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FEATURE ARTICLES

Biological techniques for contaminated land: case studies

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Background

Traditional techniques for risk assessment and remediation of contaminated sites have technical, financial and practical limitations. For example, analytical testing is most commonly used for measuring the degree of contamination on a site; however the results give no indication of the toxicity or bioavailability of the contaminants present. Similarly, excavation and disposal has traditionally been the preferred option in the UK for the remediation of soil contamination, but is becoming more expensive due to rising landfill disposal costs, and is increasingly seen by regulators and other stakeholders as being unsustainable. As a result, there is an increasing need for more cost-effective and sustainable techniques to be applied to the assessment of risk and remediation of contaminated sites.

Bioremediation fits in well with the UK Government's drive towards sustainable approaches to environmental management. Nevertheless, like many emerging technologies, the uptake has been relatively poor in the UK. This is due in part to a number of technical (e.g. inhibitory effects on microbial activity), legal (e.g. waste management licensing), financial (e.g. project cost overruns) and practical factors (e.g. space and time constraints). In some cases preclusion of bioremediation has been justified. In other cases, a lack of confidence may have unjustifiably ruled out biological techniques, if indeed bioremediation was considered in the first place.

There are two broad categories of application of biological techniques on contaminated sites.

Risk assessment and monitoring of remedial options (Biological test methods)

Although few biological test methods have been deployed commercially on UK sites, a number are beginning to be developed, including *in situ* and *ex situ* bioassays, toxicant response tests, biomarker and biosensor tests, and the use of bio-indicator species. Earthworms have been successfully deployed in bioassay tests on sites, the effects of exposure to contaminated soils being studied on their return to the laboratory. Biomarker tests of exposure, such as the neutral red retention assay, have been used to reflect the bioavailability of toxic compounds in soils, while biosensors such as Microtox and lux gene modified organisms have proven particularly useful for the assessment of organic compounds.

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Table 1: Case study screening criteria

	'Suitability'of case study for inclusion in the research		
FACTOR	**LOW**	**MEDIUM**	**HIGH**
Current status	Project not yet commenced	Project ongoing	Project complete
Reporting restrictions	No reporting possible	Some reporting restrictions	No significant restrictions
Commercial status	Research study	Full scale research study	Commercial application
Existing publicity	Widely publicised and documented	Limited prior publicity	No prior publicity
UK applicability	Non-UK study, UK organisations	Non-UK study, non-UK organisations	UK study

Stand-alone bioremediation solutions and components in a 'treatment train' approach (Remedial technologies)

Bioremedial techniques that have been used commercially in the UK include monitored natural attenuation (MNA), biosparging, solid-phase redox ameliorants, landfarming, and biopiles/windrows. Other emerging techniques, such as precipitation of metal contamination and short rotation coppice (SRC) for phytoremediation have been tested at field scale in the UK, but mainly for research purposes. A number of other techniques – including the use of hyperaccumulators – are under development but have not yet undergone significant field scale testing in the UK.

The research

CIRIA's Research Project 625, *Biological treatment for contaminated land – case studies* has identified a number of recent case studies that illustrate the advantages of using biological techniques, as well as highlighting circumstances where limitations in their use may apply. The case studies have been selected so as to reflect current practice in the commercial application of biological techniques on brownfield sites in the UK. Lessons learnt from the case studies were used to prepare guidance for the construction industry on the selection and use of such techniques.

Methodology

The research has been undertaken in the following three main phases:

1. Identification and screening of case studies
2. Development of case study assessment criteria
3. Assessment of case studies
4. Preparation of guidance

1. Identification and screening of case studies

Case studies were identified through consultation with UK practitioners, backed up by a review of literature in the technical and trade press. In view of the limited number of key 'players' in the UK, the potential sensitivity of the information sought, and the poor return rate generally experienced by questionnaire-based surveys, a more focused and personal consultation exercise was undertaken to encourage the participation of consultees. Networks and associations were also used to appeal for information.

A screening approach was used to select the most appropriate case studies, and help to focus the data collation exercise. Screening criteria are listed in Table 1, together with the grading system used to determine the suitability of the case study for inclusion in the research.

The case studies were selected so as to reflect current practice in the commercial application of biological techniques on brownfield sites in the UK, under a range of circumstances or contexts. The project therefore focused on the selection of case studies illustrating full scale commercial projects that have recently been completed. A list of selected case studies is shown in Table 2.

A number of other remedial techniques are under development, but have not yet seen widescale commercial application the UK. Examples include bioventing, bioslurry reactors and phytoremediation. It was not considered appropriate to include case studies of such emerging techniques for inclusion in the guidance. However, summaries of applications to date were included, in order to illustrate their potential future commercial application.

2. Development of assessment criteria

The case studies were reviewed and assessed against a range of criteria, including technical, financial, regulatory and practical issues. The criteria were developed from an 'evaluation matrix', shown in Table 3. This matrix provided a framework for conducting the assessments, by grouping information into three broad categories: Classification Criteria (information describing the contamination problem and the technology applied to it), Assessment Criteria (evaluating the performance of the technology against expectations), and Selection Criteria (conclusions drawn from the assessment).

The information required to assess case studies against these criteria varied according to site-specific circumstances, but they all include examples of site-specific information that were used to assess case studies include the following:

- site setting/conditions (geography/site location, size, topography, access etc);
- ground conditions (geological, hydrogeological);
- contamination characteristics (concentrations, phases, distribution, pollutant linkages);
- 'driver' or context of remediation (e.g. planning, voluntary action, regulatory requirement);
- operational boundaries (e.g. remedial objectives,

Table 2: Case studies

Technique(s)	Context of application	Principal contaminant treated/assessed
BIOREMEDIATION CASE STUDIES		
Landfarming	Divestment	Lube oil
MNA	Site redevelopment	Nitrobenzene
MNA	Divestment	BTEX
Bio-sparging	Voluntary	BTEX, PAH, Phenol
Groundwater recirculation	Pollution incident response	Diesel fuels and JP-8 aviation fuel (BTEX).
Solid phase redox ameliorants (ORC)	Voluntary remediation	BTEX
Windrows	Voluntary remediation	TPH, benzene, isoproylbenzene
Windrows	Divestment	PAH
Treatment beds	Divestment	PAH
Technique(s)	**Context of application**	**Principal contaminant treated/assessed**
CASE STUDIES FOR ASSESSMENT OF RISK		
In situ and *ex situ* bioassays, biomonitoring, biomarker and bioavailability studies	Research	Metals mixture (Zinc, Cadmium, Copper, Lead primarily)
In situ Earthworm bioavailability, bioassay and Biomarker tests.	Research	PAHs, Metals, Inorganics (Cyanides, Sulphides, etc)
In situ and *ex situ* (OECD) earthworm Bioassays and bioavailability tests. *Ex-situ* plant germination tests. *Ex-situ* Collembolan (OECD) tests. *In situ* and *ex situ* soil invertebrate biodiversity measurements.	Research	Metals (ex mining and smelting site)
Ex situ bioassay	Voluntary remediation	Creosote

Table 3: Case study 'evaluation matrix'

