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ESRC Research Seminar

The Governance of Eco-City Innovation



Event 2

Eco-city innovation: integrated systems management and policy co-ordination

Tuesday, 11 October 2011, 9.30 am - 4.30 pm

Boardroom, University of Westminster,

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Speakers' Abstracts & Biographies

New thinking in eco-city development

Peter Head

Abstract Peter Head will review the latest thinking on Eco-cities from the view of his new venture The Ecological Sequestration Trust which aims to facilitate large scale Eco-city developments in China, India and Africa. Peter will describe a new GIS based modelling tool that the Trust will develop, the issue of urban-rural integration and scale of city development. He will also give some information on economics and infrastructure investment.

Peter is a civil and structural engineer who has become a recognised world leader in major bridges (he received an OBE for successfully delivering the Second Severn Crossing as Government Agent), advanced composite technology and now in sustainable development in cities and regions. He has won many awards for his work including the Award of Merit of IABSE, the Royal Academy of Engineering's Silver Medal and the Prince Philip Award for Polymers in the Service of Mankind.

He joined Arup in 2004 to create and lead their planning and integrated urbanism team which by 2011 had doubled in size. He directed work on the Dongtan Eco City Planning project which was voted by Chinese developers in 2005 as the most influential development project in China. In July 2008 he was awarded an honorary doctorate in engineering at Bristol University, where he is a visiting Professor in Sustainable Systems Engineering. In May 2011 he was appointed as a visiting professor in eco-cities at Westminster University. In 2009 he was awarded the Sir Frank Whittle medal of the Royal Academy of Engineering for a lifetime contribution to the well-being of the Nation through environmental innovation.

In April 2011 he left Arup to set up The Ecological Sequestration Trust, a Charity which is bringing together the world's top scientists, engineers, economists, financiers and other specialists to quickly plan, design and implement regional scale demonstration projects, in the world's fastest growing economies, using low carbon urban-rural development models which are energy, water and food secure. The Charity will make its model tools available in open source and will work to educate and disseminate findings.

Taking Ecocities out of the Showroom: Eco-integration, Eco-enclaves or Green-wash?

Simon Marvin and Mike Hodson

Abstract The purpose of this paper is to reflect critically and constructively on the wider societal significance of the eco-cities turn. Ecocities are more talked and written about than built! Why is this and what does it tell us about how ecocities might help us in understanding how we purposively and strategically reshape existing and new cities? Our argument is that ecocities primarily exist as visions, ideas, representations, technological expectations of a potential form of new ecological urbanism. Yet many ecocities remain as purely symbolic representations on paper or digital media even though they talked about in policy circles, popular media and magazines as real, material and tangible. We critically explore this gap between the symbolic representation of ecocities as a solution to ecological and economic crisis and their variable materialisation in particular urban contexts. The paper asks whether ecocities represent a new form of eco-integration of knowledge technology and context that is transferable to other contexts, or whether they form exclusive and bounded enclaves of ecological security or even whether they represent a form of green-wash which diverts

attention and focus from more pressing and systemic ecological issues. The paper concludes by asking how we might learn about obduracy and accelerate the potential for systemic change in existing cities.

Simon is currently the Co-Director of SURF. Simon is an expert on the changing relations between neighbourhoods, cities, regions and infrastructure networks in a period of resource constraint, institutional restructuring and climate change. Simon's research has been funded by the ESRC, EPSRC, international research foundations, the European Commission, commercial funders, and many public agencies. Simon is a co-author of six internationally leading books on cities and infrastructure. His latest books are: Bulkeley, H., Castan-Broto, V., Hodson, M. and Marvin, S. (Eds). (2010) Cities and Low Carbon Transitions. London: Routledge. Guy, S., Marvin, S., Medd, W. and Moss, T. (Eds). (2010) Shaping Urban Infrastructures – Intermediaries and the Governance of Socio-Technical Networks. London: Earthscan. Hodson, M. and Marvin, S. (2010) World Cities and Climate Change. Berkshire. Open University Press: McGraw. Simon's current research focuses on two large SURF programmes. An EPSRC Sustainable Urban Environments funded programme working with three other academic partners, public and private sector stakeholders. "Urban retrofit - Re-Engineering the City" addresses the critical challenge for contemporary urbanism - how do cities develop the knowledge and capability to systemically reengineer their built environment and urban infrastructure in response to climate change and resource constraints.

