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FEATURE ARTICLE

Peripheral environments, tourism and change

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These are interesting times for Europe's 'peripheral' environments. Innumerable conferences and several EU programs have been dedicated to peripherality in both geographical and structural senses. A research centre (at Bornholm, Denmark) has been set up dedicated to examining and better understanding Europe's peripheral regions, while devolution processes in the UK have focused attention on the 'non-English' peripheries of the Union.

Peripheral environments are usually assumed to be rural. As agriculture and other traditional pursuits decline, tourism, recreation and related activities are taking an increasingly significant role in the economies of peripheral environments. The symbiotic relationship between the natural (and cultural) environment and leisure is an increasingly important one. Changing perceptions of environmental quality are stimulating a rapidly changing use of that environment for recreational purposes; transport and tourism are two of the most dynamic and critical factors with substantial environmental impacts, which are being shaped by such perceptions. This can be seen in the increasingly popularity of outdoor recreational activities which employ equipment requiring personal motorised transport to gain access to remoter locations. Such search action, the impact of the recreational activities pursued and issues of accessibility and congestion is stimulating ever-changing opportunities for land use conflict and the despoliation of peripheral environments.

This raises the paradox of tourism, that unrestrained it can destroy the very attractions and attractiveness of the natural and human environment that underpin it. The 'consumption' of tourism can thereby take on an active as well as a passive voice. At a global level, the environmental sustainability of tourists flying long distances to

experience 'sustainable tourism', whether from the UK on long haul, or from overseas attracted to the UK, also represents a key flaw in the environmental hype of tourism marketing and promotion.

Yet the globalisation of tourism and recreation activities is generating contrasting patterns of environmental change. In the UK, while on the one hand 'niche' activity tourism has been seeking ever remoter 'virgin' environments, on the other, accessible 'mass' tourism environments which became unfashionable with the growth of relatively inex-

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pensive Mediterranean package holidays, have been subject to image reconstruction as the tourism industry attempts to haul itself upmarket. Recognising the returns on 'quality' rather than on numbers, the marketing of UK tourism environments has recognised that being more peripheral and 'remote' may actually be to the location's advantage in enhancing its disassociation, in time and space, from the tourism masses of popular resorts and the congestion of metropolitan centres.

There is a clear irony here when large numbers of people flying several hundred, perhaps thousands of kilometres away to experience 'mass' attractions while locations within the UK attempt to portray themselves as peripheral and exotic. Not only is peripherality being redefined in psychological rather than necessarily spatial terms, but it is also being portrayed as representing, if not synonymous with, high quality environments, for leisure experiences, residential and economic development. Niche tourism has been promoted alongside local and regional economic regeneration policies and the encouragement of counter-migration. The role of information technology in such processes may not be insignificant.

In this way, the changing nature of the UK and international tourism market and marketing has been transforming a number of former mass leisure environments through regeneration and reimagining processes designed to draw out their individual, specialised appeal. 'Natural' environmental factors – microclimate, flora, fauna, and hydrology and of course relief, have been selectively promoted in terms of exoticism and uniqueness. Such a process has been particularly notable in the UK's more peripheral holiday regions – Devon and Cornwall, Wales, Northern Ireland and Scotland.

‘Niche tourism has been promoted alongside local and regional economic regeneration policies and the encouragement of counter-migration’

This short article focuses on one example from such regions, where the transformation process has been assisted by characteristics of insularity. It suggests that for this leisure environment, the Western Scottish Island of Bute, 'peripherality' has been increased during the course of the twentieth century. This process has two dimensions. Until World War II, Bute was a central element in the mass leisure product of the Clyde Estuary, whereby the large domestic urban markets of Glasgow and the Scottish central belt would take to the may Clyde steamers to go 'doon the watter'. Both mainland seaside locations and

‘With political devolution and the romantic ‘Hollywoodisation’ of Scottish national sentiment, there may appear an underlying political or ideological element in regions’ attempts to present and promote a unique tourism image’

island resorts would have their characters substantially modified during the season – notably during the Glasgow Fair weeks when the city's industry would close down *en masse* – and bank holiday excursions. The climax of this relationship was reached during the last two decades of the nineteenth century and the first half of the twentieth. But this pattern of leisure activity never recovered the disruptions of World War II and the technological and cultural changes which followed. Particularly from the later 1950s, resorts such as Rothesay on Bute or Campbeltown on the Kintyre Peninsula lost their mass market appeal as Mediterranean and longer haul packages began to supersede the climatically unreliable, relatively costly and generally poorer quality UK seaside locations.

Unlike many UK resorts, however, Rothesay also lost much of the transport infrastructure which had connected it to its markets, as the attraction of cruising the Clyde Estuary fell away and the vessels which provided the transport largely disappeared, to leave a remnant series of point-to-point ferry services and one lone summer excursion paddle steamer. In the 1990s, as part of a program of economic regeneration, attempts to restructure Bute's tourism product in terms of niche segmentation have tried to focus on particular distinctive characteristics and resources of the island – heritage, land environment, water – whereby, emphasising the uniqueness of place, notions of peripherality and exoticism have been enhanced, especially for English and overseas markets.

In the UK the heritage industry occupies an increasingly central role in strategies for economic growth and development. This presents the frequently acknowledged paradox of building for the future on a basis reflecting on the past. Further, with political devolution and the romantic 'Hollywoodisation' of Scottish national sentiment, there may appear an underlying political or ideological element in regions' attempts to present and promote a unique tourism image based largely on their 'heritage' (McCrone *et al*, 1995), an element which may add extra appeal or

potential repulsion, depending on the nature of the market targeted.

An environment of persistence and change

The Isle of Bute – 23 kilometres long and over 7 kilometres wide at its broadest point – forms a long, narrow barrier between the Firth of Clyde – the wide estuary of Glasgow’s great river – and the mouth of Loch Fyne, famous for its seafood. To the north it is separated from the Argyll mainland by the Kyles of Bute – a 600 metre wide stretch of water designated as an Area of Outstanding National Beauty. The southern end of Bute faces south-west over to the Isle of Arran and east to the Ayrshire coast and the smaller Cumbrac islands, together with which it protects the upper reaches of the Firth of Clyde from excesses of frequent south-westerly gales. Bute has been inhabited since at least 4000 BC, the earliest evidence of which is a Neolithic burial cairn and a number of burial chambers. Rothesay, the island’s capital, is an ancient town and was for many years the holiday home of the Kings of Scotland; the Prince of Wales’s premier Scottish title is Duke of Rothesay. The island is bisected by the Highland Boundary Fault. In the North the rocks are metamorphic and the land is infertile moor, although much afforestation has taken place. South of the fault, rocks are old red sandstone and the land is pastoral and fertile. The highland-lowland dichotomy – ‘Scotland in miniature’ – is an underlying element of Bute’s attraction, but an attribute several other western Scottish islands and localities claim as their own (most notably Arran, that open air geological laboratory well known to the generations of students who have carried out field studies there).

