really see the difference. It depends what you are trying to get across, mostly you want impact and information and you can get both of those without a superbly glossy finish.

Is there any advice you can give to a graphic arts student who wants to be more eco-friendly?

Learn to design messily, so that you can use processes whether they're screen-printing or Risograph where they are single colour and the registration doesn't matter.

Learn to design with limited colour, fewer colours the better, it's cheaper and it's more eco.

Use other eye-catching things for finishing techniques, folding, cutting, interesting shapes, so maybe its more about the shape of it, and what you can do with it that's more interesting other than just the print quality.

And don't use big washes of colour, less ink on the page

Appendix D

(Clark, 2010)

Glossary

PRINT TERMINOLOGY

Alcohol-free or low-alcohol printing

Lithographic printing that uses reduced amounts or no isopropyl alcohol (IPA), thereby reducing VOC emissions.

Dampening (or fountain) solution

This is used to keep the non-image areas of the plate moist, preventing them from accepting ink. Dampening solution usually contains high levels of a solvent called isopropyl alcohol (IPA) which contributes to VOC emissions. Some are available with a low IPA content or are IPA free.

Waterless printing eliminates the need for dampening solution altogether. Read more

Heavy metals

Heavy metals are natural components of the Earth's crust. They cannot be degraded or destroyed. Tiny amounts are essential for human health, but at higher concentrations they can lead to poisoning.

Heavy metals may enter the body in food, water, air, or by absorption through the skin.

Heavy metals such as barium, copper and zinc are contained in certain ink pigments, particularly metal-lics.

IPA (Isopropyl alcohol)

Isopropyl alcohol is commonly used as a cleaner and solvent in industry. Lithographic printers combine it with water to create 'dampening solution' which repels the ink in non-image areas.

IPA contributes to ground level ozone which can effect plant and crop growth and poses a potential health hazard to printers as it can lead to, amongst other things, asthma.

Mineral-oil based inks (also known as petroleum based inks)

Mostly only used in web printing nowadays, these inks typically contain 30-35% mineral-oil. The pigment is suspended in petroleum with Isopropyl alcohol as the solvent (see above). As the ink dries, alcohol and petroleum evaporate, releasing VOCs (Volatile Organic Compounds).

Added to this – petroleum is a non-renewable resource.

Solvents

A solvent is a liquid substance capable of dissolving other substances. Solvents used in the lithographic print process include:

- **mineral oil** which is used to reduce the viscosity of ink
- **Isopropyl alcohol** (also referred to as IPA, see definition above) which is toxic to aquatic life

Vegetable-oil based ink

Vegetable-oil based inks can be made from a variety of vegetable oils including soy-bean, corn, and linseed oils. Replacing mineral oil with vegetable oil means that you can reduce or even cut out VOC emissions.

Volatile Organic Compounds (VOCs)

These are carbon-containing gases and vapors that are released from solvents used during the printing process.

The most significant environmental impact of VOCs is their formation with vehicle exhaust to form photo-chemical smog. However, in liquid form VOCs can effect water and soil quality.

They also have an effect on the health of pressroom workers and have been linked to breathing difficulties, liver and kidney damage.

Waterless printing

Waterless printing is basically sheet-fed litho printing using different printing plates and a method of transferring the image to the paper without using water.

Removing water from the process means that you also eliminate the problem of achieving the correct balance of ink and water on press. It also eliminates the need for IPA (see above).

ENVIRONMENTAL CERTIFICATION SCHEMES

EMAS

This stands for the Eco-Management and Audit Scheme, an initiative designed to improve companies' environmental performance. EMAS sets the highest environmental standards of all the environmental management schemes (EMS). Its aim is to recognise those organisations that go beyond minimum legal compliance. In addition, it is a requirement of the scheme that participating organisations regularly produce a public environmental statement that reports on their environmental performance. It is this voluntary publication of environmental information, whose accuracy and reliability is independently checked by an environmental verifier, that gives participants in the EMAS scheme enhanced credibility.

ISO 14001

This is an internationally recognised scheme. It provides a framework for environmental awareness, monitoring and continual improvement. The three key areas to be managed are:

- Compliance with environmental regulation
- Prevention of pollution
- Improvement in environmental performance

The emphasis on continual improvement means that standards may vary as the longer a printer has been in the ISO14001 scheme, the more progress they will have made.

Green Dragon

This scheme is for Welsh companies that wish to improve their environmental performance but don't have the resources for ISO14001. There are five levels, each one contributing towards the achievement of international and European environmental standards, ISO 14001 and EMAS. Green Dragon Level 5 is in fact a slightly higher standard than ISO14001, partly because it takes carbon emissions into account.

Greenmark

This was developed by the London Environment Centre (LEC), part of London Metropolitan University and is more appropriate for smaller companies who lack the resources for ISO 14001. All participants enter the scheme at Level One where you must demonstrate that you are taking responsibility for your environmental impacts. Further levels involve recommendations being made and targets being set and met for reducing environmental impact.

FSC (Forest Stewardship Council) Chain of Custody

If a printer holds the FSC Chain of Custody and the paper being used in a project is FSC certified, the end product can be labelled as FSC certified. This certificate is about the fibre tracking process only and ensures that there is no contamination between FSC and non-FSC material. It is not about environmental standards maintained within the factory.

'Carbon neutral' schemes

Please be aware that so-called 'carbon neutral' status is not a good indication of environmental performance. There is currently no regulation in this area and so it can simply be bought through offsetting schemes.

