



**Business Council for
Sustainable Development**
United Kingdom



**2006 Portfolio of
Sustainable Development Business Case Studies**

Compiled jointly by the
Business Council for Sustainable Development – United Kingdom
and the
Midlands Environmental Business Company

**The Business Council for Sustainable Development – United Kingdom
and**

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2006 Portfolio of Sustainable Development Business Case Studies

Introduction

Historic

It started in 2004 as a response to the consultation process of the UK Government's new Sustainable Development Strategy. Though it contravened the format of the consultation process, the Portfolio of Case Studies submitted jointly by BCSD-UK and MEBC was well received. Jonathon Porritt, Chairman of the Sustainable Development Commission, called it "the best response from the business community."

With that encouragement a second Portfolio was produced in 2005. This, therefore, is the third.

Two not-for-profit business networks are involved, one national – the Business Council for Sustainable Development –United Kingdom, and one regional – Midlands Environmental Business Company.

The BCSD-UK, formed in 1999, is the UK's only affiliated branch of the World Business Council for Sustainable Development. The MEBC is the custodian of the Midlands Environmental Business Club formed in 1991. They have joined forces to produce what is now an annual Portfolio of Case Studies covering both good news and bad news about sustainable development implementation within the business community.

2006 – Again Good News and Bad News

The 2006 version more or less follows the same formula - a potpourri of different stories from widely differing sources ranging from giant multi-nationals to local groups. Whilst most are genuine case studies, some are short opinion updates and though they should not qualify for inclusion, their authoritative sources make inclusion irresistible.

And again we see a wide variation of successes – and a continuing degree of frustration that "barriers" still stand in the way of delivery. Successes include innovative solutions and comprehensive approaches to sustainable development management. "Barriers" include a government code for sustainable homes that does not go far enough; the definition of waste that inhibits waste being reused; extreme decisions from the planning regime preventing micro-turbine use. The constant barriers that emerge from our annual Portfolio and now from the BCSD-UK's new series of Business Summits are the planning regime and the definition of waste.

At a time when the evidence of climate change, resource depletion, and widespread social degradation is gaining increasing media attention, it seems ridiculous that national strategy, legislation and regulation are not all aligned towards a common objective that is really impacting on turning our world into a sustainable one. The reality is that the escalation of the challenge seems to be growing far faster than our implementation of solutions.

David Middleton
CEO
MEBC & BCSD-UK

The 2006 Case Studies

1. Biffa (BCSD-UK member)

Good news on sustainable consumption and production. Not so good on waste matters.

2. Birmingham Eastside (via Groundwork)

Four green roof projects in Birmingham's major regeneration programme.

3. Black Country Housing Group (MEBC member)

Scathing view of UK Government's Code for Sustainable Homes.

4. Britannia Building Society (via SBEN)

Programme of environmental best practice.

5. Bulmers (part of Scottish & Newcastle – BCSD-UK member)

Planning regime threatens micro wind energy ambitions.

6. Castle Cement (BCSD-UK member)

Successful programme of energy saving.

7. Clydeport & EnviroCentre (both BCSD-UK members)

Sustainable construction best practice in major regeneration project.

8. Community e-VOLve (via SBEN)

Linking voluntary organisations and businesses.

9. ConocoPhillips (BCSD-UK member)

Nine commitments to actions across the three domains of sustainable development.

10. Convertteam (formerly ALSTOM – BCSD-UK member)

Establishing an ongoing future for the emerging renewables sector.

11. EFFA (MEBC member)

Assessment of the BREEAM assessment.

12. Kingspan (via Arup – BCSD-UK member)

A comprehensive approach to sustainable development implementation.

13. Longma Biofuel (via UCE/TIC EnviroInnovate programme)

Biodiesel from primarily used cooking oil.

14. Marley Eternit (MEBC member)

With a target to be the environmental leader in the buildings materials sector

15. Maxsys (via UCE/TIC EnviroInnovate programme)

An innovative industrial energy saving solution that could improve burner fuel efficiency.

16. Reeds Carpet Recycling Company (via MEBC)

Recycling carpet from the exhibition industry.

17. ScotAsh (via Lafarge – BCSD-UK member)

Reporting high success but could be higher if it were not for the definition of waste.

18. Scottish & Newcastle (BCSD-UK member)

IPPC provides little incentive to pursue fossil fuel reduction programme.

19. Sunlight Services Group (via Groundwork)

Reduction in costs and environmental impacts

20. Westons Wetlands Ecosystem Treatment (via HP Bulmers – BCSD-UK member)

Integrated wastewater purification, resource production and habitat creation.

21. Wolseley Centre (via MEBC, Staffordshire Wildlife Trust & Schott UK Ltd)

Pv demonstration.

22. Woolley GMC Engineering Ltd (via Groundwork)

Energy and waste improvements.

23. WSP (BCSD-UK member)

Innovative new approach to bioremediation assessment.

1. BIFFA Waste is a member of the BCSD-UK

Talking Rubbish – The Ups and Downs

On the good news front, 2005/2006 has seen a rapid escalation in awareness and understanding, by government, around the concept of sustainable consumption and production, and resource efficiency. This has been reflected in a number of funding initiatives and the whole process has been further underpinned by rising awareness with regard to the carbon economy and the ways in which adjusted real pricing mechanisms for carbon – as a feedstock and as a pollutant – will impact on different supply chains and sectors in the UK economy.

When it comes to the waste sector, matters are still very much in limbo. With regard to the management of municipal waste in line with the expectations of EU directives, the UK is approximately 5 years behind in the implementation schedule. Many of the targets attaching to local government will cause real financial pain from 2009/2010, yet the installation of the capital infrastructure to divert materials from landfill and improve resource efficiency have little chance of being delivered to a sufficient level until 2012/2015. This is largely because of limited political perception on the nature of the technological options available, coupled to the stasis embedded in the planning system. In fairness to the government, the thrombosis inducing factors were identified in its own Kelly Review and one can only presume that the Kelly recommendations will be acted upon.

The feeling of limbo is induced partly by the slow pace of demand led shifts from the public sector, but accelerated by the reality that many of the new technologies now readily on offer (witness the offerings on show at the NEC September waste fest) are still not bankable until landfill gate fees reach £50 or more – a situation unlikely to be reached until the landfill tax hits £30-£35 in 2009. This lack of bankability is reflected in the surge of cash flow from the waste sector itself as a result of reduced spending on replacement landfill void in anticipation of the forthcoming switchover. As a consequence, the sector has continued to shake out, with venture capitalists moving in and out, and consolidation proceeding apace.