‘The town is situated in an attractive bay, and sheltered from prevailing winds... Marketing hyperbole refers to it as Scotland’s Madeira’

Eighty-five per cent of Bute’s 7,500 residents live in Rothesay, which acts as the service and administrative centre, with most of the hotels, restaurants and cafes and other outdoor leisure activities. The town is situated in an attractive bay, and sheltered from prevailing winds. Marketing hyperbole refers to it as ‘Scotland’s Madeira’, partly in acknowledgment of the warming influence of the Gulf Stream which encourages the town’s lush sub-tropical vegetation, and partly thanks to the tortured imagination of the area’s promoters.

Alongside other Clyde resorts, Rothesay owed its popularity as a watering hole to steamship develop-

ment and its relative proximity to the industrial belt of Central Scotland. By the latter half of the nineteenth century the journey from Glasgow, which had previously taken days, could be made in less than two hours, and intense competition between steamship owners and railway companies reduced journey times to just over an hour by the turn of the century. Ironically, this was faster than today’s journey time of one and a half hours.

‘Although a relatively small and compact island, Bute’s very insularity renders more acute for its residents questions of rural car dependency and high fuel prices’

In 1913, steamers were making around a hundred calls per day at Rothesay, and during its halcyon years as the premier Clyde resort, the town’s summer population rose to 50,000 people. The island’s resident population peaked at 12,500 in 1951; in the mid-1950s Bute was still attracting 400,000 visitors a year. But within 20 years visitor numbers had fallen by three-quarters. Although the severe economic and social problems resulting from this were clearly recognisable, little progress was made to ameliorate them. For three decades Bute’s tourism sector failed to adapt: economic decline was reflected in low levels of reinvestment in property and articulated in Rothesay’s deteriorating physical fabric. Insularity exacerbated the constrained nature of economic opportunities, such that annual economic leakage to off-island retailers has been estimated at £2 million. Unemployment, now at around 16 per cent, is slightly higher than the regional average. According to the 1991 census, over 55 per cent of Bute’s households were without a car. Indeed, although a relatively small and compact island, Bute’s very insularity renders more acute for its residents questions of rural car dependency and high fuel prices.

Restructuring for peripherality?

In 1994 a three-year action plan was devised, growing out of a number of reports and plans produced over the previous five years by various local and regional agencies. This development strategy suggested that a restructured tourism was central to the island’s development and that Bute’s tourism strengths lay in its being the nearest island to the mainland and having a Victorian seafront and aspect. While the former may have been important for mass market appeal, it may

now actually detract from the reconfiguring of Bute's image for niche market consumption in suggesting an all too easy accessibility. The very ethos of rural, and particularly activity tourism, is concerned with getting away: from urban centres, everyday activities and even other tourists. Walking, fishing, sailing, horse-riding, golfing and visiting isolated archaeological sites are just some of the activities which suit Bute's physical environment and whose image of adventure can be enhanced by a sense of remoteness.

Yes if exoticism ('Scotland's Madeira') and adventure ('Discover Bute') are to be promoted, proximity and ease of access may not be the most appropriate attributes to emphasise. By contrast, the Victorian atmosphere, at least that of Rothesay, could be exploited as an asset for promoting 'heritage tourism tourism' (*sic*), whereby the heritage of a former era of tourism activity itself can become a focus for contemporary niche heritage tourists. While it would not be appropriate to turn Rothesay into some kind of historic theme park with waitresses, hoteliers and ferry operatives dressed as if on a living stage set, the capital asset of so much Victorian heritage does merit consideration for imaginative promotion. Indeed, the development strategy suggested that Bute remained distinctive largely because life appeared to have passed it by (BPSG, 1994:7), a quality with inherent niche market appeal and potential for a distinctive place-based image projection.

Environmental scientists... should have an important role to play in both identifying and promoting environmental distinctiveness


This emphasis upon environmental distinctiveness is recognised by local people as helping to bring the community together for certain events and to assist in sustaining and enhancing local customs, such as the Bute Highland Games, International Folk and Jazz festivals. The latter in particular have been able to attract visitors from a wide range of international markets, for whom the relative peripherality and staged exoticism of the island can be attractive. The degree to which these attractions represent traditional Bute values, however, is debatable.

Bute is promoted on a number of Web sites. Since late 1998 a dedicated site (Isle-of-Bute-com) has been produced by local small businesses, supported by Argyll and the Islands Enterprise whose own Web site is aimed at providing information for island communities as well as promoting them. Although the bases for tourism reinvigoration have been incorporated into a wider economic regeneration strategy, Bute's strengths and weaknesses as a distinctive attraction are rooted in the insularity of its physical and human

environment and are articulated in the crucial role of transport access. Ferry services to and from the mainland are regarded as the island's lifeline, yet the nature and the role of this access raise a number of problematic development issues. A locally perceived inadequate level of service has an adverse impact on the local population and may exacerbate the out-migration of young people, paradoxically because of poor accessibility to mainland facilities. The perceived high cost of fares is widely believed to reduce tourists' spending capacity when on the island, and thus to exert a negative impact on potential tourism employment generating opportunities.

On the other hand, the island does not need to depend wholly on a ferry service for tourist access, as marine-based tourism, and especially the attraction of high spending transit marine pleasure traffic, would seem an obvious target market. The Clyde estuary is ideally placed to exploit a continuing growth in boat ownership: marinas have been developing along the mainland coast since the 1970s. As part of the 1994 strategy the outer harbour in Rothesay has been redeveloped with floating pontoons to service boat owners, and this has already attracted a new type of more affluent tourist to the island. Yet high quality facilities and attractions are required in order to encourage such tourists to extend their stay (even if accommodation is on board) and to generate increased spending. Negative impacts on the local marine environment need to be carefully monitored, however.

Conclusions

In an age of globalisation, and of transition to new forms of tourism and development strategies, localities and their specific milieux are taking on a new role in redefining themselves. Elements of the 'natural', social and cultural environment are being promoted to emphasise the distinctiveness of place as an attractive attribute in the increasingly competitive and all-consuming global tourism market place. Environmental scientists, as part of teams dedicated to the sustainable development and redevelopment of such peripheral locations, as discussed in this short article, should have an important role to play in both identifying and promoting environmental distinctiveness, while also advising and overseeing the longer-term sustainability of its exploitation. 

