Urban, is compiling theoretical and empirical evidence about how global and mega cities are responding to climate change with different mitigation and adaptation strategies. Empirical research will include a scoping study of a hundred global cities and detailed explorations of selected case-studies. The findings will help to understand the social and technical aspects of urban transformation, and how issues of socio-environmental justice enable and constrain the possibilities for rapid transitions in response to climate change.

With over half the world’s population, cities are large sources of greenhouse gas emissions. Cities are also vulnerable to the impacts of climate change. Urban infrastructure systems, such as utilities and housing, have a critical role in both reducing emissions of greenhouse gases and in enhancing resilience to the potential impacts of climate change. These systems are socio-technical, that is, they include technical components, such as the technologies which generate energy (e.g. solar panels on a roof), and social components, the institutions which guide the development of these technologies (e.g. planning laws) and the behaviours through which energy demand is produced (e.g. using hot water).

Analysing how these urban socio-technical systems are responding to climate change may help us to understand the nature of systemic change and the challenges of how cities can respond to a changing climate.

To explore these questions, the Urban Transitions and Climate Change project, sponsored by the UK Economic and Social Research Council, is compiling theoretical and empirical evidence about how global and mega cities are responding to climate change with different mitigation and adaptation strategies. Empirical research will include a scoping study of a hundred global cities and detailed explorations of selected case-studies. The findings will help to understand the social and technical aspects of urban transformation, and how issues of socio-environmental justice enable and constrain the possibilities for rapid transitions in response to climate change.

Recent and Forthcoming Events

- The World Bank Fifth Urban Research Symposium was held in Marseille, France (28-30 June 2009). The topic of the Symposium was "Cities and Climate Change: Responding to an Urgent Agenda". Harriet Bulkeley, Heike Schroeder and other colleagues from the Universities of Durham and Oxford presented a plenary paper on 'Cities and Climate Change: the role of institutions, governance and urban planning'. Information can be obtained from the Symposium’s webpage: [http://www.urs2009.net/](http://www.urs2009.net/)
- A panel on Cities and Climate Change: Addressing the challenge in communities will be held at the 2009 Annual International Conference of the Royal Geographical Society (with Institute of British Geographers). The event will be held 26-28 August 2009 in Manchester. Details are available at: [http://docs.google.com/Doc?id=dzsy741465g3xg](http://docs.google.com/Doc?id=dzsy741465g3xg)
The UTACC project and the Centre for Sustainable Urban Futures (SURF) at the University of Salford, co-hosted a workshop entitled *Urban Transitions/Technological Transitions: Cities and Low Carbon Transitions* in Manchester on the 7-8 May 2009. The objective of the workshop was to bring together researchers with knowledge and expertise on “urban transitions”, “socio-technical transitions” and “low carbon transitions”.

The workshop sought to explore a) the nature of socio-technical transitions and the role of the urban within them; b) how transitions take place within urban contexts; and c) the challenges of researching urban transitions. Attended by 40 academics, the workshop involved twenty presentations by researchers from North America, Australia, South Africa and Europe which explored current research in these fields. Additional information can be found at: [http://www.surf.salford.ac.uk/page/Urban_Transitions](http://www.surf.salford.ac.uk/page/Urban_Transitions)

## The ‘Urban’ in Socio-technical Transitions

The workshop explored the role of the ‘urban’ in socio-technical transitions. Frank Geels pointed out three roles of cities in his examples of socio-technical transitions: 1) cities as ‘actors’ that promote the transition; 2) cities as seedbeds where technologies may emerge and later spread to larger geographical areas; and 3) cities having a limited role in nationally operated socio-technical systems. Further discussion during the workshop showed a multiplicity of forms in which cities and the urban can be present and active in socio-technical transitions, particularly within the context of climate change. Elisabeth Shove and Gordon Walker emphasised the diversity of socio-technical transitions and the importance of cultural aspects of social organisation and understandings of the body in the production of cooled spaces. Adrian White’s paper underlined the political character of urban socio-technical transitions and their link to issues of redistribution and social justice. This came to the fore in different studies of municipal energy and transport policies in Scotland (Darby), Berlin (Moss) and Graz and Freiburg (Späth and Rohracher).

## Learning from Niche Experiments

Examples of transition management studies in Amsterdam (Loorchbach), Switzerland (Truffer and Störmér) and the UK (Eames and Mortensen) suggested that socio-technical transitions may require the development of new forms of urban governance. Empirical studies presented in the workshop looked at the role of small scale (niche) experiments in learning processes that can facilitate large-scale transitions. For example, Halina Szejnwald Brown and Philip J. Vergragt presented the case of upgrading the existing housing stock in one of the neighborhoods of the old industrial city of Worcester, Massachusetts as a potential experiment. Jenny Pickerill examined several examples of low impact urban development in the UK. Gill Seyfang presented the case of straw bale housing as an example of ‘grassroots innovations’, which are community-led initiatives with the potential for wider transformation of mainstream society.
Discussions within the workshop explored the potential pitfalls of transposing frameworks for the analysis of socio-technical systems developed in Northern cities to cities in the South. In her presentation, Susan Parnell emphasized the political character of urban development and governance. Building on his example set within the ‘crippling national electricity crisis’ in Durban (South Africa) Alex Aylett explained that established institutional patterns and relationships (epistemologies, material practices, values and social structures) are key factors in limiting or encouraging rapid responses to changing circumstances. This point was picked up by Olivier Coutard and Jonathan Rutherford who argued that focusing on particular networks and urban stories may help to approach the issue of urban transitions in global cities in the South. They contrasted two paradigms of urban infrastructure, the ‘large technical network’ and the ‘sustainable techno-system’ to explain the emergence of the ‘post-networked city’, “where networked urbanism and the increasing fragmentation of urban infrastructures meets the smaller-scale technical evolutions of socio-technical transitions”.

As a prelude to the Workshop Urban Transitions/Technological Transitions, the policy panel debate ‘Cities and Climate Change’ was held on the 5th May as part of SURF’s series of policy events organised in conjunction with the Smart City Futures initiative. A panel of international experts, including Anthony Bigio (Senior Urban Specialist of the World Bank), Simon Marvin, (Director, SURF) and Adrian Smith (Research Fellow, SPRU) explored both the limits and opportunities for cities to respond strategically and systemically to climate change using examples from the global South and North. After the short intervention of the speakers, an audience of policymakers, practitioners, researchers and business leaders had the opportunity to join the speakers in debating the capacity of cities to develop systemic responses to climate change.
Harriet Bulkeley and Anne Maassen presented a paper entitled *Urban energy transitions: socio-political innovation or socio-technical change?* at the international workshop ‘Cities and Energy Transitions: past, present and future’ held in Autun, France in June 2009 and organised by LATTS (Laboratoire Techniques, Territoires et Sociétés, Paris).

Photovoltaic arrays in Tempelhof, Berlin (source: Wikimedia)