Overall, the good news is that waste is increasingly being seen as part of the energy and agricultural debate. Differences of opinion within the sector continue unabated, of course – in technological terms between those who believe that very large scale (300,000 tonne plus) combustion processes hold the key to the looming crisis, compared to those who prefer the logic of smaller scale (50-100,000 tonne) technologies being developed on a distributed basis in a range of local complexes and material resource parks. Either way, the market will decide and it will all boil down to timing and perceptions of risk. The added value options for waste companies continue to crystallise between gate fees, sales of output product, and Traded Pollution Permits. All these remain dogged by fundamental issues around the definition of waste as a legal expression, compounded by the continuing absence of an integrated data capture and information network. Metaphorically, it looks as if we are continuing to stumble over the boulders, but there is a widening perception that perhaps there is a sandy cove around the corner!

2. Birmingham Eastside (via Groundwork, an MEBC Strategic Partner)



Groundwork Birmingham and Solihull has been running the Sustainable Eastside project for three years funded to £550,000 by Advantage West Midlands through the East Birmingham North Solihull Regeneration Zone, ERDF through Government Office for the West Midlands, the Environment Agency and Birmingham City Council. The project was tasked with influencing Birmingham City Council's regeneration of the east side of the city centre to become an exemplar of sustainable development and took the innovative approach of collocating two Groundwork Sustainability Advisors with the city council's Eastside Team. Whilst the project has been found by independent evaluation to have provided expert, independent advice and training to the city

council and local stakeholders, the Sustainability Advisors found their impact had been limited by the lack of a local project to showcase environmentally sustainable technologies and demonstrate their potential in the regeneration of Birmingham.

Subsequently the project has received £175,000 funding from SITA Trust, though the Landfill Tax Credit Scheme with further funding from Advantage West Midlands, Birmingham Environmental Partnership

and the Environment Agency to develop four green roofs in Birmingham City Centre over the next three years designed as habitat for the Black redstart, a rare bird found on local brownfield sites. The roofs will be located at the International Convention Centre, BVSC – The Centre for Voluntary Action and Ladbrooke House in Digbeth as well as Islamic Relief's new global headquarters. Although the roofs will be primarily designed as wildlife habitat the project will also research their insulation and water attenuation properties.

To mainstream green roofs in future developments in and around Eastside the project has commissioned a green roof policy that will be trialed with the city council. This policy will show the benefit of locating green roofs in relation to local hydrology and drainage systems as a contribution to sustainable urban drainage solutions.

Groundwork Birmingham and Solihull is seeking to extend the Sustainable Eastside project. An independent review of Sustainable Eastside in May 2006 found that "The project has accomplished its key objectives and has clearly made an impact on mainstreaming sustainability through a variety of activities. It is further recommended that the project is expanded throughout the East Birmingham North Solihull Regeneration Zone." A bid has been made for a team of Sustainability Advisors to further the work of mainstreaming sustainable development in the EBNSRZ. To date funding has been secured from Government Office for the West Midlands to allow the project to continue in the interim and a number of other partners with a further bid to AWM to complete the match funding package.

3. Black Country Housing Group Limited is a Strategic Partner of MEBC

Providing homes and sustainability – are they mutually exclusive?

For the first time in 30 years someone has been brave enough to return to the main issue for sustainability. Mother Earth cannot support 6+ billion people with first world aspirations, let alone 12 billion or 20 billion. The solution to sustainability does not lie in alternative technology but a smaller population.

I hope it is not achieved by pandemic or conflict or that it is a matter of survival of the fittest – that would count me out on grounds of age, myopia and poor hand-to-eye co-ordination. Education may lead to the necessary reduction.

We still need to reduce environmental impact. We also need community cohesion, comfort, health and safety for individuals and their societies and we need a secure and reliable economy.

Economy, environment and society are the three pillars of sustainability – hence the term, "The Triple Bottom Line". This drives the pages on corporate social responsibility and environmental performance in big-business' annual reports.

It is therefore somewhat disappointing that the Government is peddling a rather dilute set of environmental performance standards for new dwellings under the grand title, "A Code for Sustainable Homes", disappointment compounded by an almost proud admission that site related matters are to be excluded because they are dealt with by planning Law!

No mention is made of social or economic impacts. (Readers should not confuse this with references to social and economic impacts of the Code in a "Partial Regulatory Impact Assessment").

So the first message is, if you are writing a code for reduced environmental impact housing you cannot call it a code for sustainable homes; they are not the same thing.

The proposed Code is a half-hearted reworking of the Building Research Establishment's (BRE) environmental impact assessment method for dwellings, called "EcoHomes".

The EcoHomes standard is already better than what is proposed for the new Code and as one of its stronger critics that is praise indeed. We cannot afford a lesser standard to be introduced.

The Code should report against absolute performance standards for reducing fuel use, emission of carbon dioxide and for use of potable (drinking-quality) water. It should also correctly reflect the relative impact of different materials and construction methods in different locations. For example, in the West Midlands there is a substantial metals industry. Locally made steel-frames for housing, already with a very high recycled content, have a lower environmental impact than timber frames made out of clear felled, 1000-year old hemlock from Vancouver Island.

A better code would also reflect measures to:

- reduce reliance on fuelled transport by facilitating home-working, walking and cycling
- minimize pollution
- protect and enhance biodiversity

These measures would be in addition to others identified in the proposed Code.

If we really want to approach sustainability we will have to add standards for social and economic performance to these environmental performance standards. So someone (CABE?) would need to come up with a unit of architectural value, amongst others.

The final point is therefore that provision of housing and sustainability are not mutually exclusive, but measuring the performance of housing in terms of sustainability is probably a holy grail somewhere beyond a benignly achieved world population of about 2 billion people!

4. Britannia Building Society – Case Study via Staffordshire Business Environment Network, an MEBC Strategic Partner



Environmental Processes/Procedures – CSC Facilities of the Britannia Building Society

For approx the last 10 to 12 years, we have sent all vending cups to “Save a Cup” for recycling purposes. These are used in the manufacture of stationery items, drinks trays etc. In 2003 we recycled in excess of 1 million vending cups.

Again for approx. the last 10 to 12 years, all non-contaminated paper waste coming out of CSC (i.e. not contaminated by food etc) has been sent to specialist contractors to be recycled. This process enables us to securely dispose of our confidential waste in a very cost effective manner, as well as being environmentally responsible. N.B. BBS staff hand sort the grey bins to ensure that we send clean paper to the contractors

The majority of printer toner cartridges are sent to be recycled by a specialist supplier. This has been in operation for approx 7 years.

All fluorescent tubes measuring 6ft or less are sent to a licensed recycling operator. At the moment we send approximately 600 tubes per year.

We have a “Building Management System” installed at CSC which controls lighting, heating, fire detection etc. This gives us added energy controls and savings.

