Sustainability, Health and Environment Poster Showcase

10 May 2011

University of the West of England
BRISTOL

bettertogether

Foreword

The idea for this book came about following a poster exhibition in May 2011, showcasing the broad range of work in sustainability, health and environment being undertaken at the University of the West of England, Bristol (UWE). The event was organised by the Institute for Sustainability, Health and Environment (ISHE), which plays a central role in coordinating and delivering research and knowledge exchange in sustainability and health across the university. The event was so well attended, and there was such enthusiasm for the work, that we felt the materials should be collated in book format.

This is a snapshot of the sustainability, health and environment activity within UWE at a particular time. The University is always advancing our work in research, consultancy, teaching and estates management to support the creation of a healthy and environmentally sustainable future.

Please see the contents page for an overview of the work that was showcased at this event. You will notice that it groups the posters in broad themes, which in themselves illustrate the breadth and depth of our work.

We hope that you enjoy this showcase. Please contact us using the information provided at the end of the book if you would like to find out more about the Institute or about how we can work together.

Judy Orme and Jim Longhurst, Co-Directors, Institute for Sustainability, Health and Environment

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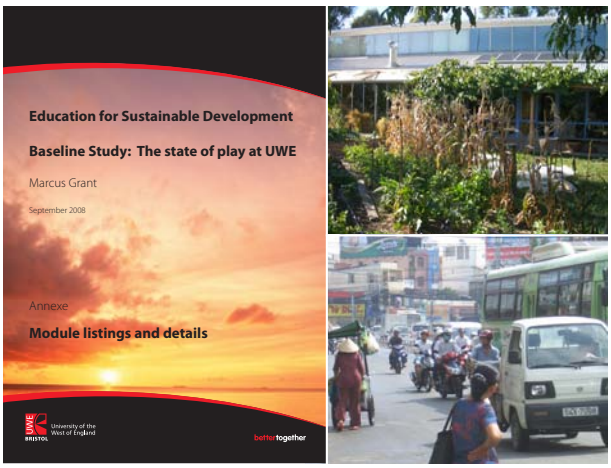
The Institute for Sustainability, Health and Environment (ISHE)

The UWE Institute for Sustainability, Health and Environment (ISHE) brings together a unique blend of knowledge and skills to engender transformation in society as it travels towards an healthy and low carbon future. This is achieved through research, teaching and knowledge exchange within the fields of 'sustainable development', 'public health' and 'environmental science and technology'.



The key foci of our work are:

- to provide intellectually leading contributions to the development of policy and practice in the thematic areas of 'Healthy, Sustainable Communities' and 'Low Carbon Futures';
- to drive and coordinate the 'Healthy University' and 'Education for Sustainable Development' activities at UWE.

The fields of sustainability, health, and environment, are ever more high profile as governments, organisations and communities grapple with how we can create a low carbon economy and an healthy and just society. ISHE has been developed against a backdrop of scientific and policy concerns in which it is increasingly being argued that public health, sustainability and climate change agendas are inextricably linked. The Institute is centrally concerned with the question of how we create the pace and scale of change that we need at individual, organisational and societal level. Increased integration and 'joining up' of these agendas in relation to policy and practice is essential.

ISHE provides research, consultancy, best practice and systematic reviews, and a range of knowledge exchange activities. Examples of recent activities include:

Visioning and supporting healthy low carbon futures:

- Sustainability framework for a new aerotropolis in South Africa;
- Low Carbon 2050 Bristol.
- Visioning an active and low carbon transport future for Yeovil;
- Spatial planning for health: capacity building for NHS South West;
- Knowledge transfer partnerships (KTPs) including road danger reduction (for Bristol City Council) and health impact evaluation (for Groundwork South West);
- Environmental Technology Innovation Network (i-Net);
- Developing leadership and governance for healthy universities.

Informing and shaping policy:

- The Spatial Planning and Health Collaborating Centre for the National Institute of Clinical Excellence;
- Defining sustainable systems of social care - funded by Social Care Institute of Excellence;
- Exploration of the energy behaviour of individuals and communities through an ESRC placement fellowship in the Department of Energy and Climate Change.

Educating and training:

- Development of the MSc in Sustainability, Health and Change, for launch in 2012;
- Carbon management training for NHS South West
- Education Network for Healthier Settlements – a national initiative supporting better integration of health and the built environment in higher education;
- Low Carbon High Skills – nine new courses to increase skills in low carbon industries in the South West.

Conferences and seminars:

- Healthy Communities Research Forum - four seminars per year.
- Conferences: 'Building health' (January 2010); 'Seeing futures' (November 2010); 'Spatial planning for health' (June 2011); 'Changing society, changing behaviour' (November 2011).

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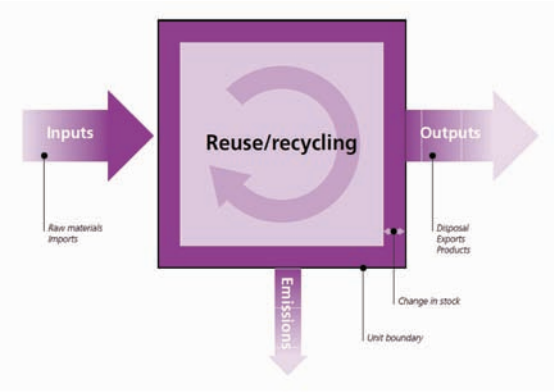
The environmental sustainability of the Bristol city region: current position and potential for bioregionalism

A baseline environmental sustainability assessment of the Bristol city region is being undertaken consisting of a 'stock take' of the area's natural capital and an examination of its ecological footprint. This baseline will inform semi-structured interviews with local stakeholders to explore potential factors involved in bringing about a transition to bioregionalism.



The extent to which humanity can safely put pressure on the planet's ecosystems is highly debated. Cities in the developed world currently exert huge stresses on the world's natural resources and waste sinks. Bioregionalism offers a more ecological approach to development based on a re-localised economy.

In order to assess how well the Bristol city region maintains the planet's natural capital, this study will measure the condition of its local natural resources and its population's overall consumption of energy and materials. It will then examine how far reliance on its own natural capital (bioregionalism) is possible and ways this could happen.

The baseline environmental sustainability assessment of the city region is tackled in two parts: a 'stock take' of the quantity and quality of the city region's local natural capital using indicators and GIS, and an examination of the city region's consumption of materials and energy and emissions of CO_2 in a global context using the Resources and Energy Analysis Programme (REAP) software tool by the Stockholm Environment Institute.

REAP utilises 'material flow accounting' to calculate ecological footprints for specific types of human consumption. The ecological footprint is a measure of the amount of land and water area required to supply indefinitely the level of human consumption in question and is based on two main calculations – the total biocapacity of the earth's ecosystems, and total human demand on these ecosystems, generalised into global hectares. Over-consumption can be recognised as an ecological deficit (or overshoot) whereby human demand is greater than the earth's biocapacity, which is only made possible through utilising the biocapacity of another population's area or depleting the earth's natural capital.

The baseline assessment will then inform semi-structured interviews with local stakeholders, the aim of which being to explore potential factors involved in bringing about a transition to bioregionalism. The interviews will focus on two key resources for human survival – energy and food. Over-consumed resources that negatively affect the global natural environment will be discussed with a view to identifying potential behaviour change around reducing or substituting such resource use, and the extent to which needs could be met using local natural resources.

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Funder and programme
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Timescale
September 2008 - September 2011

European health and environment exclusionary dynamics and the socially creative responses to deliver sustainable communities

This EU Framework 6 project built a platform on which research teams explored the consequences of growing inequality and social exclusion in all aspect of citizens' lives. ISHE members led on the Health and Environment Work Package. Our research focused on food and transport inequalities and our report profiles social innovation responses, including in transport, such as shared space schemes and the 'critical mass' social movement.

The KATARSIS project represented an innovative approach to engaging a wide range of individuals, organisations, groups, communities and researchers in the development of an evolving research agenda to help the European Commission to strengthen cohesion and inclusion in European cities. Involving over seventy different higher education institutions, it provided a platform to discuss the essential importance of health and environment to promoting sustained wellbeing. The project sought to highlight and learn from socially innovative approaches to health and environmental inequalities by sharing and exchanging knowledge between European stakeholders.

Our research used a mixed method approach. We explored health and environmental exclusionary dynamics by drawing on a critical and positivist use of official statistics and secondary material and reviewing findings of primary studies to outline the extent of health and environmental exclusionary dynamics in Europe. However, our studies of socially innovative creative strategies highlighted the antithesis of this, and involved symbolic–interpretive approaches which rely much more on qualitative methods: interviews, participant observation or action research.

In exploring bottom up approaches to environmental and health issues it became clear that engaging with environmental projects was seen as a creative response to the hegemonic assumption of global market capitalism based largely on a mechanistic scientific assumption that nature can be pillaged. Across Europe this research documented clear indicators that neighbourhoods are seeking alternative methods, philosophies and strategies of procuring and securing a sustainable future. The projects we highlighted revealed that community participation in the development of solutions was crucial for sustainability. We explored the importance of local space as these are vital if communities are to build safe and sustainable futures. In particular I've looked at 'critical mass' (CM) as an example of innovation.

Making links between health and the environment has enabled many individuals and neighbourhoods to discover the importance of the need to embrace both agendas. Because environmental problems are global in nature it is important that local initiatives make trans-national links. This can be seen in the CM movement. Using the internet to develop networks, the CM movement has inspired thousands of people across Europe to be physically involved in challenging car cultures and global warming in their towns and cities. Local CM events have global links which means that participants learn about other groups working for sustainable development on a global scale. The CM movement dramatise their oppositional identity in a series of actions and practices that are informing cycling strategies across Europe.

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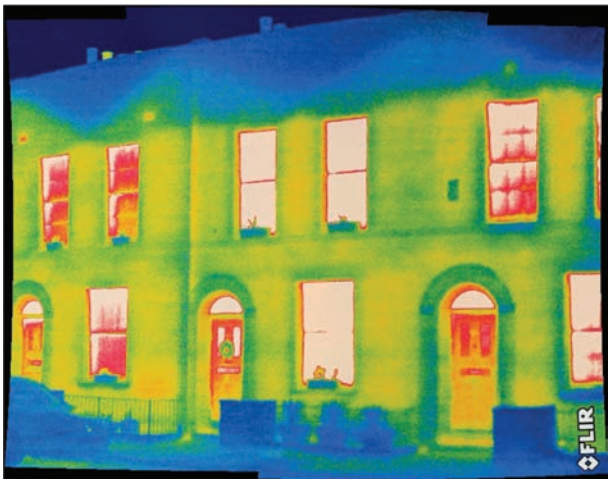
European Commission Framework 6 Programme

Timescale
2006 - 2009

Social movements, institutions and technologies: sustainable innovation strategies for low carbon communities

"Low carbon communities" is a concept requiring closer analysis if it is to be of practical or analytical use. This project reviews a series of separate literatures, and is engaging a range of stakeholders in exploring these concepts. The project will have outcomes in terms of presentations to international conferences, article submission and a research council bid, as well as building collaborative relationships with stakeholders in Bristol.



"Low carbon communities" is a term frequently used in Government policy circles, yet no satisfactory definition of low carbon communities and their key drivers is available. The purpose of this project is to map key concepts in a series of overlapping literatures on governance, social innovation and socio-technical systems and community empowerment, and to test them with key local stakeholders in Bristol.

While low carbon communities are a laudable policy aspiration, without a more dedicated understanding of how communities can become empowered to take action, it is unlikely that local stakeholders will develop the depth or breadth of expertise required to deliver the tasks that Government is keen for them to fulfil.

We have conducted a literature review of theories of social innovation, socio-technical systems, social movements and community empowerment, policy networks and governance, as well as energy poverty, climate change mitigation and adaption. From the literature we have developed a three way typology of drivers or sustainable innovation strategies for low carbon communities, in which either technological development, governance or community participation acts as the lead. We have conducted four stakeholder interviews in Bristol, which have validated this as a productive approach to research in the field.

The initial ideas have been presented in a seminar within the Department of Planning and Architecture seminar series and a paper has been accepted for the European Urban Research Association Conference in Copenhagen in June, with submission as an article to follow.

As a result of this work, the sustainable development charity 'Forum for the Future', is keen to be an external partner on an ESRC bid, contributing to the dissemination phase in the policy and practice community.

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Funder and programme
Cities Research Centre QR money

Timescale
Complete July 2011

An Anglo-Dutch tri-city study of place-based leadership and public service innovation

This study brings together practitioners and scholars to co-produce knowledge about how to promote innovative ways of addressing complex issues such as climate change and social exclusion. The project involves research collaboration between three cities – Bristol and Swindon in England, and Enschede in The Netherlands – and two universities – UWE and the University of Twente.

By comparing innovative place-based leadership efforts in three cities the project aims to address three questions:

- How does civic leadership contribute to innovation in approaches to social inclusion and environmental sustainability?
- What factors influence the effectiveness of civic leadership in different settings?
- What international lessons can be identified regarding the strengths and weaknesses of alternative approaches to place-based innovation?

The research method involves scholars and practitioners in each locality preparing a draft 'innovation story'. The three innovation stories look at the challenges of addressing complex issues of inclusion and sustainability at city and neighbourhood level. In particular, these cases address the challenge of joining up disparate initiatives – within the public sector, and also across business and the voluntary/ community sectors.

The conceptual framework that underpins the study identifies three kinds of civic leadership:

- Political leadership –the work of those people elected to leadership positions by the citizenry.
- Managerial/professional leadership –the work of public servants appointed by local authorities, central government and third sector organisations to plan and manage public services, and promote community wellbeing.
- Community leadership – community activists, business leaders, voluntary sector leaders, figures in religious organisations, higher education leaders, and so forth.

Through interviews, observation of meetings and review of documents, this study examines the role that each kind of leadership has played in cultivating and encouraging public service innovation and, crucially, how they overlap. We describe the areas of overlap between these different

Potential innovation zones

realms of leadership as innovation zones. This is because different perspectives are brought together within these zones and this can enable active questioning of established approaches.

Leadership capacity in modern society is dispersed. Our systems of local governance need to respect and reflect that diversity if decisions taken in the public interest are going to enjoy legitimacy. Furthermore, decentralised approaches - both across localities and within each realm of civic leadership - can empower informal leaders to be part of the dialogue. Initial findings in Bristol, Swindon and Enschede suggest that this more flexible approach has led to innovatory and joined-up practices in tackling multiple deprivation, digital exclusion, and attitudes to carbon emissions.

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Timescale
September 2010 - June 2011

Education network for healthier settlements

A pilot network of educators and practitioners was set up to promote the integration of health issues into the teaching and learning of built environment professionals in higher education by developing case studies and sharing experiences and sources of good evidence and practice.

The Foresight obesity report (2007) and other key documents have identified the built environment as having a significant impact on public health. Propensity to walk and cycle is determined by availability of suitable connections and environments. Mental health and social inclusion are also affected by our surroundings. Built environment practitioners are thus essential in promoting and securing healthy communities through planning and design of urban areas, their green spaces and connectivity.

Education institutions training the planners, architects, landscape and transport professionals of the future need to make these professionals 'health aware'. The aim of the project was to discover where and how health was covered in built environment education and hence how to improve its inclusion across the professions.

Through the development of a network of educators across England concerned with the essential connections between health and the built environment, a picture was built up of how and where this is brought into teaching. A steering group of practitioners and policy makers from both health and built environment disciplines brought a practical perspective to the project.

The approach taken was based on participatory action research theory whereby action, reflection, theory and practice are brought together by the participants to support the development of new and practical solutions. In this case the participants are the educators, practitioners and government representatives concerned with how to address the health impacts of the built environment and more particularly the role that education has in achieving healthier settlements.

The 'Education Network for Healthier Settlements' covers a range of built environment disciplines and through the work of a core group of nine (one from each English region) is helping to prepare case studies of best practice and draw out key issues and priorities in teaching. It is also helping to make the links between research and policy and exploring how to 'fast-track' these into the classroom.

A London conference brought together the ideas and outcomes and enabled practitioners and educators to discuss current issues in practice and explore pedagogical methodologies for improving the understanding of the built environment–health connection.

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Funder and programme
Department of Health Cross Government Obesity Unit / Workforce Unit

Timescale
May 2009 - March 2010

Mapping spaces of participation: young people, citizenship and the negotiation of identity in the context of spatial regulation

This project was awarded start-up funding to develop an interdisciplinary research grant, beginning with a focus on the impact of anti-social behaviour control measures on the social use of public spaces by young people.

The Anti Social Behaviour Act 2003 (ASB) allows police to designate areas where they can disperse groups causing or likely to cause intimidation, harassment, alarm or distress, and return children under the age of 16 to their homes after 9pm (curfew).

The legislation thus problematises the presence of young people public spaces (Manning, Jago & Fionda, 2010) and highlights regulation of public space as a crime control measure (Fionda, Jago & Manning, 2006).

In order to examine this spatial dimension of the Act further, we have drawn on different bodies of work - all of which are broadly concerned with issues of space, place and identity.

Pilot work has been undertaken that was specifically focused on the impact of ASB and ASB control measures (e.g. dispersal zones) on young people's use of different social, public and leisure spaces around Bristol. In particular, we have conducted:

- Focus groups with young people (aged 11-16) at youth clubs and schools in areas close to ASB dispersal zones.
- Semi-structured interviews with police officers and police constable support officers involved in the control of ASB.
- We are also currently pursuing police data about ASB 'hotspots' for GIS analysis.

A core aim of this pilot work was to develop a multidisciplinary methodological approach to inform our larger grant proposal. This process is outlined below.

- Given the current interest in ASB and its regulation, we are necessarily studying a moving target.
- Our pilot work thus far has already begun to highlight important issues which dovetail with current political/ ideological concerns.
- Young people's focus groups have revealed the importance of notions of participation and citizenship, which speak to current concerns around localism agendas and 'Big Society'.
- Our developing research proposal will be responsive to these findings and to the changing policy context.

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Healthy Communities Research Forum - linking health and sustainable development. Opportunities in change.

The Healthy Communities Research Forum series supports the exploration of opportunities during a time of policy and organisational transition in public health and local planning. The intention is to build a network of practitioners and researchers to ensure better outcomes for the wider determinants of health though spatial planning, transport investments and regeneration proposals.

The setting up of a national Public Health Service, the transfer of public health responsibilities from primary care trusts to local authorities and the focus on place making and localism in planning all contribute to a tremendous opportunity for the field of public health to contribute to making healthier and more sustainable communities.

The unique approach of each forum is to ensure good engagement between public health and planning practitioners from the South West and academic staff and to use inspiring speakers from both health and planning to spark debate and thought with a short summary of ideas produced as a result.