Classification Criteria		**Assessment Criteria**	**Selection Criteria (Conclusions for Guidance)**
1 Problem description	2 Technology description	3	4
1a Nature of contamination	2a Trade name, etc	3a Technical suitability against goals set in 1d	4a Risk management role
1b Site Description	2b Type (biosensor, biopile, SRC, etc)	3b Use of time and resources against predictions in 2c	4b Technical suitability (for site, time, resources, problem and status, etc)
1c Status (at planning stage, SI stage, remediation stage, etc)	2c Time and resource requirements (energy, infrastructure, services, time, costs, etc)	3c Costs	4c Cost effectiveness
1d Project goals and drivers (redevelopment, transactions, insurance/finance, incident, other)	2d Technology description (what it is intended for, what is its envisaged durability, reliability, practicability)	3d Wider impacts	4d Impacts (from a sustainable development context – i.e. environmental, resource, economic – ties in with 4c and social, ties in with 4e)
		3e Stakeholder perceptions	4e Stakeholders' views and their impact on *feasibility* for future projects
		3f Initial appropriateness (fit between 1d and 2d)	4f Durability, reliability, practicability

available timeframe, budget constraints);
- technology boundaries or 'operating windows'
- system performance (e.g. success in attaining remedial objectives, cost efficiency, energy/ raw material usage, verification testing/ post monitoring data); and
- environmental impacts, such as noise, odour, traffic movements, as well as wider issues such as public acceptability and sustainability indicators.

A prioritised approach was used to help to focus the data collation exercise. Highest priority was given to primary data, i.e. that were capable of direct measurement and linked to a legal, regulatory or other standard. The next level of priority was given to secondary data that are capable of numeric measurement but not linked to a standard. The lowest level of priority was given to tertiary data that are not numerically quantifiable.

3. Assessment of the case studies

The case studies were assessed in the following steps:

Step 1 Data collation

Case study information was obtained, including raw data and reports, and anecdotal views gained using structured telephone prompts and meeting scripts.

Step 2 Gap analysis

Information gaps were identified using the evaluation matrix shown in Figure 1, and Step 1 repeated if necessary.

Step 3 Case study assessment

A semi-quantitative and qualitative assessment of case study information was performed, using the assessment criteria.

Step 4 Validation of assessment

Initial case study assessments were subjected to peer review and presented for discussion at a workshop.

In order to enable an objective comparison of the relative advantages and limitations of techniques to be made, it was important to maintain consistency when evaluating case study information. The prioritised approach to case study selection and data collation maximised the objectivity of assessments. Nevertheless, subjective expert judgement was still required to evaluate certain aspects of case studies, such as stakeholder acceptability. In addition, it was recognised that different consultees views on the 'success' or 'failure' of the same case study was likely to vary depending on their expectations, involvement and interest with the case. The consultation workshop was therefore important in gaining a consensus on the case study assessments, as well as obtaining stakeholder views on the advantages and limitations of applying biological techniques on contaminated sites.

4. Preparation of guidance

The findings of the case study assessments were used to generate guidance on the selection and application of biological techniques on contaminated sites. The guidance will act as a practical handbook for practitioners and problem holders in order to facilitate the design, planning and implementation of biological techniques on contaminated sites.

The guidance document:

- covers the broad range of applications for biological systems, from the early stages of contaminated site risk assessment through remediation design/planning to implementation, validation and after-care;
- is related to the various contexts in which biological systems are, and can be, applied in the UK i.e. redevelopment; transactions; pollution incidents; regulatory intervention and environmental/asset management;
- is focused on practical lessons learned from case studies;
- fully addresses technical, financial, legal, regulatory, practical and social issues surrounding biological systems; and
- complements, rather than duplicates existing guidance as well as forthcoming guidance developed by UK regulatory bodies on the assessment and treatment of contaminated land. The report signposts key complementary documents, thereby enabling practitioners to obtain further technical and procedural guidance.

■ The authors and CIRIA wish to acknowledge the work of all those involved in CIRIA Research Project 625, Biological treatment for contaminated land – case studies study and the funding from the Department of Trade and Industry through the BIO-WISE Programme, AstraZeneca, BP Amoco Group, Shell Global Solutions, The BOC Foundation, Shanks, AEA Technology and CIRIA Core member organisations, without which none of the work could have been done.

Moving towards sustainable construction

Part 2: The Princess Margaret Hospital relocation project

A.J. Vetter, Robert Weston and Stephen Martin

The 'Pathfinder Test-Bed'

One object of the TNS (The Natural Step) Pathfinder Programme is to allow Pathfinder Partners such as Carillion to assess the business implications of applying the TNS framework at a strategic level. It is also intended to provide TNS with an opportunity to try out its communication and training methodologies within specific commercial environments. The use of the TNS framework as a science-based learning and decision-making tool requires 'live testing' in as many sectors and applications as possible.

It was agreed early on that the Princess Margaret Hospital Relocation (PMHR) project provided an ideal 'test bed' on which to further these objectives.

Carillion's Sustainability Action Plan

Prior to the commencement of work on-site, Tarmac Building Special Projects (which was to become Carillion Building Special Projects after Tarmac Group's de-merger) engaged with TNS to develop a Sustainability Action Plan (SAP). A workshop programme was designed to explore the more general application of the TNS framework to the company's overall policies and practices. The SAP, one of the programme's specific outcomes, focused specifically on the PMHR project.

The SAP which emerged from the workshop programme contained an astonishingly rich and diverse range of possible actions which could be taken to improve the sustainability of the PMHR project. These actions were divided into three categories: short-term (under one year), medium-term (one to five years) and long-term (over five years) implementation.

Among the possible actions which emerged from the process, there were ideas on community interaction, reduction of the impacts of transportation, wildlife policies, energy, materials and waste management, local labour, food production and distribution, employment for minority and underprivileged groups.

A central theme of the SAP emphasised the need to engage with suppliers in mutually supportive dialogue and collaboration in order to make meaningful change take place in line with the recommendations. The result was the PMHR Trade Contractor Supply Chain Project.

Partnering suppliers at the Princess Margaret Hospital relocation project

Carillion Building Special Projects (CBSP) teamed up with TNS and sustainability consultants Caleb Management Services Ltd to create a Trade Contractor Supply Chain Project as a central feature of the PMHR venture. The project is funded by CBSP and the European Social Fund, forming part of an initiative called ADAPT to help smaller businesses to address their environmental impacts. This involves a learning and implementation process in partnership with six trade contractors as listed on page 9.

Using the TNS framework for sustainability as the theoretical foundation for learning and action towards sustainable development, the trade contractors attended a series of workshops. Together they developed a programme of actions to support CBSP's Sustainability Action Plan. Based on the successful completion of this European Social Fund pilot initiative, Carillion have decided to expand the process to include additional trade contractors involved in the hospital project.

Outcomes so far include the following:

Waste management

An earlier, similar hospital construction project at Dartford provided Carillion with vital benchmarking opportunities. The decision was taken, on the basis of the Dartford figures, to aim for a 50% reduction in on-site waste at Swindon. There are two primary disciplines required to achieve this: a) the prevention, through rigorous design and management, of unnecessary waste arriving at the site in the first place and b) the minimisation of landfill deposits through careful reuse and recycling of waste which cannot be avoided.