Once CO₂ is in the atmosphere, off-setting cannot stop it from changing our climate. Offsetting merely shifts the responsibility for reducing CO₂ emissions from ourselves to developing countries. Please ask your printer and paper suppliers what they have done to actually reduce their carbon footprint. Read more

The government is currently setting up a British Kitemark scheme to try to regulate the sector, and the Gold Standard foundation lists carbon offsetters who comply with their quality code.

PAPER TERMINOLOGY

The following three terms, ECF, PCF and TCF, are commonly used, but since no papers are made in Europe using chlorine bleaching, all European papers are either ECF, PCF or TCF. So when choosing a

paper, bear in mind that these terms cannot be used as a differentiator.

Elemental chlorine free (ECF)

This term is used to mean paper that is made from virgin or recycled fibre and bleached using alternative chlorine compounds as a substitute for elemental chlorine. See note above.

Processed chlorine free (PCF)

This is used to mean paper that is made from recycled post-consumer waste (PCW) and bleached without chlorine, or left unbleached. See note above.

Totally chlorine free (TCF)

This term is used to mean paper made from 100% virgin fibre that is bleached without chlorine, or left unbleached. It isn't applied to recycled papers, because the source fibre cannot be determined. See note above.

Post-consumer waste

This is when the end product has reached the consumer, been used and then recycled.

Pre-consumer waste

Also known as post-industrial waste, this describes printers' waste such as off-cuts and unused copies which may have been over-ordered.

PEFC

The Programme for the Endorsement of Forestry Certification Schemes is an international forest industry initiative that acts as an umbrella for many smaller national forestry schemes.

FSC

The Forest Stewardship Council is an international, non-governmental organisation dedicated to promoting responsible management of the world's forests and is the only certification scheme endorsed by NGOs worldwide.

The number of FSC-certified forests is growing rapidly, covering 84 million hectares worldwide – about 10% of the world's production forest.

Forests are inspected and certified against the 10

principles and criteria of Forest Stewardship, which take into account environmental, social and economic factors.

In addition to forest management and certification, the FSC Chain of Custody tracks the timber from the forest to the paper mill and then to the printer.

When held by a printer, FSC certification is about the fibre tracking process ONLY and ensures that there is no contamination between FSC and non-FSC material. The Chain of Custody is broken if the manufacturing mill or printer is not FSC certified. FSC certification for printers is NOT about environmental standards maintained within the factory.

There are three types of FSC Certified paper:

FSC Mixed Sources

The Mixed Sources label states that at least 50 per cent of the virgin fibre must come from FSC certified forests with the remaining percentage from 'controlled sources'. Recycled waste can also be included up to a maximum of 90%. The majority of FSC certified materials featured on Lovely as a Tree carry this label.

Controlled sources exclude:

- illegally harvested timber
- forests where high conservation values are threatened
- genetically modified organisms
- violation of peoples' civil and traditional rights
- wood from forests harvested for the purpose of converting the land to plantations or other non-forest use

100% FSC

No explanation needed!

FSC Recycled

These papers are made from 100% post-consumer waste by FSC accredited mills.

Appendix E

(Scott, 2010)

Christopher Scott Interview

What is your experience/journey with design on environmental issues?

It is one of mostly satisfaction. Because it is so complex that it really stimulates my brain. I have to admit sometimes it is frustrating and mentally very draining but that is all part of the beauty of social communication.

Has this always been a solid direction for you/ what got you interested in environmental design in the first place?

While I was studying my Bdes Design and Communication and I really struggling mentally as I was never happy with any of the boring 'Brand me' projects we where being given. It always felt like my brain was arguing with itself but I did not know why. But is all become clear when I was in final year and we finally got to create our own brief. I started of researching adventure because I love the Indiana Jones films. Then this led to Mysteries and surreal circumstances e.g. the Bermuda Triangle. All this research and study pin pointed to the Amazon Rainforest and at first I wanted to convey how special and beautiful it was. But I felt it was not powerful enough as a final project. After some more research I finally selected the topic of deforestation in the Amazon Rainforest. It was a very hard but in the end a very enjoyable process. The end result 'Dead Leaf' came out great and it has so far won 2 worldwide international competitions 'Good50x70' and 'Green + You'.

What would you say are the fundamentals of design?

The concept is paramount to good design. It does not matter how beautiful the design is because if it does not communication a message then what is the point. Research and understanding your subject matter is important. Finally you need to have confi-

dence in your ability because if you do not believe in your work then no one will.

Do you think graphic design has a role to play in making a positive impact on the planet?

Graphic Designers have the power to create visuals so we have the power to make people aware of issues and problems. So we have a important role to play.

Has becoming more passionate about environmental issues in your work affected your choices of materials and printing techniques you use?

Maybe in some cases yes. I do not like to use the computer often to create my visuals. I also try to use environmental paper whenever possible.

Have you turned down design work/projects because of your ethics?

Yes a lot of projects I have turned down. Simply because the client does not have the same vision and high standards that I set for myself. I always try to be different but sometimes the client does not see this.

Do you feel there is work out there for designers who want to make a positive difference?

There is lots of competitions, organisations and a few companies who make a positive difference. I think in the 21st century most companies consider the environmental aspects when they start with a project because this portrays the company as being caring.

What advice would you give to a graphic design student who wants to be more sustainable and make a difference with their work?

Enter a lot of competitions to get your name and work recognised. By doing this always expect failure but use this to inspire to be better. Always take advantage of any success you achieve. Go to the exhibition openings etc. whenever possible to gain contacts and do not be shy.

What designers/websites/magazines influence you?

Alan Fletcher, Yossi Lemel, Woody Pirtle, Wolff Olins, Pentagram, Studio8 Design, Good 50x70, Posterfortomorrow, Plastique magazine, Raygun magazine, The Art of looking sideways, Beware wet paint, Reza Abedini and many many more