The forum series reflects the changing context of public health within local government and the research and practice challenges this gives rise to. The aim is to stimulate ideas and build capacity, support and commitment at UWE and within the region for an integrated approach to health and sustainable development, through:

- Providing a forum for discussion of important issues regarding health, wellbeing and the future of communities and settlements, drawing on insights from research and practice.
- Bringing together different communities of interest with academics and practitioners from public health, community development and safety, spatial planning, built environment, urban design, environmental science etc, helping to bridge between faculties, disciplines and professions.

Each session lasts for an afternoon and starts with agenda setting presentations on topics such as:

- new public health and localism agendas
- local and international perspectives on building capacity to address new challenges in planning and health
- making the economic case for healthy places.

Speakers are selected to represent practitioner and academic viewpoints and present a reflection, case study, research or combination of these, on the topic under consideration. The presentations are followed by break-out groups and plenary sessions in which participants are supported in dialogues that examine the issues and potential solutions, including implications for future practice and research.

Each forum is widely advertised to the public health and built environment fraternity in the South West ensuring broad cross-disciplinary attendance. A report of the seminar and outcomes is published and sent to participants and relevant networks.

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Funder and programme
NHS Southwest

Timescale
January 2011 - September 2012

Developing criteria for sustainable systems of social care

The overall aim of this research project was to explore how systems of adult social care could be made more sustainable. A policy mapping exercise was followed by in depth case studies of good practice. Recommendations were developed to promote sustainable development in the commissioning and delivery of social care.

The research addressed the key question of 'What are the key elements of a sustainable system of adult social care?' Public services are a significant contributor to carbon emissions in the UK. For example, the NHS generates 21 million tonnes of equivalent carbon dioxide per year, which represents 4.4% of total national emissions, while an average county council emits 30,000 tonnes a year. In the context of a rapidly ageing population and the fact that older people are by far the greatest users of these services, reducing the associated carbon emissions is a major challenge and a major opportunity.

A sustainable approach has been adopted in the NHS based on the principles of living within environmental limits and ensuring a strong, healthy and just society. This project aimed to develop similar principles of sustainable consumption and production in adult social care services. The project methodology comprised three overlapping strands:

- Scoping and context setting; to map key strategies, policies, frameworks and initiatives that relate to the sustainability agenda and explore how these can be applied to the delivery of adult social care.
- Detailed case study work: interviewing key informants (including service commissioners, providers and users) and documentary analysis;
- Development of key criteria and recommendations for sustainable systems of social care.

The project developed the following recommendations for policy makers and commissioners:

- The Government should develop a clear strategy and action plan for embedding sustainable development in the framing and delivery of adult social care.
- There is an urgent need for a central resource of guidance and tools to support sustainable commissioning practices in public services.
- Local authorities, the NHS and other key stakeholders should assess and act on opportunities for ensuring that all key players are engaged with this agenda.

- Personalisation needs to be implemented carefully and imaginatively if it is to support systems of adult social care that are sustainable
- There needs to be greater awareness of the desirability and possibility of sustainable systems of social care.
- The principles of sustainable development should be at the fore of all policy making decisions.

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Department of Health via the Social Care Institute for Excellence

Timescale
November 2009 - August 2010

Knowledge transfer partnership with groundwork South West: proving our value; developing a health impact assessment toolkit to measure impact

In developing its business strategy for the West of England, Groundwork South West (GWSW) recognised that expanding its range of services was contingent on developing socio-ecological evaluation capability in the ever evolving sustainability markets. This research is providing the charity GWSW with the skills to develop an evaluative approach, prove their value, and unlock further business opportunities arising from better use of their evidence base.

(GWSW) is a charity empowering people, communities, business and organisations to make changes in the spaces they inhabit to create better and more sustainable neighbourhoods and places.

This research project was developed to address the policy/ funding shift towards socio-ecological models of wellbeing, and aims to effect a radical change in GWSW's approach to defining and delivering projects. The researcher is plugging GWSW's skills gap, enabling it to:

- demonstrate the wider wellbeing benefits of its work to clients
- increase its knowledge of evaluative methods and processes
- establish a cost-benefit evidence base to attract future funding and inform the development of GWSW's delivery model.

GWSW has an excellent track record in delivering environmental improvement projects in the south of the region (Devon/Cornwall), and it is expanding its activity in the west of England. GWSW's main customers include local authorities, primary care trusts and housing associations, who engage GWSW to carry out long-term projects usually in areas of deprivation.

This project will provide evidence of the impacts GWSW achieves in the pursuit of its vision of creating a society of sustainable communities which are healthy, vibrant and safe using initiatives which cut across economics, health and social issues.

GWSW will therefore be able to expand activities and up-skill staff in evaluative techniques. This will create a more effective GWSW team used to the importance and relevance of self reflection to ensure delivery of sustained spaces for communities to inhabit.

This research will:

- embed in the organisation knowledge of the importance of health/wellbeing, including relating to bidding and income generation
- develop a set of evaluation tools, protocol and database of evaluative tools.
- train staff to incorporate health/wellbeing themes into their work and delivery
- develop new marketable services
- increase and disseminate new knowledge
- foster a culture shift within GWSW towards a more evidence-based and innovative approach to the development, delivery and communication of GWSW services.

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Timescale
October 2010 - 2013

Assessment of the efficacy of Himalayan oregano oil as a sustainable antimicrobial agent in healthcare settings, using bioluminescent bacterial biosensors

Healthcare associated infections, such as MRSA, are spread by hands and pose a serious health problem; hand hygiene procedures, including use of alcohol gel, have compliance levels below 50% and give transient decontamination. This project evaluates the use of sustainably produced oregano essential oil for long lasting hand decontamination.

This project investigates a new type of hand hygiene that will continuously kill microbes over a period of hours. Oregano essential oil can be applied to hands and has a long lasting antimicrobial action. The oil is distilled from oregano, a plant that grows abundantly in the Himalayas. Production of the oil provides a living for Himalayan communities and this oil has been shown to kill microbes such as MRSA, even when used in very small quantities. However, the efficacy of the oil on human hands needs to be compared to hand washing or rubbing hands with alcohol gel.

This study aims to evaluate fully the persistent antimicrobial action of the oil as part of an emollient, compared to methods of hand hygiene currently in place.

The main objectives of this study are to:

- Develop and validate a new technique for hand hygiene for use in healthcare settings.
- Use in vitro wound models to study the efficacy of wound dressings that incorporate oregano oil.
- Genetically modify representatives of the common UK bacterial pathogens (Methicillin resistant *Staphylococcus aureus* (MRSA), *Methicillin sensitive S. aureus* (MSSA), *Pseudomonas aeruginosa* and *Extended Spectrum ß-Lactamase* (ESBL) strains, e.g. E. coli), with lux genes to generate constitutively bioluminescent reporter organisms for use in the wound model.
- Test the oregano oil in both liquid and vapour phases against a range of wound pathogens using bioluminescent reporters and conventional viable counting for comparison.
- Conduct in vitro toxicity tests of the oregano oil against human cell lines.
- Use bioluminescent constructs of bacterial pathogens as real time biosensors of antimicrobial action on hand models in order to evaluate the effectiveness of the new technique of applying the oil and leaving it in place for continuous antimicrobial action.

Preliminary work at UWE has indicated that the oregano oil rapidly inactivates bacterial pathogens at dilutions as low as 1 in 1000.

The outcome of the project will be the development of sustainably produced, marketable effective products to reduce the spread of healthcare associated infections.

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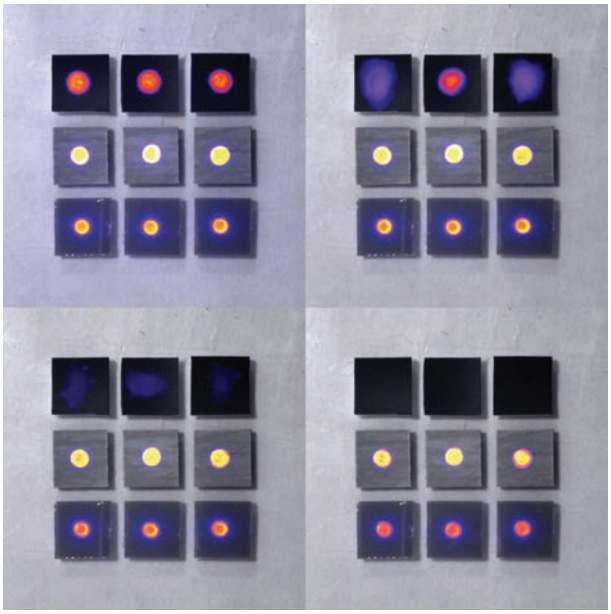
Funder and programme
Daphne Jackson Fellowship – sponsored by UWE

Timescale
May 2011 - April 2013

Shedding light on decontamination using bacterial bioluminescence

Bioluminescent bacteria emit light when metabolically active. We have harnessed this phenomenon to let us directly visualise decontamination in real-time. We visualised the inhibition of the food poisoning bacterium *Salmonella enterica sv Typhimurium* on an antimicrobial flooring surface. This research could lead to improved design of a more hygienic environment.



Bacteria are all around us, and for the most part share our environment without doing harm. Some bacteria however, are capable of causing disease (pathogens) and it is important to reduce our exposure to pathogens in our environment. This becomes more important in key areas like hospitals, clean-rooms and food preparation areas. Testing flooring using traditional microbiology methods can be time consuming and you have to remove the surface to test it effectively. The aim of the project was to determine whether the effect of an antimicrobial flooring surface could be visualised in real time, in situ, using bioluminescent *Salmonella typhimurium*.

Genes from naturally bioluminescent environmental bacteria *Photorhabdus luminescens* were inserted into *Salmonella typhimurium*. These genes made the Salmonella glow and this can be seen in a dark room with the naked eye (like the hands of a watch). We used very sensitive low-light cameras to detect the bioluminescent Salmonella on the surface of three types of flooring.

Time-lapse photography monitored the glowing Salmonella which we added to the surface of the flooring. The image shows four shots taken over a few hours. In each shot there are three types of flooring. At the top of each shot are three pieces of antibacterial flooring (dark blue/black). Below these are three pieces each of two types of standard flooring.

At the start of the experiment, there is a lot of light being emitted from the bacteria on all types of flooring. Soon it becomes clear that on the antibacterial flooring, the light from the bacteria is getting dimmer and dimmer until eventually it goes out completely. There is still plenty of light being emitted from the Salmonella on the other two types of flooring.

What this tells us is that on the antibacterial flooring, the bacteria find it more difficult to survive. Research like this allows us to identify surfaces that bacteria might find it difficult or even impossible to survive on. Using bioluminescence we can monitor their survival in real time, directly on the surface. This can allow us to choose better materials to make a safer, healthier environment.

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Funder and programme
Dycem Ltd

Timescale
Three weeks

Musical pathways - an exploration of healthy identities in young offenders

Musical Pathways is a three year project, funded by the Big Lottery and led by Live Music Now South West in partnership with UWE. It is investigating the value of music as a creative process with young people in the criminal justice system, particularly as a medium for improving health and social inclusion.

The purpose of the research is to understand the significance of music to young people in the youth justice system and the value music programmes can offer. It will explore experiences and perceptions of taking part in creative music making within youth justice settings, focusing on "creativity" in relation to the formation of identity, especially in relation to health, wellbeing, social inclusion and offending. The project will generate data on the health and social characteristics of participants to help inform future research in this area.

The project combines a participatory creative music programme, provided by LMN SW, with a research design that will take a mixed methodologies approach. Young people in youth justice settings across the South West are offered the opportunity to participate in a programme of six music workshops. Settings include young offender institutions, youth offending teams and secure training centres. Each session lasts approximately two hours and participants become involved in a variety of creative music activities with two lead musicians. The programme culminates in the production of a CD and a performance to their peers.

Participants are asked to complete four sets of questionnaires immediately before and after taking part in the music programmes, and at three months follow up. On completion of the music programme participants are invited to take part in a focus group as well as individual interviews. Repeat interviews are then conducted with information rich participants, using a biographical approach. Using these techniques the project aims to:

- Obtain a deep insight into the lives of young people in the youth justice system and the value creative music programmes may bring in terms of engaging with young offenders in meaningful and productive ways.
- Understand more fully the profiles and experiences of young offenders, especially in relation to health, inequality and social exclusion.
- Explore the feasibility of conducting future qualitative research to investigate health and wellbeing of young offenders.

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Funder and programme
Big Lottery Fund Research Programme

Timescale
2010 - 2013

Self-help for student social anxiety: development and evaluation of a mobile phone prototype

We aim to develop and evaluate a prototype mobile phone application for students suffering from social anxiety in learning situations. The application will provide information, a self-appraisal facility and a basic level of self-help to help manage social anxiety in learning.

Social anxiety is characterised by distressing feelings of anxiety and embarrassment, pronounced physiological reactions, acute self-consciousness, cognitive impairment and a desire to avoid social situations. Survey data from two South West universities indicates that 10% of students experience significant levels of social anxiety in learning situations such as lectures, seminars and presentations and that this has an enduring impact on their engagement with learning. Sufferers are reluctant to seek face to face help but can be comfortable with online contact. We hope that use of a mobile phone application will be supportive, useful and facilitate access to other forms of help where needed.

The research uses participatory design and testing with groups of UWE students. In the first stage, functions and features for the mobile phone application are identified and ranked. The design will integrate preferred usability features with key clinical dimensions derived from prior research on social anxiety and its remediation.

Following design of the prototype application, the second stage will involve one or more cycles of testing and evaluation with further development and evaluation where practical.

We hope the experience of developing a successful application for social anxiety will guide the development of applications across a range of well-being, mental health and educational performance domains.

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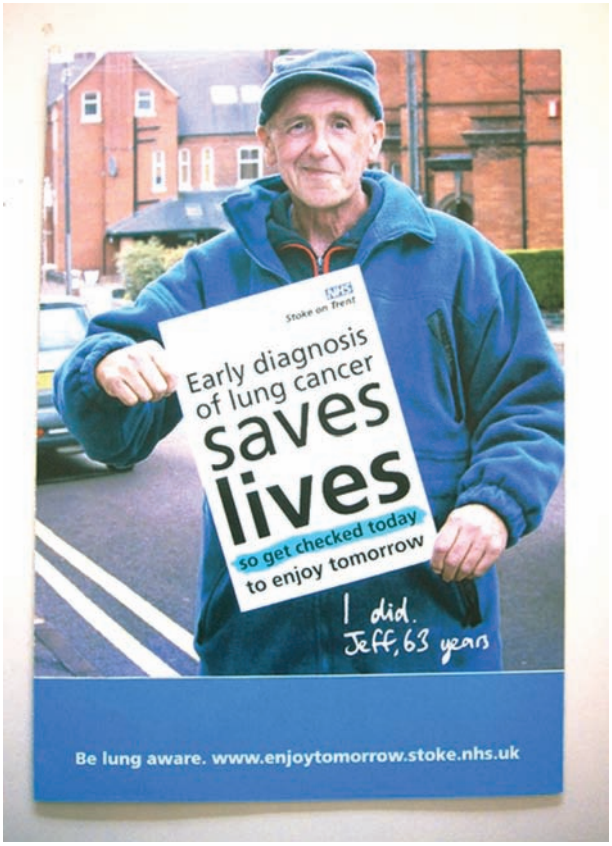
Funder and programme
UWE HEAT network

Timescale
June 2010 - June 2011

Finding the best approach to increase early detection of lung cancer in deprived areas

Lung cancer is responsible for a high number of cancer deaths, yet for 80% of people, their cancer is inoperable because it has been diagnosed too late. Avon, Wiltshire and Somerset Cancer Services are working with the Bristol Social Marketing Centre to test various social marketing approaches to encourage 50-70 year old men from deprived areas to visit their GP for a check up if they have a persistent cough.



There are several reasons why these men delay seeking help:

- Confusion about symptoms.
- Practical barriers to attending an appointment.
- Emotional barriers: fear; fatalism ('nothing can be done'); stigma ('my mates will laugh at me') and stoicism.
- Smokers worry that they will be pressured to quit or blamed for their symptoms.

We reviewed evidence from practitioner case studies, reports and the academic literature, and found:

- Any campaign should include elements of 'push and pull': as well as educating people about symptoms and stimulating them to action, GPs need to be reminded and activated as well.
- As well as educating, the message needs to tackle emotional barriers, and fear is to be avoided because it increases delay.
- Social influences can encourage men to confront their symptoms and overcome emotional and cultural barriers such as the notion that 'real men' don't rush off to the doctor.

Four different approaches will be trialled this summer. Four deprived areas were chosen for the trials, and the local communities will be involved in the design of the trials.

Area 1: GP Led - A campaign aimed at reducing delays in diagnosis by GPs.

Area 2: Co-design - GP campaign, plus community volunteers will co-design and deliver the intervention.

Area 3: Symptom Awareness - GP campaign, plus a message to increase awareness of the main symptoms.

Area 4: Humour - GP campaign, plus a message using humour to ameliorate fear.

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The Bristol Social Marketing Centre

The effect of changing immunisation programmes on rubella susceptibility in pregnant women in South Wales

Rubella has serious implications if contracted during pregnancy. This study examines the antibody status of 11,987 pregnant women. Results show a significant increase in susceptible women (<10 IU/ml) from 3.8% to 5.1% over 5 years. Susceptibility rate was 2.2% for those born before 1983 and 14.0% for those born after.

This study aimed to determine the rubella susceptibility rate in pregnant women in one Health Board area in South Wales in relation to age and first or subsequent pregnancy. The aim was also to determine whether the change in immunisation policy from one single rubella vaccine prepubertally to two rubella containing combined vaccines in childhood has had an effect on susceptibility rates. To this end figures were extracted for those born pre and post 1983. Those born before 1983 would have received single rubella vaccine at puberty and those born post 1983 would have received two rubella containing combined vaccines.

Method

Routine blood tests are undertaken for all pregnant women receiving ante-natal care; normally between 11 and 13 weeks of pregnancy. Request forms from pregnant women attending the Royal Glamorgan and Llwynypia hospitals were examined from 2005 to 2009, and age and gravida were recorded.

Rubella testing was carried out using Diasorin ETI-RUBEK ELISA kit on an automated ELISA system. The cut-off used, in line with international guidelines, was 10 IU/ml (<10 IU/ml classed as susceptible, ≥ 10 IU/ml classed as immune). The rubella IgG antibody level was recorded for all pregnant women who accepted the offer of testing.

Age was recorded to demonstrate consistency in age ranges and data was also separated into first and subsequent pregnancy.

The study also analysed antibody status of women depending on their vaccination experience, looking at those born prior to 1983 who would have been offered rubella vaccine pre-puberty at a time when wild rubella virus was still in common circulation, and those born after 1983, who would have been offered the childhood vaccination or catch up childhood immunisation.

Results

The results in the two cohorts were very different. The high number of women with rubella IgG antibody level <10 IU/ml in those born after 1983 is noteworthy. This level of response may reflect low levels of immunisation or lack of response to vaccination. The potential impact of the increase is difficult to determine, requiring further monitoring.