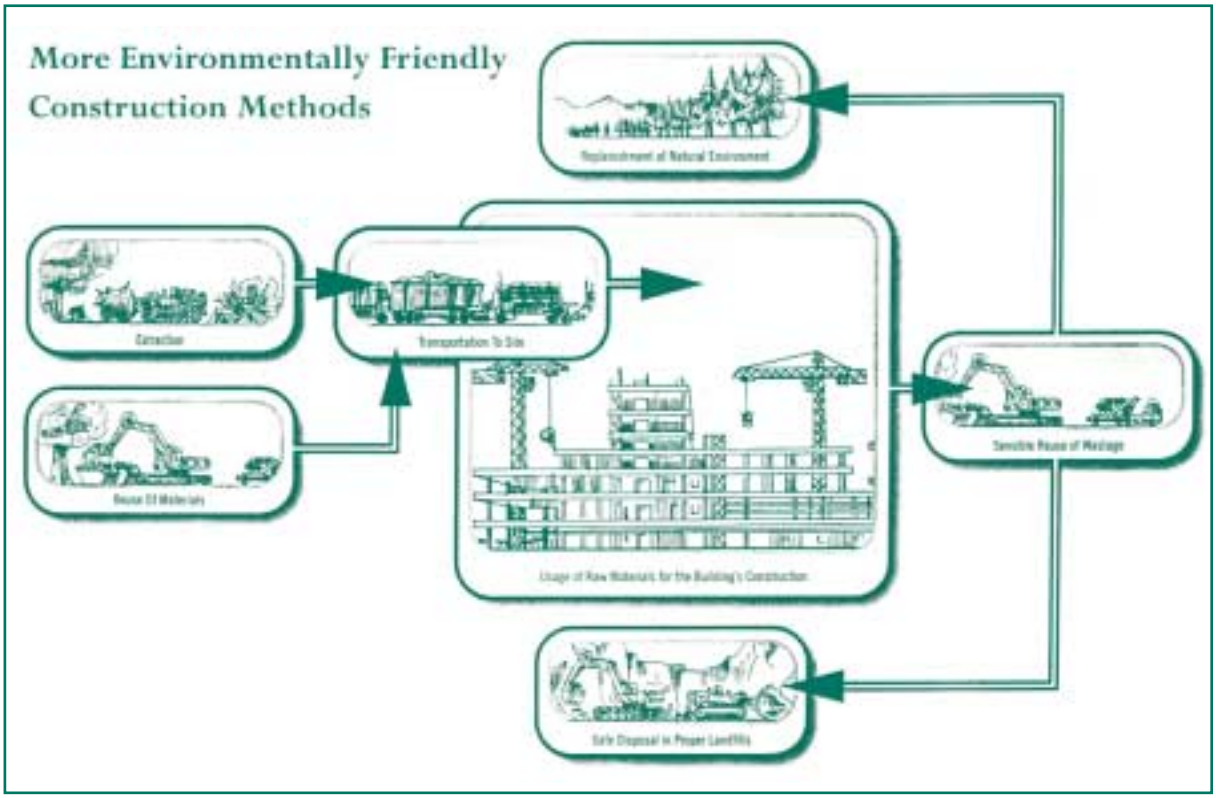
The first step in managing on-site waste is segregation. The categories include: timber, metals, plasterboard, hard plastics, aggregates and general waste. Where recycling within the site is not possible, local markets are sought for materials with potential value in other applications.

Benefits: reduced landfill tax and transport costs; improved local economy; increased local employment; reduced ecological impacts; cleaner site; improved site control; enhanced reputation.

Biodegradable waste

In addition to the economic costs of its disposal, biodegradable waste in landfill can create damaging greenhouse gases as it decomposes. Research demonstrated that there were extremely attractive alternatives. Working with local composting specialists Hinton Organics Ltd, Carillion have devised a plan to produce valuable compost from the many tonnes of timber offcuts, soil and paper-based packaging materials.

Cooked food is not normally considered a compostable waste stream and so has, in the past, generally been conveyed to landfill. Further investigation, however, has shown that specially designed, temperature-controlled containers can render nutrient-rich com-



post from these materials very quickly. This presents an opportunity to deal appropriately not only with food waste produced during the construction phase but also by the catering operation within the finished hospital.

Benefits: reduced landfill tax and transport costs; increased local employment; a good practice 'showcase'; reduced ecological impacts; reduced running costs for the finished hospital; enhanced reputation.

Plasterboard recycling

Analysis of the Dartford hospital project demonstrated that plasterboard represented approximately 20 per cent of waste volume – and roughly the same proportion of waste-related cost – created. Therefore a innovative approach to the disposal of plasterboard offcuts would make a significant impact on the target of 50 per cent overall waste reduction.

Careful assessment of the three primary suppliers of plasterboard revealed some interesting possibilities. By working with Lafarge in Avonmouth, Carillion staff were able to negotiate an arrangement whereby on-site contractors place offcuts into special containers, taking care to keep them clean. Plasterboard suppliers then collect the offcuts when delivering fresh sheets, using the returning vehicles to deliver waste material back to the manufacturing plants fo r recycling into fresh plasterboard. It appears that this is a unique development which has great potential for wider adoption.

Benefits: reduced landfill tax and transport costs; reduced ecological impacts; cleaner site; reduced manufacturing costs and more competitive supply; enhanced reputation.

Timber finishes

An assessment of timber finishes throughout the PMHR project yielded some vital information. In the past, a very high proportion of internal joinery in the industry has been finished with paint or varnish. Most of the products on the market in this area have significant ecological impacts in their manufacture and, indeed, in the sourcing of their raw materials: many of which, are by-products of oil, a finite fossil fuel resource. In addition, there are health implications: volatile organic compounds, often present in paints and varnishes, can create health hazards both for construction personnel during their application, and for a building's occupants once it is complete.

Research into the possibility of replacing paints and varnishes with wood soap (an application discovered by Carillion managers as part of a visit to Sweden organised by TNS) produced some compelling outcomes. Different timbers are required for use with this finish, at an additional cost of around £150,000. However, the savings on coatings throughout the lifetime of the hospital could amount to a much larger figure as high as £950,000.

Benefits: reduced ecological impacts; improved health and safety performance; exceptional financial benefilts; enhanced reputation.

Prefabrication

Carillion's work with the TNS framework on the Sustainability Action Plan revealed a major opportunity in the use of concrete panels to replace conventional brick and stonework.

Prefabricated panels are manufactured under factory conditions and delivered for fitting on a just-in-time basis. This makes for great accuracy and therefore less waste of costly materials and time. It also allows for better planning of journeys and loads, including return loads where possible. Maintenance costs are low, only requiring the periodic servicing of mastic sealant

around the panels. No scaffolding (normally 1% of the total construction cost) is required, since the panels are lowered by crane and quickly and easily bolted into place. This also reduces the potential for accident and injury, as well as removing the noise and ecological impact of scaffolding-related traffic. Access can be gained in days to important areas which would otherwise be blocked for months by scaffolding, further improving construction efficiency.

Benefits: reduced transport costs; reduced labour costs; improved ecological performance; shorter construction time; cleaner site; higher quality product; lower maintenance costs; enhanced reputation.

PVC avoidance

An assessment of the health and safety threats posed by chlorinated products throughout the lifetime of the building led to the decision to eliminate the use of polyvinyl chloride as far as possible.

In the roof of the building, the usual PVC membrane has been replaced by a similar-priced rubber-based alternative which performs equally well and is manufactured from recycled rubber constituents.

Chlorinated vinyl flooring has dominated the marketplace for many years, and Carillion are working to identify a safer substitute which is comparatively priced and performs equally well, even under the rigorous hygiene standards which apply in a hospital environment.

Benefits: Improved health and safety performance for construction personnel, hospital staff and patients; reduced ecological impact; improved reputation.