Acknowledgments

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This section of the Journal is in response to the growth of news, information and activities which underpin the Education Committee of the IES.

Special prominence is given to student activities and projects, national and international initiatives, campus developments and research in order to capture the diversity, wealth and vitality of

modern environmental education.

Readers are invited to send articles and letters to:

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News on and about students and the IES

Thousands of environmental undergraduates are completing their examinations, receiving judgments on their research projects and awaiting their degree awards before they enter the job market. A growing fraction is associated with the IES through accredited associated membership, and others are no doubt considering the value of joining the IES to improve the professional credibility of their CVs.

It is timely, therefore, that the IES is undertaking a review to see how it can open up still more of its activities to and for students. Students make up about 5 per cent of the IES standard membership, plus a larger number associated through its accredited courses. The IES is anxious to encourage more student involvement at committee level in order

- to provide advice to the IES on matters of concern to students;
- to promote clearer lines of communication between the IES and its growing student membership;
- to improve the IES's service to and for students.

An informal consultative paper is being tabled at IES meetings which explores the viability of having student representatives on its full Council as well as on its Education Committee. The IES Council student membership would probably be non-voting but would enable emerging strategic policies to be exposed to student comment. It would offer students the benefits of personal and professional development in environmental topics relevant for their careers.

The IES Education Committee's agenda (see *Terms of Reference* below)

provide further and clear areas for student participation.

IES Education Committee – terms of reference

Aim

To promote and support education for sustainability through environmental courses in Further and Higher Education (FHE) in accordance with the mission and strategic priorities of the IES.

Objectives

- to improve knowledge and awareness of education for sustainability in the FHE sector;
- to publish and disseminate information about environmental science/studies in FHE;
- to provide advice to members and external bodies on curriculum practice in environmental science/studies in FHE; to accredit inter- and multi-disciplinary environmental courses in FHE institutions;
- to support and organise lectures, seminars and conferences on environmental issues and sustainability wherever it would be appropriate to do so;
- to develop a programme of activities for members and others interested in environmental science/studies/education;
- to seek sponsorship and funding in support of committee's activities;
- to promote the educational work of the IES at regional, national and

international levels;

- to support the contribution of members in their professional careers towards the promotion and development of education for sustainability;
- to encourage student participation in IES education activities;
- to take an interest in, and offer career advice on, environmental education and training

Clearly, the IES's accredited courses provide a natural access to institutions for student representatives, as does the readership of this Journal. How to achieve fair and open representativeness, however, is still exercising the IES's committees, as is how this can be funded. Ideas would be welcome through this column.

Students and their ecological footprint

As examples of continuing environmental action and concerns, People and Planet, the student oriented Third World Charity, have launched a campaign to survey the ecological footprint of students unions and FHE campuses. Adapting methodology, concepts and data from a consultancy 'Best Foot Forward' the survey targets eight categories: transport, holidays, rubbish, heating, electricity, paper, food and water, to each of which two bi-polar descriptors are attached to estimate performance scores.

For example, under Transport, the descriptors and respective scores are:

A: You mostly travel by car
(80 points)

B: You mostly travel by public transport, cycling or walking (20 points).

Points are accumulated for each of eight categories and total scores are used to suggest the level of one's environmental impact, ranging from acceptable to unacceptable. Notwithstanding the crudity and lack of scientific rigour in this assessment of sustainability, students in this country are at least trying to translate important but extremely complex issues to a wider audience.

Meanwhile in the international arena, GOSEA (the European led Global Organisation of Students for Environmental Action) is calling for students to Barcelona for the Sustainable Universities Conference in Barcelona on 1-2 July 1999 to maintain student pressure on Greening the Curriculum and Greening the Campus initiatives under Copernicus.

Students and the ecological footprint of war

GOSEA includes active members from the Balkans and monitoring their net-

work reveals how concerned students are that the environmental costs of the Kosovo crisis have so far received scant reporting amongst the prominent political and humanitarian publicity. Similar views were expressed at the time of the Gulf War.

For example, two students from Belgrade, themselves without water and electricity for 20 hours on 3 May, reported that the heavy bombing of oil refineries at Novi Sad, the chemical plants at Lucani and Baric and the petrochemical plant at Paneevo had released substantial quantities of toxic chemicals and carcinogenic gases (PCB, EDC and VMC) into the air, water and land. Some pollutants have entered the Danube and other water courses – major wildlife and migratory corridors – heading for Romania and Bulgaria.

Students report also, as confirmed in the *Daily Telegraph* on 25 May, the dumping of unused bombs and missiles and emptying of tank reservoirs into the Croatian and Italian Adriatic; and of the DU (depleted uranium) used in the A-10 anti tank aircraft, cruise missiles especially on sites where radioactive material is stored.

Students, education and inner cities

The recent DfEE Report on *Excellence in Cities* seeks to improve the education and chances of young scholars living in inner cities. The proportion of school children progressing into FHE, for example, from Inner London, Manchester/Salford, Liverpool, Birmingham, Leeds and Sheffield is low by national standards. The report addresses strategies to raise educational standards and to improve life chances of inner city schoolchildren and students by putting in new systems of monitoring and provision. It also advocates a better response to gifted and talented individuals. One idea is the establishment of residential summer schools aimed at 16-17 year olds for science/humanities and social sciences, as well as new learning centres and specialist facilities in Education Action Zones (EAZ).

If and where environmental education fits in is not made explicit although demands for improved citizenship and civic education can surely embrace questions of sustainability and environmental responsibility. Given that the poor environment in the inner city areas is part of the background of low educational standards and expectation, one would hope the the DfEE recognises that environmental education is more not less vital for achieving excellence, especially in view of achievements and potential of environmentally trained students.

Sources

DfEE (1999) *Excellence in Cities*
Sustainable Universities Conference,
BBC '99, Vicerectorat de Campus I de Edifici, Universitat Autònoma de Barcelona, 8 193 Bellaterra (Barcelona), Spain
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Exploitation by industry of the UK's academic scientific research base

Dr Robert Hawley CBE FRSE FEng
Advisor to HSBC Investment Bank Plc,
Chairman-Designate, Particle Physics and Astronomy Research Council

- Is industry failing the UK's academic research base?*
- Is the approach of many companies so narrow and short term that they make insufficient use of the academic research base?*
- Is there a fundamental mismatch between the multi-disciplinary aspects of industrial problems and the departmental structure within universities?*
- If so, what needs to be done to improve the situation?*

Industry/university communications

Ignoring direct Government funding Figure 1 illustrates the current situation on funding and communications between industry and universities.

The Government funds the Research Councils which, together with charities, fund the university research base.