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Funder and programme
Self funded, DBMS

Gender and alcohol: an international study (GENACIS)

"GENACIS", a major international study, uses a common questionnaire to gather new information on women's and men's drinking. GENACIS now includes surveys in more than 37 countries across the world, now including Argentina, Brazil, Canada, Europe, India, Japan, Kazakhstan, Nigeria, North America, Sri Lanka, Sweden, Uganda and the UK.

The GENACIS study draws comparisons both within and between countries. It collects data on women's and men's drinking patterns, contexts and problems, to enable analysis of gender differences, specifically:

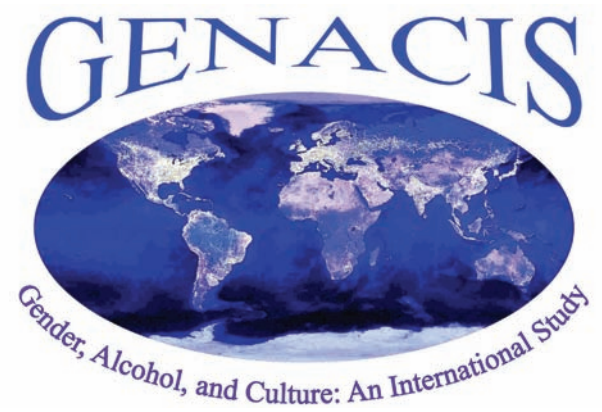
- The prevalence of men's and women's alcohol problems and gender differences in problem prevalence.
- The experience of violence in close relationships in connection to the drinking behaviour of men and women.
- Gender differences in social inequalities in alcohol use and abuse, and in the influence of social roles on heavy alcohol use.
- How societal-level factors (e.g. gender equality and drinking culture norms) predict women's and men's alcohol use and alcohol-related problems.

The study has collected data using a standardised instrument specifically designed by the study team with careful translation and back translation to ensure comparability. Information on gender differences in drinking contexts and alcohol-related problems, provides a more robust source of data on alcohol abuse and alcohol dependence for reference use across the world.

Information on the combining of family and work roles in the development of alcohol problems has enabled identification of the combinations of social roles related to higher risk for hazardous alcohol use and abuse.

The diversity of countries included in the analysis enables broad consideration of societal characteristics as predictors and modifiers of men's and women's alcohol consumption and problems. This information has been useful in developing regionally and culturally gender-sensitive social and health policies across the world.

In collaboration with the WHO, the GENACIS project has trained project teams and interviewers in many countries including those that do not have a history of epidemiological research.



The GENACIS project will continue for at least twenty years, producing unique analyses of interactions between gender and culture. Findings from this study are providing more culture and gender sensitive approaches to measurement of alcohol use and alcohol problems, as well as to treatment, prevention, and international alcohol policy.

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Funder and programme
U.S. National Institute on Alcohol Abuse and Alcoholism

Timescale
Ongoing

The European School Survey Project on Alcohol and Other Drugs (ESPAD)

'ESPAD' is a study of drinking, smoking and illicit drug use amongst representative samples of 15 and 16 year old teenagers in a number of European countries.

Alcohol consumption amongst European teenagers has remained fairly stable since 1995 at about 80% of all students. The 2007 survey indicated a small fall in the UK overall total from 91% to 88%. However, more UK teenagers reported high levels of binge drinking and intoxication, and ranked third highest in relation to alcohol-related relationship, sexual and delinquency problems.

The UK ranked 7th in relation to the percentage of teens who had 'binged' (consumed five or more drinks on at least one occasion) in the past 30 days. A total of 54% of UK teenagers had reportedly done this.

In 2003 it was revealed that teen girls in the UK were more likely than boys to have binged in the previous 30 days. The 2007 survey shows this trend continuing with girls more likely than boys to be binge drinkers in the UK, Iceland, Norway and Sweden.

UK teenagers ranked third highest (after Denmark and the Isle of Man) in relation to self-reports of having been drunk in the past 30 days. A total of 33% of UK teens reported such recent intoxication.

The fact that some teenage girls are binge drinking even more than boys suggests that in the UK and elsewhere a profound social change has been taking place. It is now socially acceptable for females to drink heavily or to become intoxicated. This may reflect factors such as greater female social and economic empowerment and changing social roles as well as the marketing practices of the beverage alcohol industry.

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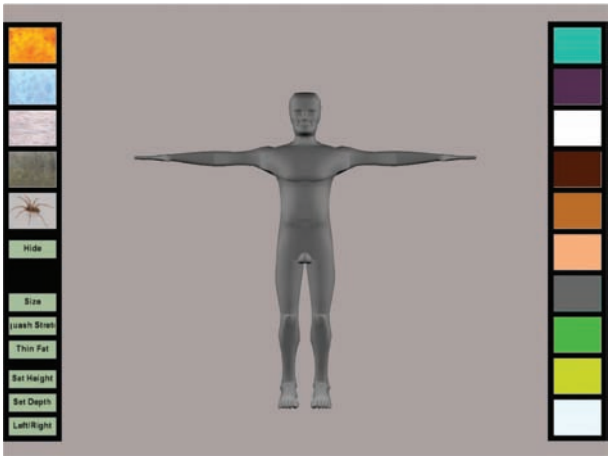
University of the West of England, Alcohol Education and Research Council, Wates Foundation. Additional support from the Joseph Rowntree Foundation, Oakdale Trust, Butcombe Brewery Ltd, Dr George Carey, Jack Goldhill Charitable Trust, R&J Lass Charities Ltd, North British Distillery Company Ltd.

Timescale
Ongoing

Development and evaluation of a tool for assessing body image

Distressing changes in body can result from pain, peripheral injuries such as amputations, or injuries to the central nervous system. Patients find it difficult to describe their perceptions of affected body parts to clinicians. Our aim is to develop an application that patients will be able to use to create a 3D model of their perceived body image from which measurements can be taken.



Self portrait sketches are sometimes used to help patients communicate their perception of changes to the body, but this method is limited by the individual's capacity to draw.The project investigates the potential use of state of the art computer graphics technology to offer a richer representation that can be manipulated to provide aninteractive tool for communicating perception of body image.

The main objectives of the project are to:

- Develop a proof of concept prototype tool. This first prototype will be based on knowledge about body image perception of an example medical condition: Chronic Regional Pain Syndrome (CRPS).
- Evaluate the prototype in the clinical setting.

Methods

- The prototype specification is based on the qualitative literature reporting perception of body image in sufferers of CRPS (1) and user consultation.
- An iterative development cycle is being employed that focuses on user experience and satisfaction. This has involved discussions with a sufferer of CRPS prior to any implementation.

Evaluation

- The prototype tool will be used by patients and staff in the clinical setting. Interaction between individuals using the tool will be recorded. Satisfaction with the tool will be assessed.

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heat@uwe

heat@uwe: bridging the gaps in health, environment and technology research

heat@uwe is an EPSRC-funded programme of activities to develop, facilitate and communicate interdisciplinary research between health, environment and/or technology. The programme has included events to enable potential collaborators to meet, formulate research ideas, respond to funding calls and share expertise. Start-up funding has also been awarded to support interdisciplinary research.

heat@uwe has grown out of the recognition that human health and the environment currently have unprecedented position on national and international political agendas. Environmental issues such as climate change, unsustainable resource use, poor built environments and transport systems as well as public health issues such as obesity, mental illness and chronic disease are some of the most intractable challenges of our time. Significantly, the role that technology can play in addressing these problems is now being recognised. Whilst the inter-related nature of these issues is largely accepted, research cultures and practices still tend to be discipline-focused and fragmented.

heat@uwe is a three-year programme which started in 2009. It is bringing together researchers from across health, environment and technology to deliver research with significant economic, environmental and social benefit.

heat@uwe provides a number of events, services and tools including:

- a series of networking events;
- an expertise directory of the 165 members of the heat network
- responsive workshops to develop research ideas around a specific project or funding call
- a brokering service to introduce potential collaborators
- a lecture and lunch series;
- start-up funding, secondments and retreat days;
- an annual conference.

In 2010 heat@uwe ran a call for start-up funding to support teams wishing to develop interdisciplinary research projects. The programme funded seven projects to a total value of £40,000. These included:

- self-help for student social anxiety: development and evaluation of a mobile phone prototype
- the spatial regulation of antisocial behaviour

- development and evaluation of a tool for assessing body image
- participatory mobile sensing
- interdisciplinary study of crowd behaviour
- investigation into food hygiene practices and information sources relating to the hygienic preparation and storage of infant food in the home environment
- public transport pervasive gaming.

More information on these projects is displayed on further posters. A further call for start-up funding took place in 2011 and another is planned for 2012.

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Funder and programme
heat@uwe

Educating planners for the new challenges of sustainability, knowledge and governance (PLAN-ED)

Urban planners across the globe are facing new common environmental, political and socioeconomic challenges. This policy project aims at creating a forum and a comparative framework in which four planning schools in very different geopolitical contexts in the EU and the USA consider innovative planning and policy solutions and their role as educators through knowledge sharing.

The project offers a forum for academics and practitioners to discuss, compare and contrast key challenges to planning and sustainability on both sides of the Atlantic, including:

- sprawl, growth management, and affordable housing;
- urban regeneration, poverty alleviation, and social inclusion;
- environmental planning and public health;
- governance and planning decision-making, community participation, equity and social inclusion.

The aims of the project are to:

- help to enhance the curriculum of each participating institution;
- develop a model and set of teaching tools to inspire other planning institutions;
- promote further cooperation between the participants.

The activities comprising the project include:

- faculty travel to partner institutions
- guest lectures
- site visits
- meetings with local practitioners
- joint submissions of papers to academic and professional journals
- presentations at annual professional meetings
- planning for long-term activities.

These activities culminate in four rounds of seminars organised in turn by each partner. Local planning and policy settings provide the backdrops for the seminars. The seminars, consisting of presentations and interactive workshops are directly linked to the planning, policy, and educational challenges of the host institution's context. Local urban planning students and faculty, key stakeholders, and practitioners are invited to participate and contribute to seminars.

The first round of seminars took place in Richmond, Virginia at VCU in February 2011 where European and US colleagues learnt about and discussed two local regeneration projects with academics, students, practitioners and stakeholders involved in these projects. The seminar allowed EU colleagues to learn first hand about VCU's approach to studio work and linkages with local communities. Of particular interest were the key regeneration challenges caused by historic and cultural values dominated in the past by racial tensions and by the importance of property rights and zoning in the Virginian planning context.

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Funder and programme
European Commission, Atlantis programme

Timescale
September 2010 - September 2012

Integration of health into the planning system: seven reviews of evidence

The National Institute for Clinical Excellence (NICE) commissioned a cross-disciplinary UWE team to review evidence on the integration of health into the planning system both in the UK and abroad. The aim of this was to inform its guidance on health and planning.

The purpose of the research was to find evidence from UK and overseas experiences on the methods used for integrating health into the spatial planning process and their effectiveness and cost effectiveness. The seven reviews focussed on appraisal methods, health-related spatial planning indicators and design guidance, and other good policy and governance practices in the UK and from elsewhere that would be relevant to the British experience. The focus was both on project and plan appraisal and on spatial planning as a whole.

We used a mixed methodology to address the research questions including a systematic review of evidence and case study research focussing on policy, governance and institutional analysis. The aim of the case studies was to examine good practice in the UK and elsewhere. We looked for examples that were innovative, successful, transferable and sustainable.

Key results and recommendations

National policy should include:

- A planning policy statement (PPS) on health.
- A health/planning support agency in each region.
- An explicit link between the sustainable community strategy, local development frameworks and health outcomes especially in relation to urban extensions and regeneration.
- Responsibilities of health agencies to include the impact of locational and design decisions on healthy urban and rural environments.
- National intersectoral working.

The planning system in practice would benefit from the following:

- The education of planners to include a health element.
- Engagement of health agencies in plan making at an early stage.
- Building collaboration on health/planning.
- Turning policy rhetoric into action on the ground.
- Joint appointments between health authorities and local authorities.

- Better monitoring of health and wellbeing outcomes.

Plan and project appraisals can help, but the following issues need to be addressed:

- Building shared knowledge of planning and health professionals.
- Health impact assessment (HIA) to be used as a trigger for mutual learning.
- Mainstreaming health in appraisal.
- Considering integrated appraisal vs the value of the HIA approach.
- Monitoring effectiveness.
- Making organisational commitment and providing resources.

The development process would gain from:

- City influence on the development process.
- Leadership and expertise.
- Facilitating community engagement.
- Ensuring a diversity of investors.

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Funder and programme
National Institute for Health and Clinical Excellence

Timescale
October 2009 - January 2011

Healthy planning audit: developing and testing a methodology for reviewing planning processes and decision-making

The research involved the development of a methodology to facilitate a review of a local authority to establish the level of individual understanding about health and the degree to which health is considered and prioritised in strategies, processes and decisions.

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Greater consideration of health in the planning process is crucial to tackling a range of public health issues, including sustainability, obesity, mental health and injury prevention. The major changes being proposed to both the planning and public health agendas makes this research a timely investigation into the way that local authorities understand health and the relationships between health, the built environment and the community.

This research sought to develop a way of reviewing how health and wellbeing are integrated into planning and planning processes and to establish to what degree individual local authority officers and members understand health issues and use existing guidance to help shape their judgement and decisions.

The research was carried out in partnership with the Strategic Health Authority for the South West and South Gloucestershire Council. It was important that the review wasn't seen as an external examination of the individual or the authority, but that it was a mutually beneficial process. The Council were therefore on-board with this process from the start and staff and members were interviewed on a voluntary basis.

The audit was undertaken in a single day, with interviews conducted with individuals across different departments and at all levels (including members). The interviews were conducted by a team of nine professionals, working in teams of two, from either health or planning backgrounds.

A report to senior management identified the strengths of current practice as well as opportunities to deliver better health outcomes through improving individual knowledge, skills, organisational processes and policies.

The process was successful in identifying key areas of opportunity to better integrate health and planning. The report to senior management is being used to inform their priority planning for the next financial year.

The process also raised awareness and discussion amongst staff about the importance of considering health and wellbeing and how they can take the initiative to make changes to their daily work routines to achieve healthier outcomes.

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Government Office South West

Timescale
October 2010 - February 2011

Concept to completion design tools for sustainable buildings

UWE collaborates with HBXL, a Bristol based company which sells award winning software aimed at SMEs in the building industry. The aim of the multidisciplinary project is to develop an easy to use integrated tool for the design of low impact buildings in the UK.

The viability of implementing the Code for Sustainable Homes (CSH) by 2016 might depend on a "willingness to change" within the construction industry. A literature review highlights that major construction companies blame existing barriers to the adoption of the CSH on customer demand, legislation and the supply chain.

Little is known about attitudes of SME builders (15% of the market) towards the CSH and it is unclear where training needs lie. Here we report back on an interview study. The research aims to distil guidelines for the development of software to aide with implementing the CSH as well as carrying out the standard assessment procedure (SAP).

The research encompasses:

- identifying user requirements through observations and interviews;
- iterative prototype development;
- field trials and usability evaluation.

Take away messages

- Useful for experienced traders:

'I've been in business since '89, I was a plumbing and heating engineer before. Funnily enough it coincided with when I got the [HBXL] software, when I started taking on different projects.'

- Current building regulations are very strict but there is great value in having a good relationship with building inspectors:

'Eighteen months ago you could virtually get away with anything, but now the insulation values in the walls and the roof are being bumped up all the time. It is only going to get more stringent as time goes on. I had a really good relationship with the building inspector.'

- A sustainable future is viable but there is a need for incentives and training:

'I've seen no incentives; I mean, why aren't they advising on this?'

'If you had a training course on sustainable building you have got to either pay for the course, or even if the course was free you have got to take time off work.'

- High educative value of HBXL software:

'The thing I like about this is you can put your materials in and it works out all your quantities. You go through the list and it tells you what sand and cement you need. If I need skips, then it will automatically add on the landfill tax. It adds petrol for using the disc-cutter where before that would just come out of your profits.'

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Funder and programme
Technology Strategy Board

Timescale
May 2010 - February 2011

Assessing the costs of resilient reinstatement of flood affected properties

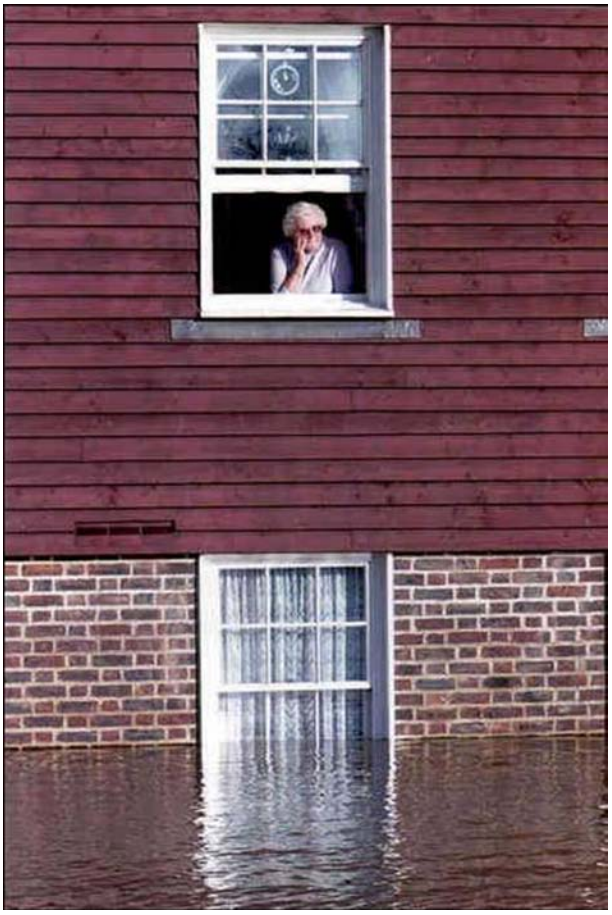
The percentage additional cost for resilient reinstatement over traditional repair, ranged from 23 to 58 per cent with a mean of 34 per cent depending on the house type. Resilient repairs were more expensive than traditional methods, but were found to reduce the repair costs by as much as 73% assuming a subsequent flood were to take place.

Recently a focus of UK and European flood risk management policy has been towards promoting the uptake of property level flood adaptation measures. Despite this focus, the take-up of property level flood adaptation measures (both resilient and resistant measures) remains very low. One of the apparent barriers to uptake is the cost of installing such measures. This study investigates the cost of adopting resilient reinstatement measures by considering a small number of actual properties that were flooded in Cockermouth during a 2009 flood event. The research question is 'what is the additional cost of resilient reinstatement compared to traditional reinstatement?'

Secondary data obtained from a loss adjusting company provides the basis for analysis. The data takes into consideration the cost benefit of resilient repair, assuming the same properties would be flooded again. The traditional reinstatement costs were established as the actual cost of putting the properties back in a like-for-like manner while resilient reinstatement costs were established by creating new resilient repair schedules based on recommended good practice.