Energy management

The application of the TNS framework drew considerable attention to the issue of energy consumption in the finished hospital. An early proposal to double the insulation in the roof appeared at first to be ruled out since the costs would increase in the same proportion. Further exploration of the implications, however, showed that there would be a consequent reduction in the number of radiators required to heat the upper floor of the structure. The savings made here proved to be in excess of the extra costs incurred in increasing the insulation. Furthermore, it has been calculated that energy savings over the lifetime of the building will he in the region of £250, 000.

Benefits: demonstration of the 'zero-sum game' concept, whereby initial extra costs and consequent savings quickly balance each other out; significant ecological benefits, including reduced carbon emissions; major long-term cost savings; improved reputation.

Social implications

The TNS framework also deals effectively with the social aspects of sustainability and has informed the thinking behind the project throughout. As a result, welfare facilities for construction personnel has been a high priority and they are designed to represent best practice wherever possible.

Catering services, for instance, aim to provide staff with standards which considerably exceed those normally associated with construction sites. Health and safety disciplines are given great emphasis and, again, best practice is the target which has been been communicated to all stakeholders from the commencement of the project.

A specialist officer has been appointed to manage community relations. This role includes liaison with local special interest groups, the sourcing of local suppliers wherever possible and the alignment of community concerns during the hospital's construction phase with its ultimate role as a local resource once complete.

The TNS framework also emphasises that sustainable development cannot be approached in isolation. The sustainability implications of the finished building needed addressing. For this reason the CBSP team and TNS, along with the Hospital Trust, ran a conference for a wide selection of medical, nursing, auxiliary and hospital management staff. With the twin themes: 'Sustainable Development: What Is It?' and 'Sustainable Development: How Do We Do It?' everyone had the chance to explore sustainability for the National Health Service as well as the hospital itself.

Benefits: Improvement in staff motivation and morale; minimisation of costly disputes; improved quality of delivered product; improved reputation.

Lessons learned in the process

Much has been learned by all participants in the PMHR project. Perhaps the most significant lesson of all is that the learning itself is an iterative and a collaborative process. It is impossible simply to 'learn all the facts' and then apply them as if studying arithmetic; people need to acquaint themselves with the fundamentals of sustainability and to grasp why it is important. Such new awareness will influence thinking and action thereafter, helping understanding and informed action to unfold and improve over time. Nor can one develop meaningful ways forward in isolation from others who are participating in the process; we all have a role to play in creating a better future, and every change made by one individual or organisation has an impact upon the others involved.

The following section deals with learning which has taken place within the PMHR project and its impact at various organisational levels.

Learning points for the construction industry

Firstly, 'sustainable' doesn't have to be translated as 'more expensive'. Many initiatives have proven to be ecologically and socially beneficial and have no negative effect on the economic picture at all. Some, indeed, have improved financial performance considerably. Furthermore, as time goes by, the real costs of not acting more sustainably are tending to rise. Increasingly, clients, legislators, shareholders and the public are demanding change in this direction and are withdrawing their support when it is not forthcoming. Insurers and financiers are also increasingly building sustainability criteria into their assessment procedures. With all these points in mind, it is important to develop reliable forms of measurement (such as Life Cycle

Analysis) with which to measure costs and benefits.

Where best practice examples do exist, it is worth exploring them. A great deal can be learned from what has worked well elsewhere – and at least as much from what has not! Carillion and its partners have committed to learning and doing what they can at Swindon; this document may be a useful start for those with similar aspirations. Other examples include Carillion's housing project in Bradford, Sainsbury's Greenwich store, Wessex Water's new headquarters in Bath and the new Nike headquarters in Holland.

Finally, sustainable development is a journey rather than a destination. No matter how far any organisation has gone, there is inevitably a great deal more to learn. The most important thing is to have made a departure from the starting point. It is worth emphasising that making that start can be one of the most challenging steps in the process. When the first few 'sustainability champions' at Carillion began to express their concerns and ambitions, many others felt that the sustainability agenda was at best a distraction from the company's core activities. It took time for the views and actions of those 'champions' to become better understood throughout the organisation. Eventually, however, as the results began to percolate through, most of the 'doubters' became enthusiastic converts!

Learning points for Carillion building special projects

In addition to all the industry-wide issues outlined above, CBSP has discovered that there is no substitute for 'learning by doing'. The experiences at Bradford and Swindon have advanced the understanding of (and some measure of success in) sustainable development far more than any amount of pure theory ever could. It is also vital, within the company and its client and supplier organisations, to enrol 'champions' of sustainability early on – those people who have a personal interest in the subject. Building a team of such individuals makes for better progress: they tend to commit more to the initiative than those who are simply responding to orders from above. Often, they also learn better as a group, spontaneously and enthusiastically sharing information which leads to improved collaborative learning and action. And as early successes, better product and improved relationships are achieved, more 'converts' are drawn towards the programme.

The PMFIR project has shown that Public Private Partnerships are not necessarily the ideal environment in which to engage with sustainability matters: for instance, separate budgets for capital and operating costs can jeopardise opportunities for interdisciplinary improvements. However, Public Private Partnerships have been most helpful in encouraging such techniques as Life Cycle Analysis. Since the operation of the finished hospital for 27 years is an integral part of the agreement, Carillion is very much involved in such issues as heating costs, water consumption, waste management and patient and staff welfare. Not only that, Carillion is also discovering more and more opportunities to make substantial, long-term financial savings in the process.

Learning points for trade contractors

A key learning point for trade contractors has been that it is essential to be involved from the earliest possible stage. Carillion encouraged active involvement in the partnership programme as soon as contractors were appointed. This enabled specialists to contribute their knowledge to the critical debate that informed the overall strategic thinking. It also allowed the maximum time for all participants to familiarise themselves with the central issues of sustainability before engaging together in the construction work itself.

Of inestimable value has been the fact that trade contractors have collaborated throughout the process. Learning and exploring possibilities together in the same workshops has opened up opportunities for collaborative action which would never have been possible with the contractors operating in isolation. As mutually beneficial opportunities began to emerge from the early deliberations, it became clear that there were further benefits to be had from exploring trade contractors' relationships with their own suppliers. This ongoing and evolving 'upstream-and-downstream' thinking has become a central feature of the entire project to date. Another benefit of adopting such a process of continual learning has been increasing awareness of the additional benefits to all concerned in such areas as favourable publicity, staff relations and direct cost savings. The contractors have also identified that what they have learnt on this project can be applied elsewhere, giving them a competitive edge in an increasingly high-profile area.

Learning points for supply chain project managers

There has been one pre-eminent lesson for those managing the Supply Chain Project: the importance of a common and consistent framework within which everyone can collaborate most effectively. The TNS Framework for sustainability has proven invaluable in this respect.

The success of the Supply Chain Project has underlined the importance of a carefully designed process for change management. Contractors were invited to a series of workshops, created by Carillion contract package managers and their consultants. Here the TNS framework was laid out as a common basis within which to learn together and explore possible improvements. Solutions were co-designed by trade contractors and facilitators, both one-to-one and within the peer group. Action plans and implementation were tracked by Carillion package managers. Contractors' peer group workshops managed feedback, progress reporting and ongoing adjustments in an iterative process which delivered increased understanding and more effective action.

Another vital ingredient for success is strong and committed leadership from the main contractor (whose contribution can be enhanced by judicious use of both the stick and the carrot!).