Universities also attract increasing industrial funding. Knowledge flow is two-way between universities and industry. Evidence indicates that direct material inputs from basic research to new product ideas and development is less important than knowledge or skill flows which tend to be transferred through personal contact.

Consider the communication gaps in Figure 1. There is firstly the communication gap between large and small firms. Secondly, there is the gap between disciplines and departments in a given university and between universities themselves. Finally there is the gap between industry and universities. In the case of industry, it lacks information as

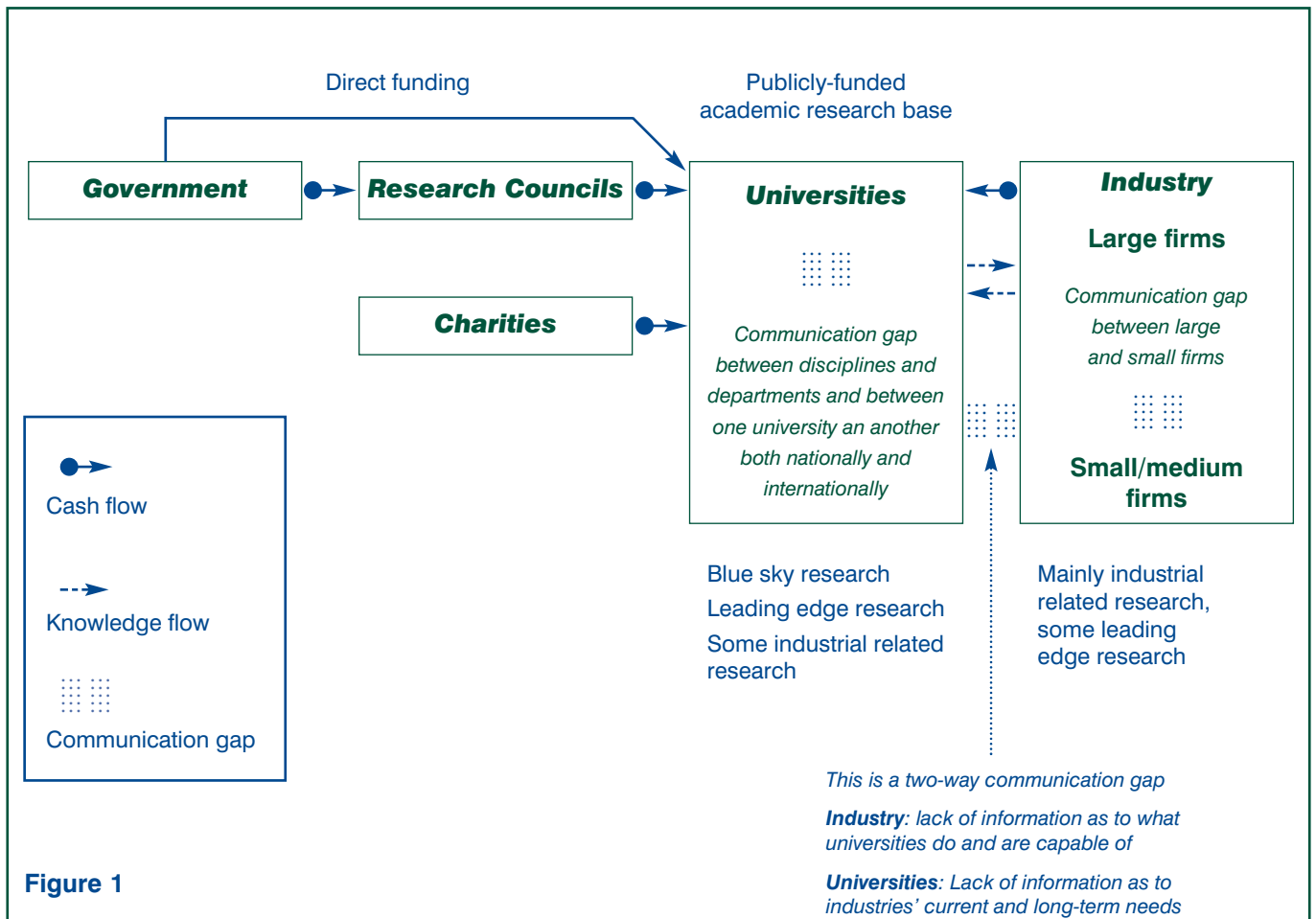


Figure 1

to what universities do and are capable of doing whilst universities are ignorant of industry's current and long term needs.

So how can industry make more use of the academic research base? Let us look at the factors contributing to the university-industry gap:

The university position

A university is a non-profit organisation focusing on teaching and fundamental research. Staff are measured by their publication record and research is to extend new knowledge. Teaching is a part-time activity, there is no great emphasis on urgency and the objective is to develop creative individuals with independent thinking, not professional training.

Position of industry

By contrast, industry is profit-making to return value to shareholders. Research is a closed activity and IPR is guarded. Knowledge needs to be turned into products, R&D is a full-time activity leading to wealth creation.

Time is vital so there is a mismatch between industry's expectations and university output. Universities are seen as patronising.

Exploitation of research

If industry is failing to exploit fully the academic research base, does this gap need to be bridged?

**Over 50 per cent
of the UK's
R&D expenditure
is industrial**

The university view is a need for top up financial support. Industry should provide co-operation and guidance. Liaison with industry can identify future problems and an inflow from industry and government can develop an oriented programme. The industry view is that they are beneficiaries of engineering programmes in universities, their most important asset is staff who need continual updating. Industry can utilise university talent and facilities.

Universities are best at long term research which requires theoretical

knowledge – liaison means industry has access to leading edge research.

But universities are receiving different messages. From the Research Assessment Exercise they are told to perform leading edge or blue sky work which is peer reviewed; publish or perish. From industry, and increasingly from Government, the message is they should carry out work that will directly contribute to new and improved products and bring wealth creation in the UK. As a result of the latter pressure the trend is to increased industrial funding.

**R&D supports
the university
core business
of teaching**

Higher education in the UK has seen considerable changes in recent years. These changes, most notably the dramatic increase in student numbers without matching increase in funding, have had a significant impact on the ability of academics to carry out research. In addition, Government funding for R&D in universities has been decreasing in relative terms, leading to the need for alternative sources of funding if research levels are to be maintained.

Industry/university links

The recent report of the Dearing Committee points out that over 50 per cent of the UK's R&D expenditure is industrial. Only 7-8 per cent is from the Research Councils or the HEFC. Today, on average, each member of a university staff generates 34 per cent of their costs from external research grants and contracts.