The results show that the percentage additional cost for resilient reinstatement over traditional repair cost ranged from 23 to 58 per cent with a mean of 34 per cent depending on the house type. However, resilient flood mitigation measures seem most promising given repeat flooding, limiting the cost of repairs by as much as 73% for properties with a 20% annual chance of flooding. This indicates that the up-front investment would usually be recovered following a single subsequent flood event.

However, the financial benefit of adopting resilient reinstatement will often be reaped by insurance companies as they in most cases bear the cost of reinstatement. Further, by reducing the time taken to reinstate the property, adopting resilient repairs is likely to lead to other less tangible benefits arising from, for example, reduced stress and disruption to homeowners. It is recommended that insurance companies pro-actively attempt to incentivise



homeowners that are living in floodplain areas to adopt resilient measures through for example reduced premiums and/or excesses.

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Funder and programme
Cunningham Lindsey, PhD

Timescale
48 months

How can the existing housing stock be modified to meet a higher environmental performance within the social and economic means of the householder?

The government propose to reduce the carbon emissions of the existing housing stock to contribute to its national and international targets. However, works will be required that go beyond the measures proposed by government programmes. This study seeks to investigate what motivates homeowners to perform sustainable refurbishments.

The domestic sector contributes 25 – 27% of total UK carbon emissions and has been identified as a key area for carbon reduction. To deliver the level of cuts required, homeowners will need to improve their properties beyond the measures proposed by the Green Deal.

Owner-occupied housing constitutes 70% of the overall housing stock and has the greatest potential to deliver the required carbon emission reductions, simultaneously providing greater resilience against climate change and fuel poverty, and increasing occupant comfort.

This study aims to identify how and why owner-occupiers improve the energy efficiency of their homes. Through an improved understanding of the motivations, a greater number of refurbishments can be encouraged.

The main aim of the research is to investigate and understand the motivations of homeowners in improving the sustainability of existing homes, the technical effectiveness of the measures and any unexpected effects.

The objectives are to:

- investigate the measures available and how they can be applied to the housing stock;
- investigate the benefits of undertaking a 'whole-house' or a 'phased' refurbishment approach; and
- what motivates homeowners and influences their decisions.

Following a review of the literature, a series of semi-structured interviews will be conducted with professionals working within the subject. Interviews will indicate areas for further investigation before the identification of domestic refurbishment projects and homeowners for study. In-depth interviews will be performed with the homeowners of the specific refurbishment projects to identify their motivations and whether this is consistent with existing literature.

A matrix of key performance indicators will be used to assess the performance of the measures.

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Part-time PhD

Timescale
Five years (currently in the first year)

Health as a driver for sustainability in the architectural curriculum

This project seeks to introduce health into the architectural curriculum as a major driver for sustainable design. The project will establish a health-related cross-professional development programme for healthy urban environments, which will be disseminated across the higher education sector.

Increasingly, evidence shows that health risk is linked to issues such as obesity, climate change, access to good quality local food, community infrastructure, air quality and noise pollution. As such the built environment is seen as an important determinant of health.

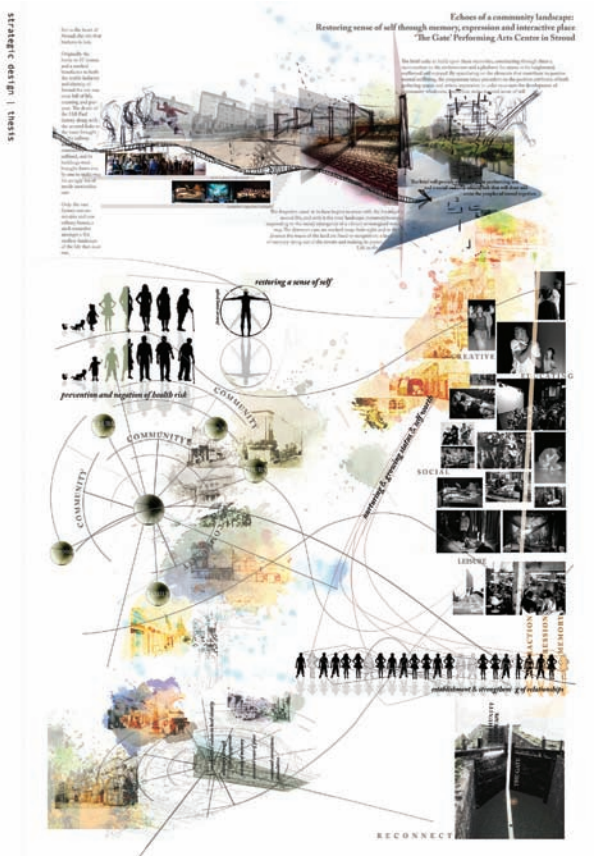
Professionals responsible for our built environment need to understand the connections of their actions to public health and their ability to influence the health and wellbeing of the population. Educational institutions therefore need to be equipped to deliver health-aware architects.

The main mechanism to be explored will be a twist on the established 'artist in residence' methodology, which aims to foster a creative collaboration between the artist and the host institution. For this project, a 'health practitioner in residence' will act as an agent-of-change to inspire students to immerse themselves in the world of public health, and to bring science into their creativity. With this project, health will become the main driver for sustainability within the design studio work.

The second tool for providing the students with health literacy takes its motivation from 'invisible theatre', one of the Boal methods of theatre and therapy. When the health practitioner is not engaged in timetabled tasks, they will still be 'in residence' and will therefore informally engage with the student body, questioning, debating and provoking a reaction.

This project builds on previous research in the department, but has identified a gap in the delivery of health-related teaching in the built environment, specifically in the architectural curriculum. Whilst health is important in its own right (a healthier population needs to spend less on healthcare), it is not (yet) part of the architecture accrediting bodies' requirements; whereas sustainability is. Indeed, health has a noteworthy impact on sustainability.

Through an extremely strong and focussed programme of dissemination it is expected that once the pilot study is complete and the ideas it has generated have been developed, the scheme can be rolled-out across the country, creating a new generation of health-aware architects who design healthier and more sustainable buildings as a result.



© Echoes of a Community Landscape by Hannah Ramson

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Centre for Education and the Built Environment

Timescale
December 2010 - July 2011

Visioning an active and low carbon transport future for Yeovil

A series of workshops were set up over a day-long event with stakeholders who were encouraged to think outside the box to vision a sustainable transport future for Yeovil. Eight projects were produced all of which create and sustain a vibrant local low carbon economy and support a healthy community.

The Department of Health South West, part of Government Office South West (GOSW), appointed the World Health Organisation (WHO) Collaborating Centre for Healthy Cities and Urban Policy to undertake this project to assist Yeovil on its journey from a largely car-based community to one where walking and cycling are the norm.

Proposals were costed as 15 year improvement programmes with £50m of funding provided from the strategic regional transport allocations. The proposals sought to support health, inclusion and the local economy across the whole town. £50m is less than many of the competing road scheme proposals which just 'improve' a few kilometres of road, shaving a few minutes off motorist journey times and encouraging more cars onto our roads.

Forty stakeholders attended a scoping event which generated the following key projects that could enable Yeovil's sustainable transport vision:

- Winning hearts and minds - an attitudinal and behavioural project to ensure that a greater proportion of trips are made using active travel rather than by using a car. *Years 1-10.*
- Park and Ride, cycling and walking. Project to reduce car congestion in the town and release land currently used for car parking in central areas. *Years 2 and 3.*
- Supporting pedestrians and cycling by ensuring that all elements of a community, such as its employment, retail, education, health care and recreation facilities, are accessible to everyone by foot, cycle and public transport). *Years 3-15.*
- Figure of 8 bus route to provide accessibility within the town without the need for a car. *Years 2 and 3.*
- Really green corridors: a project to increase the appeal of walking and cycling by providing an environment that is attractive, safe, and connected to nature. *Years 3-15.*
- Improvements to Lysander Road: a project to achieve a better balance between car drivers, cyclists, pedestrians and public transport on a main route into town. *Years 3 and 4.*
- Removing the 'bridge too far' and Queens Boulevard improvements: a project to secure a more efficient pedestrian and cyclist friendly road crossing over the A30, thereby providing improved access between Huish and the town centre. *Years 4 and 5.*
- Employee parking: a project to encourage employees to use alternative modes of travel as opposed to the car when travelling to work. *Years 1-4.*

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The Department of Health South West (part of Government Office of the South West)

Timescale
January 2009 - August 2010

Renaissance: testing innovative strategies for clean urban transport

Renaissance, part of the EU-funded CIVITAS programme, promotes cleaner and better urban transport and involves five historic cities across Europe: Bath (UK), Perugia (Italy), Szczecinek (Poland), Gorna Oryahovitsa (Bulgaria) and Skopje (Macedonia). The Centre for Transport & Society is providing independent evaluation of sustainable mobility measures in Bath.

The programme in Bath involves testing and evaluating the impacts of a series of initiatives (including eight ongoing demonstrations and two feasibility studies now concluded) which aim to reduce traffic congestion, encourage the use of alternative modes of transport (including public transport, cycling, car clubs) and create an overall urban environment that is friendlier to pedestrians and alternative transport-users.

The Centre for Transport & Society research team is evaluating these initiatives, considering in particular the scale and permanence of any change towards more sustainable travel behaviours, the extent of environmental and public realm improvements, and the process by which each initiative is designed and implemented. More background information is available from the project website: http://www.civitas.eu/project_sheet?lan=en&id=13

The evaluation methodology encompasses both qualitative and quantitative data collection techniques to gain insights into travel behaviour change and wider environmental and public realm benefits.

An on-street questionnaire survey was conducted in May 2010 to gauge public perceptions and attitudes in relation to issues around the public realm, congestion, air quality and noise in Bath, and attitudes towards public and alternative transport modes. The same survey will be repeated in May 2011 to measure any changes in opinion after demonstration projects have been implemented.

Other quantitative and qualitative surveys are being designed to collect users' and non-users' perceptions on the acceptability of specific demonstration projects, including the hybrid bus trial, the City Car Club hybrid vehicles, the cycle hire schemes, the demand management options and the freight consolidation centre.

Past evaluation work included a successful public engagement event; a one-day deliberative workshop on personal rapid transit in historic cities, which gathered the views of members of the public in Bath.

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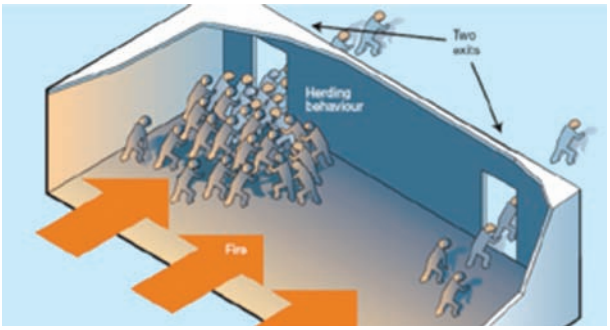
Funder and programme
European Commission, 7th Framework Programme (CIVITAS)

Timescale
2008 - 2012

Interdisciplinary study of crowd behaviour

Prediction and control of crowd flow is particularly urgent at bottlenecks in traffic networks and public spaces such as railway stations, airports or shopping malls. This study aims to further our understanding of human crowd behaviour through combining modelling and experimentation on ants.



Similarities have been observed between human behaviour in the built environment and collective animal behaviour in the natural environment. The behaviour of ants is of particular relevance here.

First, both humans and ants are very social creatures and both are very successful ecologically. The total biomass of ants on Earth is equal to that of humanity today. Second, ants lend themselves to manipulative experiments which would be difficult to carry out on humans for ethical or practical reasons. Third, many of the individual behavioural patterns in ants have evolved through selection at the level of the whole society over millions of years.

Our aim is to carry out a feasibility study on ants as models for crowd behaviour. We are considering the advantages and disadvantages of this approach, previous work on evacuation behaviour involving animal experimentation, types of existing mathematical models, formulation of testable hypotheses, the applicability to human behaviour and the design of public spaces.

The work is informed by three broad theoretical models of crowd behaviour:

- macroscopic – aggregate representations of flow, density and speed using partial differential equations;
- microscopic – individual behaviour representation using agent-based or cellular automata simulation modelling (examples are the Magnetic Force Model and the Social Force Model);
- mesoscopic models – an intermediate approach (Shiwakoti *et al.*, 2008).

Empirical validation is based mainly on experiments with human crowds and human evacuation trials. Recently experiments have also been performed on escaping mice (Saloma *et al.*, 2003) and escaping ants (Altschuler et al., 2008).

There is a huge potential for our further understanding of human crowd behaviour in combining modelling and experimentation on ants. We will explore the role of information and its spread, which can reduce reaction time and increase the efficiency of egress. Learning, leadership and imitation also have an important role to play in improving efficiency. Lessons from experiments with ants coupled with micro and macroscopic modelling will also be particularly valuable for understanding panic, its gradation and the role of social interactions in its development.

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Road danger reduction in Bristol

This nine-month Knowledge Transfer Partnership project involved Bristol City Council, NHS Bristol and the University of the West of England. The aim was to explore an alternative approach to road safety called 'road danger reduction', which seeks to reduce danger on the roads at source and promote walking and cycling.

This project explored how a road danger reduction approach, reducing danger at source by reducing the speed and volume of motorised traffic, could be developed within Bristol and how this could align with wider transport objectives.

The road environment is a vital element when creating healthier and more sustainable places and communities. Safer roads impact not only on injuries, but also affect levels of walking and cycling and in turn health issues associated with lack of physical activity. One challenge of creating healthier and more sustainable communities, addressed in this project, is bringing together shared agendas to achieve common goals.

The project took a mixed methods approach, using both qualitative and quantitative methods to answer the research questions. Guided by the project steering group, Tom Calvert, the KTP Associate, undertook an international review of the literature, conducted in-depth interviews with national experts and local policy makers in Bristol, carried out an analysis of road traffic collision data and an audit of current road safety policy in the city. Following this analysis, a number of recommendations were made, including the following:

- develop a road danger reduction vision for the city;
- extend the 20mph speed limit to all residential areas in Bristol, subject to the results of the current pilot 20mph areas;
- assess the impacts of proposed transport policies on walking and cycling, using existing approval mechanisms;
- the road safety engineering team should prioritise schemes according to walking and cycling promotion as well as according to casualty numbers;
- analyse collision data from road danger reduction perspectives;
- and develop danger reduction projects in the area of education, training and publicity.

The report was presented to senior officers at Bristol City Council, who commended the report and are considering its recommendations. The project was reported by local media, who highlighted the potential for this work to assist Bristol in becoming an healthier and more sustainable city, particularly in relation to the road environment.

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Knowledge Transfer Partnership, Technology Strategy Board

Timescale
January 2010 - August 2010

A social marketing approach to Britain's anti-cycling culture

Very few people in the UK cycle, even for short journeys. We are a 'car culture'. Evidence suggests that cycling is considered deviant, a minority pastime and reserved for 'loons in lycra'. As social marketers, we take the view that cycling has an image problem and the national attitude to cycling could be improved with some rigorous insight-driven branding work.

The objectives of this project were:

- to develop a set of measures on key aspects of the image of cycling, and to track these in an annual survey;
- to create a solid platform of understanding that will feed into brand building and marketing communications to promote cycling.

The Bristol Social Marketing Centre is conducting a two phase research project with the aims of identifying key attitudes and emotions which the UK population directs towards cycling.

Stage 1

We will start with a large scale survey aiming to identify a UK wide view on cycling and associated images of cycling. Rather than exploring the well understood 'standard' triggers and barriers to cycling (safety, infrastructure, work facilities, hills, weather, 'too busy', multi-purpose journeys), we will focus on the marketing/ communications solutions to the current image of cycling in the UK.

Stage 2

For the second phase, branding concepts will be developed and tested with key target groups. The aim of this stage is to use a new cycling brand as a mediator between the attitudes and the behaviour, so that the attitudes may be changed to become more positive towards cycling.

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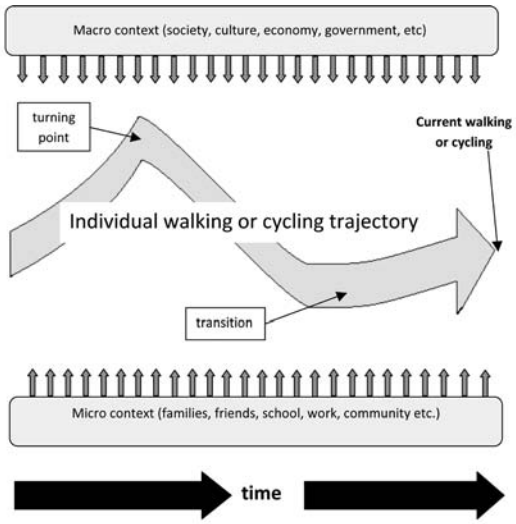
Funder and programme
The Bristol Social Marketing Centre

Understanding walking and cycling with a life course perspective

The challenges for the health and transport sectors overlap in the promotion of walking and cycling. Understanding individual life course patterns of walking and cycling will help to achieve this, but is difficult with current data and approaches. This research is exploring the potential of life history interviews to construct walking and cycling biographies and understand the continuities and turning points involved.



A conceptual model of how present walking and cycling is shaped by contexts over time to form a walking or cycling trajectory (adapted from Sobal *et al.*, 2006)

Sobal J, Bisogni CA, Devine CM, Jastran M, (2006) A conceptual model of the food choice process over the life course In: Shephard R Raats MM (ed.)*The Psychology of Food Choice* CABI Oxfordshire UK

It is a public policy objective to increase lifelong levels of walking and cycling in the general population given the benefits this will have on reducing the disease burden from physical inactivity and reducing congestion and carbon emissions in the transport sector. However, fulfilling this objective requires knowledge of the life course patterns of walking and cycling and this cannot be gained from cross-sectional data from population surveys. This project is adopting longitudinal research methods to seek to understand life course patterns of walking and cycling.

Longitudinal research of human behaviour is necessary to understand how current behaviour is influenced by past circumstances and experiences. Some studies have looked at health and travel behaviour in relation to major life events. Taking a longer term view, the life course perspective looks at behaviour development in the social and temporal context of the life course. Pertinent behaviour and experiences are organised into life course trajectories to facilitate understanding of change and continuity in behaviour in relation to life course events and transitions.

The project applies this perspective using life history interviews to understand life course patterns of walking and cycling from retrospective accounts. Interviews are being conducted with members of the baby-boom generation (born 1946-1950) and their children. Individual accounts are compared with those of contemporaries and family members. The interviews generate a personal walking and cycling timeline together with a narrative account.

Apparent from the first interviews is that the gendered responsibility for caring resonates within walking and cycling trajectories such that the walking and cycling patterns of females of the baby boomer generation were more frequently interrupted by role changes than males of their age group. Further, the historical separation between baby-boomer parent and child seems to have had significant implications. The children of baby-boomers were born into a more auto-dominated world, where acquisition of a driving licence was commonplace. The children of the baby boomers are having a different experience of parenthood and career than their parents which could have implications for their practice of walking and cycling.