Next comes the discipline of documenting and measuring progress. This provides a means to determine which strategies are most effective in deployment. It

also opens up opportunities for each company to capitalise on the many benefits of reporting proven successes to a range of audiences, including the media, trade associations, shareholders and finally, of course, the Financial Director!

Contributors

The following contractors collaborated at the Princess Margaret Hospital Relocation Project to improve their own and each other's sustainability performance:

G. Pearce Civil Engineering Ltd
Main items of work: Groundworks, roads and drainage, bulk excavation
Main Achievements: Saved approximately 20,000 lorry movements by implementing lime soil stabilisation. Reduced staff travel by employing local labour and by car sharing.

Duffy Construction Ltd
Main items of work: Reinforced concrete frame and foundations with underground drainage
Main Achievements: Use of Pulverised Fuel Ash (PFA) in concrete.
Reduced staff travel by employing local labour and by car sharing.

Crown House Engineering
Main items of work: Mechanical and electrical installations.
Main Achievements: Prefabrication of components, compression fittings.

Trent Concrete Cladding Ltd
Main items of work: Precast concrete cladding
Main Achievements: Very efficient site erection operation, minimal waste.

Broderick Structures
Main items of work: Metal cladding, curtain walling & windows
Main Achievements: Teaming up with Trent Concrete to prefabricate windows at Trent's factory.

Hinton Organics Ltd
Main items of work: Waste manangement, composting
Main Achievements: Separation of construction waste. Rendering and composting 400 tonnes of paper and cardboard and 400 tonnes of timber for reuse on site. Identification of local markets for remaining waste fractions.

Editor's Note:

The above article is a follow-on from the feature article in the March-April journal entitled *Moving towards sustainable construction.* It is drawn from the same publication for Carillion PLC, *On being a good neighbour – moving towards sustainable construction* and is reproduced with the kind permission of the authors.

Pausing after foot and mouth

Derek Hall, on behalf of the FMD-Tourism Task Force, the Scottish Agricultural College, Auchincruive

Will the UK rural environment ever be the same again? No of course not, but then it is constantly changing anyway. Yet the impact of foot and mouth disease (FMD) has helped to emphasise the intricate web of inter-relationships which bind and interweave rural social and economic activities and contribute to the ever evolving rural landscape.

Perspectives

Agricultural output in Britain is worth about £15bn a year. Just a third of that is generated by livestock farming, representing less than 1 per cent of total national income. By contrast, tourism generates £64bn – accounting for 4 per cent of gross domestic product and employing two million people – four times greater than the entire agricultural sector. Even in 1991, in almost three-quarters of all Scottish rural districts employment in tourism exceeded that for agriculture, forestry and fishing combined.

Yet the draconian restrictions on movement in rural areas put in place during the FMD crisis to protect the prospects of a relatively small, if symbolically important, declining industry have had a severe and selective impact on a chain of rural-related activities, including a major growth industry, tourism. As a result of FMD the UK tourism industry stands to lose £2.5bn in export revenue this year, compared with £1bn of farming losses. Yet compensation for farmers has been in the order of some ten times greater than that being made available for tourism.

As if to add emphasis to the long obvious need for a rural development ministry in England comparable to that established for Scotland two years ago, MAFF's risk analysis in dealing with the crisis woefully neglected taking account of FMD's non-agricultural impact, and particularly that relating to rural tourism and recreation. One of the many lessons to be learned from this 'agricultural' crisis is that it has emphasised the critical need for an holistic government approach to rural economy, society and environment. It has reinforced the requirement, long recognised and advocated by many, to promote rural development policy as a whole with farming as one essential ingredient, rather than the current apparent equating of rural with agriculture, and of according priority to agro-food business interests.

The intercession of FMD has also provided time to take stock of the direction in which rural and national tourism industries are going. Foot and mouth has raised awareness of the significance and economic importance of rural tourism. It is ironic that a crisis generated by another industry has acted to spotlight the needs of tourism in a way that decades of tourist board pro-

motions and industry political lobbying have appeared to be unable to achieve. It has also focused attention on access to the countryside somewhat late in the debate on emerging new legislation.

Both the agricultural and tourism industries are highly fragmented. But unlike farming, tourism tends to be represented by many bodies which do not always speak with the same voice. A multitude of industry organisations represent the UK's 125,000 tourism businesses, all with different problems and aspirations, not least in relation to their environmental credentials. Such differences become exposed in a crisis: for example 80 per cent of the UK's tourism enterprises employ fewer than ten people, the size of businesses which cannot easily offset their losses in the way that larger ones can.

A survey of farmers affected directly by FMD, undertaken by *Farmers Weekly*, found that 6 per cent would not restock following the slaughter of their livestock, and 36 per cent would replace but at lower levels than previously. But today there are just a third of the number of farms that existed in 1939, and even before FMD the pressure on many small UK farms had become acute. Many farmers have turned to part-time activities – including tourism – to survive. Yet studies in the UK, the US and India show small farms to be more productive per acre, less polluting, better for employment provision and in the sustaining of biodiversity.

Rural spirit of place?

Without the small farm, production, distribution, sales and 'innovation' such as organic agriculture becomes more concentrated in the hands of a few agribusinesses. In the process, and accelerated by recurrent crisis, a rural spirit of place is lost.

The novelist and travel writer, Lawrence Durrell, once wrote: '…as you get to know Europe slowly, tasting the wines, cheeses and characters of the different countries you begin to realise that the important determinant of any culture is after all – the spirit of place.' [1]

What Durrell was perhaps trying to capture in this phrase was the authentic, warts-and-all uniqueness and original purpose of a place, a spirit which becomes eroded by local and global change. Yet, the restructuring, re-imaging and possibly re-populating of a cultural landscape which has outlived its original purpose, or has been enmeshed within the dynamics of the global economy, can create a commodified sense of place which can actually appeal to a wider audience than had the previous authenticity. Much, however, may be lost along the way with the original 'spirit', including vernacular skills and traditional knowledge.

Many rural areas are now subject to re-imaging or to 'strategic place marketing', which involves the construction or selective tailoring of particular images to be projected to a global audience of tourists, investors and corporate decision-takers. Successive 'agricultural' crises, while placing medium-term constraining effects on rural tourism and recreation, are likely to produce a re-calibrated rural environment in which agriculture plays a diminished role but where, paradoxically, the agrarian landscape and its custodians will persist in order to perpetuate images of rural idyll. Yet debates on the future nature of this landscape have been rather muted during the FMD crisis, only rising occasionally in response to specific circumstances, such as in relation to the likely consequences of the culling of Herdwick sheep in the Lake District.

One positive element of rural re-imaging is gastronomic, as part of the changing nature of tourist demand emphasising the need for high quality, high income-generating cultural and 'natural' experiences. Such developments as the Taste of Scotland programme and taste trails are a response to this. For rural areas the interrelationship of tourism and food can be important in: (a) adding value to local produce, (b) enhancing local economic back-linkages, (c) reinforcing or enhancing regional identity and (d) implicitly helping to improve animal welfare, production standards and food quality.

Agricultural policy will need to address enforceable tracing and passports for all farm livestock, restrictions in the movement of livestock to markets and slaughter, and even the prohibition of imports of meat and meat products from areas where FMD is endemic. Farmers should be appropriately rewarded for farming better rather than bigger, and be supported through initiatives such as farmers' markets and supplying small local shops.

