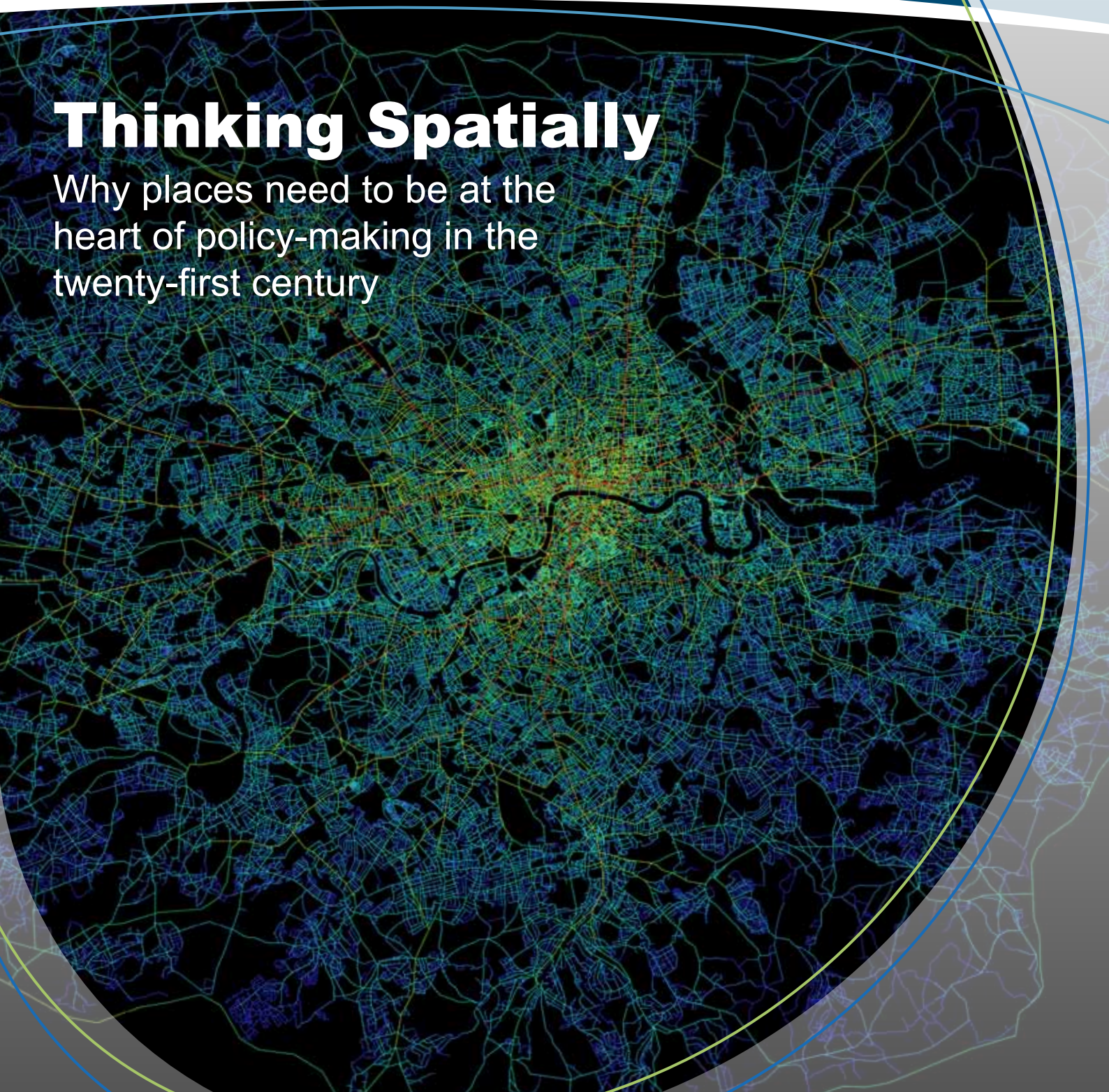




# PLANNING **Horizons**

## **Thinking Spatially**

Why places need to be at the heart of policy-making in the twenty-first century



# About the RTPI

With 23,000 members worldwide working in the public, private, charitable and educational sectors, the Royal Town Planning Institute (RTPI) is the largest professional institute for professional planners in Europe.

As well as promoting spatial planning, the RTPI develops and shapes policy affecting the built and natural environment, works to raise professional standards and supports members through continuous education, training and development.

Everything we do is inspired by our mission to advance the science and art of planning (including town and country spatial planning) for the benefit of the public.

**Front cover:** This picture represents the spatial accessibility of London's street network, created by Space Syntax Limited.

The Space Syntax Laboratory at The Bartlett, University College London, is the internationally-renowned home of academic research, software development and teaching in the field of 'space syntax'. Space syntax uses quantitative analysis and geospatial computer technology to investigate relationships between spatial layout and social, economic and environmental phenomena. Space syntax was initially developed at The Bartlett in the 1970s to help architects simulate the likely effects of buildings or urban settlements on the people who occupy and move around them. It has since been used in a variety of research areas and practical applications including archaeology, criminology, information technology, urban and human geography, anthropology and cognitive science. Space Syntax Limited is an applied research company, created at UCL in 1989 and now working internationally to apply space syntax theory and technology in practice.

# Foreword by the RTPI President



I am proud to be President during the Institute's Centenary Year of 2014.  
I am also proud to be a planner.

Planning was established as a discrete profession in response to the challenges of the day and a fundamental belief that the world needs planning. A century later, it is timely to review the challenges that we face now and their potential to shape professional planning for the next 100 years.

Our *Planning Horizons* series of papers considers how planning needs to respond to some of the major challenges we face in the twenty-first century.

These challenges are already with us – from sharing economic growth and promoting better health in cities, to responding to climate change and ensuring environmental sustainability.

This first paper in the series, *Thinking Spatially*, previews some of the challenges that are considered in more detail in subsequent papers and points to an underlying problem: that, at levels from the local to the national and international, policy- and decision-makers rarely approach these challenges with an understanding of places, how we use land and the interactions between different uses.

In some countries, planning has been criticised as being bureaucratic, an unnecessary barrier to freedom, growth and prosperity. In others it is more clearly seen as a fundamental part of the solution. This paper suggests that policy has much to learn from the theory and practice of spatial (or integrated) planning.

To respond effectively to these challenges, it is critical that 'space' takes its place at the heart of policy- and decision-making in the twenty-first century.

At its launch one of the driving forces behind the Institute, John Burns talked about "... a movement that has for its object the emancipation of all communities from the mark of the beast of ugliness." To this day, the RTPI's mission remains "...to advance the science and art of planning ...for the benefit of the public."

With this in mind, it's my belief that we need to build a bridge between planners, policy-makers and the public – to explain what planning is, what it could be and why it matters, now more than ever. This series of papers is just one part of that effort to give planning a renewed sense of purpose as a force for good.

A handwritten signature in black ink that reads "Cath Ranson".

**Cath Ranson MRTPI**

**RTPI President 2014-2015**

The world's population reached seven billion in 2011 and is expected to exceed 10 billion by the end of the century. Cities are at the front of this demographic change, but as noted in this paper the nature of rapid urbanisation is also causing significant social, environmental and health problems. For example, Mumbai is the wealthiest and most populous city in India, but nine million of its residents live in crowded informal settlements which lack basic facilities such as water and sanitation. Some of these settlements surround Mumbai's international airport, as pictured here.

Photo credit: cactusbones



# Our lack of thinking about place and space risks turning challenges into crises

For those who live in the developed world in particular, the increasing reach and sophistication of transport and communication links means that our horizons appear to have changed radically. We eat food and wear clothes produced virtually anywhere in the world and communicate instantly with people on the other side of the planet at virtually zero cost. This supposed 'death of distance' has distracted us from the fact that place and space still matter.

In this paper, we present a series of 'critical geographies': examples of economic, environmental and social challenges with a spatial dimension from both the developed and developing world, and suggest how policy has failed to respond adequately to them with space and place in mind. It also indicates how these challenges are likely to develop in the future.

As a result, we argue that place and space need to be at the heart of policy-making in the twenty-first century, or we risk these challenges turning into crises.

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# Executive summary

It has been suggested that 60-80 per cent of data now includes a locational component – that is, data that is tied to place in some way.<sup>2</sup> Since the late 1970s, Geographic Information Systems (GIS) have been used by planners, engineers, geologists and others for spatial analysis. Researchers are using this data to generate new insights into how the nature of places affects people and communities, and businesses are increasingly seeking to harness geolocation to analyse customers and trends. In many countries, community groups and campaigners are also focusing on places, for example how economies can be re-localised and public spaces protected. Much policy, however, particularly at a national level, still lacks an integrated understanding of place and space, and this lack of spatial thinking is harming communities, causing ill-health, undermining growth and development, and destabilising the environment.

This paper presents a series of ‘critical geographies’: examples of economic, environmental and social challenges with a spatial dimension, and the way that policy has failed to respond adequately to them with place and space in mind.<sup>3</sup> The examples range broadly across the UK, the developed and the developing world. Many other examples could have been chosen.

For a variety of reasons, policy- and decision-making too rarely incorporate the implications of the ways in which we use land and the consequences for different places. The neglect of place, in particular the way that different policies combine to affect places in different ways, has contributed to a range of negative economic, social and environmental outcomes, including:

- Cities and regions experiencing population change suffer from pressures on transport, housing, energy and water resources, and are increasingly vulnerable to flooding and extreme weather;
- Economic growth and development is spatially unbalanced and sub-optimal in both developed and developing countries;

- Sprawling urban development threatens agricultural land, and our global food production system undermines food security and environmental sustainability;
- Protests and political instability are increasing in response to inequality, a lack of services and opportunities, uneven development, pollution, and a lack of ‘voice’ in decision-making. Crucially, these issues are inter-related. Unbalanced growth in both economic and demographic terms means that some cities and regions suffer from under-investment, compounded by poor transport, infrastructure and services. This fosters inequalities, poor health and greater vulnerability to environmental hazards including climate change and pollution.

If these issues are inter-related, so should our responses.

Other papers in this series consider how planning can respond to the challenges we face in the twenty-first century. This paper focuses on policy- and decision-making more generally – the policies that go beyond the typical remit of planners – and how it is imperative that policy- and decision-makers consider the spatial consequences of their decisions.