We have a wood chipper on site at CSC, all timber, tree and shrubbery cuttings are shredded and go back onto borders around CSC as mulch.

No non-biodegradable products i.e. Weed killers etc, are used on CSC grounds.

Old oil e.g. from the generators, are sent for specialist environmental disposal.

All old cooking oils from the Staff catering service are sent to a specialist contractor (filterfry) and are used in the manufacture of animal feed products.

We have a ladycare hygiene contract in place covering CSC and the Branch network. This reduces the amount of waste going through the mains sewerage systems as well reducing Maintenance costs.

We collect aluminium drinks cans, in special collection bins around CSC. These are then passed on to a charity who can recover funds for the recycling of the cans.

We have petrol interceptors at CSC which filter all car park and road surface drainage to remove petrol/oil residue before the water goes into the main water systems.

Wooden pallets collected at CSC from deliveries etc, are passed on to one of our suppliers for re use.

We maintain 2 “ponds” on site at CSC, to encourage wildlife. We currently have increasing numbers of water fowl, as well as fish, frogs, tadpoles etc.

5. Bulmers, via its parent company, Scottish & Newcastle, a BCSD-UK member

S&Ns cider business, Bulmers, the UK's leading cider producer, has a strong history of practicing sustainable development. The company has a fully funded foundation that looks at the issue of what a sustainable business in Hereford should look like and is working with a range of stakeholders to advance this agenda.

One area of particular interest to the business and to its parent company, S&N plc is sustainable energy sources. In order to evaluate and demonstrate commitment to this issue, Bulmers purchased 2 micro wind turbines in November 2005, rated at 1.5kW. The supplier has duly delivered these. Unfortunately, due to planning problems, these micro wind turbines are still not operational. Despite the turbines measuring approximately 1.5 meters across, and emitting less than 35db(a) for all wind speeds, and the planned position being sort was for the top of farm outbuildings, 400m from the nearest dwelling, the wind turbines attracted objections based on concerns over noise.

The planning authority, should have addressed this issue by referring to the manufacturers guidelines and realising the noise levels were so low, that this concern was unfounded. Instead they are requiring Bulmers to undertake a full noise assessment on a development that can barely be heard from 50 metres, let alone 400m. This is not only delaying the implementation of the project and ensuring that the business does not reduce its energy use or its carbon emissions by a minimum of 3 tonnes per annum, but it also demonstrates that the planning system is a great hindrance to the application of renewable energy solutions, even at the micro scale.

Despite the objectives of the recent energy white paper to simplifier planning for innovative renewable projects such as these, this message is clearly not being relayed to the planning authorities. This must be resolved if we are to make the progress that is required on renewable energy and reducing the impact on global warming.

6. Castle Cement is a BCSD-UK member

Castle Cement is the UK cement arm of HeidelbergCement Group and meets about a quarter of the demand for cement in Great Britain, selling more than three million tonnes of the product. Castle Cement was the first company in its sector to produce a sustainability report.

Castle Cement is active in many areas of sustainability, the main focus has been reducing environmental impacts and particularly greenhouse gas emissions through energy efficiency and recovery of energy from wastes used as alternative fuels. Cement production is energy intensive and the calcination of limestone releases approximately 500 kg of carbon dioxide for each tonne of cement produced.

Castle commenced work on a strategy to reduce energy consumption in the 1980's and 90's by firstly moving cement production away from wet raw materials such as chalk by closing plants based on this type of raw material. The next stage was to stop using wet process technology, at the same as these process changes were being made Castle pioneered the use of alternative fuels made from wastes to replace fossil fuels in the UK cement industry.

Castle has substantially reduced its use of fossil fuels over recent years. The second major reduction in energy consumption was achieved during 2005 with the commissioning of kiln 4 at Padeswood. This modern 5 stage precalciner cement kiln replaced 5 existing kilns (3 at Padeswood and 2 at Ribblesdale).

Energy has been recovered from scrap tyres, Cemfuel (processed from the residues of recycled waste solvents) and Profuel (paper and plastic wastes not viably recycled in other ways). The new kiln at Padeswood started reducing the use of fossil fuels in April this year with the introduction of Cemfuel. During the summer of 2006 the use of chipped tyres and Profuel commenced.

In the past two years Castle has been increasing the fraction of fuel used that is derived from biomass. The table below illustrates the overall effect of these changes.

Process	Specific Energy consumption KJ/kg Cement	Kg CO ₂ / tonne Cement*	Kg CO ₂ / tonne Cement* (fossil fuel)
Long wet (chalk)	7,500	1,250	720
Long wet (limestone)	5,600	1,050	520
Dry (Precalciner)	3,200	840	310
Dry(20% biomass fuel)	3,200	780	250

*Cement is assumed to be Portland Cement

Castle Cement has led the industry with the introduction of MBM a biomass fuel, meat and bone meal (MBM), produced by sterilising and grinding abattoir waste at Ribblesdale Works this is typical of Castle Cement's forward thinking approach to the use of alternative fuels. The company completed a trial at Ribblesdale in 2005 which proved so successful that the use of MBM at Ketton Works started in April this year.

7. Clydeport Ltd (Glasgow Harbour) and EnviroCentre – both being BCSD-UK members



Sustainable Construction at Clydeport: Yorkhill Basin, Glasgow Harbour

The Yorkhill Basin sustainable construction case study illustrates the use of good practice techniques by **Clydeport** (a wholly owned subsidiary of **Peel Holdings Ltd.**) on a large scale redevelopment. Innovative approaches to development were adopted, with support from **EnviroCentre**, which can be easily replicated in other developments. The Yorkhill Basin case study forms part of the wider redevelopment of Glasgow Harbour, a 10-

year project being managed by Clydeport, the port operator responsible for the management of the River Clyde and for providing port facilities and services.

This redevelopment is being undertaken by **Glasgow Harbour Ltd.** (a wholly owned subsidiary of **Clydeport**). Companies providing support to the redevelopment include; **EnviroCentre**, for environmental and engineering consultancy services, and **Capita Symonds** to act as the project manager.

Glasgow Harbour Redevelopment

The redevelopment of Glasgow Harbour began in 2001 as a 10-year flagship development with a projected budget of £1billion. The project is providing a focus for regeneration initiatives on the Clyde and will house the new Riverside Museum. Its aim is to create a new district within Glasgow from a derelict area. The 130 acre development spans 3km of the River Clyde and integrates commercial, retail, residential, recreational and open spaces.

The redevelopment of the Glasgow Harbour site involves:

- The demolition of derelict buildings already present.
- Site preparation for construction.
- Infilling of Yorkhill Basin to provide a new area for the future Riverside Museum.
- Building new roads and walkways to increase access, ease congestion and remove the physical and psychological barriers that currently separate Glasgow Harbour from the city via the Clydeside Expressway.