Mike joined SURF in 2003 as a Research Fellow. Prior to joining SURF he completed degrees in social and political studies at Sheffield (1996), communications policy at City University, London (1997) and his doctorate at Salford (2004). Mike's research interests focus on urban, regional and community transitions to low-carbon economies, the ways in which this may or may not happen and understandings of the lessons to be learned from such processes. He has developed projects funded by the European Commission, UK research councils, sub-national government and through private consultancy. These have principally addressed relationships between sub-national territories and the reconfiguration of their key socio-technical infrastructures in a period of globalisation, neoliberalisation and in a context of the challenges posed by climate change and resource constraint. Mike has published and presented widely on this agenda. He has done so for academic, practitioner and policy audiences, in the UK and internationally. Most recently Mike has written World Cities and Climate Change (2010, Open University Press, Maidenhead) with Simon Marvin and has edited an international collection on Cities and Low Carbon Transitions (2011, London, Routledge) with Harriet Bulkeley, Vanesa Castan Broto and Simon Marvin. He has also reviewed journal articles in urban studies, science and technology studies and innovation studies. Mike is a SURF-MISTRA Urban Futures Research Fellow. With colleagues he is examining transitions to low carbon urban futures and the ways in which forms of knowledge are mobilised, negotiated and organised to inform low carbon action.

Strategic niche management for eco-cities

Frank Geels

Abstract Eco-cities are radical innovations that promise improvements with regard to environmental problems (such as climate change, resource problems etc). Eco-cities are configurations of many elements that can be integrated in various ways. That's why there is, at present, a diversity of plans and visions of eco-cities which creates uncertainty and fragmentation. The up-scaling of eco-cities faces two challenges: 1) the creation of internal momentum, 2) the struggle against existing regimes consisting of urban planning routines, policy frameworks, consumer lifestyles, and technological paradigms. The presentation introduces two conceptual frameworks to further understand these challenges: 1) strategic

niche management (SNM), which conceptualizes eco-cities as a (small) niche, which is carried by multiple projects. Internal niche-processes relate to visions, learning processes and social network, 2) the multi-level perspective (MLP), which highlights that niche-innovations struggle against existing systems/regimes, which are stabilized by various lock-in mechanisms. Niche breakthrough depends on a weakening of the existing regime (and reorientation of associated actors). Both frameworks are socio-technical and address the integration of technology and people.

Frank Geels is Professor at SPRU (Science Policy Research Unit), one of the founding institutes of innovation studies, at the University of Sussex. He is one of the world-leading scholars on socio-technical transitions, which addresses relationships between social and technical developments in large-scale systemic change. Geels is well known for his conceptual and empirical work on the multi-level perspective (MLP) and strategic niche management (SNM). He has studied a dozen of historical transitions, and investigates future sustainability transitions in energy, food and transport domains. His work is inter-disciplinary and mobilises insights from science and technology studies, evolutionary economics, history of technology, (neo)institutional theory and sociology. He has published six books and more than thirty peer-reviewed articles. His 2007 paper ('Typology of sociotechnical transition pathways') is the most cited paper in Research Policy in the last five years. In 2010 a special issue in Research Policy was dedicated to discussions of the MLP.

In 2001 he won the Forbes-price from the Foundation for the History of Technology for the best junior scholar publication in the history and sociology of technology. In 2008, he received the Research Publication Award from IAMOT (International Association for the Management of Technology) for his publications between 2002 and 2007. In 2008 he won a prestigious grant from the European Research Council, which enables him to investigate the role of destabilisation in transitions (2008-2012). Geels is chairman of the international Sustainability Transitions Research Network (STRN), which interested scholars can join for free (<http://www.transitionsnetwork.org/>).

Knowledge creation and transfer in integrated sustainable urban design: The case of Arup's eco-city business

Lars Frederiksen and Andrew Davies

Abstract This paper reports a study of a global technical consultancy firm's involvement in the design of a breakthrough project: a low-carbon ecocity near Shanghai, China. We followed the firm over a period of three years, through +60 interviews in the UK and China and extensive secondary data sources, such as newspaper articles, Arup internal documents, and non-participant observation. Using the capabilities view of the firm, we develop a conceptual model showing how the firm build its capabilities to enter, develop and grow successfully in a new industry, such as sustainable integrated urban design, through three mutually enabling sets of activities: Renewal, reuse and reinforcement. Implications for theory and practice are provided.

Dr Lars Frederiksen works at Department of Business Administration, Aarhus University, Business and Social Sciences, Denmark. He earned his PhD from Copenhagen Business School, Denmark. Lars specializes in the management of innovation and technology with particular emphasis on infrastructure, capability development and sustainability; community-based innovation strategies; distributed and user innovation; project-based organizations; and entrepreneurship. Empirically, Lars focuses on industries such as software, roads and water, engineering design and consulting, music and film production. Lars has published two books and his work has appeared in leading international peer reviewed journals such as Organization Science, European Management Review, Advances in Strategic Management, Industry and Innovation, Construction Management and Economics, and others.