To this end, policy- and decision-makers can learn much from the theory and practice of ‘spatial planning’ (or ‘integrated planning’). This goes beyond traditional land use planning to seek to integrate policies for the development and use of land with other policies and programmes which influence the nature of places and how they function. In the twenty-first century, in the face of the kinds of challenges noted in this paper, we need to develop a new ‘spatial policy’ – a science of policy which incorporates place and space, and produces policy which is much more *integrated*, *strategic* and *sensitive to place*.

This paper makes some suggestions for ways in which spatial thinking can be advanced in policy- and decision-making. In particular, to advance a greater spatial intelligence, we need to develop central spatial analytical maps for policy-makers – a kind of ‘GIS for policy’. Many countries lack single documents which provide an overarching framework about the spatial dimension of policies and programmes, and how they interact (including the unintended consequences) to affect the development of the country. The exception in the UK is Scotland – its National Planning Framework (NPF) sets the context for development planning in Scotland and provides a framework for the spatial development of the country as a whole.

These integrated ‘spatial policy maps’ could help to:

- Show how and where various policies – from housing to infrastructure, climate change responses to health and social policy – might interact in terms of their implications for land use, and so encourage greater integration and congruency between policies;

- Through this, maximise the benefits and reduce the disbenefits from these various policies and support the achievement of multiple policy goals simultaneously within places;
- More generally, promote greater spatial awareness amongst policy- and decision-makers; and
- Stimulate and inform public debate around spatial issues, including at the community level.

In countries such as the UK, there have been many suggestions for governments to act in a more ‘joined-up’ manner. A focus on place, supported and informed by spatial data, could provide an effective mechanism for more integrated policy- and decision-making.

Of course, data is not sufficient. The challenge is for policy-makers and governments to exploit data to ensure better policy formulation and decision-making. Nonetheless, the ability of policy-makers to think spatially will be severely limited unless much more spatial intelligence and data are available to them.

Fundamentally we need political leadership at all levels which is equal to the challenges of our times. As part of this, thinking and acting spatially is critical to creating a successful, sustainable and just future – to provide more jobs and generate shared growth, improve health and wellbeing for all, prepare our communities for climate change and protect the environment.

Moreover, the time left to us to respond effectively to many of these challenges is running out.

Despite the emerging recovery from the 2007-08 financial crisis, in many countries economic growth and development remain highly unbalanced, in part because they are often not integrated with related issues. This section of the paper illustrates this by focusing on three issues: economic growth, transport infrastructure and agriculture and food production.

Infrastructure, especially transport, is a good example of how policy- and decision-makers can often overlook the way that road, rail and now digital networks can concentrate investment and economic activity in particular areas, especially in combination. This can exacerbate spatial economic disparities and fail to exploit the growth potential of many cities and regions.

Similarly, in agriculture and food production, our increasingly globalised 'just-in-time' food production system is increasingly vulnerable, in economic, social and environmental terms.

The route to a sustainable economy lies in a more spatial approach, one that recognises the need for more integrated thinking, and that for example policies designed to promote growth and development in some areas might have adverse impacts elsewhere.



# Economy



Transport, especially cars, generate more than 80 per cent of the air pollution in cities in developing countries and result in more than 1.27 million fatal traffic accidents per year.<sup>4</sup> The costs of congestion can add up to more than 10 per cent of a country's GDP.<sup>5</sup> According to the World Health Organization, seven million people died as a result of air pollution in 2012 (nearly six million in South East Asia and the Western Pacific region), making it "the world's largest single environmental health risk".<sup>6</sup>

Photo credit: Safia Osman



# Economic growth

The world is not flat.<sup>7</sup> Concentrations of economic activity – for example clusters of particular types of businesses in a particular city or region – are often a major driver of efficiency, productivity, innovation and growth, and this has continued in the internet age.<sup>8</sup> Despite (or because of) this, at a UK, European and global level, growth is highly unbalanced. While appearing to benefit some cities and regions, this also severely disadvantages others and undermines opportunities for more broadly-shared prosperity and social development.<sup>9</sup>

## The UK's economy remains focused on London

The gap between London and England's regions widened during the recession; between 2007 and 2011 London's output grew at least twice as much as other English regions (12.4 per cent compared to between 2.3 and 6.8 per cent for England's regions).<sup>10</sup> England's large (so-called 'secondary') cities are also much smaller than large cities in other countries and tend to perform less well than their European counterparts, in part due to under-investment.<sup>11</sup>

This has broader social consequences. London's population has grown by one million people in the last 20 years, putting pressure on housing and other infrastructure. Of all of the 22-30 year olds who decided to relocate in recent years, almost one in three moved to London, and the biggest contributors to London's net inflow are other large UK cities, thereby draining skills and talent from the rest of the UK.<sup>12</sup>

For some commentators, this is merely the result of the 'efficient working' of the market, though this ignores the amount of public investment in London and its greater political and economic autonomy compared to other cities in England. For others, this requires national and regional economic spatial planning to 'close the gap' on the assumption that the economies of London and the regions are in a 'zero-sum' competition and that the state can effectively move industries around the country.

In a services and knowledge-based economy in which business-to-business proximity and access to skilled labour is vital, it might be more productive to consider how regional cities can be supported to improve their performance through a greater coherence between existing government policies and investment, especially in transport to ensure that their connectivity is enhanced (to London but also to each other). The importance of transport to economic development is noted further overleaf.

### London accounts for:



19%  
jobs



21%  
business



25%  
economic output



12.5%  
population of the UK<sup>13</sup>



London's population has grown by one million people in the last 20 years

### Europe also remains highly economically unbalanced

European regional inequality, measured in income per capita, is higher than that of the USA.<sup>14</sup> The average inhabitant of the wealthiest European region is 35 times richer than the average inhabitant of the poorest region.<sup>15</sup> EU policy objectives have been to promote the development of lagging regions. However, the economic crisis and the consequent currency crisis have reversed the convergence of the previous decade. This has further strained unity across the European Union. European policy-makers recognise the need for a 'new generation' of European cohesion policies to face future challenges and opportunities, including a 'Territorial Vision for Europe in 2050'.<sup>16</sup>

### Greater regional economic balance is crucial to developing countries

Growth and development are crucial to lifting people out of poverty and improving living standards, and much progress has been made globally. However, more than 1 billion people still live in extreme poverty, and inequalities within and between many countries have been rising.<sup>17</sup>

In part this is because economic development is

often highly differentiated in terms of place and space. Efficiency gains from the concentration of economic activity in urban centres and coastal districts can also mean greater regional inequalities.<sup>18</sup> This can be seen most clearly in the experience of some large developing countries, such as China, Mexico, Brazil and India, but it also occurs in smaller countries.

The work of economists Simon Kuznets and Jeffrey G. Williamson in the 1950s and 1960s suggested that inequality first increases in the process of development, then peaks and decreases.<sup>19</sup> However, other researchers have found that inequalities tend to increase again at high levels of economic development.<sup>20</sup> Further, if economic activity becomes 'locked-in' to existing centres this can lead to diseconomies. Cities become over-crowded and congested and costs and prices rise (so called 'congestion costs'). This may reduce the returns to investment and damage growth in the longer-term. It also makes for lower quality of life both in those areas left behind and in crowded, polluted urban centres.

Economic growth is considered in the *Planning Horizons* paper on *Creating Economically Successful Places* (November 2014).

# Transport

In both the developed and developing world, transport is a precondition for economic growth, providing access to goods, jobs, education, health and other services. Yet transport policy is an area where spatiality and the interrelationships with these other issues have often been neglected.<sup>21</sup>

## The UK's transport networks reinforce its spatial economic imbalance

Northern cities in the UK are particularly disadvantaged in terms of transport infrastructure, from rail to airports. Compared to London and the South East of England, linkages between cities in the North, particularly across the Pennines, are weak.<sup>22</sup>

The Northern Hub series of rail proposals across the North of England aims to address this, by making journey times between city centres more efficient, reducing travel times and improving freight capacity. The Government has announced its backing for the project as part of a £4.2 billion package of rail enhancements (including the electrification of the Great Western main line). Yet without a broader spatial strategy there is the risk that the full benefits from such investments might not be realised. For example, in England the *National Networks National Policy Statement (NNNPS)*, published in draft in December 2013, reflects the tendency towards a lack of space in transport by not suggesting where the Government thinks road, rail or rail freight infrastructure should be placed.<sup>23</sup>