Yorkhill Basin Development

Yorkhill Basin is currently being infilled to increase the area available for redevelopment. Around 80,000m³ of reclaimed material will be used to infill the basin. Through a number of innovative approaches to these works, the Clydeport development team has employed a range of sustainable construction techniques.

These approaches are summarised below in the following six areas:

- Re-using dredged sand;
- Re-using waste material from site works;
- Minimising the volume of materials sent to landfill;
- Utilising material already present at the site;
- Careful phasing of different works;
- Overcoming legislative constraints.

Summary of Good Practice Techniques and Approaches to Overcome Barriers

- Re-using 58,000m³ of dredged sand from Bowling Bend to form the base layer of infill in Yorkhill Basin:
- Balanced material demand with the available materials present in stockpiles at the site.
- Reduced the volume of material required to be brought in by road.
- Minimised the volume of engineering materials that would need to be placed directly in the water.
- Made use of contaminated sediment from maintenance dredging of the River Clyde that would otherwise have been sent to landfill.
- Utilised materials already created at the site and reduced the need for new materials.
- Used a sand layer to improve the geotechnical property of material in the lower basin, increasing the suitability of lower grade material present at the site.
- Reduced the volume of crushed rock material required to be brought in
- The use of a closure bund across the basin mouth to seal the basin, which:
 - Minimised the input of fines into the River Clyde by acting as a filter to silt.
 - Reduced fuel consumption by minimising the length of the route vehicles take on the site, by using the surface of the bund wall as a haul road.
 - Reused breakout slab material from the site that would otherwise have required to be taken off-site.
 - Reduced the volume of suitable material that would have needed to be imported to the site.

Effective communication with other developers:

- Allowed surplus high grade material present at the site to be sold to other developers.
- Allowed the identification of other areas of development that could use surplus material from Glasgow Harbour. Material from the harbour was sent to Yoker and Braehead developments.
- Making full use of material already present at the site to minimise the input to landfill and import of material from offsite:
- Victorian cobblestones removed from the quayside to be re-used to create new walkways along the waterfront.
- The material used for the infill of the basin was supplied from the use of demolition rubble and breakout of concrete slab at the site.
- Material was sorted according to grading, with the high grade material used to construct roadways and the low grade material used to infill the basin.

Effective work scheduling to support good environmental practice by:

- Ensuring early completion of the bund wall allowed its use as a haul road to overcome access issues for the movement of stockpiled material around the site.
- The completion of the bridge across the River Kelvin was phased to coincide with the relocation of excavation works to new stockpiles located across the River Kelvin. Ensuring that these two events concurred minimised the length of the haul route.

Overcoming legislative constraints:

- By liaising with SEPA, Clydeport was able to identify a method by which legislative barriers could be overcome. By identifying alternative approaches to implementing legislation, it was possible to maximise use of the material present and allow the infill of Yorkhill Basin to be undertaken.
- The definition of waste within the Waste Management License deems that contaminated material cannot be used for reclamation. To overcome this barrier, the infill was regulated by FEPA regulations. By screening the stockpiles for size and contamination, the margins of this legislation were met and the levels of contaminants were deemed suitable for the proposed use.

8. Community e-VOLve via Staffordshire Environmental Business Network, an MEBC Strategic Partner

Community e-VOLve is a “not for profit” organisation (Company Limited by Guarantee) that acts as a first port of call for local community and voluntary groups who want to engage with local businesses. For communities, this business support such as the sharing of resources, “in-kind support”, sponsorship or the development of an employee volunteering programme have proven and well documented results. The benefits of completed community projects affects all classes and all ages of local residents. For those businesses who engage with communities they give themselves a competitive edge, enhancing their own corporate social responsibility programme and improving the development and retention of staff.

Earlier this year through one of their many contacts built up over a long period Ann & Helen met Julie Cook, Regional Field Facilities Manager for the Learning and Skills Council who is responsible for refurbishment of offices across six counties. Julie was in the process of refurbishing the Stoke on Trent Area Office and Community e-VOLve was able to negotiate for the opportunity to distribute to local community and voluntary groups a considerable amount of good quality second hand office furniture. In this instance Julie was not a local resident and was unaware of local issues and the local voluntary and community sector. Without this local knowledge Julie had previously not considered this means of disposal of office furniture. Items for distribution included desks, chairs, filing cabinets of all sizes, bookcases, tables, reception seating, board table and matching chairs, and a large office safe.

All known voluntary and community groups were contacted throughout North Staffordshire and to date there have been three “collection” days from storage depots with a fourth one planned for July 2005. All the groups have been highly delighted to be able to refurbish their offices at no cost other than arranging transport.

“The office furniture has helped us tremendously. We have been able to establish a committee room and to furnish an office which will help us to set up a social enterprise to make us sustainable. Our activities and projects now have a more professional look” - Joe Cairns, Secretary, Knutton Community Centre.

“Its been really useful to us at Lower Milehouse community Development Association. We had a safe amongst other things which means that we can store vulnerable items and hold cash until it can be banked. Without this we would be really struggling” - Jason Lockett, community works, Lower Milehouse Community Development Association

Groups operating near to each other have shared transport costs and there have been a number of offers to transport items for no cost to groups who could not afford to pay. Through this exercise some groups have been able to offer their own surplus goods to other groups at no cost and there have been some good contacts made.

The payback to the Learning and Skills Council is the knowledge that their kindness has made a real difference to the community groups and has enhanced their standing in the local community. Julie will now roll out this method of distribution in other areas. The benefits to the community groups are immense. Some have been able to provide a much more professional image of their organisation whilst utilising their own funds for other projects. Community e-VOLve has helped to establish a strong rapport between the Learning and Skills Council and the community it operates in by establishing proven partnership working. It has encouraged both sides of the partnership (communities and business) to ‘think outside the box’.

In fact, this furniture would have been scrapped without their intervention and it doesn’t stop there. Community e-VOLve aims to encourage other businesses to follow suit and is actively seeking out other companies with surplus stock to distribute before it is either scrapped or thrown in a landfill site. Future developments include working with Alton Towers to re-distribute redundant IT equipment.

9. ConocoPhillips (UK) Limited is a BCSD-UK member

ConocoPhillips' commitment to sustainable development stems from our fundamental intent to thrive as an enterprise and to contribute to a better world long into the future. Our approach toward delivering on this objective is based on meeting nine specific commitments that lead to measurable actions across each of the environmental, economic and social domains of sustainable development.

