



Towards Sustainable Cities

Summary Report, September 2010

A report from a two-day conference during 'London Week' at Shanghai Expo, organised by the Institute for Sustainability and the EPSRC UK-China EcoNetworks, and supported by the Sino-UK Institute for Sustainability at Tongji University, the London Development Agency, the Administrative Centre for China's Agenda21, the Ministry of Science and Technology and the Ministry of Housing and Urban-Rural Development of the People's Republic of China.

Introduction

To create sustainable cities we need to significantly advance our capability for delivery, through pioneering research, innovation and global partnerships to develop international best practice and demonstration. Despite their differences, the UK and China share many common challenges in the delivery of cities that are environmentally, socially and economically viable; that are resource efficient, increase quality of life, and provide opportunities for green economic growth and jobs.

'Towards Sustainable Cities' was a two-day conference held during London Week (28-29 July) at Shanghai Expo 2010. This event organized by the Institute for Sustainability and the EPSRC funded Eco-Networks was supported by Sino-UK Institute for Sustainability based at Tongji University, the London Development Agency, the Administrative Centre for China's Agenda21, the Ministry of Science and Technology of the People's Republic of China and the Ministry of Housing and Urban-Rural Development of the People's Republic of China. Attended by high-profile business, government and academia from the UK and China, the event represented a milestone event in our work to deliver sustainable cities.

The Towards Sustainable Cities two day programme aimed to support progress towards a sustainable future and identify and stimulate the business opportunities associated with this large-scale transformation. Because this transformation will need significant advances in both fundamental and applied research and development of the associated business opportunities, the event brought together an international innovation community of world class academics, businesses, policy makers and city managers to:

- Develop the vision and identify the challenges of delivering sustainable cities;
- Identify the main business opportunities arising from the sustainable cities agenda;
- Examine the most advanced sustainable solutions by showcasing best practice from the UK and China.

This report presents a summary of the event proceedings, high-level outcomes and next steps.

Day One: Research and policy frontiers

The first day led by EcoNetworks focused on research and policy frontiers for sustainable cities. The day examined what 'sustainable city' means in terms of technologies, governance, behaviour change, culture and economies by drawing on UK and Chinese case studies from the EcoNetworks structured around three key themes:

- Approaches to low carbon development;
- Planning and heritage in cities;
- Delivery of low carbon cities: research and business.

Several presentations from the day highlighted how China's urbanisation is at a critical stage, and the major challenge identified is how to guide China along a low carbon, low consumption pathway during this process; something never previously achieved in human history. Discussion during the day identified a number of key overriding challenges and opportunities:

1. Delivering low carbon, sustainable cities
 - There is an increasing need to develop investment vehicles for the long term operation and management of sustainable cities with the opportunity to offer capital, for instance through effective economic guarantees.
 - Planners and developers should choose technologies that promote behaviour change that can deliver low carbon, one planet living.

2. The value of collaboration

- There is a need for new mechanisms for international collaboration that better facilitate sharing of science and technologies and R&D outcomes.
- Delivering sustainable cities requires a multi-disciplinary and international approach created through win-win partnerships.
- Funded multi-disciplinary and long term research is needed to address issues such as the delivery of sustainable cities.

3. The importance of education and learning exchange

- We must exchange understanding about how to scale-up activity efficiently and effectively and identify and learn from ground-breaking examples of successful international collaboration.
- Need to recognise that the knowledge about how to deliver sustainability is embodied in people who gain from the investment.
- We must 'learn by doing' within a benign risk management framework that enables creativity.

The day culminated in the announcement of the Sino-UK framework agreement, signed by EcoNetworks and a number of Chinese Research Institutes and government agencies in London in May 2010, to undertake work associated with low carbon development within three pilot cities in China. This on-going work is led by MoST, ACCA21, and EcoNetworks and aims to establish three pilot scale exemplars of different low carbon developments that can be fully tested for their impact on the society, the economy and the environment.

Day Two: Business challenges and opportunities

The second day, led by the Institute for Sustainability, focused on the key challenges and the business opportunities associated with delivering sustainable cities and large-scale transformational projects. The day highlighted business best practice from the UK and China, structured around four key themes:

- Large-scale transformation and total retrofit: the challenge of scaling-up;
- Transport and logistics;
- Sustainable utilities infrastructure;
- Establishing the evidence base for investment.

Cities are at the centre of the challenges and solutions to a sustainable future. For the UK the biggest sustainability challenges are undoubtedly in existing cities. Most existing buildings and infrastructure were not designed for resource efficiency. Retrofitting our cities means making our buildings, communities and services resource efficient and places where people want to live and work. The new products, technologies, systems and delivery models required to make this transition represent significant opportunities for business.