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Funder and programme
ESRC and MRC

Timescale
October 2009 - October 2012

Evaluation of the Cycling City and Towns programme

The Cycling City and Towns (CCT) programme was a major new approach to town-wide investment in cycling and this evaluation project aims to fully understand and demonstrate the overall effects of the programme. It includes surveys of households in programme areas and interviews with residents and with delivery teams and stakeholders.

The Department for Transport and Department of Health invested over £140m between 2008 and 2011 to promote cycling and to address a historic decline in cycling activity. Part of this investment (around £43m) was used to create one Cycling City and eleven Cycling Towns (CCTs). One aim of the CCT investment was to understand the impact that European levels of funding can have at a town/city level. The CCT programme involved funding a mixture of initiatives such as improvements to cycle routes, training for children in schools and marketing and promotion work. A main objective of the evaluation project is to obtain robust evidence about programme impacts in terms of cycling and other travel behaviour, physical activity and wider impacts such as carbon emissions.

The evaluation is being carried out using the Theory of Change approach which addresses not only the question of whether the programme of interventions works, but also why and under what conditions it works. The evaluation is using a range of evidence sources including baseline and post programme surveys of households in programme areas, interviews and accompanied journeys with residents, interviews with delivery teams and stakeholders and cycle count monitoring data.

The baseline survey was undertaken in 2009 and involved a random sample of 16,343 households across the 12 CCTs. It identified that under a third of adult respondents aged 16 and over across the CCTs (28%) had cycled in the previous twelve months. One in five adults (19%) said they cycled at least once a week. Men, younger adults, adults in employment, adults from higher socioeconomic groups and adults with children were more likely to have cycled in the previous 12 months. The baseline survey also identified that an average of 80% of children across the CCTs had cycled in the previous 12 months. The analysis of the baseline data found that almost 40% of adults surveyed were non-cyclists with low levels of physical activity, who would potentially obtain health benefits from taking up cycling.

In-depth interviews of cyclists and potential cyclists in each CCT have been conducted in 2010 and 2011. The interviews asked about any changes to cycling during the last three years and the circumstances involved. The interviews also focused on a regular cycling journey or potential cycling journey and investigated motivators and barriers for cycling for that journey. In selected cases the interviewer accompanied the interviewee by bicycle on these journeys to gain a better appreciation of their cycling experience.

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Funder and programme
Department for Transport and Department of Health. The project is being led by AECOM in association with UWE and the Tavistock Institute.

Timescale
February 2009 - October 2012

The iConnect (Impact of Constructing Non-motorised Networks and Evaluating Changes in Travel) consortium

This project measures and evaluates changes in travel, physical activity and carbon emissions related to the Sustrans Connect2 programme. This is an infrastructure project to transform local active travel in 79 communities through new crossings and bridges to overcome barriers such as roads, rivers and railways.

The project aims to:

- Develop an evaluation framework and measurement tools for assessing the impacts of infrastructural interventions on travel behaviour, physical activity, carbon emissions and energy use.
- Apply the framework and tools to quantify changes in travel behaviour, physical activity and carbon emissions associated with Connect2 sites and to explore why these interventions work, in what ways, for whom and in what circumstances.
- Determine the feasibility of additional tailored self-help interventions which can enhance the effects of infrastructural interventions.
- Evaluate the Connect2 programme in terms of economic performance at a broad strategic level.

The iConnect consortium consists of eight academic groups based at the Universities of Bristol, East Anglia, Loughborough, Oxford, Southampton, Strathclyde, West of England (UWE) and at the MRC Epidemiology Unit in Cambridge.

The five-year iConnect study involves a broad evaluation of the whole Connect2 project, coupled with detailed investigations at five specific sites: the People's Bridge (Cardiff), the Bridge to Nowhere (Glasgow), the A10 Crossing (Cheshunt, Hertfordshire), the Kenilworth – Berkswell Greenway (Warwickshire) and the Itchen Walkway (Southampton).

There are methodological issues concerning measurement and evaluation. The difficulties in obtaining accurate measurements of walking and cycling levels are outlined and various survey and observational methodologies will be assessed. This research is informed by the critical realist approach to evaluation with an emphasis on the inter-relationships between context, mechanisms and outcomes. An evaluation framework has been developed based on a general, socio-ecological model which relates walking and cycling behaviour to, amongst other factors, socio-demographic factors, social environmental factors and neighbourhood characteristics (Ogilvie et al. 2011). This will be supplemented by middle range theories to determine the mechanisms that make some schemes more successful than others. These theoretical approaches will be related to an economic framework that draws on instruments such as the Health Economic Assessment Tool for Cycling and New Approach To Appraisal that have been used to assess health and travel benefits respectively (Powell et al. 2010). The iConnect website is at http://www.iconnect.ac.uk

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EPSRC - Energy and Climate Change Programme

Timescale
May 2008 - April 2013

Pervasive gaming on public transport

Digital games have the potential for changing attitudes towards social issues such as climate change and sustainability. The aim of this project is to deliver a working, proof of concept, pervasive game that would itself be themed around transport and sustainability and intended to be played on public transport.

The use of digital games to change social attitudes towards issues such as climate change and sustainability, does not have to be based on fixed computing. With the rise of the smart phone, games can make use of a range of sensor and augmented reality technologies.

The working, proof of concept, pervasive game will be an augmented reality game played on smart phones. Interaction with the game will be presented on-screen with 3D graphics that overlay the real world. The players will be able to interact with a communally created world on the public transport route they take everyday. It will be a simple, ambient, social game in the same vein as Farmville or Foursquare.

Current research questions

- How can we make use of contextual data gathered on public transport, via mobile devices?
- What are the affordances and constraints for game design on public transport?
- How can Layar Augmented Reality Browser (Layar, undated) be used as a game delivery platform?

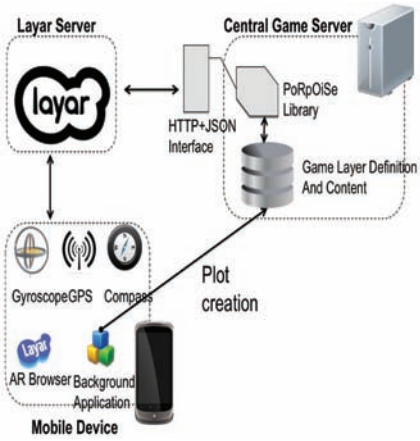
Future project research questions

- How can we use pervasive and ambient gameplay techniques to make a public transport journey more fun and engaging?
- How can we create an experience that embeds an understanding of the systemic nature of sustainability and transport issues?

Issues and findings

Motion sickness whilst using an AR browser

All participants reported a feeling of motion sickness whilst using it. This included those who said that they didn't normally feel motion sick whilst reading or using devices in cars or public transport.



Social issues of camera use in public transport

People in front of the camera are very aware of being photographed or filmed.

Device and interface issues

Particular issues faced are, firstly, the variability of lighting conditions, and secondly, the relationship between GPS data and the application.

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Grey and pleasant land? - travelling through the rural lifecourse

In a time of population ageing, this project investigates the role of transport in enabling older people to be 'connected' to their rural communities. It explores this role in the context of older people's involvement in civic life and the wider goal of sustainable rural communities.

This research is one strand of the wider 'Grey and Pleasant Land?' project, whose goal is to investigate older people's 'connectivity' in rural areas. In this work the Centre for Transport and Society (CTS) will explore the meaning of 'mobility' in the lives of rural elders, whether there is a continuum of mobility from physical to existential, and changing mobility as people age. It will also consider if our understanding of the travel behaviours of other groups in society is appropriate for this group. Practical issues such as car dependence and the ability to travel sustainably will also be explored.

CTS is engaged on work package 3 (WP3) of this multi-university, interdisciplinary research programme, working with academic colleagues from Bournemouth and Swansea Universities. It is using quantitative and qualitative approaches in order to collect data, including a survey questionnaire involving over nine hundred older people (i.e. over 60 years of age) in six rural areas – three in South West England, and three in Wales. The study areas exhibit three degrees of 'rurality', or remoteness from urban areas, and are matched across England and Wales. Follow up in-depth interviews with thirty-four of the survey respondents have been carried out for WP3, and more recently a further eleven interviews have been conducted with older people outside the survey (but still in the study areas) to enrich data on specific categories of interest such as non-drivers.

Analysis of the survey and interview data to date has provided interesting findings around the distance that people are travelling to be involved in community activities as opposed to services and facilities, and how self-reported exclusion is not necessarily related to access to transport (such as a car). Levels of mono or multi-modality are also proving to be of interest. Findings are also starting to emerge around the factors that influence older people's connectivity, such as the effects of age, health, access to a car, wealth, etc.

Analysis of both sets of data is ongoing, and there are potentially other sources of data within the wider project which may add context and depth to the material already explored.

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Funder and programme
UK Cross-Research Council 'New Dynamics of Ageing' Programme

Timescale
2009 - 2012

Using an adapted Delphi methodology for defining low carbon futures

This research uses an adapted Delphi methodology in the Bristol city region to engage local stakeholders in generating several broadly consensual low-carbon scenarios for the city-region in 2050. The Delphi process also aids support for a city's carbon ambitions by creating buy-in to the results by the stakeholders.

A difficulty for policy makers in a city trying to achieve long-term carbon reduction ambitions, is having confidence that present actions are consistent with a pathway to achieve the necessary reduction in emissions and that technological or infrastructural lock-in and decisions that are unsuitable in the long term are avoided. This research seeks to define possible low carbon futures for the Bristol region and then backcast from these. The aim of this method is to offer long-term policy guidance and a degree of future-proofing, by generating pathways against which decisions and progress can be assessed by local policy-makers.

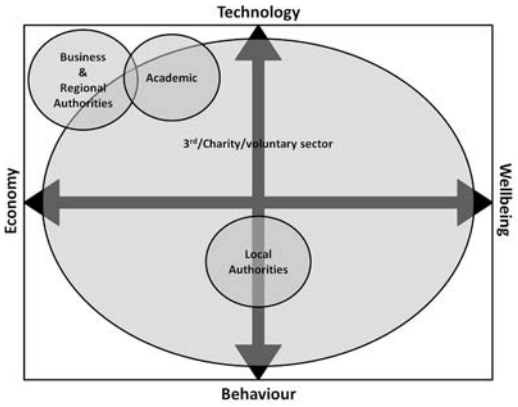
Delphi studies seek to obtain an expert panel estimation of probable futures on a topic that has many interpretations and is relatively unknown. It involves an iterative, remote, consultative process, with the aim of achieving convergence on a consensus (Linstone and Turoff, 2002). An adapted Delphi process is being used in this research to create a number of broadly consensual low carbon scenarios for the future Bristol city region. Backcasting techniques (Robinson, 1990; Dreborg, 1996) will then be applied from these scenarios to map pathways back to the present, identifying the key actions and points in time that represent critical intervention opportunities.

Stakeholders were classified into five categories and were found to have quite distinct views on different elements:

- Business: mostly global, economic, positive, individual, technological, strong opinions
- Third/voluntary/ community sector: local, collective, decentralised, lower consumption
- Research/academia: mostly neutral, slightly negative, technological
- Local government: mostly local, positive, often neutral
- Regional government/other public sector: mostly global, economic, individualistic, often negative, technological.

Results from the Delphi questionnaires so far show a diverse range of scenarios, including:

- "Modern Malthusian": localism, wellbeing over economic prosperity, collective, community and behavioural approaches to meeting emission reductions, with an overall much lower level of consumption.
- "Globalised success": a global focus, emphasising economic prosperity, individualism, the role of technology, and a decentralised approach to meeting needs such as energy generation and food and governance.
- "Local economy": emphasises economic prosperity and competitiveness but with a focus on a local economy. It emphasises decentralisation.
- "Technological world": consumption is high and the focus is global, with an emphasis on economic prosperity. It is quite individualistic with technological solutions.



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Funder and programme
EPSRC CASE award (with the Centre for Sustainable Energy)

Timescale
June 2009 - December 2011

SNACC: Suburban neighbourhood adaptation for a changing climate

The SNACC project seeks to answer this research question: How can existing suburban neighbourhoods be best adapted to reduce further impacts of climate change and withstand ongoing changes? The research focuses on adaptations to the built environment, encompassing changes to individual homes and gardens up to larger neighbourhood scale adaptations.

The research aims to develop feasible adaptation scenarios for suburbs in the UK in the context of the challenges presented by climate change. The SNACC project takes a socio-technical approach which aims to build an understanding of the processes, agents and potential outcomes of suburban change to establish how adaptation can be directed towards a beneficial outcome for the UK's existing suburban landscape.

It is widely accepted that existing built environments are both contributing, and adapting poorly to climate change. Suburban areas contain 80% of homes in the UK, highlighting the need to identify practical ways of adapting existing suburbs to cope with these challenges.

The project draws upon case studies of six neighbourhoods in three cities (Bristol, Oxford and Stockport). In these areas, key agents of change (e.g. home owners, elected members and planners) will help to determine successful adaptations.

The project team will use:

- modelling of climate change, house prices and adaptation outcomes
- tools that allow the participants to visualise what 'adapted' neighbourhoods will look like
- deliberative methods from social science including focus groups to generate a portfolio of adaptation strategies that are feasible, and fully endorsed by stakeholders.

The research design, methods and range of collaborators reflect both the technical and socio-economic aspects of adaptation. The findings will be communicated to a wide network of policy, practice, public and academic beneficiaries. The outcomes will contribute to securing a sustainable future for the UK's suburbs in the face of climate change.

Project Progress

The SNACC project was launched on 1st September 2009 and will run until September 2012. Work on Phase 1 to enable the research, has been progressed through five work packages.

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Funder and programme
Engineering and Physical Sciences Research Council, Living with Environmental Change Programme, Adaptation and Resilience in a Changing Climate

Timescale
September 2009 - September 2012

Supporting a low carbon economy in the South West

UWE's Research, Business and Innovation Service (RBI) leads the way in nurturing and increasing the number and quality of UWE's partnerships with organisations from across the public and private sectors. It has a track record of supporting environmental businesses and is committed to continuing to play a part in strengthening the low carbon economy in the South West and across the country.

RBI offers environmental businesses a range of services. From options for established companies such as the delivery of bespoke training and continuing professional development, or the provision of academic consultancy and research projects, to support for start-up and early stage businesses, such as incubation, mentoring and small-scale market research. UWE possesses a wealth of academic expertise in the areas of environmental science, sustainability and healthy communities, enabling RBI to bring companies into contact with knowledge that can benefit their business practices and ultimately their bottom line.

UWE is one of Britain's most enterprising universities and a hub for innovative and dynamic projects. It has a well-deserved reputation for working effectively with industry partners and an impressive track record of engaging with organisations of all sizes from across the public and private sectors.

RBI leads the way in nurturing and increasing the number and quality of these partnerships. Through its coordination and support of business engagement, research and enterprise projects, its status as a 'gateway' to academic expertise and its management of the human relationships that sit at the heart of UWE's organisational links, it ensures the university is well placed to meet the needs of industry and continue contributing to an healthy, sustainable economy.

The low carbon goods and services sector is extremely important to the South West region, incorporating 4,200 companies, with 74,000 employees and with an estimated value of £8.7 billion. RBI has already forged strong links with these businesses and their associated support networks, which is set to continue as the sector grows in the coming years.

As well as providing support for the Environmental Technologies iNet, a £2.4 million initiative led by UWE

that assists the region's innovative and high growth environmental businesses, the service has played a key part in extending the reach of UWE's academic expertise in the low carbon industries. By securing funding from Universities South West to develop a range of innovative workshops and courses it has helped to directly address the skills gaps that currently exist in the sector.

Through coordinating knowledge transfer partnerships, conducting market research, facilitating student and graduate recruitment, accommodating and mentoring start-up enterprises and providing a host of other support services, RBI is committed to supporting environmental businesses and strengthening the low carbon economy in the South West and across the country.

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Sustainability framework for a South African aerotropolis

AQMRC[1] and ISHE[2] created a sustainability framework for a new 'aerotropolis' in South Africa. The development intends to be 'a flagship of sustainability'. Our framework defined what such a 'flagship' would look like.

Private and public sector bodies are proposing the development, over sixty years, of a new airport city within a 15km radius of an existing international airport in South Africa. This is an example of an 'aerotropolis' – an approach to town planning that places an airport at the heart of a new city.

Our task was to provide a sustainability framework and specific tools to assess carbon emissions and water consumption. The study raised many questions, integral amongst which, were:

1. What is 'sustainability'?

2. What are the range of sustainability impacts and opportunities from aviation and connected developments?

3. Can a carbon intensive industry such as aviation meaningfully engage in the pursuit of sustainability?

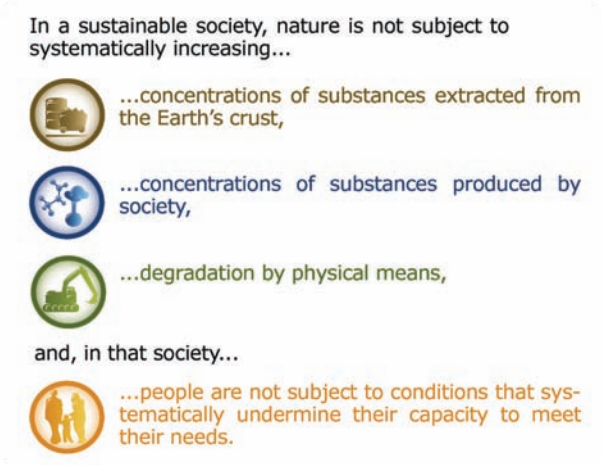
Inventories: MS Excel inventories were created to enable clients to assess carbon emissions and water consumption within each spatial area of the airport, the surrounding aerotropolis, and nearby communities[3].

Sustainability context. Regarding questions 1-3, above:

1. Sustainability was defined on a principles basis, using the System Conditions of The Natural Step Framework, resulting in the conclusion that an aerotropolis can lay claim to sustainability only once all four System Conditions are adhered to.

2. Sustainability issues were reviewed, resulting in the identification of eight key themes through which the aerotropolis could deliver its sustainability strategy:

- Climate Change, Energy & Aviation
- Planning & the Built Environment
- Water
- Land and Ecology
- Ground Transport



The System Conditions of The Natural Step Framework
Source: http://www.naturalstep.org/the-system-conditions

- Community & Economy
- Procurement
- Waste Management

3. The gap between industry rhetoric and genuine sustainability was clarified by creating a matrix depicting six stages between 'business as usual' and 'sustainable success' (i.e. adhering to System Conditions), across all themes.