- Increase the availability of ever-cleaner energy.
- Be transparent and accountable by measuring and reporting both our financial and non-financial performance.
- Operate to the highest safety standard.
- Positively impact communities wherever we operate.
- Minimise the environmental impact of our operations.
- Invest in the well-being and development of our employees.
- Constantly improve the energy and material efficiency of our operations.
- Practice and uphold the highest ethical standard.
- Ensure the long-term financial viability of the company.

A key mechanism for ensuring consistency in execution of these commitments across our diverse business is a tool known as the 'sustainable development scorecard'. This tool, which must be used for all projects over \$30 million in ConocoPhillips upstream operations, hard wires consideration of our nine commitments into the project management process. It is used at key points in the lifecycle of a project to give project teams and executive decision makers a 'sustainable development' perspective on a project's preparedness to go forward. A project will not be funded unless this evaluation has been completed.

Key expectations of capital projects during the execution phase are that they are managed on time and within budget. The sustainable development scorecard helps to manage risks, which could jeopardise these objectives. However, at the same time it encourages project teams to take a life-cycle perspective. The scorecard process ensures that concept and design decisions taken at the front end of a project, have taken account of issues that will be relevant in operation after project completion, and even through to eventual de-commissioning, many years later.

All major capital projects in ConocoPhillips upstream Europe use this tool to integrate sustainable development into the risk management and decision making process of projects. It provides teams with a checklist to ensure that all aspects of sustainable development are being considered and integrated as appropriate into the project. The scoring system is tied in a qualitative way to project risk. Implementation addresses a plan that will have been developed based on findings from both an environmental and social impact assessment and stakeholder engagement at the front end of the project. These are a necessary foundation for the scorecard evaluation and required elements in the project management process.

The environment we operate in as a company makes committing to sustainable development an essential strategy for ConocoPhillips. Our planning horizon of 30-40 years spans generations, requiring a long-term outlook. We operate in diverse locations, on-shore, offshore, in desert, arctic and rain forest, in both developed and developing economies, in regions with stable or unstable governance, as sole operator or in partnership with other companies or governments. The social, environmental and economic circumstances of every project are different and a tool such as the scorecard ensures that we have understood and adapted to the project specific conditions so that we can grow a sustainable business, demonstrate care of the environment and help support vibrant communities wherever we operate.

10. Converteam (formerly Alstom (Rugby)) is a BCSD-UK member

In April 2006, the Power Conversion sector of ALSTOM became Converteam. Under the new ownership of private equity finance, we have been given direction to address targeted, core objectives in our power generation, transmission and consumption sectors. The marketing of innovative solutions, to establish an ongoing future for the emerging renewables sector, has become a Converteam priority.

During 2006, Converteam has become the UK's largest exporter of wind turbine sub-systems. The conversion of renewable energy sources to usable electrical power is, by definition, sustainable. But Converteam have looked beyond the Danish and German experience, and have realised that there is real UK public concern regarding the growth of a new rural 'concrete jungle', which would eventually threaten the long-term future of the UK wind industry. There would be a loss of opportunity for an island like the UK, if we did not turn to our North Sea offshore experience of the last 35 years, and recover the abundant wind, wave, tidal and ocean current energy out there.

Converteam is working toward an ultimate target of building inherently maintenance-free, renewable energy conversion machines. It is possible to deploy and retrieve these machines totally safely, and utterly reliably. At the end of their lives, they must have produced profitable power, and leave energy 'in the bank' for the next generation to re-make them to produce more power, or to make other things from their original materials. At each re-construction, the machine must be made in ever better ways, to repeat the process. On the way to maintenance freedom, the service intervals must be totally predictable, and the service activity must move towards automated, remote access. This ultimate goal will allow the machines to be used in global locations, where the technology is inappropriate today.

The closest we have come to this goal will be the generators currently in production in the UK for wind turbines. The permanent magnet generators run at the speed of the rotor. There is no gearbox, massively decreasing component count and increasing reliability. Offshore, each installation can produce up to twice the power of the existing onshore wind turbines. Offshore, the wind is not obstructed, power production is consistent, the electricity generated is therefore more valuable. The Converteam microprocessor-controlled generator and electronics, converting rotation to electricity, allow the equipment to send detailed reports of its operation and maintenance needs.

Work on linear generators for wave power production and deepwater induction generators for tidal and ocean current energy conversion looks very promising in the medium term, with high temperature superconducting generators to follow, which will again double the power per installation.

11. EFFA is an MEBC member

2006 has been a successful year for environmental projects with a number of buildings being awarded BREEAM Certificates. However, more companies need to embrace the environmental concept to achieve the government target figure of a 10% decrease in the Co2 emissions by 2010 and 60% 2050. It is no good just specifying and installing green material and goods. The government needs to see that this is being done, and the only way that this can be judged is to have a BREEAM assessment.

The BREEAM Certificate does not only refer to NEW builds but to all buildings that have a refurbishment, and use green materials. BREEAM covers not only Office but schools, industrial units, supermarkets, retail outlets large and small; EcoHomes covers the housing market including flats.

BREEAM (BRE Environmental Assessment Method) and EcoHomes are the world's most widely used means of reviewing and improving the environmental performance of buildings. Since its launch in 1990, BREEAM has been increasingly accepted in the UK construction and property sectors as offering best practice in environmental design and management.

The following buildings are just a few that will be given BREEAM Awards at the BRE Annual Conference.

- Debut at Willans Green, Rugby, Warwickshire
Category Housing
Developer Redrow Homes
This modern development boasts many environmentally friendly features that place it significantly ahead of the norm. The building scored well across all EcoHomes categories, and exceptionally well in the categories of Transport, Pollution, Water and Land Use and Ecology.
- The Mills Building, Veterinary Laboratories Agency, Weybridge
Category BREEAM Bespoke
Developer DEFRA and Veterinary Laboratory Agency
Architect Architon LLP
This development houses the 25 staff that form the Animal Services Unit of the Veterinary Laboratories Agency. The development achieved very high scores across all BREEAM categories, and gained the maximum of 100% of the available credits in three categories, namely, Management, Energy and Pollution.

A number of buildings are being assessed at the moment and hoping to get awards for next year and include the new police HQ at Gloucester, 2 new police stations for West Mercia Police, a new HQ for Kent Police and the refurbishment of the Crown Courts in London.

12. Kingspan case study via Arup, a BCSD-UK member



For the last 2 years, Arup has been working with Kingspan Insulation in an ongoing appraisal of its organisational procedures, practices and wider community impacts using Arup's sustainable assessment framework, SPeAR®. Arup was employed to evaluate the sustainability of the production process at the Pembridge plant in terms of making its products, but also in a wider sense, including how Kingspan Insulation look after its staff and the relationship with the local community. This is an important next step for a firm that already promotes the environmental benefits of its products.

