

# Research Brief 6

## Policy Insights on Environment and Behaviour

From the ESRC's New Opportunities Research Programme on  
**ENVIRONMENT AND HUMAN BEHAVIOUR (EHB)**

environment and  
human behaviour  
esrc new opportunities programme



## INTRODUCTION

This Research Brief describes the main results of four projects in the EHB Programme that examined different key issues at the intersection of human behaviour and the environment: the use of energy in the home to achieve comfortable indoor environments; households' use of cars, and the impacts of taxation on that use; acceptance of, or opposition to, wind power as a source of electricity; and the engagement by small and medium-sized enterprises (SMEs) in environmental management.

## THE MAIN RESULTS

*Future comfort:* Likely responses to global warming in housing – including growing reliance on air-conditioning – threaten to increase energy consumption and further contribute to emissions of CO<sub>2</sub>. However, the results of this project show how the thermal needs and expectations of users are themselves constructed by those responsible for designing buildings and specifying technologies. There is a surprising degree of diversity among these people in how comfort is currently conceptualised and achieved in practice. This suggests that the definition of comfort is in fact highly negotiable and that the specification of the indoor environments of the future is by no means fixed or inevitable. For policy makers the challenge of these results is to open up debate with designers, clients and users in order to understand how the socio-technical trajectories being constructed today will shape future standards and expectations.

*Transport Taxation Futures:* A range of pressures (continuing increases in congestion and emissions, taxpayer resistance to fuel taxes, reduced revenues from fuel taxes) is stimulating a growing perception among policy makers that a transport taxation regime based on road user charges, rather than ownership and fuel taxes as at present, would be more appropriate for current policy needs. Results from this project suggest that using such charges to reduce congestion without increasing emissions would require a net increase in transport taxes (i.e. revenues from new road user charges would need to be greater than revenues foregone from reduced ownership and fuel taxes). Road user charges that raised net revenue could indeed reduce both congestion and pollution, but there is no guarantee that they would prove less problematic politically than fuel taxes.

*Attitudes and Behaviour in Respect of Wind Power:* General public support for renewable energy often does not seem to be carried through to support for particular developments, particularly wind farms. This does not necessarily mean that there is an attitude-behaviour 'gap', as has sometimes been surmised. Rather this project has found that local issues may become more important in particular situations than global issues such as the greenhouse effect. Key issues influencing the way development proposals will be received locally include trust in decision makers, consultation and deliberation in the planning process, power and control over local environments, the representativeness of local debates, and perceptions of who benefits and who loses, as well as mitigation of landscape impact. Planning and decision making need to consider these issues and treat them appropriately to increase the probability that wind farms will be locally acceptable.

*SMEs and the Environment:* Much UK environmental policy seeks to encourage industry to embrace voluntarily environmental good practice on the basis that it will be good for business. However, this study has found that many small business owners do not perceive there to be enough business benefit in pursuing environmental goals to justify either the required investment in time, money and effort, or the development of 'green' products. It is therefore questionable whether the government's emphasis on the 'business case' for sustainability is the most effective way of stimulating environmental reform within the SME sector. A policy mix of market-based incentives and legislative controls, backed up by regular inspections, could do more to persuade SMEs to view their environmental obligations as a mainstream business concern, rather than an optional extra if they find the time.

## Future Comforts: Re-conditioning Urban Environments

More than 50 per cent of UK energy is currently used to heat or cool buildings. Some building industry commentators predict that it will take only one or two more hot summers for the UK domestic air-conditioning market to develop momentum, increasing building energy use and therefore its contribution to carbon emissions. Such trends represent a significant policy challenge.

The 'Future Comforts' project has explored, through interviews with UK architects, designers, manufacturers, and property developers, how meanings and conventions of thermal comfort are established and are changing, and what this means for technologies and practices of indoor heating or cooling. Because buildings generally last a long time and conventions of comfort cannot be uprooted overnight, the ideas and approaches that dominate today will play a significant role in constructing future possibilities for indoor environmental management and in perpetuating certain patterns of energy use.