'Sustainable success' was considered possible on most themes. The main stumbling block was carbon emissions, with aviation responsible for more than half the study area's total emissions. Options for reducing emissions from aviation are currently limited, and new air and ground transport technologies are needed. Aside from reducing flights, the only way to mitigate high volumes of aviation emissions in the short/medium term, would be large scale carbon offsetting.

1 Air Quality Management Resource Centre Team
2 Institute for Sustainability, Health and the Environment
3 See separate poster for more information on the carbon inventory

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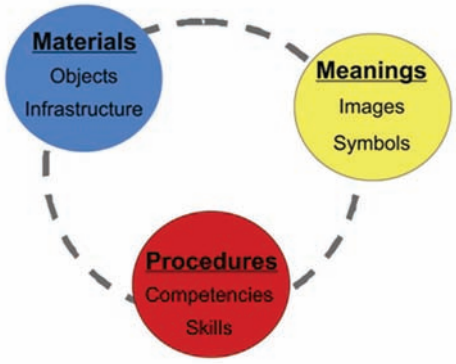
Funder and programme
Private sector funding, South Africa

Timescale
December 2010 - April 2011

Individuals' and communities' energy behaviour

In February 2010, Dr Tim Chatterton commenced a 12-month social science placement fellowship in the Department of Energy and Climate Change (DECC). The fellowship was joint funded by DECC and the Research Councils' Energy Programme.



The purpose of the fellowship was to provide DECC with advice and guidance in the area of domestic energy behaviour, as well as to act as a bridge between policy and academia in order to foster a better understanding between the two areas.

DECC faces significant challenges on its way to achieving the UK's ambitious 2050 climate change targets, and the fellowship is a recognition of the significant work that needs to be carried out with respect to supply side, end-user energy demand.

Central to his brief was the statement of his role "to challenge and be challenged".

Dr Chatterton undertook a wide range of activities during his year within the Department. These included:

- A widespread analysis of the areas of interaction between DECC policy areas and the general public;
- An evidence needs review to identify where further research is needed by government to support policies aimed at changing pubic energy use;
- A briefing document for civil servants on the need to take a 'multi-model' approach to energy behaviour.

In September 2011 he organised a workshop in partnership with the Cambridge University Centre for Science and Policy, bringing together a broad range of academics and key civil servants from the Department to explore and challenge their concepts of 'energy behaviour'.

Dr Chatterton undertook a series of outreach lectures and seminars, where he presented his work within the Department and hosted discussion sessions with key energy and climate research centres in the UK.

The core of his work involved the introduction into government of a sociological based approach to promoting 'behaviour change'. Both the previous government, and the new coalition, have followed very individualist lines on behaviour, led particularly by books such as 'Nudge' and reports like MINDSPACE. A range of work is demonstrating that these approaches are significantly limited in their ability to achieve impact as they do not adequately account for a range of physical and non-material issues that set the societal context for behaviour.

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Funder and programme
RCUK Energy Programme, Policy Placement Fellowship

Timescale
February 2010 - January 2011

Does "500g of CO_2 for a five mile trip" mean anything? Towards more effective presentation of CO_2 Information

Most carbon dioxide emissions information is presented as a mass. This research found that it is easier for people to use information in a format that gives greater context such as a carbon budget. Thus, the format of mass may be less effective in encouraging changes to more sustainable behaviour.

Carbon dioxide (CO_2) emissions information is being presented to people in the hope that they will adjust their behaviour to reduce outputs. However, they may not understand CO_2 information when presented as a mass which will affect the interpretation and application of such information.

Related to that failing, this work empirically examined two key questions. The first examined whether, depending on the format used, people can give a sustainability ranking for various CO_2 emissions amounts. The different formats were mass, trees, planet earths, and a carbon budget. The latter three formats each provide some degree of context which could increase the usability of the CO_2 information.

Information: content & context

For money and time, we have budgets and experience. That background knowledge allows us to interpret the information. But, for CO_2 most people lack that type of knowledge. CO_2 is typically presented in scientific form, as mass. But this is content, without context.

From on-line carbon calculators, two CO_2 equivalents were chosen: trees and planet earths. Those two formats represent increasing levels of context. The tree format concretises CO_2 emissions, but doesn't directly indicate how sustainable the amount is. The planet earth format attempts to conceptualise the CO_2 amount as the ability of the planet to sustain that activity easily if all humans replicated those emissions. One last concept, a carbon budget, was included that represented a cap and trade scheme limit.

In order to test the "usability" of the formats, people were given a transportation example with the CO_2 emissions information presented in one of the four formats. They were asked to rank the sustainability of the trip or to answer "don't know".

Examining the frequency of "don't know" answers, served as a proxy for the "usability" (or otherwise) of the formats.

The results from the study suggested a couple of things. The first is that mass may not be a very usable format. The second is that the straight-forward contextual presentation of a carbon budget is highly usable.

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Funder and programme
European Commission Framework 7 Project

Timescale
30 months

Critical local authority leadership skills for local carbon framework delivery

The Institute for Sustainability, Health and Environment is developing a carbon leadership training programme for Bristol City Council. This is part of the authority's participation in the Low Carbon Framework Pilots Programme that is being funded by the Department of Energy and Climate Change (DECC) in which nine councils act as pilot authorities to pioneer best practice.

As part of its new Climate Change and Energy Security Strategy, Bristol City Council has adopted carbon targets for the city and allocated responsibility for the targets to the relevant service directors and their teams. To be able to meet their responsibilities and deliver targets, they will need to develop new skills in strategy, policy and practice. This work is about identifying these skill requirements and designing and providing appropriate training to meet the needs for key people within the organisation. The results and learning from this project will be shared so that it can be easily applied to other local authorities.

The main objectives of this project are to:

- carry out a training needs analysis and develop generic guidance based on this so that this process can be carried out by other local authorities;
- undertake face to face training with Bristol City Council senior managers and portfolio holders in the departments of Housing, Education, Planning, Transport and Economic Development;
- develop a suite of open source learning materials that will be made available to all English local authorities via the Department of Energy and Climate Change;
- develop recommendations for the accreditation of learning materials.

A project advisory group is working with the ISHE team to ensure that the needs of each participating department are representated and to ensure integration at corporate level.

The training for Bristol Council will comprise two interactive one-day workshops. Areas covered will include: introduction to the context and challenge of climate change and energy security, assessing the co-benefits of carbon descent and other service area priorities, approaches and tools for understanding and quantifying the carbon impacts of local policy, future proofing strategy and policy.

Participants will carry out a structured practical exercise between the face-to-face sessions. This will help council staff to deepen their understanding and begin to address the climate change and energy security issues and opportunities within their own department.

This work builds on the success of a bespoke carbon management training programme for NHS South West, which ISHE developed in 2010.

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Funder and programme
Department of Energy and Climate Change

Timescale
February 2011 - June 2011

Low carbon high skills

UWE won £193,000 from Universities South West to develop a range of innovative workshops and courses to increase skills in low carbon industries in the region. The courses directly address skills gaps in the South West and were piloted during February and March 2011.

In the South West, the low carbon environmental goods and services sector is worth £8 billion per year and employs approximately 75,000 people. The South West was designated the first 'low carbon economic area' and accounts for 68% of the UK sector.

These courses support the further development of the environmental technology goods and services sector in the region. The courses will become a key part of UWE's solutions portfolio for this high growth sector.

All the courses have been designed around employer needs to maximise business benefits and minimise time away from work. UWE will offer a range of work-based learning modules that provide delegates with the option of gaining academic credits towards an Integrated Professional Development award.

The courses include:

Low carbon commercial design: to provide in-depth understanding of how to design low carbon commercial buildings – Sandra Manley (FET) and Sarah Hills (Institute for Sustainability, Health and Environment)

Low carbon retrofit of historic buildings: to provide an understanding of policy and fiscal incentives for retrofitting pre-1910 buildings and the practical techniques involved - Sandra Manley (FET) and Sarah Hills (Institute for Sustainability, Health and Environment)

Waste to energy: to allow companies to identify and build a business case and implement solutions to convert their waste streams to energy - Dr Andy Tubb (HLS)

Developing a zero carbon construction industry: to allow construction companies to better understand 'whole life carbon' and develop a business case for lower carbon buildings - Martin Jones (FET)

Lean process improvement: to enable companies to implement lean process improvement throughout their organisation - Paul Head (FET)

Composite engineering: E-learning plus workshops to provide an understanding of composite engineering principles - Dr David Richardson (FET)

Environmental legal changes for marine and coastal energy: to provide an understanding of the legal framework associated with the sea, for wind and tidal energy developers and others - Tom Appleby (FET)

Design for automated deposition of composites: to understand how to design composite structures with automated production in mind - Dr David Richardson

Maintenance and repair of advanced composite Structures: led by Yeovil College (in conjunction with UWE - Dr David Richardson).

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Funder and programme
Universities South West

Timescale
November 2010 - April 2011

New training provision in low carbon development and adaptation of the built environment

Through funding from Universities South West, the Institute for Sustainability, Health and Environment and the Faculty of Environment and Technology are developing a portfolio of low carbon training courses for the built environment professions and allied business sectors. This project developed and tested learning materials equivalent to two Masters level modules; in the retrofit of historic buildings, and low carbon non-domestic design.

National and local policy drivers that require a response to the threats to our economy from climate change and energy security have created lasting business opportunities for the built environment sector. These include, for example, the Climate Change Act 2008, the Low Carbon Transition Plan and the progressive tightening of Building Regulations, which will require all new homes to be carbon neutral by 2016 and all new non-domestic buildings to be carbon neutral by 2019.

Evidence from employers suggests, however, that realising the potential of low carbon energy solutions in both a retrofit and new build context is hindered by a significant skills gap in the planning and development sectors. In particular the need for accredited courses at higher levels has been identified.

Courses in retrofit of the historic built environment and low carbon commercial design were piloted through two one-day training events that were attended by 47 delegates from 22 organisations. Fundamental principles, current themes in the industry, and the latest legislation, technical and financial issues were explored through a mixture of presentations, case study visits and workshops sessions.

The project team worked in partnership with a wide range of external partners (including Bill Gething Consultants, Bristol City Council, Bristol Lido, Bristol Zoo, Footprint Building, Forum for the Future, Heritage Places Consultancy, Hoare Lee, Stride Treglown, University of Nottingham and White Design) to develop learning resources and ensure that these were fine-tuned to industry and delegate training needs.

The delegate input and feedback gathered during the project facilitated the further refinement and development of the learning materials associated with each of these courses. The learning materials, including presentations, a short film, five case studies and a reading and resources

list, provided the basis for a flexible package that can be delivered face to face and through blended learning. The feedback also confirmed our initial assertion that there is a significant gap in higher training provision in these subject areas and helped identify specific additional topic areas. This will inform UWE's development of further provision in this subject area, including a Postgraduate Certificate that will be held within the Shell Framework validated by UWE.

To widen the dissemination of learning materials, it is also intended to show the case study film made as part of the Low Carbon Commercial Design Course via the Faculty of Environment and Technology's Internet TV service (see: http://www.bne.uwe.ac.uk/cpe/bnetv/default.asp). Extracts from this film have also been made available via the You Tube website.

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Funder and programme
Universities South West

Timescale
November 2010 - April 2011

The Environmental Technologies i-Net: Supporting innovation in high growth environmental businesses

The Environmental Technologies i-Net is an initiative supporting environmental goods and services companies in the South West. As a 'one-stop-shop' for the sector, it helps businesses access specialist knowledge, develop products and services, improve competitiveness and engage with new routes to market.

The Environmental Technologies i-Net is a £2.4 million initiative supporting environmental goods and services companies in the South West (excluding Cornwall and the Isles of Scilly). As a 'one-stop-shop' for the sector, it helps businesses access specialist knowledge, develop products and services, improve competitiveness and engage with new routes to market.

Led by the University of the West of England and backed by an impressive consortium of regional partners, the project benefits from a wealth of expertise and offers an extensive range of FREE tools and services. If you are an innovative company with high growth aspirations, the Environmental Technologies iNet can help you achieve your goals.

The Environmental Technologies i-Net's team of sector specialists work directly with businesses, identifying development opportunities and tailoring a support package that fits the needs and aspirations of each business. This might focus on new product development, improved business processes, partnership building, training, funding access or exploiting routes to domestic and international markets.

The expertise and resources possessed by UWE and the other consortium partners (University of Exeter, University of Bristol, Regen South West and Bristol City Council) represents a powerful new driving force for transforming business and provides a focal point for customised innovation support for South West environmental technology companies.

Examples of the FREE tools and activities that make up the i-Net's extensive support portfolio include:

Expert review panels

A proven method of assistance that connects companies with an advisory board consisting of established entrepreneurs, investors, academics and other innovation supporters and intermediaries. These experts provide insight and counsel that businesses might not otherwise afford.

Innovation workshops

The Environmental Technologies i-Net offers a regular calendar of events that directly addresses the needs of businesses in the sector. The innovation workshops are particularly focused, providing specific assistance in key areas (intellectual property protection, investment readiness, and so on).

International trade and networking

Accessing overseas markets and building relationships with foreign partners, customers and investors is essential for high-growth companies. The i-Net helps clients secure international connections, often supporting trade missions, delegations and market research projects.

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Funder and programme
South West Regional Development Agency (SWRDA) the European Regional Development Fund (ERDF), partner investments

Timescale
2010 - 2013

Environmental technologies 'i-Net' in action – a trade mission to the World Future Energy Summit

The Environmental Technologies i-Net is a 'one-stop-shop' for the environmental goods and services sector, helping businesses innovate and develop products, services and markets. The i-Net provided bespoke support to four 'clean tech' SMEs to attend the World Future Energy Summit in Abu Dhabi resulting in the expansion of their businesses.

The Environmental Technologies 'i-Net' engages with high growth, small and medium sized enterprises (SMEs) in the environmental goods and services sector of the South West. I-Net provides bespoke business assistance, helping to innovate products and services faster, improve competitiveness and market awareness, and engage with a range of routes to market.

The i-Net supports four subsectors: renewable energy, waste management, sustainable transport and sustainable construction. The i-Net addresses the disconnects hampering business development by creating a focal point that directly supports businesses, facilitates the linkages between ideas, technology, expertise and commercialisation, and improves international connectivity.

An example of the i-Net in action is the support given to a trade mission of four 'clean tech' companies to enable them to get the most out of the World Future Energy Summit in Masdar, Abu Dhabi (January 2010). This is the world's foremost annual meeting on renewable energy. A reception event was provided by the i-Net to identify potential partners, customers, agents or distributors and to design a bespoke programme of meetings with key decision makers and buyers. To do this, i-Net worked with U.K. Trade and Investment (UKTI), the U.K. embassy in Abu Dhabi, and the OMIS (Overseas Market Introduction Services).

One of the four companies, Green Running, sells energy monitoring and energy management systems and exhibited at the summit to promote its cost saving tools to the Arab markets and the sustainability city of Masdar. The event itself was a great success with the i-Net team able to introduce their systems to a number of influential purchasers in the area.

During the three day conference Green Running were also able to demonstrate the product to the Crown Plaza Hotel in Abu Dhabi where a sale was made, including the provision of additional support to reduce energy consumption and improve understanding of where power is being consumed. The conference gave Green Running a greater understanding of the market and its development in the Middle East and allowed them to create the contacts required for setting up business in the Emirates.

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Funder and programme
South West Regional Development Agency (RDA), the European Regional Development Fund (ERDF), partner investments

Timescale
2010 - 2013

Supporting air quality management in Delhi, India

The Air Quality Management Resource Centre (AQMRC) is currently involved in supporting the development of air quality management practices in Delhi. AQMRC is working with the Indian Institute of Technology, Delhi, to review current practices and provide advice on ways to improve the technical and policy capacities for air quality management.

Delhi has recently been described as being the joint worst city for air pollution in the world (tied in 1st place with Beijing, China). This is despite over a decade of very significant measures to improve conditions – including the largest ever conversion of a public transport fleet to Compressed Natural Gas (CNG), and a heavily mandated programme of relocation for much of the city's industrial processes. The policy terrain behind these changes has been complex, with significant moves forward only initially having been achieved following the intervention of the Indian Supreme Court. Another great driver has been the 2010 Commonwealth Games which saw considerable efforts made to improve conditions in the city, although some were only temporary measures.

The UK air quality management process has shown the need to develop a broad policy framework in order to ensure the full extent of air pollution problems can be accurately assessed and that appropriate policies can be put in place at national, regional and local scales.

Whilst some excellent work is being done in Delhi with regard to the assessment of air pollution, some of the work is carried out in a rather piece meal way. Capacity for real time, continuous monitoring is very limited in the city, and modelling tends to consider only vehicle emissions and is generally focussed on specific junctions with the greatest traffic flows, with little detailed consideration of how local building topography might affect concentrations, or the contributions from background pollution.

The experiences in Delhi are also casting light on the difficulties of assumptions about the effectiveness of 'clean technologies', particularly in the face of massive increases in traffic growth. As an example, the shift to CNG, and a daytime ban on heavy goods vehicles, have greatly reduced problems with visible black smoke. However, evidence suggests that there has not been a similar reduction in finer particles (PM2.5) and that these, along with total greenhouse gas emissions, may have increased due to the measures. There also seems to have been a significant increase in nitrogen oxides.

There does appear to be significant enthusiasm amongst key stakeholders for developing an holistic view of the problem, one that will include consideration of land-use planning – from the level of insuring inclusive street design to encourage non-motorised transport, right through to the masterplanning of the 180 rapidly expanding cities in India in an effort to prevent them ever having to suffer the problems of Delhi and the other metro cities.

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Funder and programme
Workshop participation funded by UKIERI

Timescale

Delivering improved air quality through the Local Transport Plan process in English local government

The second round of the Local Transport Plan (LTP) process in England included air quality as one of the shared priorities for action. While this present opportunities for enabling political will and funding for improving local air quality, the integration of both policy areas is often challenged by the low priority given to air quality within transport policy. This study investigated the opportunities, barriers and enablers for managing traffic-related air pollution through the LTP process.

The research evaluated the integration of air quality as a shared priority within the LTP process in relation to four major themes:

- integration of air quality into the transport planning framework;
- prioritisation of air quality as a major agenda within local transport policy;
- the impact of air quality targets and use of air quality monitoring data to inform transport planning schemes; and
- the impact of existing and potential inter-professional engagement between the Environmental Health Officers (EHOs) and transport planners.

The study utilised the triangulation of three research methodologies involving two rounds of questionnaire surveys, content appraisal of selected LTP2 documents and in-depth case study interviews with EHOs and transport planners from a sample of English authorities, to investigate the feasibility of achieving the air quality objectives through the LTP process.

The results demonstrated wide-ranging capabilities and experience of integration within English local governments along with commitment to air quality management within the LTP process. However, while air quality is a shared priority in the LTP process, it is not given an equal priority in comparison to other traffic-related problems such as congestion and road safety. The results also show that integrating air quality within the transport planning framework is better facilitated through the existence of a collaborative platform across departments and authorities, in which the communication between the EHOs and transport planners is promoted to a level acceptable and accessible to both groups.