## Europe's networks also privilege some regions over others

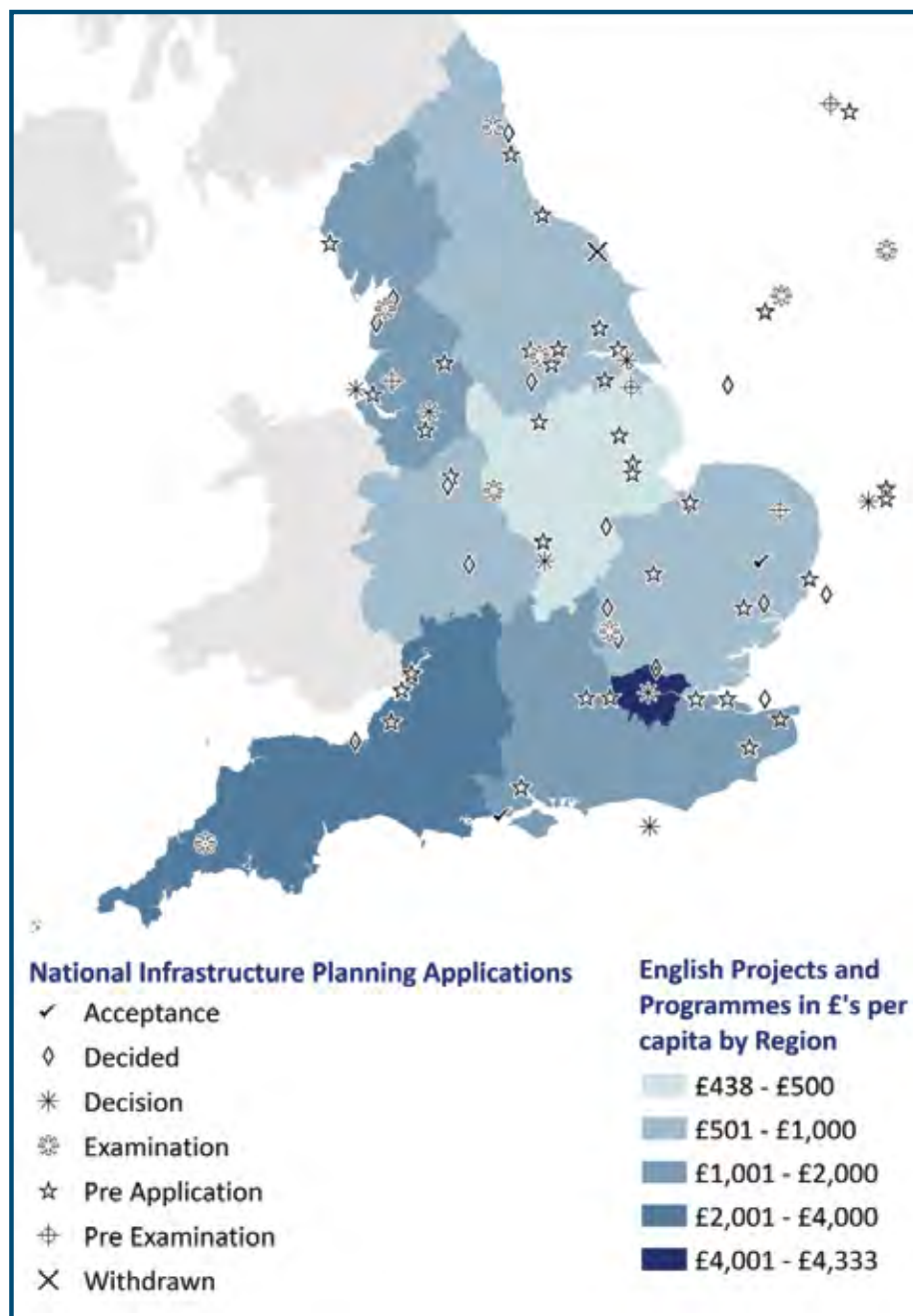
Across Europe, the ease with which people in one region can reach people in other regions correlates with higher than average GDP per capita.<sup>25</sup> However, European transport networks are concentrated in already-wealthy areas. As in the UK, investment in singular pieces of transport infrastructure, such as the EU-funded

Trans-European Networks (TENs) or high speed rail lines, are likely to be somewhat wasted if there is a lack of broader, more integrated thinking about how such infrastructure relates to economic development, and how this approach could promote greater social cohesion across Europe.

## Urban sprawl afflicts both the developed and developing world

In both the developed and developing world, a disconnect between land use planning and transport planning has in many cases created sprawling cities where car use is high and long distances make public transport systems unviable. Places around the world where the planning system is relatively weak are especially vulnerable to sprawl, leading to economic deficiencies such as commuters and goods spending hours in traffic, as well as increased pollution and road accidents,<sup>26</sup> (the demographic pressures facing cities are noted later in this paper). Transport planning then becomes focused on providing more road space for motorised vehicles. However, this can create more traffic and more congestion, with a negative consequence for the economy as well as society. The most recent UN Habitat report on cities calls for a 'complete rethink' by decision-makers to focus on reducing the need for travel, by bringing services and destinations closer to the public, which increases the access of all residents, irrespective of income, age, gender and physical ability.<sup>27</sup>

## Major infrastructure and investment, England (2014)



Source: University of Manchester.

As illustrated by the map on this page, recent Government funded infrastructure investment continues to favour London with £36 billion targeted to the capital (representing 40 per cent of all capital expenditure on English projects and programmes) – a per capita investment of £4,333.

This compares to the East Midlands with just £567 per person, and the North East with £884 per person. The South West's figure is inflated by the investment in the Hinkley Point C nuclear power plant; when this is removed the region drops to second to last with £362 per person.

# Agriculture and food production

**In the developed world, especially in cities, we rarely consider where our food comes from. In this respect we are often entirely aspatial in our thinking.<sup>28</sup> Perishable foods grown in more suitable climates are air-freighted, trucked or shipped at huge financial and environmental cost.**

Feeding the world's projected nine billion global population in 2050 is forecast to require a 70 per cent increase in food production.<sup>29</sup> Yet 80 per cent of arable land in developing countries is already used, there is less water available for agriculture (see the next section), and constantly increasing yields from major crops may be unrealistic, raising concerns about 'food security' and 'peak food'.<sup>30</sup>

In the past few years, global food markets have also entered a period of higher prices and increased volatility. Our food distribution system essentially operates on the premise that we only buy food for the next one to two weeks. When the Icelandic volcano Eyjafjallajökull erupted in April 2010, the ash released forced a shutdown of European airspace. Within days, some fresh produce began to disappear from supermarket shelves.

Further, the developing world is becoming especially vulnerable to climate change and extreme weather events, population growth, rising energy prices and competition for land from biofuels, industry and rapid urbanisation. The most recent Intergovernmental Panel on Climate Change report highlighted the likely impact on food production.<sup>31</sup> Oxfam has also predicted price rises of key staples (such as rice, wheat and maize) as a result of climate change in the region of 120 to 180 per cent by 2030.<sup>32</sup> Given its reliance on imports, the UK will also be vulnerable to these pressures.

In the US there has been increasing recognition of 'food deserts' where there are few local shops selling fresh, healthy (let alone locally-produced) food. This is also an issue of spatial social justice (discussed later).<sup>33</sup> Much of the money spent in large edge-of-town or out-of-town supermarkets leaves the local community, reinforcing spatial economic inequalities between areas. Growing awareness of these issues has led to a resurgence of interest in community food growing and urban agriculture, how to protect the diversity of local high streets, and ensure the local provenance of the food we eat.

The challenge is whether we can develop a much more spatially aware system of producing, distributing and consuming the food we need – for example, more sustainable farming methods, a diversity of farms supporting high-street grocers, urban farming, seasonality of supply and regional distinctiveness. This could also mean more localised and resilient economies. While there are limits to localised food production, these mounting social, economic and environmental pressures prompt the need for greater understanding of the geography of food.

For the developing world, as Oxfam has argued, there is huge untapped potential for yield growth in small-scale agriculture in particular, if more people are given access to land. The answer to the looming global food crisis may be inherently more local, in both the developed and developing world. However, for this to happen, as suggested by a Foresight report on *Land Use Futures* in the UK, there is a need to realign fragmented and sometimes conflicting areas of policy through more integrated governance systems and collaborative working.<sup>34</sup>

### Case study: Sustainable Food Cities

Cardiff is one of the UK's Sustainable Food Cities, part of the Sustainable Food Cities Network, which aims to use healthy and sustainable food to address pressing social, economic and environmental problems including obesity, food poverty and climate change. Cardiff Food Council, established in 2012, includes representatives from the Welsh Government, Cardiff Council, Cardiff and Vale University Health Board, Public Health Wales, Cardiff University and a wide range of third sector organisations.

The Council is developing its Sustainable Food Action plan, which will promote sustainable, safe, nutritious and tasty food for all the residents of the city. Funding will allow a dedicated Sustainable Food City officer to work with the local authority and local partners such as schools, charities and restaurants to transform access to local, affordable and sustainable food for people across the city.<sup>36</sup>



Photo credit: Just Ard

## UK food facts<sup>35</sup>



53%

Food consumed in UK produced domestically



£17.8 billion

Lightly processed



£40.2 billion

Food imports of which



£21.3 billion

UK trade deficit in food and drink



£14.4 billion

Highly processed

### 'Endangered' UK foods:

- Cucumbers
- Tomatoes
- Spring onions
- Broad, runner and dwarf beans
- Mushrooms

A photograph of a house with a damaged roof and a large hole in the wall, with the word "Environment" overlaid in large white text. The house has dark shingles and a white window. A large hole in the wall reveals the interior structure, including wooden beams and debris. A green tree is visible on the left side of the house. The sky is clear and blue. The word "Environment" is written in a large, bold, white sans-serif font across the middle of the image. There are also some thin, curved lines in green and blue across the image.

# Environment




For the first time in history, human activity is the main driver of change to our planet. For example, as a result of climate change, floods and extreme weather are likely to become more frequent. Water insecurity and shortages – already a major issue in many countries and regions – will be commonplace and a major source of tensions and conflicts. Our energy systems are already under significant strain and may be unsustainable in their present form.

Moreover, these issues are particularly harmful to the poorest and most vulnerable communities, regions and nations. Hundreds of millions of people currently lack access to sufficient water and electricity. These are often the same people who will suffer most from a changing climate.

While advances in renewable technologies will be important, pinning our hopes on a large-scale technological fix is misguided. We need to plan for rising sea levels and flooding and radically reshape our water and energy systems.

To do this, we need to understand the environmental challenges we face from a spatial perspective.



Hurricane Sandy, the largest Atlantic hurricane on record, struck several countries in October 2012. It is the second-costliest hurricane in US history, costing around \$68 billion, and claimed the lives of at least 286 people in seven countries.