The unparalleled process of urbanisation in China, coupled with rapid increases in wealth and consumption, presents significant development challenges, manifested in the growth of new build eco-city development and the need for the environmental retrofit of existing cities and the preservation of cultural heritage. The day opened with consideration of a number of overarching questions, which underpinned discussion about both eco-city retrofit and new build.

- Can we move towards a sustainable way of living?
- What policies and investments are needed?
- How might the role of city planning and design change in delivering sustainable cities?

A number of key challenges were identified during the day:

- Planning and investment timeframes are short, and this can act as a barrier to maximising the wider benefits of sustainable communities, such as health, well-being, and community cohesion.
- Ensuring development brings economic opportunities, jobs and improvements in quality of life.

- Logistics is globalised but not urbanised. We need greater collaboration within the logistics industry to encourage efficient, seamless transit and high frequency services.
- Robust and consistent standards for carbon measurement are needed to enable investment in low carbon development and technology. Three areas where measurement standards are important, include low carbon technologies, carbon pricing and climate change measurement.
- Delivering sustainable cities requires continuous education and professional training in new techniques for engineers, planners and other professions.

Low carbon city development has unique advantages and will drive economic development. The challenges outlined above present a wide range of business opportunities, some of which were explored during the day and are described below:

- New approaches to city planning to encourage integrated resource management.
- Demonstration projects to enable standard systems to be developed for replication and rollout in other urban applications.
- Estate management for sustainable communities, which can facilitate local industry.
- Developing a building performance evaluation system to address sustainable lifestyles adequately.
- Using green business districts to encourage agglomeration of sustainable industries.
- Low carbon vehicle technology, alternative fuelling infrastructure and logistics management.
- Smart cities, using integrated technology and digital management to enable more efficient service delivery. Need instrumented, interconnected and intelligent systems.

The development of sustainable cities presents unique advantages for the environment, economy and society. The question of adaptability is pertinent in both the development of new cities and the retrofit of existing cities: how can we make sustainable living desirable and make aspirations sustainable, whilst meeting the needs of future generations? Whatever model of eco-city development we pursue it is imperative to build in flexibility to accommodate the changing needs of the population and the emergence of new technologies.

Next steps

The Towards Sustainable Cities event has contributed to understanding of the shared challenges and solutions, and the range of business opportunities for the UK and China. Contributions throughout the event revealed how new thinking, collaborations and an integrated approach to planning and delivery can bring about a shift to the new paradigm of sustainable development.

The outcomes from this event will be communicated to the UK and Chinese government to demonstrate the value of ongoing collaboration between UK and Chinese business and academia. The UK and China have important roles to play in disseminating best practice in urban sustainability and we will continue to work with international partners to take the outcomes of this event to initiate new projects and new partnerships. Particular research and demonstration opportunities emerged for consideration from the day, including:

- Under the umbrella of the Sino-UK Low Carbon City Development Cooperation Framework, research and development work has already started on three exemplar pilot low carbon projects in the cities of Guangzhou, Nanyang and Shanghai.
- China – UK production of technical guidelines for eco-city construction and mega-city retrofit;
- Sharing learning from the delivery and legacy planning for Shanghai Expo 2010 and 2012 Olympics Games and the opportunities for wider urban application;
- Measurement and analysis of real building energy performance and advancing carbon measurement;
- Exploring the role of Green Enterprise Districts – e.g. Hongqiao and East London;
- Developing new finance models for sustainable cities and articulating the whole-life economic case for investment.

We hope that this is the start of an ongoing dialogue.

Contributors

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Day Two: Business challenges and opportunities

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The Institute for Sustainability is an independent charity, led by a world class board representing UK industry, academia and the public sector, set up to accelerate the delivery of sustainable cities and communities. We work closely with partners to drive innovative and collaborative demonstration projects that provide the knowledge, experience and practical solutions needed. We share the learning from these and other projects to identify best practice, encourage investment and to actively support sustainable development.

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The Sino-UK Institute for Sustainability at Tongji University is a platform for high level academic and practical exchanges between the UK and China. It aims to advance regional and local capabilities in delivering sustainable development and adapting to climate change through international collaboration. Its main activities include:

- Collaborative research;
- Academic, educational and cultural exchange;
- Collaboration with government agencies to provide policy guidance;
- Collaboration with business to support practical projects.

EcoNetworks, UK and China

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The EcoNetworks consist of researchers from top universities in the UK and China funded by the UK Engineering and Physical Sciences Research Council (EPSRC) and supported by UK industry. The primary focus of the networks is to enable UK and Chinese researchers to work together on the development of low carbon ideas that could be applied in the development of eco-cities and eco-regions. An additional focus of the research networks is to generate knowledge by learning from both cultures to build a new paradigm for sustainable development in a global context.