Kingspan Insulation has used the Arup assessment to improve their sustainability performance programme and demonstrate real progress towards sustainability. By adopting this approach of using independent assessment at annual intervals,

Kingspan Insulation has undergone rapid cultural change and achieved this within their normal operational budgets. Key areas where Kingspan Insulation has performed strongly include:

- Focus on waste elimination and recycling;
- Reed beds to treat effluent;
- Proactive and preventative focus on employee health and welfare;
- Training programs for employee development;
- Increased freight utilisation;
- Ethical purchasing.

By undergoing this appraisal process, the company is enabling itself to be better prepared for inevitable change in the market over the next 10 to 15 years. In particular, the company is aware that it will have to look more closely at the 'embodied' energy that goes into its products.

As part of this introspective process of looking at the "gritty reality" of making insulation products, Kingspan Insulation is requesting that its supply chain provide information on its environmental performance and detail how it intends to improve. In this way Kingspan Insulation can ensure that the biggest stage of energy use in producing the final product – the energy used in the processing of raw materials – is monitored.

From Arup's point of view, Kingspan Insulation had several factors enabling an effective appraisal process:

- **Openness and honesty** – both about drivers and motivators, and with company information;
- **Good level of 'buy-in'** from the management team;
- **Forward-thinking** marketing department who are keen to address the realities of sustainability, rather than simply using the nebulous language of sustainability and CSR policies;
- **Keen individuals** who have persuaded the company to take a proactive view on 'what if' scenarios a number of years into the future;
- **Rapid take-up of issues** raised in our reports, including production of an Action Plan to help drive the company forward.

13. Longma Biofuel – via HP Bulmer – a BCSD-UK member

Longma Biofuels produce biodiesel from primarily used cooking oil. This can then be blended with fossil oil diesel to produce a biodiesel that will run in modern engines. As the biodiesel is grown from plants it is notionally carbon neutral and hence reduces the carbon footprint of vehicle use.

In conjunction with Longma, First Energy Ltd and Innospec, the Technology Innovation Centre secured a £120,000 Carbon Trust Grant to evaluate biofuel and a fuel for Combined heat and power units. These units generate electricity, which can be sold to the grid, as well as producing a locally saleable heat output.

The project has a number of aims:

- Developing the local production of biofuels.
- Developing the CHP technology to use biofuels
- Evaluating fuel blends and additive for maximum efficiency and reduced emissions.

Benefits

- Reduced waste to landfill
- Proof and demonstration of a renewable fuel for power generation.
- Income from Electricity sale and Renewable Obligation Certificates (ROCs)
- CO2 and other emissions dramatically reduced (c.f. fossil diesel)
- Development of new business opportunities for West Midlands companies in fuel production, CHP conversion, burner design etc.

14. Marley Eternit Limited (formerly Marley Roofing) is an MEBC member

Going from Strength to Strength:

In the mid 1990's, Marley Eternit Limited (MEL) set itself an ambitious target to become the environmental leader in the building materials sector, and over recent years have demonstrated a number of notable achievements that are now used to demonstrate our position as market leader.

In 2001, MEL were the first company to be awarded Certified Environmental Profiles and certificates for the work we have carried out jointly with the Building Research Establishment (BRE) to assess the Life Cycle credentials of our roofing products. This was the result of many years work with the BRE and in 2004 we became the first company to achieve re-certification under the same scheme. As a result of this study, all of Marley's products were awarded "A" ratings in the Green Guide to Specification.

Following a company re-organisation in July 2005, a number of additional roofing product including Fibre Cement slates, & sheeting materials and a range of clay tiles and accessories were added to our product list and further work is now taking place with the BRE to have these additional products certified under the Environmental Profile Scheme.

In the late 1990's a decision was taken that all of our manufacturing sites should be independently certified against the requirements of the Environmental Management Standard, ISO 14001. Following a three year implementation program, the company was proud to be able to announce in December 2001 that all sites had achieved registration to this important environmental standard by the British Standards Institute (BSI).

Following on from these successes, Marley have been well placed to meet the growing expectations of our customers, as more and more architects, specifiers, house builders and building merchants etc have started to demand that suppliers such as Marley, can demonstrate that our products are "Sustainable". In order to help with communication of our environmental credentials, Marley published their first "Environmental Guide to Sustainable roofing systems" in 2002 and since then, have had to produce a number of updates in order to keep our customers up to date with our current achievements.

During the mid 1990's, Marley were influential in setting up a Sustainability Committee within the British Precast Concrete Federation (BPCF) and over the years have used this forum to exchange and encourage best practice within the field of environmental management. More recently, this committee has developed an annual "Sustainability Awards" program to encourage large and small member companies to be recognised for their outstanding achievements.

After many years of submitting entries, and receiving highly commended certificates, Marley achieved their first winning entry in 2005 for its company-wide life cycle assessment submission and received the award from Lord Hunt (Parliamentary Under Secretary at the Dept. for Work and Pensions)

With this success under our belt, Marley also entered a submission to the prestigious Business Commitment to the Environment (BCE) awards earlier in 2006 and were delighted to gain a Major Commendation for our Environmental achievements, presented by David Cameron MP at a ceremony in London, held on the 7th June, 2006.

Also, earlier in 2006, we submitted two entries to the BPCF Sustainability awards and were awarded first place in the "single factory" category, for a project to develop and implement improved environmental awareness training at a factory, and second place in the company-wide section of the awards for a project that has reduced the use of packaging associated with our products, both awards being presented in Manchester on the 21st September, 2006.

The journey towards Sustainability can possibly be described as “a journey which will never end” and having spent around 10 years developing and implementing new procedures and systems to improve environmental controls within the company, Marley is still faced with new challenges each year and so have no difficulty in identifying new objectives and targets aimed at further improvements.

15. Maxsys – via UCE-TIC EnviroINNOVATE programme an MEBC Strategic partner

Walsall-based Maxsys had developed an innovative industrial energy saving solution that could improve burner fuel efficiency by around 5%. The company needed support with market analysis to develop a business plan. EnviroINNOVATE provided marketing and technical support utilising the resources of 3 Universities.



The size of the UK industrial and commercial market for large scale fuel burning plant was assessed and target potential clients were identified. A new company logo was designed and company marketing literature produced. A company website was designed, produced and hosted. A programme of research was conducted to evaluate physical effects of the device on fuel. The research results show there are quantifiable physical effects created by the device. Based on this a further programme of research is being carried out by Maxsys to investigate how these effects translate into burner efficiency improvements.

Benefits:

12 Jobs safeguarded or created and over £800,000 new sales.

Energy Savings:

Established by Independent Consultants (ABB) vary from 4% to 11%.

External Investment:

Has been able to attract over £200,000 of investment.