# Climate change

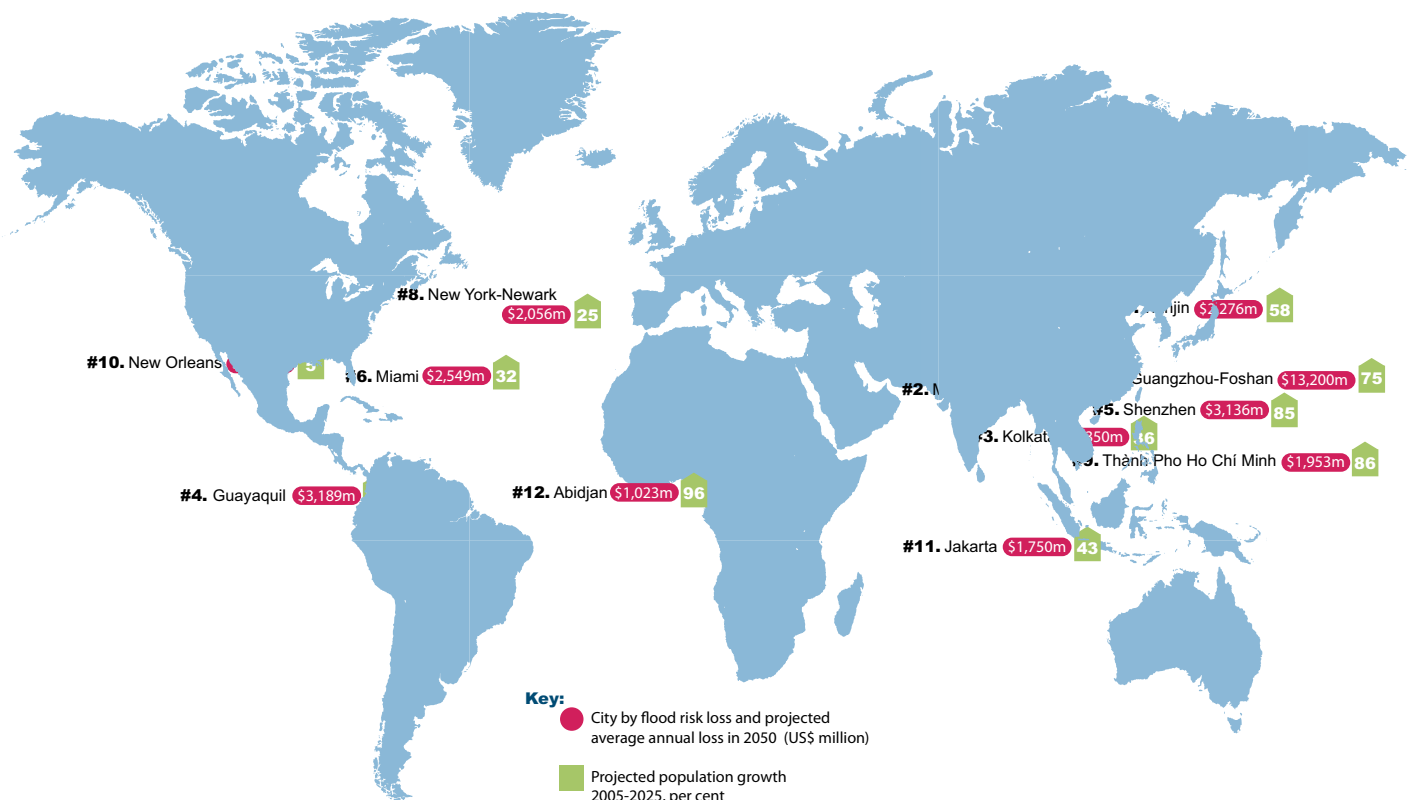
We know many of the likely consequences of climate change, most of which we are beginning to experience now – extreme weather patterns and events, heat waves and summer droughts, intense rainfall and flooding, sea level rise and coastal erosion. By the middle of the twenty-first century, 200 million people may be permanently displaced due to rising sea levels, heavier floods and drought.<sup>37</sup> Despite being a major global challenge, climate change is also critically an issue of place and space.

## Globally, hundreds of millions of people are at direct risk from climate change

In the developing world, Thành Phố Hồ Chí Minh (Ho Chi Minh City) and Dhaka are some of the most dramatic examples of the effects of climate change, where river and sea flooding frequently submerge extensive areas of cities, many of them home to the poorest and most vulnerable communities.

Flood exposure is particularly increasing in coastal cities. One study of the 136 largest coastal cities suggests that even if investments in adaptation measures are made to maintain today's risk of flooding, sea-level rise and subsidence could increase global flood losses to US\$60-63 billion per year by 2050.<sup>38</sup>

## Cities with highest projected costs from flooding and projected population growth<sup>39</sup>





Thành Phố Ho Chí Minh (Ho Chi Minh City) is one of the cities in the world most likely to be severely affected by climate change. In recent years, floods have become increasingly serious, due to rapid urbanisation as well as increasing rainfall. Photo credit: Anh Đình

Further, for the sake of simplicity, this study assumed that urban populations grow at the same rate in all cities; it also used the most optimistic sea-level rise scenario. However, as illustrated here, of those cities predicted to experience the largest losses due to flooding in 2050, the vast majority have very high projected population growth rates through to 2025, meaning the losses are likely to be even higher.

### **The UK is also experiencing increased flooding and drought in areas of increasing population**

In 2014 the UK saw the wettest winter for at least 250 years, some of the worst flooding for decades and the Thames flood barrier closed 28 times during the winter – more frequently than at any time since it was constructed. In the UK areas of concern from flooding include large urban regions such as Greater London, Surrey and Berkshire, Glasgow, Darlington-Durham, Leeds-Manchester and Swansea-Bridgend.<sup>40</sup>

The *Map for England* study, commissioned by the RTPI, revealed that there is considerable

overlap between areas where housing growth is projected in the future and where there are the greatest environmental and policy constraints to growth.<sup>41</sup> Currently, around one in seven properties – 3.6 million homes and businesses – face some form of flood risk.<sup>42</sup> The figure for households in England alone is predicted to quadruple by the 2080s.<sup>43</sup> High levels of flood risk are projected in the high growth areas near the coastal areas of North Somerset and Hull and East Riding. These constraints include the risk of flooding and expected future household water shortages.

The analysis of future household projections clearly shows that the high growth areas in eastern England are likely to be in the least sustainable location. These areas are also classified by the Environment Agency as amongst those with serious water stress (see the map overleaf.) Furthermore, much of the UK's energy and transport infrastructure is at significant risk of flooding.

*Climate change is considered in the Planning Horizons paper on Future-Proofing Society (June 2014).*

# Water

**Water insecurity will be one of the greatest challenges of the twenty-first century. In 2000, 500 million people lived in countries chronically short of water; by 2050 this is predicted to rise to more than four billion.<sup>44</sup> Climate change in particular will increase water scarcity, in making dry parts of the world even drier.**

## **The UK's water systems are increasingly strained**

By 2020, it is estimated that population and housing growth will increase water demand in the UK by five per cent – an extra 800 million litres of water per day.<sup>45</sup> Rainfall is also unevenly spatially distributed. Net water abstraction may be approaching environmental limits in many areas, for example in parts of Eastern England.<sup>46</sup>

The map on the facing page highlights local authorities in England with projected above average (greater than 11 per cent) household growth to 2021, and areas of water stress. Those areas where household growth is projected to be particularly strong overlap with areas that already have serious levels of water stress, such as Greater London, the South East and the East of England. In addition, climate change is expected to result in significant reductions in river flows and groundwater recharge.

As a result, the UK Government's Foresight programme report on *Land Use Futures* recommended that the implications for water resources need to be factored more systematically into decision-making on land use and land management changes, and the allocation of land for development should consider water availability, nationally, regionally and locally.

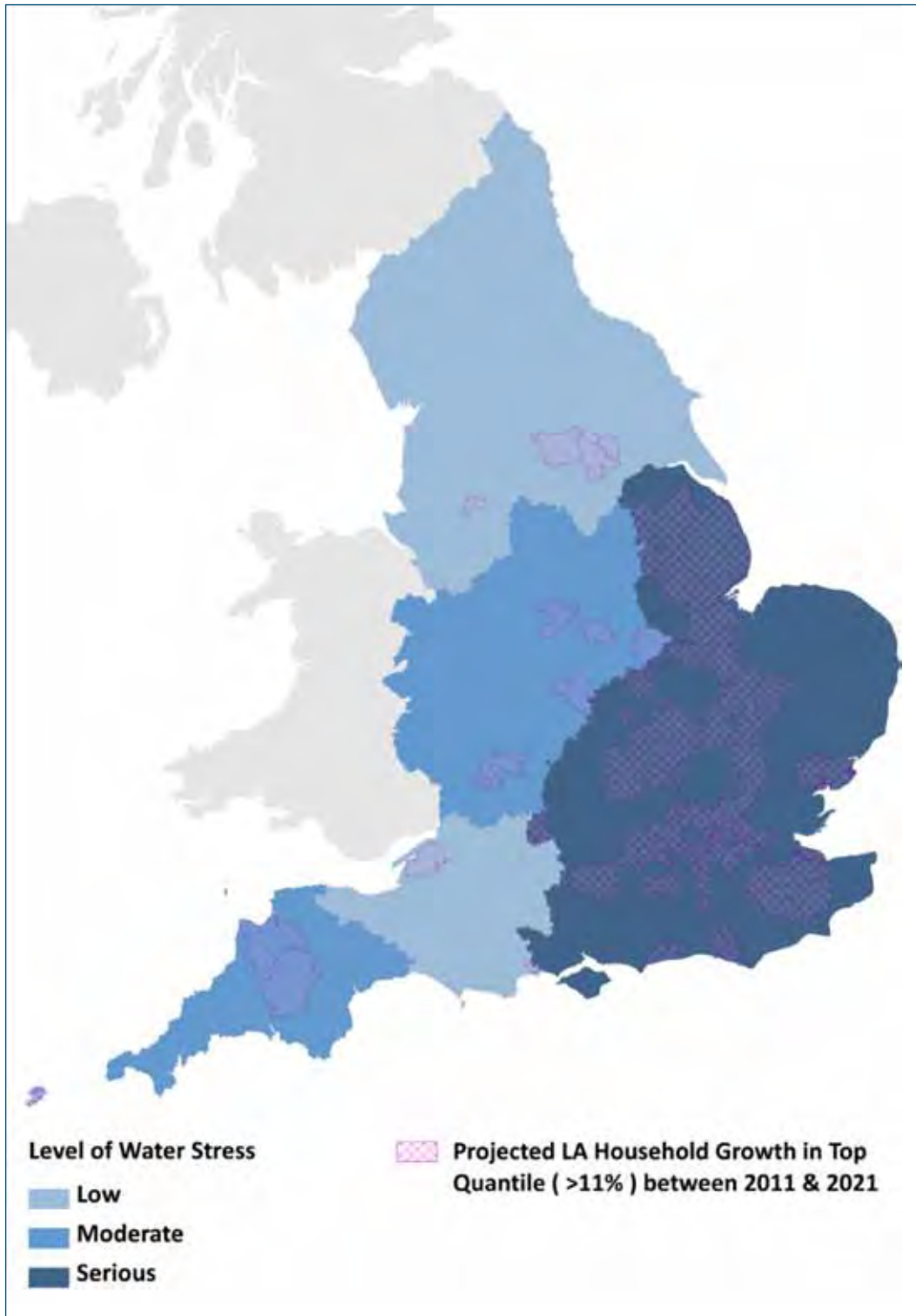
## **Internationally, water shortages are becoming a major cause of instability and conflict**

Globally, 36 per cent of the world's population – 2.5 billion people – lack adequate sanitation facilities and 768 million people rely on unsafe drinking water sources.<sup>48</sup> However, the World Bank estimates that two out of three countries will be water-stressed by 2025 and around 2.4 billion people will face 'absolute water scarcity' (inadequate natural water resources, as opposed to the poor management of resources).<sup>49</sup> Increased food production may also require 50 per cent more water by 2050.<sup>50</sup>

Already, there are significant regional conflicts over water access and quality, for example, concerning water abstractions along the River Nile (within the next 25 years, population in the basin is expected to double from the current 160 million people). There are also water shortage scenarios for fast-developing China and India, as well as Southern Europe. Moreover, developed countries such as the UK also draw heavily on water from other countries in the form of 'embedded' water (water used in food, products and services), something which is likely to become increasingly contentious in a world short of water.