As a result of FMD a number of rural-related organisations previously not known for their compatibility have joined into alliances rather than making their separate statements. In Scotland, the Comeback Code has brought together such diverse bedfellows as the Scottish Landowners Federation, Ramblers Association, Council of Scottish Local Authorities, Royal Society for the Protection of Birds and the Scottish Youth Hostel Association. FMD-affected businesses, whether farms, rural attractions, activities, accommodation and hospitality providers are being exhorted to work together on a local basis, complementing each other's products and services to market themselves to those potential visitors who want to help local economies by thinking, staying and buying locally.

It may seem an obvious thing to say, but different rural areas and communities have different social and economic needs, and different resources and attractions. There is a requirement, therefore, to recognise diversity in the rural environment – in its widest sense – in collective responses to the aftermath of FMD. There is a responsibility to pursue appropriateness to local needs in different forms of rural development – albeit within limits of acceptable environmental change – a concept which of course raises further questions. After foot and mouth the rural environment may never be quite the same again, but this opportunity must be put to good advantage.

■ *Rural tourism and recreation: principles to practice*, by task force member Lesley Roberts and Derek Hall is published by CAB International in August.

[1] Landscape and character, *New York Times Magazine*, June 12 1960. Reprinted in *Spirit of Place*, Faber and Faber, 1969, p.156.

European Commission approves PIP replacement

The European Commission has now approved all the schemes proposed by the Government to partially replace the Partnership Investment Programme. The schemes are designed to regenerate derelict, disused and vacant land around the country.

As a result, Regional Development Agencies and the Government's national regeneration agency, English Partnerships, will now be able to support a wide range of land and property regeneration projects, including projects which can be taken forward in partnership with the private sector.

The five new schemes, which have been designed to partially replace the Partnership Investment Programme, are:

- a direct development scheme;
- two gap funding schemes, one for developments for a known end-user, the other for developments for disposal on the open market;
- a scheme for community regeneration, and
- a scheme for environmental regeneration.

Announcing the new schemes in Parliament, local government minister Hilary Armstrong said: 'Regional Development Agencies and English Partnerships will be able to support a wide range of land and property regeneration projects, including projects which can be taken forward in partnership with the private sector.

'Direct development involves the public sector acquiring the land to be redeveloped, carrying out the works, and selling the reclaimed site at open market value.

'Under gap funding, the public sector bridges the gap between development costs and the likely end value, allowing property developers to bring contaminated, derelict and disused sites back into full economic use. Small and medium sized enterprises (SMEs) will be eligible for assistance under this scheme anywhere in England.

'Under the Community Regeneration scheme, funding is made available to local organisations so that they can take forward small-scale regeneration projects. Funding is only available for projects which are put forward by non-profit making bodies working in the community or voluntary sectors.

'The purpose of the environmental regeneration scheme is to improve the environment by reclaiming derelict or potentially derelict land and providing a cover of vegetation. Subsequent uses of the site may include public open spaces, nature conservation areas and playing fields.'

She said the Government would continue to press the Commission for a new regeneration framework, under which state aid would be permitted for the regeneration of derelict or disused land throughout the European Union.

Beaches 'safer and cleaner than ever'

Britain's beaches are safer and cleaner than ever before according to the latest *Good Beach Guide*, published by the Marine Conservation Society. An outstanding 275 beaches met the Guide's standards, a 28 per cent increase on last year.

Overall, the quality of UK bathing water has improved year on year over the last decade, largely thanks to Government-led water improvement programmes carried out by water companies and national environment agencies. Last year saw a record number of UK bathing areas pass the main European mandatory standard, 94 per cent, with an even higher figure for England of 95 per cent.

By March 2005, the Government intends that:

- all significant sewage discharges will receive at least secondary level treatment, and that even higher levels of treatment are provided where necessary to protect bathing or shellfish waters;
- over 3,800 unsatisfactory storm outflow pipes will be improved. These affect water quality – and often unhygienic sewage, street dirt and rubbish is deposited on river banks and beaches during rainstorms;
- bathing water standards will improve so that they reach at least 97 per cent compliance with EU standards.

£30m road haulage clean-up announced

The Government is to spend £30 million over the next two years cutting pollution from heavy goods vehicles.

The money from the Road Haulage Modernisation Fund will be managed by the Energy Saving Trust's CleanUp programme and will provide grants towards the cost of fitting vehicles with emission reducing equipment.

Transport minister Lord Macdonald said: 'Fitting devices such as particulate traps and catalytic converters to lorries can dramatically reduce the amount of pollution they produce. The funds will help cut emissions of key pollutants such as particulates from over 10,000 lorries, improving the quality of the air we all breathe and making our towns and cities better places in which to live and work. Experts at the Energy Saving Trust are ready to advise operators on which technologies are most appropriate for which vehicles and provide details of the grants available.'

Boost for UK drive to curb greenhouse gases

A new climate change bureau is being launched to encourage UK business to invest in efforts to cut greenhouse gas emissions overseas.

The Climate Change Projects Office (CCPO) will help British firms take advantage of new opportunities and markets in low-carbon technology.

The CCPO will be guided by a steering committee chaired by Nick Baldwin, Powergen's chief executive. It will provide advice and support for businesses interested in carrying out projects under two 'Kyoto mechanisms', Joint Implementation and the Clean Development Mechanism.

Traffic levels fall

Traffic levels were 1 per cent lower in the first quarter of 2001 than in the same quarter of 2000. This is entirely due to a drop of about 3 per cent during March, probably attributable to the effects of the outbreak of foot and mouth disease. After allowing for this, the underlying growth in traffic in the year was negligible.

Cycle traffic fell by 2 per cent between 1999 and 2000 after a rise of 5 per cent in the previous year. The fall is attributed to the wet weather in 2000.

Land of the free...

The United States decision to abandon the 1997 Kyoto treaty on cutting greenhouse gas emissions to tackle global warming is, of course, not the action of just one powerful politician, however much we may wish – nay enjoy – to caricature the US President.

The US produces 25 per cent of the world's greenhouse gases, mostly deriving from industry and transport, while the country contains just 4 per cent of the world's population. Under the terms of the treaty, the US would be required to cut emissions by about a third by 2012. And the country has grappled with energy crises which have seen blackouts in California, with warnings that the problem is likely to spread to other areas, including New York.

The decision to withdraw from Kyoto commitments – undermining UN talks on implementing the Kyoto agreement and cutting greenhouse gas emissions, due to resume on July 16 in Germany – was 'rationalised' in terms of needing to work further with allies on a plan that would require developing nations to meet certain standards. The senate had voted 95-0 against the US taking any action on climate change unless developing countries also took some measures to reduce greenhouse gases. The White House said it was seeking an alternative to Kyoto that would include not only developed countries but also poorer underdeveloped countries that are exempt from Kyoto commitments.

But of course, as also seen in the US Government's attitude to exploration in virgin areas of Alaska, US economic interests are paramount – 'I will not accept a plan that will harm our economy and hurt American workers' is the president's declaration. These interests are in turn dictated by the mega-corporations such as Esso which have forged such close institutional and personal links with the Republican Party that it may be sometimes difficult to detect – or rather all too transparent to see – who is pulling the levers of power in the White House.

For White House spokesman Ari Fleischer, the president was being 'unequivocal'. Mr Bush had previously announced that he would not endorse legislation regulating carbon dioxide, reversing a position he had taken during his presidential campaign. But then he and his vice president, Dick Cheney, are lifelong oil men. Indeed, Bush's dubious election victory was snatched with unmatchable backing from America's fossil fuel and manufacturing conglomerates, and it is no secret that he already sees the path to re-election smoothed in the same un-green, 'green-backed' way.