“EnviroINNOVATE provided us with independent market research and analysis that enabled us to attract investment, find customers and get the business of the ground. The assistance we have received over the last 12 months has been invaluable” Barry Singh MD.

16. Reeds Carpet Recycling Company (via MEBC)

As an industry, exhibitions and events get through an estimated 15 million M2 of cord carpet each year, which equates to some 6000 tons going into landfill. Due to the latex and plastic that the carpet is made from, it takes many thousands of years to fully biodegrade.

The figure of 15 million M2 has been based on research by various exhibition associations, but they have only taken into consideration events over 2000M2.

As we know there are thousands of events each year that fall under this amount. The real figure therefore should be higher. Every 10,000M2 of cord carpet equals 4.2 tons, and exhibitions and events only last a few days before the waste is land filled.

A new recyclable cord carpet called EVO-RIB has been developed by Reeds Carpets. Reeds Carpets are the largest independent carpeting contractors in the UK, if not Europe. In 2005 they had to landfill some 1.5 million M2 of cord, that equates to 750 tons, and their sales of cord are increasing at a rate based on last year’s figures of 30% per annum.

Due to intensive research by their Development Director, Clare Reed, they have found a recycling process for their EVO-RIB. This process involves the post show carpet going through a pelletizing machine which turns the carpet back into polypropylene pellets, these pellets can then be made into new plastic products to be sold to consumers.

The recycling plant will be a stand-alone company called Reeds Carpet Recycling Ltd; it will be a specialist carpet recycling plant, the first in the UK, if not Europe. At present the company will only process EVO-RIB, but research is under way to try to find a way of recycling all domestic carpets and vinyl’s, so we can divert all of this waste out of our landfills.

Marketing is also under way to try to convert the exhibition industry into using this recyclable carpet, so if successful, Reeds Carpet Recycling will be able to process the 6000 tons or more that the industry creates.

17. ScotAsh – via Lafarge, a BCSD-UK member

ScotAsh, a joint venture between ScottishPower and Lafarge Cement UK, manufactures high quality construction products from Pulverised Fuel Ash (PFA).

Environmentally-friendly products from ScotAsh, including blended cements, grouts and stabilisation products, have been used in major infrastructure projects ranging from windfarms, to the Kincardine-Stirling-Alloa rail link and recycled roads projects in major UK cities, including Edinburgh's Royal Mile. In addition, a high-strength grout is exported to the oil industry in the Middle East.

ScotAsh, based at Longannet Power Station, Kincardine-on-Forth, uses a cutting edge electrostatic process to reduce the carbon content of the Pulverised Fuel Ash (PFA) making it suitable for a wide range of applications.

During the last few years the company has diversified to produce specialist materials, such as environmental binders and lightweight fillers that enhance the structural integrity of concrete. In 2005/06 the company achieved total product sales of 545,388 tonnes during 2005/06 – equivalent to more than 80% of ScottishPower's ash output.

Managing Director Peter Quinn, who is also the current chair of the UK Quality Ash Association, said: "Using PFA in construction products creates strong environmental benefits, displacing the need for hundreds of thousands of tonnes of virgin aggregates each year and significantly reducing the volume of ash disposed of to landfill.

"The re-use of ash also saves energy on crushing, grinding and heating raw materials. During the last three years we have saved more than 120,000 tonnes of CO₂ emissions – that's equivalent to taking 38,000 cars off the road for a year."

The company continues to support research work with Scottish universities and expert partners to develop new products and applications for ash.

Recent innovations include Superpozz SV80, a superfine concrete enhancer, and the successful utilisation of the high carbon by-product of electrostatic separation in Stone Mastic Asphalt (SMA) and foamed bitumen Macadam for roads.

Finding an environmentally-acceptable disposal solution for the high carbon by-product of the electrostatic separation process has been a major issue for ScotAsh. Proposals to re-use the material – finely ground, unburnt coal – as a fuel at Longannet Power Station have not been accepted by SEPA, who regard the by-product as a waste.

Peter Quinn said: "It is frustrating that definition of waste issues continue to act as a barrier to full resource efficiency. However, it has been another good year for ScotAsh. "We started 2005/06 by winning a Queen's Award in the Innovation category and we continued to make solid progress throughout the year."

In February 2006 the company was one of just 12 UK companies short-listed in the biennial European Business Awards for the Environment 2006, and in July ScotAsh received a Big Tick from Business in the Community and was short-listed as a National Example of Excellence in the EDF Environmental Award.

18. Scottish & Newcastle is a BCSD-UK member

Environmental regulators treat sustainable solutions as presenting greater risk than traditional more polluting approaches

S&N is currently exploring proposals to utilise biomass as a substitute for burning natural gas to raise heat on its manufacturing sites. All of these sites are IPPC regulated sites. If S&N is to progress these proposals, the sites will have to submit a substantial variation application to their existing permits.

The proposals being investigated would potentially reduce the amount of fossil fuels being directly burnt at the manufacturing sites by 40% leading to a huge reduction in carbon emissions. In addition, the proposal aims to remove over 3,000 truck movements per annum from the roads.

However, despite the obvious environmental benefits to these proposals, under the IPPC scheme and the fee structure employed by the regulator the permit is likely to cost the site more on an annual basis. Whilst we welcome a risk based fee scheme, it seems that little incentive exists within the current regulatory framework to develop environmental improvements. The sites will be less polluting, less reliant on the vagaries of the fossil fuel market thus giving greater economic stability to the business and the positive impact socially and environmentally from a significant reduction in truck movements should be acknowledged and recognised.

19. Sunlight Service Group (via Groundwork, an MEBC strategic partner)

Founded in 1900, the Sunlight Service Group Ltd is the UK's leading supplier of textile rental and laundering services, with over 70,000 customers and a number of sites across the country. The Handsworth branch of the Sunlight Service Group employs around 200 people and has one of the most advanced industrial workwear cleaning/automated handling systems in the world together with other specialized cleaning services.

Due to the nature of the operations, laundries can use high levels of water and energy. Recognising this and through a desire to become more efficient and environmentally responsible, the Sunlight site at Handsworth has recently taken a number of steps in order to reduce waste and operate more efficiently.

Much of this efficiency drive has been driven by Jim Eyre, the General Manager together with Mike Davis, the Chief Engineer and Paul Booker, the Production Manager, all of whom took part in the Waste Minimisation Programme run by Groundwork West Midlands EBS.

Prior to taking part in the programme, Sunlight were making good progress with efficiency savings, with a variety of energy and water use reductions made across the site through, for example, the installation of energy efficient equipment such as sensor controlled lighting and tracking of water use. The resource consumption of process areas was monitored on a weekly basis, with a focus on identifying causes of slippage and the development of associated improvement targets. In addition, a comprehensive energy survey had also been carried out by the Carbon Trust which identified further energy saving actions that could take place, and plans for introducing energy wardens made. Sunlight had also been working to improve the performance and efficiency of raw materials by developing close links and relationships with key suppliers, work which is still ongoing.