*Water shortages are considered in the [Planning Horizons](#) paper on [Future-Proofing Society](#) (June 2014).*

**Map: Household growth and water stress (2011-2021)**



Source: University of Manchester.<sup>47</sup>

# Energy

**Energy has created and shaped the modern world, including patterns of economic development, urban development and building design. The way that we produce and use energy is now critical to limiting climate change. The energy sector accounts for around two-thirds of greenhouse-gas emissions and more than 80 per cent of global energy consumption is based on fossil fuels.<sup>51</sup>**

In a world of fossil fuels, policy-makers have not had to think very spatially. UK national energy infrastructure planning is also underdeveloped in spatial terms. Instead, the UK has effectively decided to buy energy from anywhere through a largely aspatial approach. The last few years have seen the UK moving from being a net exporter to a net importer of energy, exposing the country to increased vulnerability to international events that can disrupt energy supplies.

## **The transition to low carbon energy will require a more spatial approach**

Unlike oil and coal however, which are compressed forms of energy, renewable energy can require large land areas. Put in extreme terms, changing from conventional petrol to hydrogen-cell vehicles powered by clean sources such as wind-generated electricity would require the construction of more than 150,000 new wind turbines, each spaced half a kilometre apart – an area of land (off-shore or on-shore) twice the size of Wales.<sup>52</sup>

Despite the fact that we need to consider energy transition as a geographical process, discussions over the transition to a new low-carbon energy system in the UK remain focused on *when* and *how* (for example, technologies) rather than *where* (the spatial organisation of the energy system and economic activity more broadly). Similarly, the debate over fracking in the UK has focused on ‘for or against’ in broad terms, rather than the implications for the specific places that might be most affected, for example communities in the north of England.

Following the Climate Change Act of 2008, the UK Government’s *Low Carbon Transition Plan* (2009) set out proposals for transforming power, transport, housing, business and farming by 2020. However, it did not reflect on the implications of these changes for geographies of energy and economic activity within the UK. More recently, the *UK Renewables Road Map* (first published in 2011, last updated in 2013) includes regional, map-based assessments which identify some of the geographical options for increasing the contribution of renewable energy technologies to 15 per cent of UK consumption by 2020. The Department of Energy and Climate Change’s 2050 Pathways analysis also includes a mapping tool which encourages the public to consider the land requirements and spatial trade-offs for different energy supply technologies. These efforts to map out the potential geographies of a low-carbon economy are welcome, but are constrained by the UK’s generally limited recognition of the spatial dimensions of energy transition.

Moreover, the UK Energy Research Centre (UKERC) research programme (Phase 1) shows that energy demand needs to fall significantly if the UK Government’s targets are to be met at reasonable cost. Spatial thinking will be critical to reducing demand because demand is highly spatial.<sup>53</sup> For example, reducing the need to travel will require us to think about how we design the built environment, including reducing sprawl<sup>54</sup> and implementing infrastructures (public transport, electric vehicle charging points and so on) that support more sustainable ways of moving around.

**UK greenhouse gas emissions by end-user sector as a percentage of total UK emissions, 2012 (based on million tonnes carbon dioxide equivalent)<sup>55</sup>**



**31%**

**Business**



**25.3%**

**Residential**



**23.2%**

**Transport**



**10.3%**

**Agriculture**



**3.8%**

**Waste management**



**3.5%**

**Public sector**



**2.4%**

**Exports**



**1.8%**

**Industrial process**

Cities may indeed be 'our greatest invention'.<sup>56</sup> They can improve people's access to education, health, housing and other services and expand their economic opportunities. Yet in both the developed and developing world, for too many people, cities are places of disadvantage and ill health.

In particular, demographic change is putting an increasing strain on the infrastructure of towns and cities, in areas facing rapidly rising populations but also those experiencing falling populations. The scale and speed of urbanisation is especially challenging the developing world, while many parts of Europe are experiencing population decline alongside an ageing population.

In many countries in the developed world, a lack of concerted and sustained urban policy has left many people behind, in communities that feel abandoned. In some developing countries, insufficient governance infrastructure exists to counter extremes of poverty and inequality.

In response, cities in both the developed and developing world are witnessing increasing protests for greater social justice, sometimes sparked by local issues but often connected to broader economic, social and environmental challenges.

# Society

An aerial night view of a city, likely Dubai, showing a mix of modern skyscrapers and older buildings. Light trails from traffic on a major road are visible. The word 'Society' is overlaid in large white font. A thin blue line and a thin green line curve across the page.





Shenzhen is one of the fastest-growing cities in the world. It has boomed from a small fishing village to a major urban centre in just over 30 years, and is now southern mainland China's major financial centre. However, its population reflects the extremes of the country's development, split between knowledge workers with a high level of education and migrant workers with poor education.

# Demographic change

Debates about population change are typically couched in national terms. Yet within one country, some cities and regions can face rapidly rising populations, including young people, while others have declining or ageing populations. Both put pressure on cities' infrastructure, either from overloading their capacity or creating a vicious circle of depopulation and decline.

## Rapid urbanisation in the developing world

For the first time in human history, more than half of the world's population lives in urban areas. By the middle of this century, seven out of ten people will live in towns or cities.<sup>57</sup> Between 2000 and 2050, developing countries could add 3.2 billion new urban residents – larger than the global population in 1950.<sup>58</sup>

As a result of rapid urbanisation, many settlements have grown too fast for their infrastructure to keep pace. About one billion people live in informal settlements and this could triple by 2050.<sup>59</sup> Cities that fail to provide adequate infrastructure are less likely to be prosperous and environmentally sustainable.<sup>60</sup> The enormous scale of urbanisation also has a profound effect on the sustainability of increasingly depopulated rural areas.

In some countries there is a lack of sufficient governance capacity to respond to these pressures. However, it is critical that urban policy and planning reflects the actual conditions of developing world cities (including poverty, informality, young populations, and a rising urban middle class), rather than relying on Western assumptions about how cities should develop (including market-driven development).<sup>61</sup>

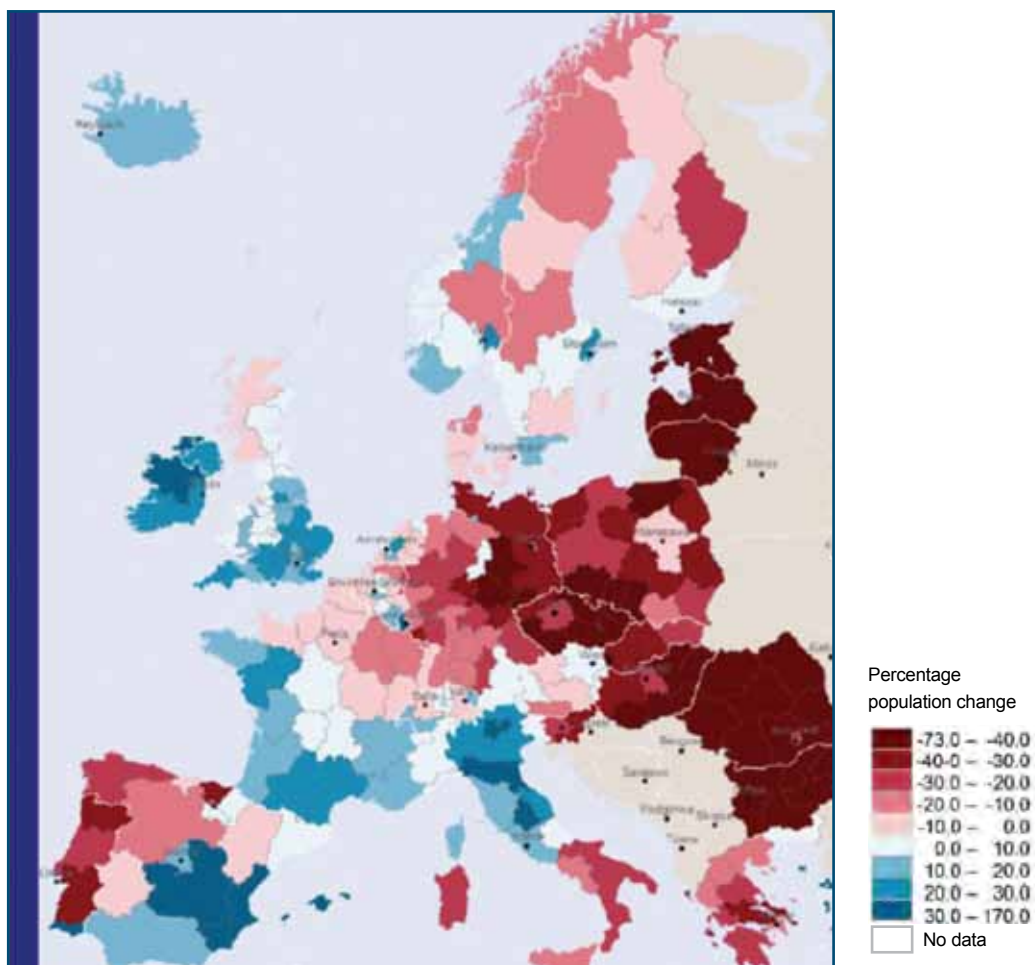
## In contrast to the developing world, parts of Europe are facing depopulation

Sixty per cent of European regions will experience population decline to 2050 (see the map on the facing page<sup>62</sup>). Over the same period, the European population aged 65 years and older will increase by 40 per cent; if life expectancy continues to improve, this could reach between 87 and 111 per cent. DEMIFER, part of the ESPON European spatial research programme, has assessed how declines in the working age population may impact negatively on economic growth in many already poorer regions, causing disparities between regions to increase. As this research suggests, policies aimed at stimulating migration to address decline in the working age population are likely to be effective only if they are part of integrated approaches, for example by improving the availability of jobs, housing, schools and the quality of the environment.