To take one example, Glaxo Wellcome over the last decade has developed a wide range of collaborative arrangements with academia. These range from research studentships and project grants to the provision of professorships and support for research infrastructure and equipment – although the latter two are really the Government's responsibility. But the danger is that the pressure may divert university research from its prime purpose of carrying out speculative blue sky and leading edge research. It is my view that such

research is essential to give range to free expression to produce both a skilled brain-base that benefits teaching in universities and the potential for unthought-of breakthroughs. Industry, with its limited and directed research funding, cannot be expected to contribute but the Government via the Research Councils does need to take the gamble of a certain level of speculative investments.

Government invests in basic research for a number of reasons: for health and personal well-being, for defence and security, for the environment – clean air, clean water and so on, for national competitiveness and for the production of highly skilled people. The first four reasons are wealth-consuming – the fifth is wealth-creating.

There are three main industrial requirements of a university: the provision of good graduates and postgraduates; access to high quality research at both the basic, strategic level and more applied; and the availability of resources to provide training and reskilling for employees so that they can maintain their levels of competence.

The university's ultimate role is to provide high quality people for industry and elsewhere. The importance of R&D is that it supports the core business. Graduates and qualified scientists and engineers form the best medium of technology and knowledge transfer and this is what the Government's Teaching Companies Scheme exploits. In addition the Postgraduate Training Partnership Scheme allows Associates to undertake industrially relevant research in a Research and Technology Organisation.

**Major companies
can produce
a direct connection
between teaching
and research
activities**

If the universities are to survive as major research centres they must adapt to the reduction in funding from Government and increase industrial funding. The type of research may well

change from individual research to multidisciplinary research.

That being said, how can industry work with these terms of reference and get maximum benefit from university activities?

The industrial trend

The trend amongst larger companies is to reduce the number of universities with which they work. One advantage is that of economy of scale, which can be of benefit to the universities as much as to the industrial partner. More important are the advantages associated with longer term relationships and the promotion of interdisciplinary working.

There are two distinct types of grouping: those where the industry partner has a substantial but diverse range of contracts across different university departments, so the university can be viewed as a preferred supplier; and those where the industrial partner is supporting a number of projects in one particular discipline, so that the university is effectively a centre of excellence.

Improvements must focus on SME access to HEIs

Such approaches are satisfactory for a single industrial partner but larger, multi-client research programmes are undertaken over longer periods of time and normally require more fundamental research involving several universities as collaborative partners. Frequently these multi-client research programmes are international.

The principal function of a university is education and major companies can produce a direct connection between teaching and research activities. For example, British Aerospace were dissatisfied with the range of graduates and the need to re-educate them for use in the aircraft industry. Loughborough spent two years designing a course specifically for British Aerospace. As a result, the university now has a research centre of excellence for BAe. Another example is a Filtronic/Leeds University joint venture to set up a three year MSc course in microwave engineering.

Indeed, more and more engineers will be sponsored at universities so producing strong university/industry links.

There are encouraging signs that industry is increasingly looking to work in partnership with the science and engineering base in universities. The CBI/Nat West Innovation Trend Survey reported that 73 per cent of manufacturing and 80 per cent of non-manufacturing CBI members collaborated with academics during 1996. Another indicator is that some 40 per cent of universities run industry clubs and 75 per cent run courses for industry.

Industry is increasingly working with universities

Nevertheless, effective mechanisms are needed to communicate the demands of the industrial end-user to those undertaking the research. This apparently simple task is one which, for a variety of reasons, has proved surprisingly challenging. The two communities of university and industry each have pressing obligations within their own worlds. There can therefore be insufficient attention to the effectiveness of the communication between them. It is in part to tackle this problem that the UK, along with other countries, has engaged in Foresight Exercises. These aim to ensure that industry and university colleagues work together to establish visions for the future world within which they will have to operate.

Conclusions

So what do I conclude and what can be done in future to make improvements?

Enlightened companies are not failing the UK research base but rather they are capitalising on it and contributing to it. SMEs, on the other hand, are in general unaware of the work at universities but the SMEs are a significant part of the supply chain. Therefore, any improvements that more realistically allow SMEs to access HEIs would be welcome. Here the university for industry may be able to assist in the future. However, some work needs to be done to identify the shortfall in SMEs'

knowledge before the system can be quantified.

This is where the Government may be able to assist, for example, through Research Council based project funding, to stimulate innovation through the supply chain, using perhaps an increased LINK scheme.

Looking to the future, there will be a growth in centres of excellence at selected universities providing a service to industry. These centres of excellence will either be highly specialised and dedicated to one aspect of science or engineering or they may span several disciplines across a number of university departments, or indeed across a number of specialised departments situated at other universities not only in the UK but world-wide.

IT evolution will facilitate the formation of virtual universities just as it will virtual companies. A good example is the Virtual Energy Policy and Technology Centre being formed at Imperial College, bringing together expertise in technology, economics and law.

There will be further growth of Technology Incubators situated in the vicinity of certain centres of excellence, dedicated to the needs of a particular company with teams from the company possibly working within the university environment. This, in turn, will give the universities a greater understanding of the specific needs of an individual company, resulting in more undergraduates trained to suit the particular needs of industry, for example, training in team working or in commercial and entrepreneurial skills.

There is the constant spectre of a skill shortage

Nevertheless, there is the constant spectre of a skill shortage and so the requirements for future skills must be defined so that universities are pre-warned as to training needs.

■ Summary of an address to the Parliamentary and Scientific Committee as published in *Science in Parliament* Vol. 56, No. 1 Spring 1999. This article is reprinted with the kind permission of the publishers.

UK round table on sustainable development

Awareness raising is the key to reaching small firms

The UK Round Table on Sustainable Development published its fourth report in May on the contribution which small and medium-sized enterprises (SMEs) can make to sustainable development.

The UK Round Table on Sustainable Development was established by the Government in 1995. It encourages discussion on major issues of sustainable development and seeks to build consensus between people who have different perspectives and responsibilities. Members are drawn from business, NGOs, local government and other sectors of the community. It is chaired by Mr Derek Osborn CB, who replaced Sir Richard Southwood at the end of April. The Deputy Prime Minister, the Rt Hon John Prescott MP, is its President.

The new Chairman of the Round Table, Derek Osborn said:

‘Most of the focus in thinking about businesses and sustainable development has been on large firms. But small firms, which make up the vast majority of all our businesses, can play an important part in helping us move in a more sustainable direction. I am pleased that the previous chairman and members of the Round Table chose to study SMEs and am delighted to present this report.’

Ewen Cameron, who chaired the subgroup which prepared the report, added:

‘Our key conclusion is that, important as it is to address small firms directly, in fact the most effective way of helping them to see the need for action is through education and raising the awareness of these issues amongst the UK population as a whole. Small firms are, arguably, more heavily influenced by the personal values of the people who manage and work in them than are larger companies.’