Andrew Davies is a Reader in the Innovation and Entrepreneurship Group, Imperial College Business School, Imperial College London. He is a co-director of the EPSRC Innovation Studies Centre and theme leader of research on innovation in project business. His research focuses on innovation in project-based organisations, systems integration, and integrated solutions business models. He has published in a range of leading management journals such as California Management Review, MIT Sloan Management Review, Research Policy, Organization Studies, Industrial Marketing Management and Industrial and Corporate Change. He is author of The Business of Projects: Managing Innovation in Complex Products and Systems, Cambridge University Press (2005), co-authored with Michael Hobday, and The Business of Systems Integration, Oxford University Press (2003, 2005), co-edited with Andrea Prencipe and Michael Hobday. He was awarded an IBM Faculty Award in 2005 to study services science.

Institutional challenges towards a renewable energy infrastructure

Ellen van Bueren

Abstract Many innovations for renewable energy involve decentralised technologies with local spatial impacts (e.g. wind power, solar energy, biogas, etc.) while present governance of energy infrastructures is highly centralised and the infrastructures leave the urban areas relatively untouched.

In this presentation I will show how these discrepancies of scale influence decision-making about decentralized energy infrastructures. The research presented is based on an analysis of the potentials of a renewable energy generation and supply in a region of small and medium-sized municipalities in the Netherlands. Local authorities in this region are confronted with bottom-up energy initiatives of farmers, citizens and local industry, but they do not have the knowledge, capacity or political will to appropriately respond to these initiatives. Also the incumbent energy providers do not have a response to these initiatives, which they consider to be too local and too small scale in terms of returns on investments. Much decentralised renewable energy sources therefore run the risk of remaining unused or underused; in the short term, because there is a lack of interest, and in the long term, because present decisions may make it impossible to use these sources in the future.

Our present institutional infrastructure thus seems incapable of delivering a renewable energy infrastructure that makes use of local opportunities. At the end of the presentation, I will explore how an adaptive management approach – in public management often suggested as an appropriate approach to address issues that are physically, technologically and institutionally complex and that ask for different solutions at different scales - can fill this 'institutional vacuum'.

Dr. Ellen M. van Bueren focuses on processes of multi-actor decision-making in her research, teaching and consultancy. She is interested in the design and management of such processes, as well as the analysis and evaluation of these processes. The management and planning of sustainable development of urban areas at various spatial and administrative scales have her special attention.

Ellen van Bueren currently holds the position of assistant professor at Delft University of Technology, after she started her career at an urban planning firm. Her research activities range from serious gaming (e.g. for urban renewal projects) to evaluation studies (e.g. the design process of a sustainable building, the implementation of the European Water Framework Directive, regulations for sustainable construction in EU member states) and strategic advice (e.g. regional energy vision).

She has published in journals as Building, Research and Information, Planning and Environment and Public Administration Research and Theory. She is editor-in-chief of the recently published book 'Sustainable Urban Areas: an Ecosystem Approach' (Springer, 2011), editor of the Dutch Journal for Public Administration (Bestuurskunde) and regional editor Europe for Smart and Sustainable Built Environment.

Policy coordination challenge for historic city centres' governance in Serbia

Jelisaveta Mihajlovic

Abstract Relationships between town planning and historic city centres' conservation are multifaceted and can potentially raise tensions and conflicts – on the one hand, a failure of public authorities to deliver adequate policies, and on the other hand, the tensions and conflicts arising between the two main sectors involved in decision making of the historic city centres' governance - the town planning and built heritage conservation.

Research presented here builds on existing knowledge but seeks to explore more in details tensions and conflicts arising between sectors involved in the process of policy coordination by looking at both the institutional and organisational setting in which it take place, and the differences in professional discourses of policy sectors involved and how those influence decision-making process and power relations between them.

The analysis revealed that there are potential tensions inherent in the roles of the sectors as well as in the expectations, which are exacerbated by the fact that many planning policies rely on the market for their actual implementation. Then again, built heritage conservation and in particular historic city centres are vulnerable to redevelopment pressures partially through market forces and partially as a consequence of the lack of adequate public policies and political pressures. Research also identified that a lack of political commitment and leadership proved to be a major problem in the process of implementation, as well as that one local authority in particular was shifting mandates in order to match the capacities of the organisations involved in policy coordination. Furthermore, local political culture as well as trust between actors and organisations strongly affected decision-making process and leadership. From the point of view of professional discourses this research revealed that professional inertia has been closely linked to the interplay of political factors and the capacity of institutions to acquire new knowledge and to translate it into practice (organisational learning). Also, the differences between professional discourses (discourse coalitions), ideas and understandings of policy problems contributed to fragmented and often conflicting actions towards its preservation and development.