Those currently responsible for designing and regulating buildings face the challenge of anticipating and designing for uncertain, perhaps

rapidly changing climatic conditions. The types of heating and cooling systems being specified and sold will help define what comfort means in the future. Manufacturers' efforts to promote the uptake of air-conditioning – in cars, offices and shops – are already contributing to changing expectations of indoor conditions. Further moves into the domestic market are planned.

The efforts of manufacturers and developers in themselves will not guarantee the diffusion of air-conditioning across all parts of society. Many UK consumers currently resist the installation of domestic units. More 'adaptive' approaches to building design and use allow people to modify and adjust to changing outdoor conditions. And are likely to be less demanding in terms of energy consumption. However, designers argue that clients and property developers generally place a premium on air-conditioned buildings, demand tight design specifications and precise control over indoor environments, and are reluctant to consider naturally ventilated alternatives. The extent to which air-conditioning becomes established will depend on how far perceptions of the relationships between health, cooling and climate

change can be renegotiated.

The history of comfort is marked by changing meanings and expectations; conditions defined as positively uncomfortable in some cultures and circumstances are viewed as entirely normal in others. Debates about the indoor environment today remain contested and controversial. Ideas about how and why indoor environments might change in the future are complex and diverse. Adjusting living or working practices, rather than seeking precise control over indoor environments, can transform the need for energy-using technologies. The approaches favoured and promoted reflect the different positions and expectations of the multiple interest groups involved. The future of the indoor environment is therefore by no means certain. Many different trajectories are possible, including the development of more energy-efficient ways of providing and delivering precisely defined conditions of 'comfort', perhaps involving new forms of technology or better controls; and the reinvention and positive valuation of local cultural and climatic variation. Different policy interventions are likely to be required for each trajectory.

## Taxation Futures for Sustainable Mobility

The existing transport tax and charging regime has stimulated limited behavioural change and has been politically problematic (as demonstrated by the September 2000 fuel duty protests). This project synthesised a range of research that has explored ways in which road user charging could replace the present regime based on taxing fuels and car ownership. In 2002, when this project was proposed, this was a fringe transport policy issue. Throughout 2003 the subject achieved a sudden prominence, with a government working party being established to explore the possibility of long-term area-wide road user charging.

A tax regime change towards a car road user charge for cars has occurred, or is being considered, in societies as contrasting as Oregon State in the USA, the Netherlands, Switzerland and the UK, reflecting a range of policy considerations. For the UK, these include: the ongoing failure of transport policy measures to achieve adequate cuts in congestion and emissions; the success of the London

Congestion Charge; the rise in the cost of transport policy interventions; the reduction in Treasury income of eco-reforms to the current tax regime; and the difficulties of, and equity issues relating to, taxing fuel in a future multi-fuel transport sector.

The project developed tax change scenarios in conjunction with the project's user group (including policymakers, NGOs and researchers). Five scenarios were modelled using an adaptation of the Dutch Mobility Explorer program. An 'opt-in' transitional policy mechanism involved replacing VED with a small flat-rate kilometre charge for cars of 0.77 p/km. The model suggested it would have little policy impact, but could be used to familiarise car drivers with the concept of a distance charge. A fiscally neutral scenario involved the replacement of VED and Fuel Duty with a banded kilometre charge for cars of between 2.3 and 8.5 p/km (varied by the environmental performance of the vehicle type). This induced little behaviour change, reducing car driver mobility by only 4%. A further scenario,

restored the tax revenues lost from post-2000 tax changes, generating an additional £3 billion or £6b per annum. These reduced car driver mobility by 9% - 14%, and total CO2 emissions were predicted to drop by 6% - 9% by 2015, compared to the base scenario.

The type of change involved in the revenue-raising scenarios is significant. There would be only a small increase in the use of public transport, with the predominant response being the better utilisation of cars with higher occupancy and more linking of trips to cut distances driven.

The project results suggest that road user charging may deliver more revenue stability than fuel taxation. However, clarity is needed over the policy goals – congestion reduction, emission reduction, revenue stability – for a national road user charge, because the goals are not necessarily complementary. It should also be emphasised that a change of tax regime would not remove the need for hard political decisions in this area.