In response, the EU reasserted its commitment to implementing the 1997 protocol and saw the US decision not to ratify the climate treaty as 'very worrying'. Friends of the Earth Scotland noted that Bush was demonstrating that his vision did not extend beyond the boundaries of his own country. But that in itself hardly constitutes an historical precedent. The European Parliament Greens grouping called for a consumer boycott of US oil companies. Ever conscious of Britain's role as a bridge between America and Europe, Tony Blair expressed 'concern' at his new friend's decision, but the UK government would 'engage constructively' with the US administration to find a way forward.

A concerted drive has ensued as European states in particular have sought to persuade the US administration that Kyoto and national economic interests are far from incompatible in the longer term – i.e. for more than the duration of two four-year presidencies.

Derek Hall

Forthcoming conferences and courses

16-19 July
Surveying Methods for Protected & Biodiversity Action Plan Species – Mammals, Reptiles and Amphibians
Plas Tan Y Bwlch, Wales £239
Short course to familiarise those requiring to establish an ecological baseline of information about the distribution of mammals, reptiles and amphibians
Details: Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324
email dewi.jones@eryri-npa.gov.uk

13-16 August
Upland Conservation Management
Plas Tan Y Bwlch, Wales £246
Short course to develop the skills and understanding required for the effective conservation of upland habitats
Details: Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324
email dewi.jones@eryri-npa.gov.uk

3-7 September
Monitoring for Nature Conservation
Plas Tan Y Bwlch, Wales £313
Short course to further the knowledge and skills necessary for the effective monitoring of sites of nature conservation interest.
Details: Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324
email dewi.jones@eryri-npa.gov.uk

17-20 September
Local Action for Biodiversity Conservation
Plas Tan Y Bwlch, Wales £229
Short course to help those involved with the implementation of Local Biodiversity Action Plans
Details: Dewi Jones, Plas Tan y Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd, LL41 3YU
01766 590324
email dewi.jones@eryri-npa.gov.uk

22-24 October
Environmental Protection 2001
Bournemouth International Centre, Bournemouth, £290-370
NSCA Annual Conference & Exhibition
Details: NSCA, 44 Grand Parade, Brighton, BN2 2QA

New e-mail and web addresses

The IES now has new e-mail and web site addresses:

- **e-mail: ies-uk@breathemail.net**
- **web site: http://www.ies-uk.org**

Who is going to Earth Summit 3?

With little over a year to go, there is little easily accessible public information on what has been dubbed Rio +10. The Earth Summit 2002, ten years after the landmark Rio de Janeiro summit, also now called the United Nations World Summit on Sustainable Development, is to be held in Johannesburg in the summer of next year. But what is the detailed agenda? And how can groups and interested bodies contribute to the process, if they want? Is there enough time to penetrate the cumbersome bureaucracies of the organising agencies? Will the small but committed NGO be marginalised again?

The achievements of Rio were real but ten years on they are still seen as inadequate by some observers. Several significant indicators of global environmental quality are poorer; inequalities and poverty are worse; and environmental issues have slipped down the political programmes. Even Agenda 21, which was one of the major universal outcomes of Rio, remains modestly developed locally, even in the UK.

In contrast to the build up for Rio, which attracted considerable political and media attention, it is difficult to obtain hard facts on the agenda for Johannesburg. Prime Minister Tony Blair has expressed his intention to attend the summit. He said on March 6th 2001 at the Royal Institute of International Affairs that 'we have begun our preparations for Rio+10. Departments across government are already working to engage business and NGOs…' At the same time, the office coordinating the Rio+10 in the DETR could not confirm the exact date of the Summit nor the government's agenda, admitting that the details would not be confirmed until after the general election.

The United Nations General Assembly is putting on a brave face and in December 2000 requested individual countries to conduct national reviews or 'progressions' outlining – yet again – how they will help to achieve a more sustainable life.

Behind the scenes there are signs of some mobilisation. UNED-UK (United Nations Environment and Development - UK Committee), the domestic arm of UNED Forum, has been developing a UK work programme after consultation with the new UK Sustainable Development Commission. UNED organised a one day seminar in LSE London on March 20 2001 at which key issues for the UK were discussed. According to this structured programme participants were encouraged to consider predetermined key issues. These included: sustainable production and consumption, sustainable communities and cities, conserving bio-diversity and natural resources, global warming and the energy policy, and issues of globalisation and global poverty.

Other issues thought to be important but not directly covered were environmental and human rights, new technologies and the 'crisis of implementation'.

Undoubtedly, and unsurprisingly, these issues will surely figure in governments' agendas. No surprise there. But what will specifics be? What are their relevant action plans, targets, goals, mechanisms for monitoring; and so on? How does one participate?

Whenever and whoever completes the National Reviews will channel information to UN regional events (Europe is a region), followed up later with UN-led global preparatory meetings. The intention is that priorities and ideas about local and global sustainability for governments and civil society will be translated into meaningful outcomes in South Africa. The cynic will say that all this rhetoric is to mask the slow and confusing preparations and the relative political disinterest in environmental issues. The optimist sees South Africa as a way to revive and restate the primacy of environmental issues through the sustainable development agenda. Watch this space!

Students and the World Summit

One group that has an explicit interest in Johannesburg and the future sustainability of the planet are Youth and Students. Interestingly, a timely proposal has come from UNEP offices in Geneva to establish a Youth and Sustainability Coordination Facility to support the activities of key young professional organisations interested in sustainability. Idealistic and peripheral to the main battle lines? Probably, but what's wrong with a bit of grassroot initiative?

In this country, the NUS, Planet Pledge and UK Student Environmental Charter have been fairly dormant on environmental issues over the last few years, after the enthusiasm of the early and mid 1990s.

Meanwhile, an informal group of unrepresentative 'student representatives' has met in London to try to mobilise students and encourage university campuses about sustainability. Their decisions were to recirculate and disseminate the Global Student Environmental Charter (GSEC), created and signed by 150 students from 53 countries, including the UK, at the VOICES conference in Istanbul in 1997. A review about the impact of this landmark publication through GOSEA (Global Organisation of Students for Environmental Action) for the five years up to Johannesburg is timely. Databases of student networks, university and college progress need to be identified and updated quickly.

Swedish Ecodemics are setting a lead. They hosted the first GOSEA Conference in Stockholm in 1998, and remain active.

Other international student networks being mobilised include AISEC, a global network of 50,000 members across 85 countries, ASEED, established in response to Rio and campaigns on international financial institutions and free trade agreements, SEAC, the North American environmental justice and social change lobby.

Perhaps students should go to Earth Summit3.

Derek Blair

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http://www.swedish-ecodemics.a.se/ecodemiker/eng-pres.html
AIESEC http://www.alesec.org/
ASEED http://www.antenna.nl/aseed
GOSEA
http://www.farolterra.web.pt/gosea/
UNEP Regional Office for Europe (ROE), International Environment House, 1219 Chatelaine, Geneva, Switzerland. Tel: +41(0)22 917 8513

The Hon. Secretary's news desk…

1. Professional Practice for Sustainable Development: PP4SD

The first phase of this project officially finished on March 31 2001. The Foundation Course, including training materials and a Trainers Manual, is the most significant result of the two years of work and this is still in the throes of production as a document for wider use.