## The UK faces a rising population but this differs by nation and region

The UK is projected to have the largest population of all European member states by 2060 with 79 million inhabitants.<sup>63</sup> The highest levels of growth will take place in areas that are already densely populated, such as the East and South East of England.<sup>64</sup> The UK is also ageing but again this will affect parts of the UK to different degrees. By 2035 older people will account for nearly a quarter (23 per cent) of the UK population, but Scotland and Wales are projected to have a slightly larger proportion of

## Map: Population change in Europe, 2005-2050



Source: ESPON 2013 Database 2010.

people aged 65 and over (25 and 26 per cent respectively) than the UK as a whole.<sup>65</sup> The likely problems that the UK will face in the future are thus not necessarily related to the total size of the population, rather it is where and how people will live, with implications for the type and nature of housing, public services, transport, and how we create viable, cohesive and sustainable communities.<sup>66</sup>

Demographic change is considered in the *Planning Horizons* papers on *Future-Proofing Society* (June 2014) and *Promoting Healthy Cities* (October 2014).

# Health and wellbeing

**Globally there is an association between higher levels of urbanisation and better health. However, the benefits of urban life are often distributed unevenly,<sup>67</sup> to the extent that in many countries poor urban populations can fare worse than rural populations.<sup>68</sup> There are significant variations in health between cities in the same region and within cities themselves, including in rich developed world cities.**

In part this is because the built environment is an important determinant of health<sup>69</sup> – directly, through air pollution, road traffic, noise, floods and climate, and indirectly, through accessibility, safety, mixed land-use, street design and green open spaces.<sup>70</sup> Unsurprisingly, poorer people tend to live in bad quality built environments, have greater exposure to adverse environmental conditions, and less access to open space. In turn this can exacerbate physical and mental health conditions, such as obesity-related diseases and depression. The relationship between health and the urban environment has long been recognised by planners, nonetheless significant health issues remain in both the developed and developing world.

## **The UK is healthier than ever yet significant health inequalities remain**

Health inequalities have an important spatial dimension. People living in the poorest neighbourhoods in England will on average die seven years earlier than people living in the richest neighbourhoods; they will also spend more of their lives with an acquired disability.<sup>71</sup>

Measurements and spatial scales can serve to hide or reveal these inequalities. For example,

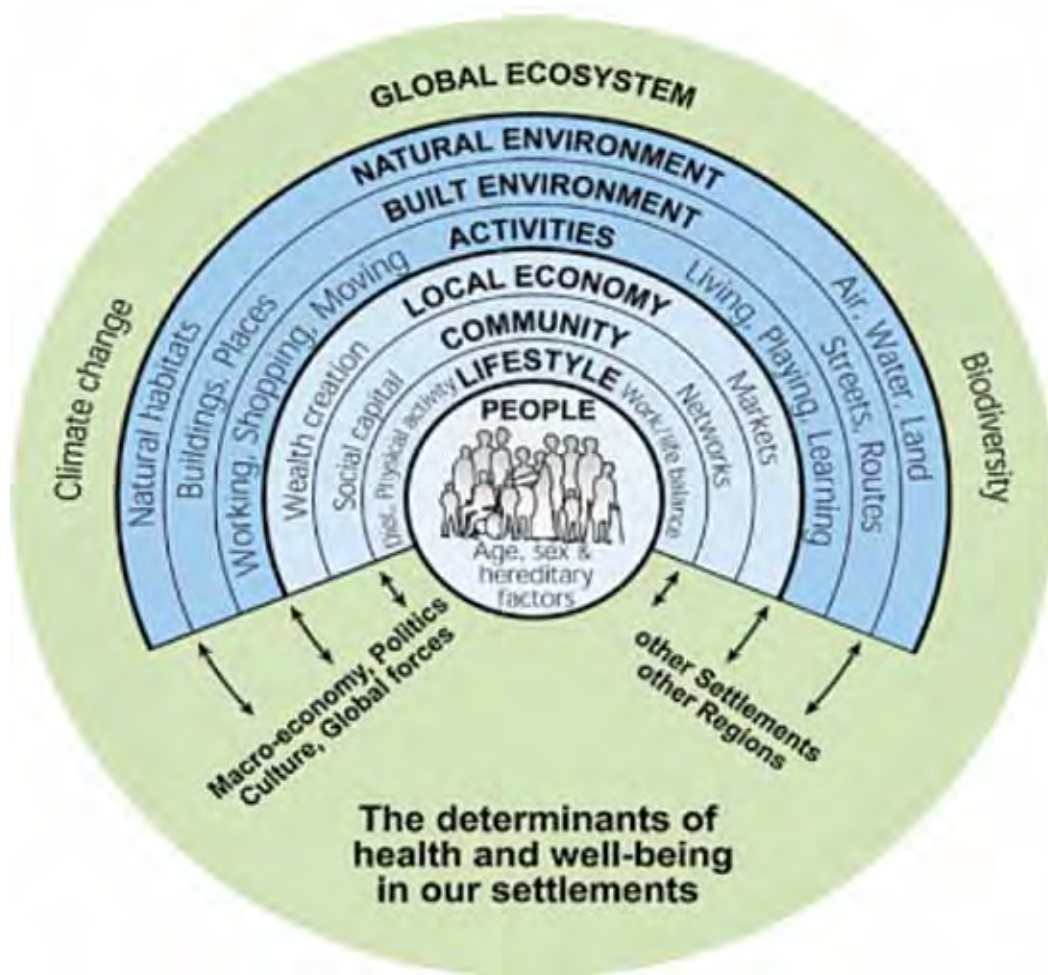
Glasgow has the third highest GDP per capita of any city in the UK, yet only three-quarters of boys and 85 per cent of girls born in the city will reach their 65<sup>th</sup> birthday – a life expectancy eight to 10 years lower than the healthiest areas in the UK.<sup>72</sup> The city has become known for the ‘Glasgow effect’ of higher-than-expected premature mortality compared to similarly deprived parts of cities such as Manchester, Liverpool and Birmingham; poor housing, the urban environment and community dynamics are likely to be contributing factors.<sup>73</sup>

## **Many communities in developing world cities suffer from unhealthy environments**

In parts of the developing world, a significant proportion of avoidable deaths are attributable to environmental factors. According to the World Health Organization, seven million people died as a result of air pollution in 2012 – 2.6 million from outside air pollution, 3.3 million from indoor air pollution.<sup>74</sup> A major cause lies in poorly-designed development (for example, sprawl and poor quality housing), which along with the scale of urbanisation and lack of resources, is often caused by poor governance and a lack of adequate planning and spatial development.<sup>75</sup>

## The determinants of health and wellbeing in settlements

This model, developed by Hugh Barton and Marcus Grant at the WHO Collaborating Centre for Healthy Urban Environments at the University of the West of England, combines the well-known 'determinants of health' model developed with an 'urban eco-systems' approach.<sup>76</sup> This prompts planners and health professionals among others to consider how land use planning can promote healthy urban settlements.



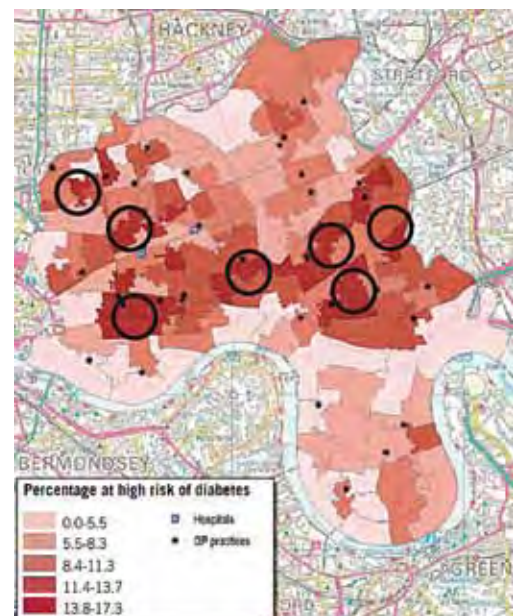
Source: Hugh Barton and Marcus Grant/SAGE Publications.

Urbanisation and health are considered in the *Planning Horizons* paper on *Promoting Healthy Cities* (October 2014).

# Social justice

A basic tenet of ‘spatial social justice’ is that greater equality and opportunity can only be promoted through a better understanding of place and space, particularly in densely-populated areas. However, the lack of sustained urban policy in many countries, siloed housing and social policy interventions, and poorly-designed regeneration initiatives have failed to challenge many entrenched social problems. This is not inevitable.

## The spatial persistence of poverty



Source: Map on the left from a digital image of Charles Booth's *Descriptive Map of London Poverty 1889* created by the University of Michigan. Map on the right from a study published in the *British Medical Journal*.<sup>77</sup>

Standards of living in inner London have increased significantly in the past 100 years, yet the spatial distribution of poverty has proved to be persistent. The map on the left of poverty in the East End of London was created by Charles Booth, the philanthropist and social researcher, in 1898-1899. The map on the right is from a 2012 study showing the risk of developing type 2 diabetes, highlighting the same deprived areas and suggesting the close relationship between deprivation and health inequalities.<sup>78</sup>

Typical measures of inequality (for example, per capita income) can neglect its spatial distribution. Recent research in urban and regional economics is contributing to our understanding that the spatial location of economic activity is central to the overall condition of an area – for example the way that certain regions can turn into ‘poverty traps’ which can exacerbate inequality due to poor quality living environments and inadequate access to services and opportunities.<sup>79</sup> Research in the US confirms that upward mobility is much higher in cities where poorer families are integrated into mixed-income neighbourhoods.<sup>80</sup>

Further, despite Charles Booth's recognition that place can have a profound effect on social outcomes, contemporary data often lacks sufficient detail, which can underestimate concentrations of poverty and limit analysis of relationships to aspects of the built environment.<sup>81</sup> Instead of challenging spatial disparities, the aspatial nature of policies in many countries over the past few years have likely further entrenched it. For example, research by the Centre for Regional Economic and Social Research (CRESR) at Sheffield Hallam University has revealed the spatial impact of welfare reforms in the UK and the way that such policies affect already poor communities.<sup>82</sup>

### Public protest for spatial justice

In his 1968 book *Le Droit à la ville*, Henri Lefebvre argued for a 'right to the city' – the right to participate in the process of producing 'urban space' as well as access the advantages of city life. Informed in part by Lefebvre, in 1973 David Harvey published his second book *Social Justice and the City*, which related social justice to urban and regional planning, and revealed the often hidden urban geographies of injustice and discrimination.<sup>83</sup> Despite this work, much policy- and decision-making remains largely spatially unaware.