## Tilting at Windmills? The Attitude-Behaviour Gap in Renewable Energy Conflicts

This multi-disciplinary project brought together a range of academics with evidence from expert witnesses to explore complicated issues of attitudes and behaviour relating to the development of wind farms. Together, the team has reached a number of conclusions about the relationship between humans and their environment, and the way that it is assessed.

First, although attitudes and behaviour do not necessarily correspond, this does not mean that people are behaving foolishly, irrationally, or selfishly. Attitudes may be formed hypothetically or may be fairly uninformed, and so subject to change when they are called into question in a particular situation, or further information becomes available. With wind farms, this may be when attitudes about renewable energy in general are challenged when a local development is announced. The resulting behaviour may be based on a number of local factors that become relevant in such an event,

including amenity, economics, landscape and the relationship that people have with the environment they live in. How the development process is managed locally, in particular the consultation process, then becomes of crucial importance.

Second, perceptions that attitudes and behaviour do not correspond may be more to do with perceptions than reality. There may be a 'social gap', whereby a minority who oppose wind farms are able to exert their influence over the decision making process. Issues of sustainable energy and cultural change need to be considered at a broader social level as well as at an individual one. The views of the 'silent majority' have to be sought and included to ensure that their views are given adequate weight.

Finally, any perceived gap between attitudes and behaviour towards the environment may merely be an artefact of their measurement. Any one behavioural act is governed by a large

number of factors, including a number of different attitudes. This means that there is likely to be only a weak relationship between any particular attitude and behaviour. The different factors may result in significant differences between being 'pro-environment', 'pro-renewable energy' and 'pro-this particular wind farm'. Moreover, to identify a gap between attitudes and behaviour requires them to be measured on the same scale. Questionnaire responses to questions about hypothetical situations are unlikely to be a reliable indicator of attitudes or behaviour in a context of real local disruption due to a proposed wind farm. And of course, 'behaviour' in opposition to such a development may take many different forms – from writing a letter to a newspaper to chaining oneself to a bulldozer. Furthermore, attitude surveys are averages – individuals may well be more consistent than this. Therefore, any perceived gap between attitudes and behaviour may be between different people, rather than related to any one individual.

## UK Small Firms and Their Response to Environmental Pressures

Ecological modernisation (EM) theory, which is an important component of UK environmental policy in respect of business, emphasises the complementarity of economic and environmental goals. By carrying out interviews with 40 small and medium enterprises (SMEs) in the construction and restaurant industries of London and Leeds, and 12 'key informants' within industry, government and academia, this project explored whether the owner-managers of SMEs have an affinity with this 'win win' philosophy. The findings follow.

*It is not clear that, in either sector, SMEs are becoming significantly 'greener' in response to market forces.*

In construction barriers to entry are almost non-existent, and profit margins are often very low. With cost and speed of build the number one priorities, environmental management remained a peripheral, even negligible, concern. At the top of the supply chain, architects claimed that despite some lip service there was currently little in the way of environmental design occurring in the UK, and pushing it forward could alienate their clients, who were reportedly driven by commercial interests rather than environmental or social considerations.

Further down the supply chain the interviewed builders perceived a correspondingly low demand for sustainable buildings and construction methods. In the restaurant sector, owner-managers are under considerable time pressures and found it difficult to contemplate managerial activities that were not core to their business, such as improving their environmental performance. They also felt that being environmentally-friendly would not be a particular draw for customers.

*There is also little perception in either sector of 'the business case' for sustainability.*

Sustainable design and construction were perceived to involve extra costs, and to risk reducing the competitiveness of tenders and potentially result in a loss of business. Neither developers nor end-users seemed interested in adding 'green' credentials to a building, even if such measures reduced running costs, because they were likely to raise short-term capital costs. The business benefits of minimising energy usage and waste were not clear either on building sites or in restaurants. Restaurateurs spoke of the barriers to recycling (such as limited storage

space for recycling bins, poor local recycling infrastructures) and of not having the resources to invest in energy efficient equipment. Most also perceived little demand for organic food in their restaurants.