The Waste Minimisation Programme helped to consolidate the work which was already taking place at Sunlight and provided the tools and techniques for waste minimisation, improving waste management and developing a waste minimisation and energy management strategy. The Programme also spurred the company on to make housekeeping improvements to the site, further develop documentation systems, carry out waste stream analysis and reassess waste disposal activities in order to make processes more efficient and to reduce waste disposal costs.

Sunlight have so far had a number of successes on their route to becoming more efficient, resulting in significant reduced costs and lowering their impact on the environment. Statistically, key figures benchmark following trends

- Boiler Fuel efficiency improved 16%
- Electricity efficiency improved 11%
- Water consumption reduction 9%

By tackling issues at their source, for example raw material use, through to reducing the waste that leaves the site, they are on the right track towards to making even more improvements in the future.

20. Wolseley Centre and pv demonstration (via MEBC and Staffordshire Wildlife Trust and Schott UK Ltd)



The Wolseley Centre became the new headquarters and visitor centre for Staffordshire Wildlife Trust in 2003.

Careful use of water, re-use of many building materials, and innovative use of energy consumption all contributed to winning the Sustainable Business Category of the Borough and County Green Awards. During the first two years of occupancy the Trust researched 'retro-fitting' of solar panels. It quickly became clear that the most appropriate way to incorporate renewable energy technologies through the installation of photo-voltaic generation of electricity.

At the same time, Stafford based Schott UK were looking for a local demonstration site for their products. After negotiation with international company Schott UK Ltd (whose UK head office is based in Stafford) the Wellesley Centre was installed with a 4.8 kip Schott Index roof integrated PV system, the first of its kind in the UK. Small demonstration solar heating unit to power the staff showers; Internal interpretation facility to inform the centre's 20,000 visitors per annum to the centre about the existence of the units, how they work and how they save fossil fuels and money at the same time.

The total cost of the project was around £40,000. Around 50% came from the Clear Skies grant programmed. The other major contributors were Kinnock Chase Local Strategic Partnership, Schott UK Ltd, and prize money from the Stafford Borough Council and Staffordshire County Council Green Awards Scheme.

The Trust's commitment to saving energy is not confined to renewable energy. Sewage is treated using a natural reedbed which saves energy as the sewage does not need to be pumped to the treatment works. The building is insulated using recycled paper.

21. Westons Wetlands Ecosystem Treatment (via HP Bulmer – a BCSD-UK member)

H. Weston and Sons Ltd has been making traditional cider and perry in the Herefordshire village of Much Marcle since 1880. Concern for the local environment prompted them to convert 5 acres of meadow land into an ecological wastewater purification system – a Wetland Ecosystem Treatment or WET System designed by Biological Design Limited. The scheme not only purifies the cider mill waste water which is then used to irrigate over 120 acres of orchards, but through its earth banks, ditches and ponds planted with several thousand water plants and trees, has become a significant local nature reserve.

During the cider making season the flow of wastewater can reach 650m³ (170,000 gallons) per day, with flows of 15 litres per second. The wastewater from the cider mill passes by gravity to the WET System. Although this wastewater is non-toxic, it is very acidic due to the fruit used in the cider making. It also has a high Biological Oxygen Demand (BOD) which means that it would cause pollution if it was released directly into the local stream.

This natural system is made up of a series of swales (specially designed and constructed earth banks and ponds) through which the wastewater passes. The WET System harnesses the natural ability of wetlands to absorb organic nutrients, such as those found in the wastewater, converting them into plant biomass and soil. It is the soil in the root zone which acts as the purification medium, so that as the WET System matures, and creates more soil from the annual fall of leaf litter, the purification potential of the system increases.

The purified water is used to trickle irrigate 120 acres of orchard, creating a virtuous cycle in which the production of cider creates wastewater which, when purified, increases the yield of fruit used for cider making.

22. Woolley - GMC Engineering Co Ltd via Groundwork, an MEBC Strategic Partner

Woolley GMC Engineering manufactures parts principally for Perkins and Caterpillar engines. The company operate from two nearby sites on the Bayton Road Industrial Estate, near Coventry. They employ 72 staff, and conduct a variety of machining operations on cast iron casting steel and aluminium.

Since participating on the Groundwork Waste Minimisation Programme, the company has introduced a number of waste saving initiatives resulting in considerable financial gains. Prior to starting the Programme the company filled and disposed of four 8 cubic yard skips of general waste at a cost of £319 per month, equivalent to £3,828 per annum. Inspection of the skips revealed that two of the skips contained mostly pallets and cardboard with a large quantity of unflattened boxes meaning the company were paying for disposing of mostly fresh air! Through the segregation of pallets and recycling of cardboard and paper Woolley-GMC have been able to reduce to 2 skips per month, a saving of £1914 per annum. Uptake of recycling practices by office staff has been a particular success.

The company has also installed a new energy efficient compressor, using £16,000 loan received from the Carbon Trust under the Enhanced Capital Allowance Scheme. Acting on further energy saving opportunities highlighted during the company support visits, Woolley-GMC is currently in the process of upgrading their compressed air network with an expected 20-30% saving through reduction in compressed air leaks. Other projects in the pipeline include the installation of water saving devices and the company are also taking initial steps towards implementation of an Environmental Management System, with a long term goal of achieving ISO14001 accreditation.

23. WSP is a BCSD-UK member

In order to assess the viability and efficiency of bioremediation projects, traditional methods of culture-based techniques and activity measurements, have been shown to be unreliable. This is because only a small percentage of bacteria are culturable, also the type of culture media used can bias the results. Some organisms can be more easily cultured than others and the faster growing populations may therefore be selected.



CHALLENGE

In order to understand if a bioremediation project is going to be feasible, we need to know which microbes are present in an environment and how many there are. We also need to know which ones are going to be active in the degradation process and how we can achieve optimum conditions for their efficiency.

INNOVATION



WSP Remediation in conjunction with the University of Essex are using molecular methods to target specific genes and organisms. Techniques such as polymerase chain reaction (PCR), probing, cloning and sequencing, together with denaturing gradient gel electrophoresis (DGGE) are used to determine which microbes are present. Procedures including fluorescent in situ hybridisation (FISH), flow cytometry and real time quantitative PCR can then be used to determine how many microbes are present. Methods such as stable isotope probing (SIP) and mRNA analysis are then used to determine which microbes are active.

Enrichment trials are then conducted to determine optimum conditions.

Ends