As a result, public spaces can become both the focus of, and the platform for, protests over a lack of spatial social justice. Such protests can be sparked by particular local spatial causes, but also often represent broader political, economic and social discontents (for example, rising food prices).

Lefebvre's ideas informed the Paris uprising in May 1968, in part a reaction to the changing residential geography of Paris in which workers were being moved out of the centre of the city. Disturbances in the *banlieues*, the dense inner suburbs of Paris and other large French cities, have continued in the decades since. In 2011 the *indignados* ('the outraged') occupied plazas in cities across Spain to protest against the effects of the financial crisis, followed days later by the *aganaktismenoi* in Greece. The disturbances in Istanbul in 2013 were sparked by plans to develop Gezi Square, and fast-developing countries such as China are seeing increasing protests over the pollution of water, air and food. As Edward W. Soja argues in his book *Seeking Spatial Justice*, policy-makers need a 'new spatial consciousness' if they are to respond more effectively to such discontents.<sup>84</sup>



Photo credit: Chris Rojas

**Zuccotti Park (formerly Liberty Plaza Park), is a privately-owned public space located in New York City's Wall Street financial district. In September 2011, it became the site of the Occupy Wall Street protest camp, which inspired Occupy protests and movements around the world.**

An aerial photograph of a dense urban area, likely New York City, showing a variety of high-rise buildings. A prominent church with a red roof and a steeple is visible in the middle-left. The text 'Thinking and acting with place and space in mind' is overlaid in large white font. At the bottom, there are two thin, curved lines, one blue and one green.

# Thinking and acting with place and space in mind



As these issues begin to illustrate, fragmented, short-term and fundamentally aspatial decision-making is harming communities, causing ill-health, undermining growth and development and destabilising the environment.

Crucially, these issues are inter-related. Unbalanced growth in both economic and demographic terms means that some cities and regions suffer from under-investment, compounded by poor transport, infrastructure and services. This fosters inequalities, poor health and greater vulnerability to environmental hazards including climate change and pollution.

If these issues are inter-related, so should our responses be.

We need to develop a new 'spatial policy': a science of policy which incorporates place and space and produces policy which is much more *integrated, strategic* and *sensitive to place*.

In the twenty-first century, in the face of challenges such as these, thinking and acting spatially is critical to creating a successful, sustainable and just future. Moreover, the time left to respond effectively to many of these challenges is running out.

There is huge potential for policy- and decision-makers to exploit the contemporary proliferation of data (commonly referred to as 'big data') to provide spatial insights.<sup>85</sup> One example of this at a local level is New York City's Office of Data Analytics (MODA).<sup>86</sup> Established under Mayor Michael Bloomberg, this team analyses data from across City agencies to help quickly and efficiently allocate government resources to address crime, safety and other municipal challenges.<sup>87</sup> The City's Chief Analytics Officer, Michael P. Flowers, was recognised as a 'Local Innovation Champion of Change' by the Obama Administration in 2012. Photo credit: Tim Dawson

# Thinking spatially

Since the late 1970s, Geographic Information Systems (GIS) have been used by planners, engineers, geologists and others for spatial analysis. Researchers are using data to generate new insights into how the nature of places affects people and communities, and businesses are increasingly seeking to harness geolocation to analyse customers and trends, including through data visualisation.

In contrast, place and space remain strangely neglected in much policy- and decision-making (and indeed inputs into policy such as the analyses produced by most think tanks), especially at a national level. Where space does enter into policy debates it tends to be limited to controversial and disputed issues – where to site a new airport or power plant for instance, or a conflict between nations and regions over access to natural resources. Yet our responses to the challenges illustrated in this paper have often been undermined by a lack of place in policy- and decision-making, namely:

- A lack of understanding of place and its particular characteristics, and how policies might affect areas in different ways;
- ‘Siloed’ policy- and decision-making that wastes money, undermines policy objectives and produces counter-productive outcomes;
- The lack of coordinated approaches to issues that cross local, regional and national boundaries, which allows these issues to proliferate and causes greater long-term costs and harm, for example pollution and climate change;
- A lack of understanding of ‘subsidiarity’ – the right decisions being made at the right levels, and how the various levels need to link together, for example in energy, food, social and urban policy.

As revealed by the University of Manchester’s *Map for England* study for the RTPI, just over a third (37 per cent) of UK Government policy documents include any explicit spatial

expression, despite having clear spatial consequences.<sup>88</sup> The equivalent study *A Map for Wales* similarly found that only 37 per cent of Welsh Government policy documents contained maps, although 47 per cent did consider spatial implications to some degree.<sup>89</sup> These analyses suggest that, in most cases, policies lack a strong spatial awareness, for example how policies might interact (or have contradictory implications) for various geographical areas. Often in policy-making, much attention is paid to financial management but almost no attention is paid to spatial management. This neglect of place may be because many (perhaps most) policy- and decision-makers do not have a background in thinking spatially.

## Learning from spatial planning

Policy- and decision-makers can learn much from the theory and practice of ‘spatial planning’ (or ‘integrated planning’). From the perspective of some commentators, planning is merely a set of relatively narrow regulatory functions concerning the use and development of land. For others however, planning is a much broader creative activity, starting in developing and delivering visions for places, often captured in the term ‘spatial planning’.

Spatial planning goes beyond traditional land use planning to seek to integrate policies for the development and use of land with other policies and programmes which influence the nature of places and how they function, for example sectoral policies such as transport, regional policy, flood risk management and agriculture,

## A much greater spatial awareness and intelligence will improve the decisions that are made, and the consequences for the everyday lives of people and communities.

to avoid unnecessary or unintended spatial impacts and encourage mutually beneficial ones. Effective strategic planning reduces costs, promotes efficiency and reduces conflict, while protecting the environment and promoting development in the right places, providing a context within which local government can agree on issues such as housing, waste and minerals.<sup>90</sup>

### The lack of planning in politics and decision-making

Just as spatial planning – if it is to respond more effectively to the challenges noted in this paper – needs to go well beyond land use planning and cannot operate in isolation from other areas of public policy, so policymaking needs to incorporate a much greater degree of spatial planning thinking and analysis. It is the lack of ‘planning thinking’ in policy that is now a major deficiency – the widespread lack of place-based, strategic and integrated thinking in policy has contributed to and exacerbated some of the challenges considered in these papers.

It is imperative that policy- and decision-makers develop an improved ability to consider the spatial consequences of their decisions, in particular to seek mutually beneficial outcomes within places. Thinking spatially is not a matter of recognising and reporting the differences between places, although these are important. It is about appreciating and anticipating how different policies and decisions might interact over different pieces of land, and incorporating this intelligence into decision-making.

A much greater spatial awareness and intelligence will improve the decisions that are made, and the consequences for the everyday lives of people and communities. Further, spatial thinking might help to counter a commonly expressed concern about contemporary politics and policy found in many countries – the sense that too many of our political leaders and decision-makers lack long-term visions for change to produce a better society for all.

**Case study:** Regional Strategic Framework for the Central Border Region, Northern Ireland and Republic of Ireland

The Regional Strategic Framework (RSF) for the Central Border Region is the first strategic development plan for a cross-border area between Northern Ireland and the Republic of Ireland. The RSF is a framework for the development of the region for the period up to 2027.

It is intended to develop a region that can make a distinctive contribution to regeneration and growth of the island economy, including by influencing the Governments of Ireland and Northern Ireland to consider the area as an investment priority. The RSF is distinctive in being non-statutory, cross-border and regional. It has been driven by the Cross-Border Group, ICBAN, and encompasses 11 local authority areas.

# Acting spatially

Places need to be at the forefront of our responses to these challenges, and so at the heart of policy- and decision-making in the twenty-first century. But generally-speaking, policy- and decision-makers have a limited capability to do this – in terms of the data and analysis available to them, the institutions and governing systems they work within and the human capabilities and resources they depend on.

The remainder of this paper outlines a framework for advancing spatial thinking in policy- and decision-making, covering three dimensions: intelligence, institutions and human resources.

For some commentators, bringing spatial planning together with a much greater degree of spatial thinking in policy requires the development of a 'national spatial plan' (or 'development framework'). To its advocates, this would act as the framework for a suite of integrated spatial plans – from the economy to infrastructure, energy to climate change transition – helping to align long-term decision-making on these issues with decisions on land-use.<sup>91</sup> Scotland, Wales and Northern

Ireland for example have sought to develop more integrated national plans and strategies in areas such as transport, infrastructure and economic development.<sup>92</sup>

In some national contexts, such a national spatial plan might make sense. In others, for various historical, cultural, political and institutional reasons, it might be more helpful to think in terms of the 'infrastructure' required to develop and deliver longer-term, more integrated and more sustainable policy- and decision-making. Further, on their own, national strategies or plans would not be sufficient. Spatial thinking needs to become the norm at all levels of policy- and decision-making in order to make an impact.

## Case study: The Netherlands *National Spatial Strategy*

National spatial planning has been a strong feature of The Netherlands, in order to prepare the country for the future, prevent unbalanced development and preserve valuable natural areas and landscapes. The Netherlands' fifth *National Spatial Strategy (Nota Ruimte) – Creating Space for Development* covered the period 2006 to 2020 (but included consideration of 2020-2030). The strategy retained a strong plan-led orientation, but unlike previous iterations it reduced regulation by national government and increased local discretion. It also encompassed a broader set of issues than previous strategies, from socioeconomic development to national investment priorities.

