

Growing cities sustainably

Summary of report to UK Trade & Investment on UK's leading capabilities on sustainable urbanisation

1.3 million people are moving to cities every week



Cities can concentrate deprivation, inequality and exclusions with unequal access to opportunities and resources

Cities consume **70%** of global energy and **75%** of natural resources

New infrastructure in developing countries will require **billions of dollars** of investment

1 in 4 cities is water stressed due to geographic and financial limitations

Cities generate **1.3 billion tonnes of solid waste** each year

In 2012 air pollution caused **3.7 million deaths** globally

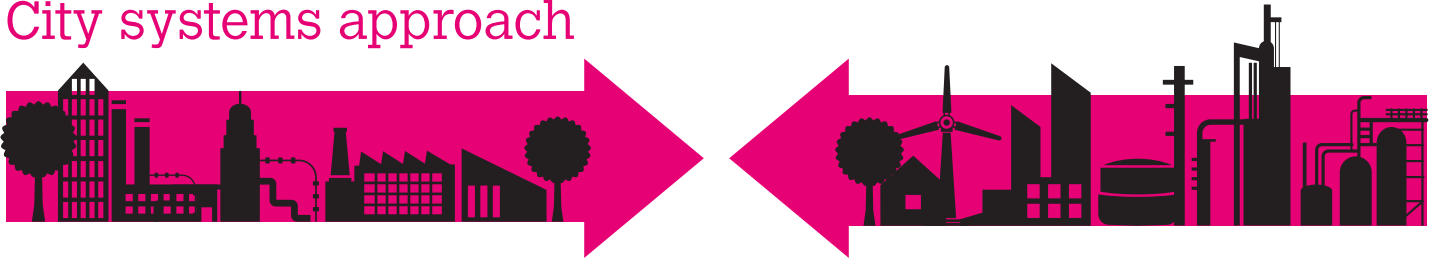
Poorly managed growth will cost US cities **US\$ 400 billion** each year

Global energy demand will increase by **over 30%** by 2035 and by **70%** in emerging economies

Technology is increasing citizens' expectations for transparency of reporting, data and decision-making. This is putting pressure on politicians.

UK's Core Strengths

City systems approach



Cities are complex systems with messy problems. Projects such as Future City Glasgow show how connecting individual city systems can deliver a better local economy, improved quality of life, lower environmental footprint and increased resilience.



Scale

UK companies have delivered some of the most significant infrastructure and sustainable development projects in the world. The Queen Elizabeth Olympic Park is one of the largest of its kind in Europe and the companies behind it are applying that knowledge globally on projects in China and the Middle East.



Integrated spatial planning

UK planning consultants are helping cities and new major developments understand issues and opportunities across multiple topics (such as demographic trends, climate change, and infrastructure needs) that need to be understood and addressed at an early stage. This helps clients manage project phasing and finances to deliver co-benefits across multiple objectives.

Examples

City systems approach – systems thinking applied to city challenges

- UK Government-funded Future City Demonstrator projects in Glasgow, Bristol, London and Peterborough demonstrated the value of integrating city systems.
- Powered by University College London, the UK Collaboration for Research in Infrastructure and Cities (UKCRIC) secured in principle up to £138m for infrastructure research across 13 institutions.

Integrated spatial planning

- Space Syntax (working with Aecom) produced an integrated suite of planning documents for the city of Jeddah. The Jeddah Plans co-ordinate strategies across multiple scales in the city-region to accommodate an additional 3m people over the next 20 years. The Plans look at how to use the growth to optimise benefits to existing assets, reduce sprawl and resolve existing problems.

Applying knowledge and skills at scale

- London's Crossrail project is one of the largest in Europe at a projected cost of just under £15bn. The project involves the construction of 21km of new twin-bore tunnels under central London. There will be 9 stations and new rolling train stock, each carrying 1,500 passengers with 24 trains per hour during peak services.



Policy leadership

In 2008 the UK was the first country in the world to set legally binding carbon emission reduction targets. UK companies are now exporting that knowledge and supporting developing countries to create their sustainable development policies.



Low carbon infrastructure

The UK government is keen to reduce carbon emissions in the planning, delivery and operation of major infrastructure. The £1 billion project to widen the M25 motorway delivered a 5% cost saving through a 115,000 t carbon reduction.



Circular economy



The Ellen MacArthur Foundation and other UK institutions are providing leadership to get the principles of circular economy on the agenda for governments and business across the world. A circular economy decouples economic growth and resource consumption.



Planning & regeneration



- **Supporting Community-led Projects** – Policies such as the Urban Community Energy Fund allow local communities to take control of their energy supply. The Brighton Energy Cooperative has raised £700,000 from the community and installed over 500kWp of photovoltaics across 5 sites.



- **Garden Cities** principles are now being applied all over the world. Ebenezer Howard's 1898 concept of Garden Cities were first developed at Letchworth Garden City and Welwyn Garden City. The key concepts of land value capture, community engagement, community ownership of land, mixed tenure and affordable housing, local jobs, beautiful and environmentally sustainable design, cultural facilities and integrated transport still apply in 21st Century.



Financing solutions

The UK is finding innovative ways to finance sustainable projects such as the Green Investment Bank, Climate Bonds Initiative and Climate Change Capital. Mott MacDonald is using this knowledge to help Turkey's Ministry of Health develop nine Integrated Health Campus schemes in Turkey, some of which exceed €1 billion in value and will become some of the largest hospitals in the world. These are financed through Public Private Partnerships.