‘The many current attempts to influence small firms have been likened to trying to push a piece of string. But if more of the people who run these firms understood and accepted the principles of sustainable development – and the opportunities it presents – they might

start to look for information and help. There is plenty of help available, and we have identified a number of ways in which it could be better coordinated and made more effective.

‘We have also suggested a way firms could be given an incentive to take action.’

Although referring to SMEs generally, the report focuses on small firms (those with fewer than 50 employees). It makes a number of recommendations, including:

- All responsible bodies, led by the Government, should work to encourage lifelong learning in the area of sustainable development, utilising all available opportunities to promote the message of its importance. Those in the media should consider how they can contribute to this.
- Banks, business advisors and others should utilise the process of providing business start-up information to supply useful advice related to sustainable development and the opportunities it presents to those starting new companies.
- Regional Development Agencies, perhaps supported by the new Small Business Service, should guide Business Links and other statutory and voluntary groups within their region, to provide advice to small firms about sustainable development including their environmental performance.
- As part of the initiative to promote energy efficiency using funds from the proposed ‘climate change levy’, the Government should consider the feasibility of introducing a tax incentive for SMEs to encourage them to reduce their use of energy and other resources.
- The Environment Agency in England and Wales, and the Scottish Environment Protection Agency, should co-ordinate and promote the development of guidance for small firms on environmental legislation at two levels: a ‘route map’ and spe-

cific sectoral guidance.

The annual report covers a range of topics including

- biodiversity
- agriculture and rural policy
- monitoring and reporting on sustained development
- stakeholder dialogue; and
- devolution and regional arrangements.

The Government has announced its intention to establish, from the beginning of 2000, a new Sustainable Development Commission, subsuming the Round Table and the Government Panel on Sustainable Development.

Copies of Round Table reports are available free of charge from the secretariat, at:

Zone 4/D10,
Ashdown House,
123 Victoria Street,
London SW1E 6DE
Tel: 0171-890 4964
Fax: 0171-890 4959
e-mail: Felicia Kemp@detr.gsi.gov.uk

- The summary and recommendations of this report will shortly be available on the Round Table’s Web site at: <http://www.open.gov.uk/roundtbl/hometb.htm>
Press Enquiries: 0171 890 3041;
out of hours: 0171 890 5945/5925
Public Enquiries: 0171 890 3000

News of IES members

Steve Winter, a student member of the Institution and in his first year at the University of Lincolnshire and Humberside has been awarded the Barclays Bank Prize for best performance on year 1 of the BSc (Hons) Environmental Science Course. A cash prize of £250 has also been awarded.

Our congratulations to Steve and encouragement for the remainder of the course which is one accredited by the Institution.

New scientific committee to oversee GM crop evaluations

Membership of a new scientific steering committee to oversee the ecological studies on farmscale evaluations of genetically modified crops, was announced on 25 May by Environment Minister Michael Meacher.

The Government announced its intention to establish a steering committee on 14 April. Its members are independent of the biotechnology industry and the research contractors undertaking the ecological studies.

The new committee will be headed by Professor Christopher Pollock, Research Director of the Institute of Environmental and Grassland Research.

Members of the steering committee are:

Professor Mick Crawley from Imperial College;

Dr David Gibbons, Head of Conservation Science at the Royal Society for the Protection of Birds;

Dr Nick Sotherton, Director of Research for the Game Conservancy Trust;

Dr Nicholas Aebischer, Director of Biometrics at the Game Conservancy Trust;

Mr Rob Kempton, Director of Biomathematics and Statistics Scotland;

and

Dr Alistair Burn of English Nature.

Announcing the membership, Michael Meacher said:

‘I believe that we have appointed some of the UK’s leading scientists in the field of farmland ecology and conservation to advise us on the farmscale evaluations. The establishment of this steering committee will ensure that managed development of GM crops in the UK is underpinned by sound science.

‘The primary objective of the farmscale evaluations is to study how the management of GM herbicide tolerant

maize, spring oilseed rape and winter oilseed rape might affect wildlife compared to the management of their non-GM equivalents.

‘The farmscale evaluations of GM crops is extremely important research which will ensure that the managed development of GM crops will take place safely. I want to ensure that the research is undertaken rigorously, and so my department has set up this scientific steering committee to oversee this research and to advise on how it should progress over the next four years.’

The steering committee will oversee progress of the research and advise on experimental design, the statistical analysis for the results obtained, and on any interpretations of the results which can be made.

‘I believe that we have appointed some of the UK’s leading scientists in the field of farmland ecology and conservation to advise us on the farmscale evaluations’

– Michael Meacher MP

The research contractors, a consortium of leading research institutes led by the Institute of Terrestrial Ecology, have already started work on the farms where the crops are being grown. They will report on the progress made at the first meeting of the steering committee on 14 June.

Michael Meacher announced the managed development of introductions of genetically modified crops at the House of Lords European Communities Sub-Committee on Agriculture on 21 October 1998.

‘The farmscale evaluations of GM crops is extremely important research which will ensure that the managed development of GM crops will take place safely...’

– Michael Meacher MP

Work carried out to date is as follows:

The ecological studies are being carried out by a consortium of organisations led by the NERC Institute of Terrestrial Ecology, which also includes the Institute of Arable Crop Research and the Scottish Crop Research Institute.

This year the farm scale evaluations for spring oilseed rape have been planted at three locations: Lushill Farm, Hannington, Highworth, Swindon, Wilts; Model Farm, Shirburn, Watlington, Oxfordshire; and Advanta Seeds UK Ltd, Boothby Graffoe, Lincolnshire.

The maize has been planted at four locations: Walnut Tree Farm, Lyng, Norwich, Norfolk; Home Farm, Spittle-in-the-Street, Glenthams, Lincolnshire; Little Park Farm, Mortimer, Reading, Berkshire; and Rothamsted Farm, Harpenden, Hertfordshire.

Both GM crops have been modified to be herbicide tolerant; neither is insect resistant, nor contains the Bt gene.

■ *DETR press release (PN 410) about the selection of the research contractors was issued on 15 April.*

Press Enquiries: 0171 890 3041; out of hours: 0171 890 5945.

Public Enquiries Unit: 0171 890 3000.

Internet address for DETR press notices: <http://www.nds.coi.gov.uk/coi/coipress.nsf>

The Hon. Secretary's news desk...

Responses to consultations

Business remains brisk and responses submitted since March are as follows:

- *Revision of PPG Note 11: Regional Planning* to the DETR, prepared by Jim Whelan.
- *Revision of PPG Note 12: Development Plans* to the DETR, prepared by Jim Whelan.
- *Revision of PPG Note 3: Housing* to the DETR, prepared by Robert Fuller.
- *Rural England: A Discussion Paper* to the DETR, prepared by Robert Fuller.