*It therefore seems that current environmental policy is not succeeding in encouraging or achieving environmental reform amongst SMEs.*

The landfill and aggregates taxes had done little to encourage eco-efficiency amongst builders due to the perceived cost and effort involved in recycling and reusing materials, and a perceived lack of viable substitutes to virgin aggregates. Instead, legislation – such as waste disposal and building regulations – was seen as the key driver of environmental reform within construction, but was being undermined by low levels of compliance and a lack of adequate enforcement. Restaurateurs also saw legislation as the most effective way to improve the environmental practices of their industry. Without it they tended to perceive that the environmental impacts of their firm were too small to warrant much attention.

## AVENUES FOR FURTHER RESEARCH

### *Sustainable indoor environments:*

Research in this area needs to generate a sophisticated understanding of how buildings and technologies are socially constructed today and how these shape future practices and expectations. Indoor conditions and strategies of thermal regulation are defined by a variety of supply chain actors – including manufacturers, designers, planners, developers, governments and regulators – as well as by clients and consumers. Research needs to give further insights into the mutual interactions between these different groups. The conventions of indoor environmental management on which design decisions are based, including assumptions about the need for constant year-round internal temperatures, also need to be re-evaluated. Energy researchers and policy makers need to explore and exploit opportunities for constructing a diverse range of indoor environments if they are to avoid reinforcing unsustainable expectations. An immediate priority is to examine how air-conditioned ways of life might develop in the UK, and how they might be avoided, perhaps by resistance from those who value fresh air or are concerned about the long term risks of living in increasingly standardised conditions. Above all, research and policy should acknowledge that the future of comfort is not entirely fixed: it remains a matter of contention. By actively exploring alternative indoor environments and associated ways of life it may yet be possible to avoid locking-in to social and technical trajectories that are unsustainable.

*Sustainable mobility:* In the UK there has probably been too much focus on designing an ideal road user charging system that cannot be realised for at

least 10-15 years. Research should now be undertaken on interim reforms that could pave a transitional path towards such a future (for example, the Swiss system of road user charging appears capable of being implemented rapidly and its possible application to the UK should be researched in detail), including whether interim measures may block introduction of better future systems. Research is also needed into how congestion charging using GPS and in-car technologies could, without strong complementary land use policies, stimulate the transfer of traffic growth to low charge areas, indirectly redistributing congestion and even increasing traffic growth rather than controlling it. Finally, by being closely linked to a network of users and stakeholders, while maintaining independence and the integrity of the research process, research could increase public understanding of the core environmental issues involved with transport and perhaps contribute to their political resolution.

*Sustainable energy:* While the focus of this project was on the controversies surrounding wind energy, there are clearly both parallels and implications for the development of other sustainable energy sources. For example, preliminary evidence from the development of hydrogen indicates that many of the same issues, but with some differences, are being played out in this different arena. There is considerable scope for research on the factors that influence public acceptability of different energy sources. For example, why are there more wind farms in Scotland than in Wales, or in Denmark and Germany than the UK? Further research could also consider how people could be involved in more deliberative decision

making processes in respect of energy developments and what effects this might have. What is the relative importance, for different energy sources, in stimulating local protest of such factors as concern for the locality, feelings of being used by a large and remote corporation, and a sense of suffering disadvantages for the sake of a distant national or global good? Given that many sustainable energy issues are technically quite complex, how can information best be provided and shared in such processes to remove misunderstandings and expose the essential issues at stake?

*Sustainable business:* SMEs comprise 99% of all private sector enterprises and have a substantial environmental impact. Further research is needed on the value systems and worldviews of SME owner-managers regarding the environment, and on what policy approaches might persuade business owners to reduce the negative environmental impacts of their firms. This study has suggested that ecological modernisation theory is of very limited relevance to SMEs in construction and the restaurant sector. Further research could investigate whether this applied to other sectors and countries. Further qualitative studies of SMEs in other sectors would also increase understanding of the varying perceptions and behaviour of business owners to environmental issues. Finally, such studies could also seek to generate further insights into whether, in different sectors, there really is significant scope for joint economic and environmental benefits due to barriers obstructing the uptake or development of cost-effective green technologies.

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