A key region in the Strategy was the Randstad, the administrative, cultural, social and economic heartland of the Netherlands. *The Randstad 2040 Structural Vision* illustrates how policy areas such as the economy, traffic and transport, housing construction, nature, landscapes and water management, can be connected for the purposes of long-term sustainable development. These documents have now been superseded by the sixth national strategy published in 2011, *The National Policy Strategy for Infrastructure and Spatial Planning*.<sup>93</sup>

# Intelligence

## The need for a ‘Spatial Map for Policy’

In many countries policy- and decision-makers need better, timelier and more spatial intelligence to understand these long-term challenges and inform decision-making at various spatial scales. In countries such as the UK, there have been many suggestions for ways for governments to act in a more ‘joined-up’ manner. A focus on place, informed by spatial data, could provide an effective mechanism for more integrated policy- and decision-making.

To advance this spatial intelligence, we need to develop central spatial analytical maps for policy-makers – a kind of ‘GIS (Geographic Information Systems) for policy’. Many countries lack single documents which provide an overarching framework for the spatial dimension of policies and programmes, and the way they interact (including the unintended consequences) to affect the development of the country. The exception in the UK is Scotland: its *National Planning Framework* (NPF) sets the context for development planning in Scotland and provides a framework for the spatial development of the country as a whole.<sup>94</sup>

As proposed by the RTPi, the Map for England and *A Map for Wales* would be a portal for maps of all government policies and data which have an impact on or describe place in these nations. These maps would promote an integrated, congruent approach to planning infrastructure and services, help to enhance and spread growth and save time and money by encouraging quicker and better informed investment decisions.

Building on this work, integrated ‘spatial policy maps’ could help to:

- Show how and where various policies – from housing to infrastructure, climate change responses to health and social policy – might interact in terms of their implications for land use and so encourage greater integration and congruency between policies;

- Through this, maximise the benefits and reduce the disbenefits from these various policies and support the achievement of multiple policy goals simultaneously within places;
- More generally, promote greater spatial awareness amongst policy- and decision-makers; and
- Stimulate and inform public debate around spatial issues, including at the community level.

Making spatial challenges, opportunities and potential conflicts or disputes much more explicit would help inform policy debate and development and encourage partnership working to better coordinate and manage the delivery of complex spatial planning policies. At the local level it would empower greater localism by informing better discussion and decision-making.

Spatial maps for policy could be developed as flexible open platforms – bringing together public data so that users can configure their own maps using ‘layers’ of data as required. Such open source platforms could also serve as a resource for developers of applications to enhance the usability and functionality of these platforms, through additional applications and features.

Such initiatives would build on efforts to improve the accessibility of public data. As in many countries, the UK Government has committed itself to open data, making as much data as possible available for public use, including as part of its National Information Infrastructure plan (which notes the potential of geospatial data to inform mapping and planning<sup>95</sup>).

For example, the Government’s data.gov.uk platform brings publicly accessible data together in one searchable website.<sup>96</sup> Similarly, the US Government has also been adding to its Data.gov platform, organised by themes including agriculture, education, energy and health, including an extended section on climate change showing the impact on local communities. However, data.gov.uk currently lacks a spatial dimension, which is to say an easily accessible

# Intelligence continued

way of analysing data through a spatial lens. Developing spatial maps for policy would provide a practical and valuable use for public data.

The European Union also holds a wealth of data that could inform policy- and decision-making and makes these available via various platforms. In 2013 it published an online tool which allows users to display and overlay alternative territorial strategies for Europe, as part of ET2050, an ESPON project aimed at supporting policy-makers in formulating a long-term integrated vision for the development of European Union territory.<sup>97</sup> This could be further developed to display much more data collected by the EU through its research and statistical programmes.

Further, the UK research councils have made the use of 'big data' (very large data sets) a major research priority over the next few years.<sup>98</sup> In March 2014, the UK Government announced funding for the Alan Turing Institute, which will conduct research into ways of collecting, organising and analysing big data. Over time, the spatial map for policy could link with these initiatives to further enrich the data and analysis available to policy and decision-makers and ensure that big data is as spatial as possible.

At the local and regional level, there is considerable potential in public authorities, for example local government, working more closely with universities, research institutes, businesses and non-governmental organisations, in order to enhance their spatial intelligence of areas and issues.

In parts of the developing world, while some of the governance capacity and infrastructure may not always exist to make use of such platforms, there is still a critical need for more spatial data – for example, Shack/Slum Dwellers International (SDI), a network of community-based organisations of the urban poor in Africa, Asia, and Latin America, has emphasised the importance of community-collected data through its 'Know Your City' campaign. When the urban poor collect data about their communities they can be key players in the creation of more inclusive urban development strategies.

Of course, data is not sufficient. The challenge is how policy-makers and governments exploit data to ensure better policy formulation and decision-making. Nonetheless, the ability of policy-makers to think spatially will be severely limited unless much more spatial intelligence and data are available to them.

## Case study: Germany's spatial planning report

In Germany, a spatial planning report is produced every four years and provides a factual basis for lower level governments and each ministry to explore their options, rather than setting a single path at federal level (in a federal state, such direction would be impossible, in most policy areas). The report is debated in Parliament, contributing to the understanding of policy-makers and building a national consensus on the range of key challenges the country faces.

## Case study: Creating Futures, New Zealand

Creating Futures is a support system for integrated spatial planning and decision-making developed in New Zealand. This government-funded innovation has been led by the Waikato Regional Council (on the North Island of New Zealand) with an interdisciplinary multi-agency research team.<sup>99</sup> Waikato is now examining the practical application and further development of these tools. One of these, the Waikato Integrated Scenario Explorer (WISE), a simulation model that integrates economic, demographic, environmental and land use data to assess development scenarios and policy options, is being evaluated for its use in planning and decision-making. Similar models are currently being developed for Auckland and Wellington. Tools such as this are being promoted by the National Advisory Group for Integrative Planning (NAGIP), with a remit to consider how best to support integrative spatial planning in New Zealand.

# Institutions

**We need policy-making, decision-making, governance and coordinating organisations and structures that collectively provide the capacity to respond to these challenges strategically and spatially. This will require policy- and decision-makers to work more effectively beyond existing boundaries – institutional, geographical, administrative, disciplinary and so on.**

In some countries this has led to calls for institutional reform. For example, in the UK nations there are no individual government departments charged with addressing acute strategic or spatial problems, which might join up decision-making across areas such as local government, economic development, transport, environment and rural affairs. While the way that institutions are structured is important, there is a long history of significant ‘infrastructural re-wiring’ at national, regional and local levels in the UK and other countries which have often failed to achieve the desired increase in strategic or more integrated policy- and decision-making. Further, rather than institutional re-wiring, we need land use to be integrated into and across existing government departments and agencies. In the UK, this could take the form of a land use section in HM Treasury, and in the finance/ economic development directorates of the governments in Scotland and Wales and the Northern Ireland Executive.

In addition, there is a clear need for strategic planning co-operation beyond the boundaries of individual (local) planning authorities to address the kinds of challenges noted in this paper. In principle, in many countries there is nothing stopping local areas seeing the ‘bigger picture’ and working on joint plans to maximise the value and long term benefits of important developments, but this requires stronger political leadership at a local level and in some cases courage.<sup>100</sup> To this end, we need to promote and support greater cooperation on strategic planning issues (such as housing and economic development) by local government

working together in natural ‘sub regions’, encouraging authorities to form partnerships by determining the spatial boundaries of issues themselves, as in city regions. They might then act more like local authorities in the Netherlands and Germany, as proactive leaders and managers of development in town centres, new suburbs or infrastructure development. These authorities play a strategic role in coordinating management and service delivery for new developments.

In some developing countries, there is a need for continued institutional development, including establishing stronger legal and regulatory frameworks within which organisations, institutions and agencies operate, better land use policies and support for local organisations and residents to help shape the development of their communities.

As the issues considered in this paper suggest, cities are in the frontline of many of the most pressing challenges we face in the twenty-first century, challenges that are highly unlikely to be solved by fragmented and sectoral policies. To help promote a more concerted and coherent urban policy agenda, and to make cities more liveable and resilient in the twenty-first century, spatially-informed ‘sustainable urbanisation’ should be included as a post-2015 United Nations Sustainable Development Goal (SDG).

*Governance is considered in the [Planning Horizons paper Making Better Decisions for Places](#) (November 2014).*

# People

**Finally, we need much stronger spatial capabilities across a range of practice and policy disciplines. This means the skills, abilities and awareness of policy-makers, decision-makers and practitioners in many different fields to respond spatially and strategically to these challenges.**

Unfortunately, in many countries there are very few spatial planners or people with a spatial education in government at various levels, particularly in leadership roles. In the UK, policy-making at the highest levels tends to be dominated by people who have studied 'generalist' subjects such as Politics, Philosophy and Economics, or Law (often at the most prestigious universities), rather than disciplines with a strong spatial element. Equally, increasing specialisation in some disciplines (in part reflecting the development of knowledge bases) has undermined the capacity for broader thinking.

Spatial thinking needs to be a required skill in government civil servants and part of professional development. In the UK, the Civil Service has reviewed its required Civil Service Capabilities and yet spatial thinking is not identified as a priority.<sup>101</sup>

Further, no great emphasis is placed on spatial cognition during formal schooling, compared to the essential skills such as reading, writing and arithmetic, despite the need for it to be nurtured and developed as a core skill and way of understanding the world.<sup>102</sup>

For tomorrow's decision-makers, we need to embed spatial analysis in the most relevant academic disciplines such as Economics (for example, 'New Economic Geography', which has encouraged economists to think about the location and spatial structure of economies), Politics and Public Administration, Social Policy, Sociology and so on. This spatiality needs to be reflected in continuing professional development and training, perhaps in the form of spatially-based MBAs and MPAs.

Fundamentally, we need political leadership at all levels which is equal to the challenges of our times.<sup>103</sup> As part of this, thinking and acting spatially is critical to creating a successful, sustainable and just future – to provide more jobs and generate shared growth, improve health and wellbeing for all, prepare our communities for climate change and protect the environment.

**Fundamentally, we need political leadership at all levels which is equal to the challenges of our times.**



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Planners have a critical role to play in response to all of these issues. Just as the challenges of a hundred years ago spurred the development of planning as a professional discipline and as a field of study, so the challenges we face over the next hundred years will demand new contributions from the profession and beyond.

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