The research implied that continuous engagement by all the policy actors offers the best hope for improved local air quality in England.

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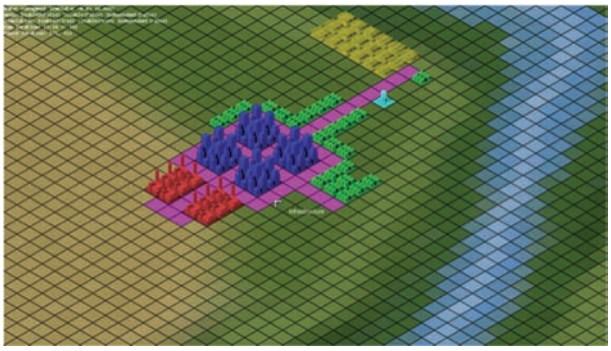
Funder and programme
Faculty of Environment and Technology, University of the West of England, Bristol

Timescale
36 months

Visualising sustainable water: a new tool for water demand modelling

This project has its origins in discussions Staddon had with water sector contacts and academic colleagues in 2009 and 2010 about the need for better ways of visualising sustainable water. Whilst there are all manner of technical tools for analysing and representing water supply, demand, balances, and so on, there seems a need for a tool for the lay-person; a tool that would allow non-specialists to see the relations between certain kinds of (primarily urban) development and water balance or imbalance outcomes.



We need to define a process of development, in stages, which can take us towards the ultimate goal of a visualisation tool which will:

- Represent numerical water demand and supply data in ways that are more intuitive to users. For present purposes we suggest that the primary mechanisms of representation should involve a discrete set of distinctive "sprites" associated with classes of building type (e.g. office block 10 to 20 employees, etc.).
- Link to an "underlying" numerical database containing data about building types and associated water demands.
- Allow users to "play" with the visualised landscape by moving "sprites" around, add green technologies such as rainwater harvesting so that users can see the effects of building in different ways. Probably the "play mode" would have to be written in such a way that it did not overwrite the originally inputted water data.
- Represent development options at a reasonable spatial scale – for present purposes we have chosen 100 metre squares.
- Operate on a variety of platforms, from standard PCs to iPhones.

Supported with funding from the HEIF and the Dube Aerotropolis Project this initiative involves collaboration between colleagues in the Bristol Group for Water Research (Dr Chad Staddon) and the Department for Computer Science and Creative Technologies (Drs Mark Palmer, Mic Reiser, Marcus Lynch) and a specifically engaged RA, Mr Chris Light. We are currently at the proof of concept stage and expect to have a prototype visualisation interface to exhibit by Easter 2011.

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Funder and programme
FET HEIF Funding & Dube Aerotropolis Project

Timescale
December 2010 - April 2011

District Engagement for Water Services (DEWS): Mukono District, Kampala, Uganda

The purpose of this project is to study the implementation of rain water harvesting as a method for community water supply in traditionally under-served areas of Uganda. The project is a joint project shared between the Bristol Group for Water Research, UWE, and the National Association for Professional Environmentalists, Kampala.

A 2009 baseline survey in Uganda established the urgent need to provide communities with local sustainable water resources through technologies such as rainwater harvesting (RWH). The huge potential for rainwater harvesting is a promising adaptation measure for coping with climate change that has largely remained untapped in Uganda, although other African countries have made more of it. The 2009 survey also noted the need for community sensitisation as a way of improving the well-being of water-stressed communities and education for appropriate management of new RWH systems. In other words, the solution to peri-urban water supply problems must be one that integrates physical infrastructure with community education and participation. This research proposal provides an opportunity to evaluate an approach to RWH implementation developed by colleagues at NAPE (a Ugandan environmental NGO) against experience elsewhere in Africa (where Terry has worked) and the world (in particular in Eastern Europe and Central Asia where Staddon has worked).

While NAPE's work in this area is on-going and some of the project budget will go to support specific parts of it, Terry and Staddon expect to complete their part of the proposed work in the May/June 2011 period. NAPE will begin the process by constructing two new community water supplies according to RWH principles and organising community events and training in spring 2011. Terry and Staddon, who will have contributed to the content of the community events, will use the events as a research opportunity to satisfy the objectives stated above through a mixture of participant observation and key informant interviews.

Primary outputs of this ongoing project to date include:

- Provision of RWH kit and relevant training for communities in the greater Kampala area, thereby securing water supplies for poorer communities.
- A growing knowledge of the optimal organisation of physical installations and community engagement systems for long term sustainability of water supplies.
- Associated social and physical health benefits of the above for previously under-served Ugandans.

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Funder and programme
Department of Geography and Environmental Management QR monies

Timescale
February - June 2011

Recreational angling markets to advance the conservation of a reach of the Western Ramganga River, India

Mahseer fishes in Indian rivers require conservation of extended aquatic ecosystems supporting different life stages. The value of recreational angling enables local people to benefit from sustainable mahseer fisheries, providing an incentive for them to cease destructive fishing methods and participate in conservation of the wider river ecosystem.

Mahseer fishes of the genus Tor are 'iconic species' in Indian rivers with exploitable cultural and economic value. Recreational angling for mahseer and associated ecotourism is a growing industry dependent upon healthy river ecosystems. If markets can be established in which local people provide tourism services and benefit to a greater extent from living mahseer than from their unsustainable destruction, they can become significant mechanisms for conservation of river ecosystems.

Established recreational angling and ecotourism models tend to centralise profits to tour operators and multinational chains. Local people thereby lack incentives to hold back from destructive fishing methods, particularly dynamiting and netting, with devastating effects on whole river ecosystems and the benefits derived from them.

Capacity-building amongst local traders, temples and other people to provide services – camping, rafting, guiding, cooking, porterage, security, sale of food, crafts and luxury goods – enriches the tourist experience and enables local people to benefit significantly. This may entail training local people to match the expectations of paying tourists.

Making long term agreements to use locally provided services, rather than importing skills and high value goods, enables local people to gain more from protecting fish stocks and the wider ecosystem. Our experience of capacity building to enable local people to gain from ecosystem services provided by the Western Ramganga River in Uttarakhand State, recognising their value and its recirculation to local people in 'paying for ecosystem services' (PES) markets, has led to an increase in numbers of fish of recreational interest, and the potential expansion of this market along the river system.

When local people benefit to a greater extent from river related tourism than through killing fish for non-renewable consumption or sale, they will engage in river conservation, self-policing their rivers from destructive fishing practices. This market approach may be the most effective means for preventing destructive over-exploitation in poor rural communities where traditional regulation is ineffective. This local development model is transferable to other ecosystem based conservation problems.

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Funder and programme
Self-funded research

Timescale
Publication on first phase 2010. (Aquatic Conservation: Marine and Freshwater Ecosystems, DOI: 10.1002/aqc.1159)

Science for Environment Policy - quality research news for evidence-based policy

Science for Environment Policy is a free news service for policy makers written and edited by the Science Communication Unit, UWE, and published on behalf of the European Commission's DG Environment. The articles summarise the latest, high quality environmental studies in easy-to understand language, clearly highlighting their relevance to policy.

Science for Environment Policy helps bridge the gap between researchers and policy makers, to encourage evidence-based policy making.

Around the world, huge volumes of research are conducted which can help point the way to a low-carbon future, cleaner air, food security and low-consumption lifestyles, among many other issues critical to a healthy, sustainable world.

However, despite its relevance, much of this research never reaches policy makers. For the studies that do, it can be difficult for policy makers to distinguish between good and poor quality research, to find time to read the studies, or to make sense of the results needed to develop effective policies for sustainable living.

Each week, six articles are published in a news alert which is distributed to around 12,500 subscribers worldwide by email. Each article provides a short, accessible and policy relevant summary of a recent study. Topics covered are wide-ranging and include climate change, energy, transport, health, air pollution, resources, biodiversity and water. All articles are also published online.

The Science Communication Unit has established an editorial process designed to ensure that only high quality studies are featured and that the articles accurately reflect the scientific evidence. A Europe-wide network of independent scientific advisors help the editorial team select content for each issue, and experienced science writers draft the articles, which are approved by the lead author of the original study before publication in the newsletter. As an EU publication, study relevance to EU policy and member states is important.

An independent survey of subscribers revealed that 97% of respondents find the service useful, including 38% who considered it very useful. Among the service's key strengths as cited by respondents were: its ability to repackage information, readability, broad coverage and uniqueness.


Science for Environment Policy
DG Environment News Alert Service
European Commission
3 February 2011
Issue 227
About this service Archive Contact Subscribe
IN THIS ISSUE
Possible solutions to local weather impacts of large wind farms
New research indicates that large-scale wind farms may influence local weather. It suggests the impact can be minimised by changing the design of the rotors or positioning wind farms in regions with high natural turbulence. These strategies could also make the farms more productive. (more...) Download article (PDF)
Megacities need mega-models to assess their environmental impact
Assessing the impact of large urban areas on air quality and climate change needs an integrated approach with a range of spatial and temporal scales, according to researchers. The EU-funded MEGAPOLI project considers time scales from seconds to decades and spatial scales from local to global. (more...) Download article (PDF)
Valuing biodiversity through multi-criteria analysis
Social and economic aspects should be considered alongside environmental issues when valuing benefits provided by ecosystems and biodiversity. A recently published study outlines the use of multi-criteria assessment methods for valuation that simultaneously take into account a wide variety of economic, social and environmental decision criteria. (more...) Download article (PDF)
Evidence for negative carbon budgets for European croplands
Scientists have calculated carbon budgets for croplands in Europe, based on field measurements from nine sites across Europe. They found that significant soil carbon losses occurred from cropping even though some farmers used measures to enhance carbon-sequestration. These results may challenge findings from some other modelling studies if they turn out to be typical for all EU croplands.(more...) Download article (PDF)
Partially converting fuels into 'syngas' increases energy efficiency
Recent research from China suggests that partially converting both natural gas and coal into 'syngas' fuel for power generation can generate around 6 per cent more electricity than competing 'conventional' gasification methods. The savings arise from more efficient use of the chemical energy in gas and coal which is lost in a conventional burner.(more...) Download article (PDF)
Reducing the potential 'ecological trap' of solar panels
Solar panels are attractive to aquatic insects because they reflect light in a similar way to water, indicates recent research. This has ecological implications, especially if insects lay eggs on the

An issue of the weekly news alert

In addition to weekly news alerts, monthly special issues are published, which take an in-depth look at hot topics. Recent issues have focused on: Resource Efficiency, the 'Global Green Economy' and Product Carbon Footprinting. The service's scope is expanding in 2011 to include in-depth reports, policy briefs and an online research database. These additions are designed to help secure the service's role as a 'one stop shop' for policy relevant research.

For more information or to subscribe:

E-mail: sfep@uwe.ac.uk

Website: http://ec.europa.eu/environment/integration/research/newsalert/index_en.htm

The Evaluation Partnership (2010) http://ec.europa.eu/environment/integration/research/pdf/survey_subscribers.pdf

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Funder and programme
DG Environment, European Commission. Service contract to provide a news alert service; new scientific information of relevance to environment policy

Timescale
Ongoing. SCU have managed the contract since 2008

Shaping futures: bringing human rights and the environment into a new relationship - the Journal of Human Rights and the Environment

Nothing is more urgent than reformulating the human relationship with the living environment. Scholarly engagement with the overarching meta-ethical themes of our time, human rights and the environment, is an urgent intellectual responsibility. The Journal of Human Rights and the Environment is uniquely dedicated to this vital challenge.

One of the greatest challenges facing the development of an healthy, sustainable and low carbon future is the need for a wholesale cultural and legal transformation in respect of the human relationship with the living world. At present, environmental law remains somewhat technical and under-theorised and is generally perceived to be at odds with the dominant legal discourse of human rights. Yet sustained reflection on the relationship between human rights and the environment has never been more urgent. The Journal of Human Rights and the Environment is the only scholarly journal in the world dedicated precisely to this vital challenge.

The Journal of Human Rights and the Environment was founded in 2009, publishing its first edition in early 2010, and was described at its formal launch by Professor Philippe Sands QC as an 'incredible development for the intellectual reputation of the UWE Law School'. The journal draws together leading scholars, both on its editorial board and as contributors, and is rapidly gaining a reputation as the primary reference in the field. The editorial policy is to publish high quality, double-blind peer reviewed articles on a range of themes related to the generation of a sustainable human and environmental future, including, thus far:

- 'Where Discourses Meet'
- 'Climate Change'
- 'Ontological Vulnerability'
- 'Biodiversity and Food Supply'
- 'Corporate Environmental and Human Rights Responsibility'

The outcomes of the journal's establishment are yet to be fully revealed, but already it has resulted in the founding of a sister-project providing access to a global network of scholars and a dedicated online research repository, as well as to further linkages between researchers. This has resulted in collaboration on funding bids related to the interface between human rights and the environment, demonstrating the intimate links between scholarship, theorisation, policy and practice – including activism.

The journal gained an unprecedented number of institutional sign ups in its first year, another fact attesting to its highly timely and strategic intervention in relation to the tensions surrounding the fractious, but strategically vital, relationship between human rights and the environment.

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Funder and programme
Publisher: Edward Elgar Publishing

Timescale
Indefinite

Global Network for the Study of Human Rights and the Environment: overcoming the divide between original research and knowledge exchange

Global Network for the Study of Human Rights and the Environment is a network dedicated to the exchange of profiles and publications between academics, practitioners and activists sharing a common interest in studying and shaping the fundamentally important nexus between human rights and the environment. GNHRE provides visionary intellectual leadership and unrivalled access to dedicated research resources in the field.

The context for the initiative is the monumental set of challenges facing humans and the environment, not least those concerning climate and species diversity.

The GNHRE initiative is guided by a belief in the possibility of human rights and the environment coming together in theory and in practice in a new, reciprocal and mutually reinforcing interrelationship – one underlining the mutual potential of scholarship, law-making, policy and action in the enhancement of human and environmental futures.

We have no illusions as to the complexity of the subject matter. We actively engage with the many tensions and contradictions characterising the field.

The GNHRE has a web presence, including biographical details of research affiliates, institutional partners and the first globally available, dedicated online research repository dedicated to the study of the interface between human rights and the environment (gnhre.uwe.ac.uk). There is also a related JISCMAIL network of scholars through which various initiatives can be proposed and shared.

GNHRE also has a physical presence through the meetings of partners that take place regularly. Every two years there is a conference of partners and other interested parties on selected themes of pressing importance. The first was held at UWE in June 2010.

In an initiative led by Anna Grear, the GNHRE has been involved in the recent submission of a bid for EU Framework Partnership 7 funding. The proposed project is concerned with a human rights approach to environment-forced migration from rural to urban settings in Sub-Saharan Africa, and brings together some of our key partners within the network.

There are currently three other bids underway, including negotiations with a city solicitor firm with a global profile and an interest in human rights and the environment, an international seminar involving luminary thinkers and activists and an international partnership between UWE and an African university on the theme of human rights and the environment.

In short, GNHRE aims to be the world leader in the provision of a research-led forum for change in the relationship between the two dominant meta-ethical discourses of our age.

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Timescale
Ongoing

Legal framework on human rights and the environment applicable to European enterprises operating outside the European Union: Indian case study

This research stream analyses particular cases of violations of human rights and environmental law by European corporations operating in India. It concludes that Indian regulatory and accountability mechanisms are not strong enough to control the behaviour of European corporations, which leads to an argument for improving the EU legal framework on human rights and the environment.

The research stream on India is part of a project that brings together practitioners and academics from 12 universities from the EU and developing countries. This stream examines corporate investments in mining, toxic chemicals and genetically modified crops in India.

To highlight the unsustainable business practices that have led to environmental damage and human rights abuse, this stream examines:

- the Indian legal mechanisms applicable to European corporations, including practical barriers to legal accountability and law enforcement,
- the availability and effectiveness of non-legal remedies in India pertaining to violations of human rights and environmental law by European corporations.

The stream has produced a research paper with case studies to exemplify shortcomings of the European legal and governance framework on human rights and the environment from the perspective of the host country India.

The research paper:

- explains India's legal accountability mechanisms applicable to European corporations, including practical barriers to legal accountability, corporate liability and law enforcement;
- highlights the legal challenges posed by inadequate capacity to manage disputes between corporations and communities arising from unsustainable business practices; and
- on this basis, identifies opportunities for the EU and its member states to operationalise the UN 'Protect, Respect, Remedy' Framework on Business and Human Rights to guide corporate behaviour.

The paper is available at: http://www.law.ed.ac.uk/euenterpriseslf/documents/files/TCReportIndia.pdf

In September 2010, the research paper on India was discussed during a UN consultation organised by the Special Representative of the UN Secretary-General for Business and Human Rights, Professor John Ruggie, to explore the role and limits of extraterritoriality in the business and human rights domain.

Available at http://www.business-humanrights.org/media/documents/ruggie-extraterritoriality-14-sep-2010.pdf

This project is the first occasion by which the European Commission's Director General for Enterprise and Industry has addressed the issue of business, human rights and the environment. The project provides a solid legal basis for policy makers, corporations, and civil society organisations to consider how best to respond to the (legal) challenges posed by extraterritorial corporate violations of human rights and environmental law.

In June 2010, EU Commission Vice-President Antonio Tajani highlighted the importance of this project at the UN ministerial session 'Global Compact Leaders Summit' on corporate social responsibility.

The project report is available at http://ec.europa.eu/enterprise/policies/sustainable-business/files/business-human-rights/101025_ec_study_final_report_en.pdf

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Funder and programme
European Commission, Tender by Director General for Enterprise and Industry

Timescale
December 2009 - June 2010

Investigating fishing rights and wrongs

Overfishing is one of the most damaging of man's activities on the rest of the planet. 71% of the Earth is ocean and fishing has a huge direct impact on the ecosystem. We have developed expertise looking at fishing rights and developing legal mechanisms to combat overfishing and ensure an equitable distribution of fishing rights to the fishing industry.

Traditionally, fishing has been one of man's least sustainable activities. Mankind has taken out the larger marine species and then moved onto the next in an action know as fishing down the food web. Worm *et al*. forecast that if current patterns continue the oceans would be largely fished out by the middle of this century. Fish is an important part of people's diet and sustainable fish consumption is essential if we are to enjoy the same standards of living with a larger population. Fish do not understand national borders, and fisheries regulation is therefore extremely complex, often involving international cooperation. Our aim is to find equitable solutions to overfishing by unravelling the bureaucratic complexity.

