APRIL 2013 • Issue 10

arcc cn newsletter

FORTHCOMING EVENTS

2 MAY 2013, 1–5PM, FRIEND'S MEETING HOUSE, EUSTON ROAD, LONDON

ARCADIA final dissemination event focussing on risks to urban systems, inter-relationships between climate impacts, the urban economy, land use, transport and the built environment, and adaptation options to promote resilient cities. Details from Claire Walsh

25–27 JUNE 2013, AUSTRALIA

The NCCARF Climate Adaptation 2013 knowledge and partnerships conference will bring together end users and researchers from across Australia to share experience in adaptation and showcase activities, strategies and research.

30 SEPT TO 4 OCT 2013, AUSTRALIA

INTERNATIONAL SYMPOSIUM FOR NEXT GENERATION INFRASTRUCTURE

For researchers, industry and policy makers involved in infrastructure planning, sustainability, resilience and management. Details from the ISNGI website.

ACN NEWSLETTER

If you wish to be added to the newsletter circulation list then please email: arcc@ukcip.org.uk

EPSRC
Engineering and Physical Sciences Research Council

Welcome to the tenth edition of the Adaptation and Resilience to a Changing Climate Coordination Network (ARCC CN) newsletter.

Collaborative research: lessons for researchers, stakeholders and funding agencies from the ARCC CN

Effective collaboration between all partners involved in a research project is essential to maximising the usefulness and value of outputs. A new report, Collaborative research: lessons for researchers, stakeholders and funding agencies commissioned by the ARCC CN, draws on the experiences of both researchers and stakeholders involved in six large, interdisciplinary network projects (ARCADIA, ARCC-Water, BIOPICCC, DeDeRHECC, FUTURENET and SNACC) and highlights approaches and activities that have been used successfully to drive effective collaborative research. The report, prepared by Kate Lonsdale and Mark Goldthorpe, offers recommendations and a guide to good practice for those delivering, coordinating or commissioning stakeholder-engaged research projects. Key findings include:

- Attend to both the tasks of the project and the team undertaking the work.
- Go beyond traditional stakeholder engagement and make best use of expertise in the team, including that of stakeholders.
- Discuss project goals and expectations throughout the research to ensure coherence of the final output.
- Allow room for movement in the project plan in recognition that circumstances and context will change during the project lifetime.
- Go beyond simple knowledge exchange to embrace broader practices of knowledge creation, discovery, mobilisation and brokerage.
- Nurture goodwill, including valuing and acknowledging contributions from the team.
- Make sure collaboration happens, by investing project time and resources in planning for, engaging in and reflecting on the processes of collaboration.

project outputs

SOCIAL SCIENCES WITHIN ARCC CN

Adapting to climate change raises key social science research challenges in the communication of risk, understanding behavioural responses and public engagement. A coordination meeting with seven ARCC CN projects, involving social scientists and representatives from other research groups, was held to develop an understanding of the contributions from social science research and to consolidate EPSRC's social science funding within the built environment and infrastructure sectors. Discussions included how best to integrate social science into technological and engineering disciplines, how people respond to specific research outputs, and key messages for funders in supporting cross-disciplinary research. A summary paper is available and this work will be developed during 2013.

ARCC CN ANNUAL REPORT 2012

During 2012, the work of UKCIP in managing ARCC CN focussed on synthesising and disseminating information and results from the projects, and facilitating knowledge exchange between the academic community and stakeholders. The Annual Report 2012 highlights the provision of evidence for central and local government, synthesis of results across projects on specific topics, and strengthening the adaptation community in the built environment and infrastructure sectors.

News from the projects - final research outputs

Several ARCC CN projects have recently concluded and research results are now being used to promote adaptation in the built environment and infrastructure sectors. In particular, outputs are informing the delivery of resilient infrastructure networks, new approaches to reducing the risk of overheating in hospitals, the provision of local health and social care services resilient to the effects of extreme weather and the investigation of novel and transformative approaches to achieving adaptable infrastructure assets into the next century.

Resilient transport networks (FUTURENET)

New approaches to determining the resilience of large scale transport networks to extreme weather events and climate change have been developed by the FUTURENET (Future Resilient Transport Networks) project. Building on the very different viewpoints of policymakers, local infrastructure operators and individual travellers, these developments have the potential to transform the way in which UK transport infrastructure is planned, delivered, maintained and developed in the future.

FUTURENET has worked with partners in the road and rail sectors to develop an integrated framework to model transport system behaviour for a range of climate variables and other policy and socio-economic influences at the local and route level. The main outputs are:

- A methodology for determining the resilience of large scale transport networks, from the perspective of the traveller experience, and a quantitative indication of how this resilience may vary in the future, which will be of use to decision makers seeking to prioritise investment;
- A suite of physical process models for different extreme weather-related effects on transport networks, which will be of use to infrastructure asset managers seeking to provide acceptable levels of service;
- The ability to illustrate the extent to which disruption propagates through the network following a specific disruption event (such as flooding or snow), potentially causing delays across the country, which could be used to inform travellers and to optimise travel plans.

project updates

EVIDENCE OF RISK OF OVERHEATING TO INFORM GREEN DEAL

The Green Deal is a government scheme designed to enable householders and businesses make energy-saving improvements to their properties with a focus on retrofitting activities. However, results from three ARCC CN projects (CREW, LUCID and SNACC) suggest that in some circumstances these measures could increase the risk of summertime overheating. Working with the research projects and key government departments (DECC, DCLG and Defra), the ARCC CN has coordinated written guidance on overheating for Green Deal suppliers. It will help to identify properties most at risk and highlights effective measures which, if implemented at the same time as energy efficiency measures, could significantly reduce the risk of overheating. In addition, ARCC CN has produced a briefing on overheating for policymakers and practitioners.