The proposals on housing have been widely reported in the national press and a copy of our response is printed elsewhere in this issue of the Journal.

Accreditations

We are receiving an increasing number of enquiries regarding course accreditations for a varying range of courses at undergraduate and post graduate level. In the past months we have accredited the BSc (Hons) Environmental Science course at the University of the West of England and reviewed the new BA/BSc (Hons) Environmental Conservation course at the Swansea Institute which is nearing the end of its first year. A number of others are in the pipeline.

Planning and urban renewal

As evidenced by the number of consultation papers issued by the DETR in recent months, there is considerable Government activity in the area of planning and physical development. The entire planning structure is being systematically reviewed and overhauled, new Regional Agencies have been set up and new policies are being developed.

Proposals for the concentration of housing development on previously developed (including brownfield) land and in urban areas, is only part of a major initiative towards significant urban renaissance.

In all of the many proposals promulgated, sustainable development and environmental quality are strongly represented. The various threads and initiatives are coming together and reaching a conclusion towards the end of this year, including the publication by the Government appointed Urban Task Force of their major report.

Nuclear energy

At the Parliamentary and Scientific Committee on 24 May 1999, two papers were presented on the contentious issue of nuclear power. One was by Peter Hollins, Chief Executive of British Energy and the other by

Lord Flowers, ex-Chairman of the House of Lords Science and Technology Select Committee. Whilst nuclear power provides a significant proportion of our present electricity supply and the industry is commercial and economically very successful, this is not likely to continue for very much longer.

The present generation of reactors have a life expectation of some ten years and there are no plans for replacement. Unless decisions for a new generation are swiftly formulated and implemented there is every likelihood that there will be an irreversible dissipation of the industry's skill base and its contribution. Due to the relatively 'clean' nature of this form of energy generation, the loss of the facility would make it extremely difficult for the UK to meet the Kyoto targets for carbon dioxide emissions to the atmosphere.

The main stumbling block to a new programme are a strongly entrenched public distrust of nuclear power, a very high and possibly uneconomic cost of replacement of the generating stations, and the lack of a solution, in this country at least, to the problems of long term disposal of high activity nuclear waste. We hope to print the text of the two papers in a later issue of the Journal.

RAF

New members

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

Miss L. M. Darvill	Environmental Scientist Monitor Environmental Consultants	Miss M. W. Namata	Student, University of North London
Miss A. L. Dickie	Administrator Environmental Recruitment Agency	Mr C. J. Perry	Recent Graduate University of Aberdeen
Mr D. A. Ellis	Principal Landscape Architect Arup Environmental	Mr R. J. Quinn	Business Development Manager Vectra Technologies Ltd.
Mr A. J. Field	Freelance Consultant	Miss H. K. Reardon	Student, University of Glamorgan
Mr J. R. May	Assistant Environmental Consultant Ashdown Environmental Ltd.	Mr P. A. Ross	Health & Safety Consultant Personnel Health & Safety Consultants Ltd.
Mr P. L. M. Meyer	Director & MD Environmental Mitchell McFarlane & Partners Ltd.	Mrs N. K. Woodfield	Co-ordinator University of the West of England
Mr A. G. Milne	Laboratory Chemist SGS Redwood (UK) Ltd	Mr S. E. T. White	Assistant Environmental Underwriter AIG Europe (UK) Limited

Forthcoming events, courses and conferences

24 June 1999

Facilitating environmental solutions:

an introduction to stakeholder dialogue

London Voluntary Sector Resource Centre, London N7

Workshop providing introduction to facilitation and mediation for the environment.

Details: The Environment Council, 212 High Holborn, London WC1V 7VW

Tel: 0171 836 2626

E-mail: info@envcouncil.org.uk

7 July 1999

Communicating environment in the workplace: securing success by capturing commitment

London Chamber of Commerce and Industry, London Morning Seminar on how to communicate the environmental message.

Details: The Environment Council, 212 High Holborn, London WC1V 7VW

Tel: 0171 836 2626

E-mail: info@envcouncil.org.uk

5-9 July 1999

Habitat management for invertebrates

Snowdonia National Park Study Centre, Plas Tan y Bwlch, £214/428

Short course to introduce reserve managers, etc, to the basic ecology and conservation requirements of invertebrates.

Details: Dewi Jones,

Plas Tan y Bwlch,

Maentwrog,

Blaenau Ffestiniog,

Gwynedd,

LL4J 3YU

Tel: 01766 590 324

E-mail: plastanybwlch@compuserve.com

19-23 July 1999

National Vegetation Classification:

Uplands – a Practical Guide

Snowdonia National Park Study Centre, Plas Tan y Bwlch, £228/457

Short course to introduce countryside managers, etc, to the methodology and survey techniques of the NVC for upland habits.

Details: Dewi Jones,

Plas Tan y Bwlch,

Maentwrog,

Blaenau Ffestiniog,

Gwynedd, LL4J 3YU

Tel: 01766 590 324

E-mail: plastanybwlch@compuserve.com

22-23 July 1999

Sparkling rivers full of life – integrated catchment management

Keble College, Oxford, £200-400 Conference which covers issues facing those involved in modern catchment management.

Details: Terence Dalton Events, 47 Water Street,

Lavenham, Suffolk CO10 9RN

Tel: 01787 248097

E-mail:

erica@lavenhamgroup.co.uk

6-8 September 1999

International conference on emissions monitoring

University of Warwick

Announcement and call for papers;

will cover legislation, stack and ambient measurement techniques, calibration, air quality and case studies.

Details: Dave Curtis,

Source Testing Association

Fax: 01462 457157

E-mail: CEM99@s-t-a.org

6-10 September 1999

Monitoring for nature conservation

Snowdonia National Park Study Centre, Plas Tan y Bwlch Short course to further knowledge and skills necessary for effective monitoring and management of sites of nature conservation interest.

Details: Dewi Jones,

Plas Tan y Bwlch,

Maentwrog, Blaenau Ffestiniog,

Gwynedd, LL41 3YU

Tel: 01766 590 324

E-mail: plastanybwlch@compuserve.com

14-15 September 1999

5th National Conference on Waste

La Baule, France

Conference covering the French approach to waste management, workshop sessions including waste reduction, land disposal, low level radioactive waste.