We have worked in a number of ways:

- With grassroots organisations seeking to implement practical measures leading to local sustainable management. The pioneer in this area is the Community of Arran Seabed Trust, which established Scotland's first 'no take zone' and are now seeking a much larger trawling ban on the west coast of Scotland.
- At the UK level through commenting on and participating in changes to UK legislation. Many of our recommendations have been taken into consideration and the House of Commons Treasury Select Committee quoted from our submission in its investigation into the Crown Estate Commissioners' management of the UK's seabed. A number of community groups, NGOs, government departments and fisheries organisations have used our work as a basis to understand the legislation and implement sustainable fisheries management measures.
- At the UK overseas territories level through our involvement with the Blue Marine Foundation, which helped to establish the world's largest marine protected area around the Chagos Archipelago in the Indian Ocean. This has involved complex international negotiations.
- Published work with NGOs and fishermen's organisations looking at the reform of the EU's much maligned common fisheries policy. This work is ongoing and has recently attracted some useful media attention.

In all of these areas we are seeking to deepen the working understanding of the issues surrounding fisheries management and fishing rights so that viable solutions can be implemented. Our policy is to chose partners to work with who have a strong sense of the issues at stake and excellent reputations. Unlike many of the pressing issues facing us today, overfishing is a problem which can be readily solved.

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Funder and programme
UWE and other funders

Timescale
Ongoing

MSc Sustainability, Health and Change

This Masters for launch in Autumn 2012 is being developed under the umbrella of the Institute for Sustainability, Health and Environment and the Knowledge Exchange for Sustainability (KESE) group. It is an innovative collaboration involving staff from the Faculties of Environment and Technology, Business and Law, Creative Arts, Humanities and Education, and Health and Life Science.

This interdisciplinary approach will offer students a unique opportunity to engage with human health and environmental sustainability as convergent and interrelated agendas. Crucially it will support them in developing the broad range of knowledge, skills and competencies that will be required to create the pace and scale of change that is needed at individual, organisational and societal level.

Work-based learning is central to the course concept, enabling students to explore key concepts, tools and approaches and then apply them in a workplace setting. A series of core modules will cover fundamental principles, sustainable business, behavioural change, policy, regulation and governance. These may be taken individually or used to build towards a Postgraduate Certificate.

At Diploma and Masters level, two optional cognate modules and two work-based learning modules are offered, thus enabling students to align their qualification to individual career needs and aspirations.

This course is for:

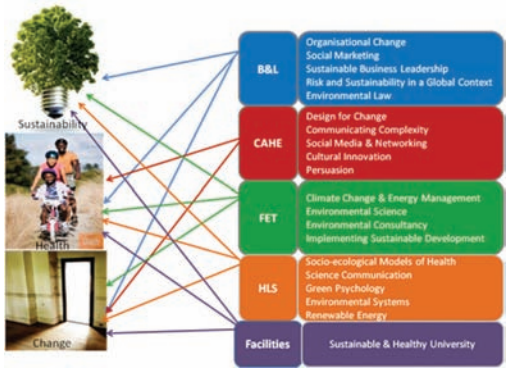
- non-technical middle and senior managers and other employees who need to know how to apply sustainability in a broad range of business contexts and public policy settings;
- recent graduates or career changers who wish to enter the sustainability sector or take up a sustainability role.

On completion, students will:

- understand the nature, causes and consequences of unsustainable development, and the role that individuals, organisations and governments play in creating unsustainable and sustainable development;

be able to:

- critically evaluate the varied interpretations of sustainability, sustainable development and the relationship of these concepts to human health and wellbeing;



- apply some commonly used tools for assessing and enhancing the sustainability impact of business strategy, organisations, public policy, and products and services;
- apply a range of skills and competencies that will enable students to influence people, organisations, social institutions and policy.

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LLM in Environmental Law and Sustainable Development

This Masters course offers student an opportunity to engage with the challenges posed by sustainable development in a legal context. It takes the perspective that environmental law needs to be considered along with the social and economic dimensions of development.

A range of global environmental issues are explored, such as climate change, biodiversity protection, water management and renewable energy from the viewpoint of both developed and developing countries. The course supports one of the key aims of UWE, to foster in students a strong global outlook. It is designed to enhance the employability of graduates by encouraging innovation and creativity in assessing current problems and designing solutions at the cutting edge of environmental law and sustainable development.

The course aims to:

- provide an opportunity for graduates and practitioners to deepen and broaden their knowledge in environmental law;
- enable students to think both critically and creatively at the current limits of knowledge in environmental law;
- produce reflective graduates who are aware of relevant ethical issues and are able to engage positively with society.

On completion, students will

- understand a range of specialised areas of environmental law and sustainable development, including climate change and energy;
- be able to critically analyse rules of environmental law and apply them to complex and developing issues;
- be able to independently evaluate complex legal issues related to sustainable development, and suggest alternatives.

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Funder and programme
UWE internal research grant

UWE's spatial planning programme: filling chairs with knowledgeable stakeholders

Planning plays an important part in people's health. However, engaging with the system can be complex. Greater understanding is required by stakeholders for them to get meaningfully involved. UWE's spatial planning 'bite-sized' topics provide an accessible way to increase knowledge and contribute to the creation of healthy sustainable communities.

The built and natural environment significantly influences people's health and wellbeing. This is shaped by the planning system in England, which determines what, why, how and where development occurs. Planning is consequently a major contributory factor to health and has a key role in creating sustainable communities.

But how can those interested in sustainability, health and the environment gain greater understanding of planning and how they can influence the process?

Our project builds on UWE's Spatial Planning MA programme to deliver flexible 'bite-sized' knowledge packages to those who wish to become better informed about planning matters.

Broader challenges include:

- Increasing the skills of interested parties efficiently and meaningfully; and
- Imparting understanding of joined-up planning requirements in a localist (Big Society) agenda.

In 2010 the project team was approached by non-planning organisations wanting to know more about how they can engage with the planning system to deliver the outcomes needed for their communities.

Having met stakeholders to discuss their requirements the team recognized that people wanted to design their own learning package to meet very specific needs. Marcus Grant (programme leader) observes that "the big society agenda widens responsibilities for better spatial planning to all local stakeholders".

Consequently, the team has revised the on-line content by:

- redesigning web pages;
- increasing humanisation of the material;
- providing introductory readers; and
- adding a new ultra-flexible module.

The latter's objective is to target non-planners who want to engage in the system to achieve their organisation's objectives, or those who work in planning but need to increase expertise in a specific aspect.

The MA Spatial Planning programme is an extensive on-line learning resource of over 60 different 'topics' originally designed to increase the skills of mid-career planners. The programme offers either a route to a Masters qualification, or the opportunity to raise personal awareness/knowledge in specific areas. By selecting individual subject topics people can build their own bespoke package tailored to their professional requirements (in terms of subject choices) and personal needs (with regards the timing of when and how they choose to study).

Additionally material is also being used to support traditionally taught programmes - reinforcing issues raised during lectures/seminars and providing freedom for students to pursue a path of study that particularly interests them. By increasing student choice and control over their studies this can help to influence positively the student experience.

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Funder and programme
The MA Spatial Planning programme at UWE was initially set up with funds from the central government Department Communities and Local Government.

Timescale
This is a current MA and CPD programme

UWE greenhouse gas emissions inventory

This project sought to quantify UWE's direct and indirect greenhouse gas emissions, and establish infrastructures and processes for continual monitoring and reporting, to better understand and manage the university's climate impact. Results showed that the largest sources of emissions were energy use in buildings, and staff and student commuting.

Project aims

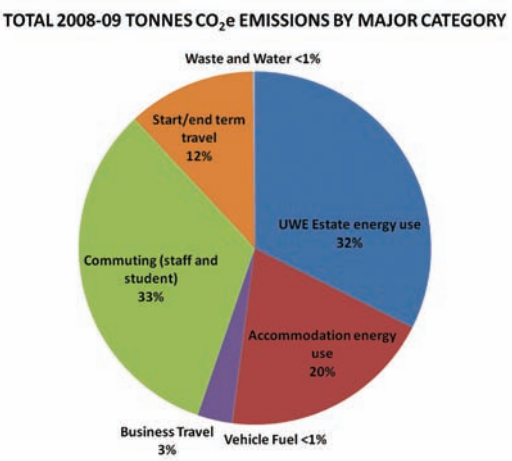
- To undertake a detailed assessment of the direct and indirect carbon dioxide-equivalent emissions associated with the university's activities, from a baseline of 2007-08. This will enable UWE to better understand, manage and prioritise activities to reduce its carbon footprint, helping UWE to become a leader in the sector and to meet increasingly numerous and detailed external environmental requirements.
- To create an infrastructure and process to enable routine and continuous monitoring and reporting of emissions by university officers, in a standardised way. The creation of tools and the embedding of processes at an early stage will enable more efficient and effective continuous reporting against targets.

The UWE emissions inventory comprehensively covers both scope 1 (direct) and scope 2 (indirect, from purchased energy) carbon dioxide equivalent (CO_2e) emissions, and where data allows, provides a first estimate of scope 3 emissions (indirect): these include water, waste and business travel, as well as student travel at the start/end of term, and student and staff commuting.

The baseline year for the project was the UWE financial year 2007-08, but data was also collected for 2008-09 and 2009-10 where available.

A variety of methods were used to calculate emissions. These varied from the conversion of energy bills and meter readings for gas and electricity emissions, collating business mileage claims, to more complex modelling and assumptions around travel to work behaviour. All emissions calculations used the latest emission factors supplied by the UK government, and followed international best practice.

The inventory consists of an MS Excel workbook, containing a number of separate worksheets containing sections for energy use, travel, etc. Data owners input information, selecting relevant variables such as site, faculty, building, transport mode, etc, from pre-determined lists. A total CO_2e figure is then automatically generated.



The most complete data set was obtained for 2008-09, and total CO_2e emissions were calculated at 34,000 tonnes; approximately 1 tonne per student and staff member. The largest sources of emissions were commuting and electricity use across the UWE estate. The results will be used to help inform sustainability policies within the university, and help to quantify sources and prioritise actions.

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Funder and programme
UWE funded

Timescale
August 2009 - June 2010

Sustainable development in art and design - Bower Power film and lecture series

This film and lecture series is open to all students and staff - and offers a fantastic opportunity to hear from experts, industry professionals, researchers and film makers about sustainable development in art and design and the impact artists and designers can have on the environment and the way people live and act.

The film and lecture series is organised by the Bower Power sustainability group (supported by PLaCE research centre), whose aim is to encourage sustainable development in all areas of Bower Ashton life.

This can involve:

- changing the physical environment
- encouraging more environmentally friendly practices
- organising events and activities to showcase the work of artists and designers who contribute to the environmental debate or who work in a sustainable way.

The film and lecture series runs every two to three weeks, and started in October 2009.

Additional activities taking place include:

Sustainability exhibition

The University of the West of England fully supports Education for Sustainable Development and is committed to giving its students the opportunity to live, study and work in a sustainable environment, as well as develop and use the skills and understanding required to contribute to global sustainability throughout their careers.

As part of this commitment, our first year Art and Design students were set a summer project on the theme of sustainability. The idea was to keep the momentum of their arts practice going over the long summer break whilst also asking them to engage their subject discipline with the wider environment.

This exhibition showcases the work from some of the students who took part and clearly demonstrates how artists and designers can contribute to the global debate on the environment and climate change.

The work here by students studying both fine art and design subjects, builds on contemporary debates taking place across the creative industries and shows the importance placed on context by students concerned with situating their work within society.

Sustainability bursary

PLaCE offers five annual sustainability bursaries to art & design students (working at undergraduate or masters level) to help individuals or small groups realise a piece of work or project that demonstrates awareness of and commitment to sustainability. The project may form part of their course work or be created independently of their studies.

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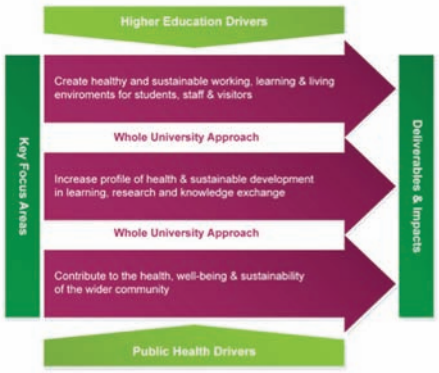
PLaCE Research Centre

Timescale
January 2009 - present

UWE is a healthy university - enhancing health and wellbeing for all its students, staff and wider community

UWE's Sustainability Strategy identifies the delivery of the Healthy University Initiative as a core requirement. UWE, as an healthy university, aspires 'to create a learning environment and organisational culture that enhances the health, well-being and sustainability of its community and enables people to achieve their full potential'.



UWE's Healthy University Group meets regularly and integrates health and wellbeing focused activity. All sectors of the university contribute to the steering group which supports a student internship and a sociology student placement. UWE is central to the HEFCE funded National Leadership and Governance Project providing national guidance on health and sustainability.

Involvement and participation are key to UWE's Healthy University approach, examples of which include the 'Feel Good' development and the community volunteering programme. Additional areas of focus include:

- Alcohol
- Smoking policy
- Food & health
- Physical activity
- Stress management
- Mental health
- Support for UWESU public health initiatives

The "national healthy universities conceptual model" has been developed by the project team (see graphic), as well as a dedicated website (www.healthyuniversities.ac.uk). A series of UWE case studies have been produced which include work on active travel; food and sustainability; wellbeing; and education for sustainable development.

Healthy and sustainable food at UWE

Food is an issue that clearly highlights the interconnectedness of the health and sustainable development agendas. UWE has developed a whole-system approach ensuring that it focuses on multi-pronged aspects of food and health including procurement, catering, retail, education and research. A case study highlights what has been achieved, what is still to do and the challenges a comprehensive food and health strategy presents for universities. UWE supports its fairtrade status, a monthly farmer's market, daily fruit and vegetable stalls, a food traffic light system, food procured from local organic sustainable producers, health promotion at the point of sale, Grub Club membership and student cooking groups.

Active travel at UWE

Sustainable transport policies are increasingly being developed and championed across the higher education sector, contributing to action on climate change by reducing carbon emissions and helping tackle obesity and other chronic diseases by promoting physical activity.

Knowledge exchange for sustainability education (KESE) at UWE

Universities can embed health and sustainable development into their core business through means of curriculum development linked to research and knowledge exchange – with an emphasis on interdisciplinary transformative learning.

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Funder and programme
HEFCE, Department of Health, UWE

Timescale
Ongoing

UWE Spark sustainability competition

Members of the FET Sustainability Champions Group organised and ran a sustainability competition for FET students in Spring 2010, asking for ideas to make the faculty cleaner, greener and more sustainable, and to raise awareness of current faculty sustainability activities. There were three winning entries, with the top prize being awarded to a group idea for a new sculpture for the faculty made from recycled materials.

As part of our contribution to the university's sustainability strategy, the Faculty of Environment and Technology (FET) Sustainability Champions group were looking for inspiring suggestions to make our faculty greener, cleaner and more sustainable, and opportunities to raise awareness of the sustainability initiatives that are already taking place.

The sustainability champions are volunteers, representing academic staff (from departments and research centres), support staff and technical staff, and also students. The champions meet regularly to discuss and take action on sustainability issues.

The UWE Spark competition was organised and run by FET Sustainability Champions with generous financial and resource support provided by FET Marketing.

The winning entries were:

1st place: Patrick Fallon, Will Marshall & Kit Smithson (2nd and 3rd Year Architecture)

'Rubbish Form': An interactive sculptural exhibit made using reclaimed materials, to highlight waste, recycling and energy in the faculty

2nd place: Chris Ray (3rd Year Computer Systems Integration)

'A Wireless Power Consumption Monitoring System': a live power monitoring system, designed and built by the entrant. Chris proposed using it in a competitive way between labs and offices.

3rd place: Attie Grande (2nd Year Computer Systems Engineering)

'Use Less Trees, Oil & Power whilst Saving Money and Time': a proposal for an electronic submission system for coursework (including the offer to design it!), and paper-less lectures, to reduce paper and energy use in printing FET, together with UWE's Environment Manager, Mark Webster, promised to work with the winners to develop their ideas for maximum sustainability gains. Many are already being put into practice. For example, online submission and paperless systems are being actively pursued by the Academic Registry, and building energy monitoring systems are being rolled out. The winning entry – the recycled material sculpture – is being built outside the new R Block extension.

The intention is that UWE Spark will become a university-wide competition in the near future.

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Funder and programme
UWE Marketing and Communications Department and FET

Timescale
September 2009 - May 2010

Sustainability at the Centre for Sport

This poster describes the changes that have been put in place at the Centre for Sport, UWE, in order to implement more sustainable practices, and the challenges faced in doing this.

At the Centre for Sport our aim is to transform our working practices in order to operate in a more sustainable manner by identifying alternatives where possible and also changing behaviours and attitudes. Within this process it is hoped that energy expenditure can be reduced whilst at the same time decreasing financial costs. In addition, it is our responsibility to make recycling as accessible as possible to our staff and customers. The current operation of the building presents challenges due to the longer opening hours we maintain in relation to other buildings on campus. Additionally, in accordance with sporting regulations, the intensity of lighting within certain areas of the building relies on an amount of energy which may not be in accordance with sustainable levels.

Within a short timeframe a number of changes have been made within the Centre for Sport. The first step was to remove all paper towels from both our staff and public toilets, in order to focus attention on the use of air hand-dryers. Water coolers have been removed from offices and the staff room which benefits the centre both financially and environmentally.

The most significant change made so far has been the installation of motion-sensitive lighting in the vast majority of toilets, and also in the staff room. Despite the attempt to educate through signage, toilet lights were often left on for long periods when not in use. It is hoped that this change will lead to demonstrable reductions in energy usage, which will be analysed over the coming months.

In order to significantly improve sustainability at the Centre for Sport, it is recognised that behavioural change must also be addressed. This task is made more difficult due to the large turnover of customers using the facilities on a daily basis. However, staff are active in turning off lighting in sports halls and studios when not in use as well as in correcting customers upon misuse of recycling bins. In addition, signage has been used to remind individuals to turn off lights in studios and offices. 'How to recycle' posters are positioned next to recycling bins. We also continue to experiment with the positioning of general and recycling bins in order to optimise their usage whilst reducing contamination of the bins.

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Funder and programme
Motion sensitive lighting was funded by an existing lighting project through the UWE Estates department

Timescale
November 2010 - February 2011

How can we work with you?

Through the Institute for Sustainability, Health and Environment (ISHE) we are able to mobilise the University's wide range of expertise and practical experience to engender transformation in business and society as we travel towards a healthy and low carbon future.

Services for businesses, organisations and policy makers

The Institute provides research, consultancy, professional development and training for businesses and organisations in the public and voluntary sector. Within the key themes of Healthy Sustainable Communities, and Low Carbon Futures, our expertise covers a wide range of areas including:

- sustainable development principles and practice
- behaviour change and community engagement
- carbon management
- change management and leadership for sustainability
- environmental and low-carbon technologies
- environmental and geographical sciences
- environmental law
- environmental management
- lean thinking for improved environmental performance
- public health and well-being
- sustainable planning and construction
- sustainable resource utilisation
- sustainable transport
- 'waste' management
- workplace health.

Contact us

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