DEMONSTRATING THE IMPACT OF ARCC CN

ARCC CN works across projects and with stakeholders to maximise and accelerate the impact of research outputs. The value of having an overarching network is demonstrated through a new series of case studies highlighting activities and approaches used to promote the use, uptake and outcomes of evidence beyond that achievable by individual projects.

Resources to inform local level resilience planning for older people (BIOPICCC)

The BIOPICCC (Built Infrastructure for Older People's Care in Conditions of Climate Change) project has launched a new toolkit to help organisations develop effective plans to make health and social care services for older people (aged 65 and over) more resilient to the effects of extreme weather. Extreme weather events such as flooding, heatwaves and storms can have serious effects on the services, buildings and communication routes that are important for the health and social care of older people. By understanding the impacts of these events and identifying strategies to improve resilience, individuals, communities and sectors will be better prepared to deal with climate change in the future.

The BIOPICCC toolkit is designed for use by different levels of local government (parish, district, unitary and county levels), NHS and service organisations, emergency planning units, voluntary organisations, community groups, and older people and their carers. It provides a guide to identifying and working effectively with local partners to share relevant information, to locate key infrastructure points crucial to maintaining an effective service and to work towards providing a more resilient built infrastructure to support vulnerable populations.

Building community resilience requires locally variable responses to adapt to different local conditions across the country. Recognising this, the BIOPICCC team has worked with several local authorities to provide case studies and examples of how the toolkit can be used. For example, working with Essex County Council through the Building Resilience in Essex Communities (BREC) partnership, the BIOPICCC toolkit has contributed to understanding the local impact of climate change in Essex and approaches needed to improve community resilience and the quality of life of residents.

Adapting our hospitals for a changing climate (DeDeRHECC)

Rising temperatures due to climate change are increasing the risk of overheating in hospitals with serious implications for the ability of the NHS to provide effective and safe patient care particularly during summer months. The DeDeRHECC (Design and Delivery of Robust Hospital Environments in a Changing Climate) project has investigated ways of adapting existing NHS hospital buildings to cope with a changing climate, whilst also meeting challenging carbon reduction and performance targets.

A new film from DeDeRHECC summarises research findings and identifies potential refurbishment options to ensure existing hospital buildings remain resilient to climate change and fit for purpose into the future. Working with partner NHS Trusts and focussing on representative building types, the DeDeRHECC team has developed retrofit strategies which both improve the resilience of hospitals buildings to overheating and reduce energy use and carbon emissions. Importantly, the estimated costs involved for such adaptation options are in line with existing NHS standard refurbishment costs, and are significantly less than for new build projects.

Lessons learnt here on how best to modify buildings to both improve resilience and achieve energy efficiency can be applied to similar construction types in other sectors.

BROADENING ENGAGEMENT – WORKING WITH CLIMATE UK

The ARCC CN is always looking to strengthen and broaden engagement with stakeholders in the development, production, and interpretation of credible and timely research outputs for use by decision-makers. A current priority is to identify new approaches to understanding and meeting the knowledge requirements of stakeholders at the regional level. To take this work forward the ARCC CN is working with Climate UK to build on their expertise in this area. Climate UK works with Climate Change Partnerships across England, Wales, Scotland, Wales and Northern Ireland to promote action on climate change. They have particular experience in bringing together local knowledge and technical expertise across a range of sectors to coordinate and support sustainable responses to the challenge of climate change.

The findings will highlight emerging user needs and identify how best to develop and shape the ARCC CN to support stakeholders at the regional level.

Can a single utility product supply all household services? (All-In-One)

Currently, different utility products such as water, gas, electricity and communications are delivered to households through separate networks leading to complex infrastructure systems with multiple interdependencies. The aim of the All-in-One project was to challenge this approach by investigating the feasibility of having a single utility network providing all services by the end of the century.

Final results were presented at a recent project dissemination meeting. A number of speculative vignettes were used to illustrate possible infrastructure solutions for household energy and water delivery. One example, the 'Blood of the City' vignette looks at the possibility of delivering and collecting a combination of water, energy and waste materials together in a carrier liquid which flows through a future city in much the same way as the role of blood in the body. Another vignette, 'Subterranea' recognises that in the future we may be constrained to living in fully decentralised infrastructure underground with a utility distribution system inspired by existing heating, ventilation and air-conditioning systems and extended to include water and electricity transmission.

As part of a suite of projects funded by the EPSRC to explore novel and transformative approaches to the challenge of achieving adaptable assets, the All-in-One project has helped identify existing challenges that prevent one utility product from supplying all services and has identified possible solutions for further consideration.