Jelisaveta Mihajlovic is currently a final year Ph.D. student at Northumbria University, School of the Built and Natural Environment, Newcastle, UK. Prior to her Ph.D. she worked as a consultant for built heritage conservation and development projects for the Faculty of Architecture, University of Belgrade, Serbia. She is interested in discursive policy analysis and institutional theory. Her Ph.D. 'Policy coordination challenge for the historic city centres' governance in Serbia' is looking at the barriers and opportunities for policy coordination in order to integrate town planning and area-based conservation and provide for balanced development of historic city centres in Serbia. She holds BScHons in Architecture (University of Belgrade, Faculty of Architecture, Serbia), and PgDpl in Built Heritage Conservation and Development (Academia Istropolitana, Slovakia).

The emergence of a new field in sustainable products and services: a case study of capability development in a professional service firm

William Wu

Abstract Today, eco-city development is a hot-button issue throughout the world, with dynamic activities from governments, NGOs and businesses engaged in the exploration and practice. Eco-city development is a complex and dynamic innovation process (Joss, 2010) which innovates or even disrupts taken-for-granted practices, traditional solutions and underlying cognitive models of urban development. From management perspective, designing, delivering and operating eco-cities is considered as a new market category in the existing built environment. However, how firms enter, influence and even shape this new market niche has yet been closely researched. This paper investigates the eco-city phenomenon through understanding the interplay between organizations and the market. Adopting a longitudinal and inductive case study approach, we studied how an established professional service firm harnessed the first mover advantage and shaped the emerging eco-city market. The study found the firm adopted a unified approach combining the promotion of market-based solutions with the settlement of social and political conflicts. The paper aims to contribute the research findings to the literature of existing institutional theory in strategic management field. A data set consisting of more than fifty interviews supplemented by more than 250 public newspaper articles is employed to conduct the analysis.

Yijiang Wu is a PhD candidate currently studying in Innovation and Entrepreneurship group at Imperial College Business School. His research investigates how professional service firms develop their organizational capabilities through strategic change and institutional entrepreneurship in the context of eco-city development. Before pursuing his PhD, he had consulting experiences of working on Chinese Tianjin eco-city development project and industrial experiences of mega projects in UK such as London Olympic 2012 central park planning, Crossrail underground station design and King's Cross strategic renewal development projects etc.

The impact of users and location on domestic 'green' technology

Alice Owen

Abstract Much eco-city thinking assumes a level of technology adoption and use to support low carbon lifestyles. This paper focuses on the potential impact of "green technologies" in the home and how we can realise the full potential of those technologies. The research in progress is examining the experiences of householders who have considered adopting a range of technologies including energy conservation, water conservation and renewable energy micro-generation. Most research data has been collected from participants in UK area-based schemes. Core ideas from three different areas of literature: innovation diffusion, environmental psychology and neighbourhood effects are described and a model of technology adoption and use is developed from these three themes. The model suggests a range of people and place factors which need to be considered in developing eco-city approaches which rely on wide adoption of new technology.

Alice worked as an engineer in process industries before gaining experience of the sharp end of environmental policy in local and regional government. She holds a B.Eng(Hons) from Brunel University and an MBA from Manchester Business School. Alice was the UK Sustainable Development Commissioner leading on issues including planning, from 2005 to

2011. She now combines EPSRC-funded PhD research on green technology at the University of Leeds with work at consultancy firm Arup on sustainability.

Integrating Institutions - establishing the Institute for Sustainability to support eco-cities and retrofit

Ian Short

Ian Short is Chief Executive and holds overall responsibility for the organisation's strategic direction and operation. He is a founding Trustee of the Institute and was heavily involved in its establishment in his previous role as Deputy CEO at the London Thames Gateway Development Corporation (LTGDC).

Ian joined the LTGDC, the lead regeneration agency for east London, in early 2005 soon after the organisation was established. His initial focus was setting up the entity's infrastructure and securing future funding from government. He led development of the Institute from original concept through to fully operational charitable organisation in just over two years. He became an Institute Trustee in March 2009 and resigned in February 2010 to take up his role as Chief Executive.

Before the LTGDC, Ian worked at Lehman Brothers, the global investment bank, for ten years where he held a number of roles with focus on running project teams and managing the corporate functions of the Operations division. When he left he was a senior vice president with responsibility for global project management and the corporate functions for a division of 1,400 people. While based in London, Ian was actively involved in setting up and running a number of community based schemes in east London.