Standards

The Smart City Framework (PAS 181) from the British Standards Institute (BSI) is setting the benchmark for international Smart City Standards and allowing UK companies to sell their capabilities and demonstrate their track record internationally.

Data

The **Open Data Institute** was founded in **2012** and works across public and private sector to help start-ups and other organisations to get value out of open data. Open data companies in the UK have an **annual turnover of £92 billion** and **employ over 500,000 people**.



Research & innovation

Research activity related to urban systems and technologies draws on multi-disciplinary working within and across academic departments and institutions. **More than 35 UK universities** have active research capability that contributes to the science of sustainable urbanism. BRE is spearheading international collaboration with a **£200 million research programme** with Tsinghua University and developers Evergrande in China.



UK capabilities

A key task for cities around the world is to design services that operate across departmental silos to improve efficiency and respond to 'messy' urban challenges. These challenges, and associated solutions, do not fall neatly into single policy domains. UK companies offer consultancy and design solutions that integrate multiple aspects of city governance and sustainable urbanisation. They have experience delivering world class solutions for established and growing cities across a range of industries.

The skills and leadership of UK organisations across sectors of sustainable urbanisation are underpinned by strong leadership, research and innovation. This can be seen in a number of examples from climate change policies to open data.

Trends and drivers

'A new global picture of growth is taking shape. This is not about a transfer of economic power from North to South, or West to East. It is about the rise of cities, the concentration of productivity, innovation and creativity that will drive our economic future.'
RSA City Growth Commission, 2014.

More people are now living in urban areas than rural areas for the first time in history. The rate of growth of urban areas is estimated at 1.3 million people every week. Africa and Asia are the regions experiencing the most rapid levels of urbanisation. While Europe, Latin America and North America are already highly urbanised. In the UK, over eighty per cent of the population already live in urban areas. A United Nations think-piece on sustainable urbanisation puts this demographic shift into context and highlights the importance of urbanisation in global change:

The rapid growth of cities is an opportunity to address global challenges. Cities have the economic and political resources to affect change. Urban areas now account for around 80% of global economic output. A report by the United Nations, *Prosperity of cities*, states that following the 2008 financial crisis, cities have demonstrated their key role in responding to global challenges:

'These crises did more than highlight the transformative role of cities; they also showed that they are in a better position, at least notionally, to address regional and global crises... Cities need to be put in better positions to respond to the challenges of our age, optimizing resources and harnessing the potentialities of the future.'
United Nations, 2013.

'Cities have become a major locus of power and politics consequently influencing vision achievement and dictating policy outcomes. They are also a major factor in environmental trends and sustainability processes. Urbanization is thus providing the setting, the underlying base, and also the momentum for global change.'
UN Habitat, 2012.

The trends and challenges outlined are affecting cities of all sizes and at all stages of development. Urban infrastructure and services, whether in the form of physical roads or social services, will need to be integrated and cost-effective.

Cities also produce agglomeration effects where the close location of universities, talent, jobs, cultural facilities and more combine to produce innovation and prosperity. There has been some debate about whether urban growth necessarily results in economic benefits. Supportive urban infrastructure and institutional settings are seen as crucial in ensuring economic growth is achieved.

Despite the positive rhetoric about urbanisation, there are governments that are concerned about the rapid migration of rural populations to urban areas. A United Nations survey in 2011 found that 82% of developing countries had policies to curb rural-urban migration. China, was one of only 3% of surveyed countries that had a policy in place to encourage rural-urban migration. Given these concerns, particularly among city leaders in Asia and Africa, it is important to highlight integrated urbanisation strategies and programmes that have resulted in positive benefits across city populations.

Summary

The global trend of urbanisation poses opportunities and challenges for city leaders. Rapidly growing cities will need to build infrastructure and services which support people to access jobs and education. Leading cities will provide a good quality of life to residents and achieve success in the global marketplace by creating resilient, sustainable and healthy urban environments. The UK has a track record of innovative and proven products and services for cities seeking sustainable urbanisation solutions. British companies bring together diverse professions to develop multi-disciplinary integrated approaches to complex city challenges.

This summary document describes the key messages from a BRE report for UK Trade & Investment (UKTI) called *UK Leading Capabilities on Sustainable Urbanisation*. The full report was written as a briefing document for UKTI staff and is also being translated into Mandarin. The purpose of the report was to set out the key perceived

UK strengths and commercial offer on sustainable urbanisation across new and existing cities. Two expert stakeholder workshops, interviews and desk-based research were undertaken to gather views and data from public and private sector organisations and international agencies.

Sustainability requires the holistic consideration of social, economic and environmental dimensions of urban challenges to develop strategies that will meet future and current needs. The overarching UK capabilities identified in the report were: applying a systems thinking approach; developing integrated spatial plans; and translating skills and knowledge to city-scale challenges. British companies and universities can demonstrate leading research, innovation and implementation across the sub-sectors of sustainable urbanisation. The UK government has been influential in driving innovation in areas such as open data and climate change through forward-thinking policies.

This summary document gives highlights from the full report on UK capabilities. A copy of the full report and references for the statements made in this summary can be downloaded from: <http://brebuzz.net/2016/01/07/growing-cities-sustainably/>