Enthusiastic support for the continuation of the project into a second phase has been received from the participating organisations. It is now the job of the Project Management Group to develop a long-term programme and business plan based on a set of agreed objectives. As a transition from Phase 1 to Phase 2 a training event based on the Foundation Course has been arranged for early July at the Earth Centre, Doncaster which will be for the participating organisations.

Details of the project can be found on the new IES website (http://www.ies-uk.org) and we expect to include information on the Foundation Course concurrent with publication of this Journal issue.

2. New IES Web Site

As announced in the last issue of the Journal, the Institution has acquired and developed a new web site. This has a much larger capacity than our 'greenchannel' site and is also commercially managed. It contains much more information than the previous site and we expect it to be more attractive and useful to both members and visitors.

A separate section of the site is specifically allocated for use by the PP4SD Project which is proving of wide interest.

Why not pay us a visit on *www.ies-uk.org*!

3. Interprofessional discussions

Just one year ago I provided an update on the meetings taking place between the leading professional environmental institutions. Those meetings have been continuing, albeit the process is slow due to the need to refer back to various committees in each of the organisations involved. Consultation has also been necessary with the Privy Council to clarify issues relating to chartered status.

A measure of agreement has been reached on the basic principles for a federation or umbrella body, its initial composition and a programme for implementation. We expect to feature proposals in the July/August edition of the Journal as an opening Institution-wide consultation with the members.

The Council has been highly supportive throughout of this initiative and the IES has provided the Chair for all meetings so far. The move to create the umbrella body is seen as a highly significant and important development in professional circles which will affect environmental practitioners, both members and non-members, in all types of employment.

It is also seen as a potential route to achieving chartered status for Institution members. The purpose of the consultation is to obtain members' views (and support) for the initiative and we will be encouraging you all to respond.

4. Course accreditations

As many members will be aware, the Institution has been accrediting Higher Education Courses in environmental subjects since the early 1990s. With limited resources, the pace of this has been slow and the early proliferation of courses offered has meant that we have been able to consider only a small proportion.

Following the advent of the benchmarking system for higher education courses, the Institution has been engaged in discussions with the Committee of Heads for Environmental Sciences (CHES) with a view to developing a more extensive process of accreditation.

At the CHES AGM in April, approval was given to the jointly developed proposals and a panel composed of representatives from CHES and the Institution appointed to implement the initiative. Following final agreement of the specific criteria and application process, it is hoped that the first CHES members will be able to apply in the autumn.

5. Responses

Since our report in February the Institution has submitted the following consultation responses:

- Policy Review of the Environment Agency (to the DETR)
- Marine Minerals Guidance Note 2 (to the DETR).

6. Membership

Reference to the list of new members in this issue (and to preceding issues) will clearly indicate a recent influx from members of the Scottish Environment Protection Agency (SEPA). This has occurred as a result of the policy of SEPA to encourage membership of recognised professional bodies for the staff. This is a considerable encouragement to the environmental profession and must help to improve the status and the perception of environmental practitioners.

A warm welcome is extended to our new members in Scotland and I look forward to an active Scottish participation in our future programme.

7. Journal content

It has always been the policy of the *Environmental Scientist* to publish suitable articles submitted by IES members as well as other topical features and news. Given the wide variety of environmental interests encompassed by the Institution and its members this often leads to a diverse range of topics in the feature articles.

In conjunction with the Editorial Board, I have been seeking as far as possible to create a more structured approach concentrating on specific subject areas. For example, we are currently featuring articles on the built environment and 'green construction' – an important subject area in the sustainable development debate. As a part of this policy, we are actively inviting articles on particular topics and would hope, over a period, to feature subjects of interest to all of our members. If you have a particular interest that you feel is worthy of attention, then please write in and let us know.

Robert Fuller

New members

The IES is pleased to welcome the following to membership of the Institution:

Mr R.J. Allard	Environmental Technician, SEPA
Mrs S.E. Beaumont-Gill	Recent Post Graduate Manchester University
Ms M.F. Cronin	Marine Chemist, SEPA
Mr M. Duckett	Team Leader for Environmental Regulations & Improvement Team SEPA
Mr M.J. Elton	Environmental Consultant Controls-Assurance Co UK
Mr D.J. Fraser	Senior Hydrologist, SEPA
Mr T.M.W. Gilbert	Principal Engineering Geologist Land-Drill Geotechnics (UK) Ltd
Mr.M. Haynes	Environmental Consultant High-Point Rendel Ltd
Dr A.M. Hills	Hydrographer/Modeller, SEPA
Mr K.M. Jack	Hydrologist, SEPA
Mr D.F. Johnston	Senior Environment Protection Officer, SEPA
Miss W.A. Johnston	Environmental Protection Officer SEPA
Dr J. MacDonald	Environmental Protection Officer, SEPA
Mr B.F. Martin	Recent Graduate, UWE – Bristol
Mr C.D. McGregor	Environmental Protection Officer, SEPA
Mr M.J. McKay	Assistant Environmental Protection Officer, SEPA
Mr R. Murdoch	Hydrologist, SEPA
Mr E.D. Ogilvie	Senior Environmental Protection Officer, SEPA
Ms S.E. Park	Senior Environmental Engineer Land-Drill Geotechnics (UK) Ltd
Mr D.P. Schoehuys	Environmental Protection Officer SEPA
Mr D.G. Shaw	Environmental Protection Officer SEPA
Mr M. Simpson	Hydrologist, SEPA
Mr A.J.R. Spirit	Environmental Protection Officer SEPA
Mr M.G. Swainston	Environmental Protection Officer Environment Agency
Mr A. Tsehaye	
Mr J.D. Watson	Environmental Protection Officer SEPA
Mr S.P. Williams	Planning, Economy & Development Mgr, Weymouth & Portland Borough Council

Diary dates for 2001

10 September	**GP Committee**	**13.00**
31 October	**Education Committee**	**10.30**
	EGM/Council	**13.30**

Occasional papers available now from IES

Waste management

- From waste to woods – planting trees on landfill
- From waste to woods: trees on landfill and their place in landscape
- Enhanced landfill strategy
- Waste minimisation: the long term benefits
- European study on EISs of installations for the treatment and disposal of toxic and dangerous waste
- Mercury fall-out from crematoria

Education and training

- Environmental courses undergo a quality assessment
- Student environmental declaration
- On-line information systems in environmental sciences courses
- Global environmental charter and network for students

Business and industry

- The tourism challenge
- The tourism debate and environmental scientists
- Enjoying environmental science as a career
- The Brent Spar and the best practical environmental option

National and local government

- Transport policy, environmental pressures and the new UK government
- Local Agenda 21 – making it work

Price: £5 per paper including p&p
(£3 per paper for members)

Contributors

The *Environmental Scientist* aims to provide a forum for members' contributions, views, interests, activities and news, as well as topical feature articles. Articles up to 3,000 words should be submitted to the Editor, *Environmental Scientist*, PO Box 16, Bourne, PE10 9FB, three weeks prior to publication in the last week of January, March, May, July, September and November.

Views expressed in the journal are those of the authors and do not necessarily reflect IES views or policy.

Advertising

Advertisements should be submitted to reach the Institution by the 7th of the month of publication.
Rates: £50 (half page); £25 (quarter page); £12.50 (eighth page). Full page adverts at £100 can only be accepted under special circumstances, subject to space being available.

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