Details: Secretariat General des Assises DRIRE des Pays de la Loire,

2 rue Alfred Kastler,

PO Box 30723,

44307 NANTES

cedex 3 France,

Tel: (33) 02 51 85 80 99

Fax: (33) 02 51 85 80 44

E-mail: Assises.Dejets@emn.fr

7-27 November

A sense of wilderness

Schumacher College, Dartington, Totnes, Devon

£1350

Short course looking at wilderness significance and conservation.

Details: Schumacher College,

The Old Postern, Dartington,

Totnes TQ9 6EA

Tel: 01803 865 934

E-mail: schumcoll@gn.apc.org

Guidelines for environmental sampling after a chemical accident

John Houston

Until now there has been inconsistency in the environmental monitoring of chemical accidents, with different methodologies producing variable results. To overcome this, the Department of the Environment, Transport and the Regions (DETR) has commissioned the publication of best practice.

About 18 months ago the DETR contracted AEA Technology plc to develop guidelines. A Steering Group and a more informal 'correspondence' group were formed to advise the contractor. These groups provided a range of expertise (including environmental health and emergency planning) to AEA Technology. The contractor was also able to draw extensively on research, especially on industrial fires releasing toxic substances over a wide area, carried out by the Institute of Terrestrial Ecology.

Sensitive habitats and vulnerable species may suffer long term damage from the release of hazardous substances

The project's aim was to deliver guidance on post-accident sampling procedures to assess the extent and nature of environmental contamination. This information is essential to determine counter-measures to protect the natural environment and human health and to target restorative environmental measures.

Sensitive habitats and vulnerable species may suffer long term damage from the release of hazardous substances. Human health can be at indirect risk from contaminated air, soil, water, crops and livestock. Good quali-

TITLE:	<i>Environmental sampling after a chemical accident</i>
PUBLISHER:	<i>The Stationery Office (Tel. 0870 600 5522)</i>
PRICE:	<i>£27.50</i>
PUBLICATION:	<i>May 1999</i>

ty and consistent information is essential to communicate safety advice to the public.

Potential users of the guidance include local authority environmental health officers (EHOs), pollution control officers from environmental regulators, works chemists and public health doctors. Basic scientific knowledge and technical expertise on measurements are assumed.

The project's terms of reference excluded ionising radiations, genetically modified organisms as well as marine pollution, although surface waters and estuaries are covered. The types of accident dealt with are: spills to land and water, releases of gas or fumes, fires (including deposition to land). Although mainly aimed at accidents at fixed installations, the guidance is largely applicable to transport accidents. Users' understanding of the procedures is greatly aided by the inclusion of a detailed worked example based on a fire at a large chemical plant.

So, realistically, what can and should a local authority COMAH emergency planner do? Firstly, the guidance needs to be brought to the attention of site operators, local authority EHOs having sites in their districts, and Environmental Agency emergency planning contacts. It can't be assumed they will all know of this development. Knowledge of the potential distribution of contamination is essential for effective sampling and detailed discussions between EHOs (who probably need to lead on this), site

operators, EA staff and, possibly, water companies is needed to develop a strategy for environmental sampling.

Good quality and consistent information is essential to communicate safety advice to the public

Would it be useful for the environmental sampling campaign for the site to be written in the emergency plan? Is it sufficient to identify and agree sampling points and frequencies with all concerned without formally writing it into the plan? The plan may, in some cases, already cover to some extent the nature of the environmental hazard and the actions of the responding agencies to protect and rehabilitate the environment following a major accident.

Local authority emergency planners may also need to consider with other professionals a sampling regime for non-COMAH sites, major accident hazard pipelines, roads and railways handling known environmental hazards.

■ *John Houston works with Contingency Plans Associates, 15 Cambridge Road, Sandy, Beds SG19 1JE Tel/Fax. 01767 682942.*

Revision of Planning Policy Guidance Note 3: Housing

The following is the text of comments by the Institution on the Public Consultation Draft issued by the DETR as submitted in May, 1999.

The proposals for prioritisation of utilisation of land for new housing with a concentration on previously developed or vacant land in urban areas is welcomed. As this also includes brownfield sites there should be a recommendation for local authorities to co-ordinate their programmes with parallel government initiatives in progress for urban regeneration (Urban Task Force, etc).

The move towards higher densities in housing development, particularly in urban areas, is supported. However, the accompanying recommendations for the maintenance of quality in the design should be strongly emphasised. With higher densities, economies are achievable in capital costs, but these are usually at the expense of environmental quality. Any such savings should be re-invested in the quality of the buildings, the surrounding landscape and the communal facilities.

This should be ensured through the exercise of control by planning permis-

sions. There will be a need for a revival of town planning principles and ideals of good town design, which have been allowed to progressively decline during the 80s and 90s.

The use of brownfield and previously developed land often attracts higher development costs and is thereby unattractive to private developers. The Note should give some indication of financial support facilities available for such development. If these do not exist, an alternative should be investigated – possibly compulsory purchase and re-sale by tender at affordable cost (a form of subsidy!).

The Note deals with and devotes itself to **housing**. Nowhere is there a reference to community or to the facilities such as shops, healthcare, schools, community buildings, leisure facilities, libraries, etc. In many cases in inner urban areas, regeneration will require the replacement of such facilities that have declined or disappeared with falling residential populations. Unless a fully viable **community** is recreated then a policy of residential re-development is not viable. In other cases, the

addition of residential numbers to an existing community may need the supplementation of existing facilities to maintain viability. The Note does *not* address this problem although it is fundamental to any policy of urban regeneration of which housing provision is a part.

The proposed policy for reduction of car usage in urban areas is welcomed. However, if transport policies are not developed in parallel or are not successful then the reduction in parking provision will be a cause of significant problems at a later date. This danger should be recognised.

As guidance notes for planning authorities, some part of the advice should deal with the policy for management and operational effectiveness of housing developments. Design should provide for elements of sustainable development (a term not referred to in the Note!) including the following:

- energy saving design
- waste minimisation
- re-cycling facilities
- uses of renewable materials.

RAF

Greener buses for a greener future

We regret to announce that the conference advertised in the March/April edition of the IES Journal has been cancelled.

There are no plans for re-staging the event and we regret any inconvenience caused.

Diary dates 1999

21 September GP Committee 13.00

6 October Education Committee 10.30

6 October Council 13.30

New IES address

Please note the Institution's new postal address:

**PO Box 16,
Bourne,
PE10 9FB**

Telephone/fax: 01778 394846.

IES Web Site:

<http://www.greenchannel.com/ies>

Email: ies@greenchannel.com

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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 3000 words should be submitted to the Editor three weeks prior to publication in the last week of January, March, May, July, September and November. Editor's address: 25 Kennedy Avenue, Huddersfield, West Yorkshire, HD2 2HH; telephone 01484 426796, fax 01484 546640.

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

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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.

