forum for the future
action for a sustainable world

GE imagination at work

the sustainable cities index 2010

ranking the 20 largest British cities

Forum for the Future is the UK's leading sustainable development NGO. We work internationally with government, business and public service providers, helping them to develop strategies to achieve success through sustainability, to deliver products and services which enhance people's lives and are better for the environment, and to lead the way to a better world.
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We set out to make cities more sustainable, helping public bodies rethink their services so they can offer people a better life without destroying the environment. We work with local government, business and NGOs and bring them together to tackle the complex problems they face.

We are helping companies cut carbon, pioneering schemes to make homes more energy efficient, and encouraging people to walk, cycle and eat local food. We help developers and construction companies to deliver and manage low-impact infrastructure and buildings.

We also help policy makers understand and address the complex challenges of the future: for example, our project exploring sustainable urban mobility in 2040 is a global collaboration, looking at how billions of city-dwellers can access the things they need without putting intolerable strains on the planet.

To learn more about our work in cities please visit www.forumforthefuture.org/projects/cities

GE is committed to using innovation to create sustainable cities. Four GE projects in European cities were recently among the first to receive a new Benchmark of Excellence Award for sustainability from the European Commission and GE is currently working on projects in London and the UK aimed at addressing key challenges in energy, healthcare, transport and the built environment.

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For more information on the report please contact us:
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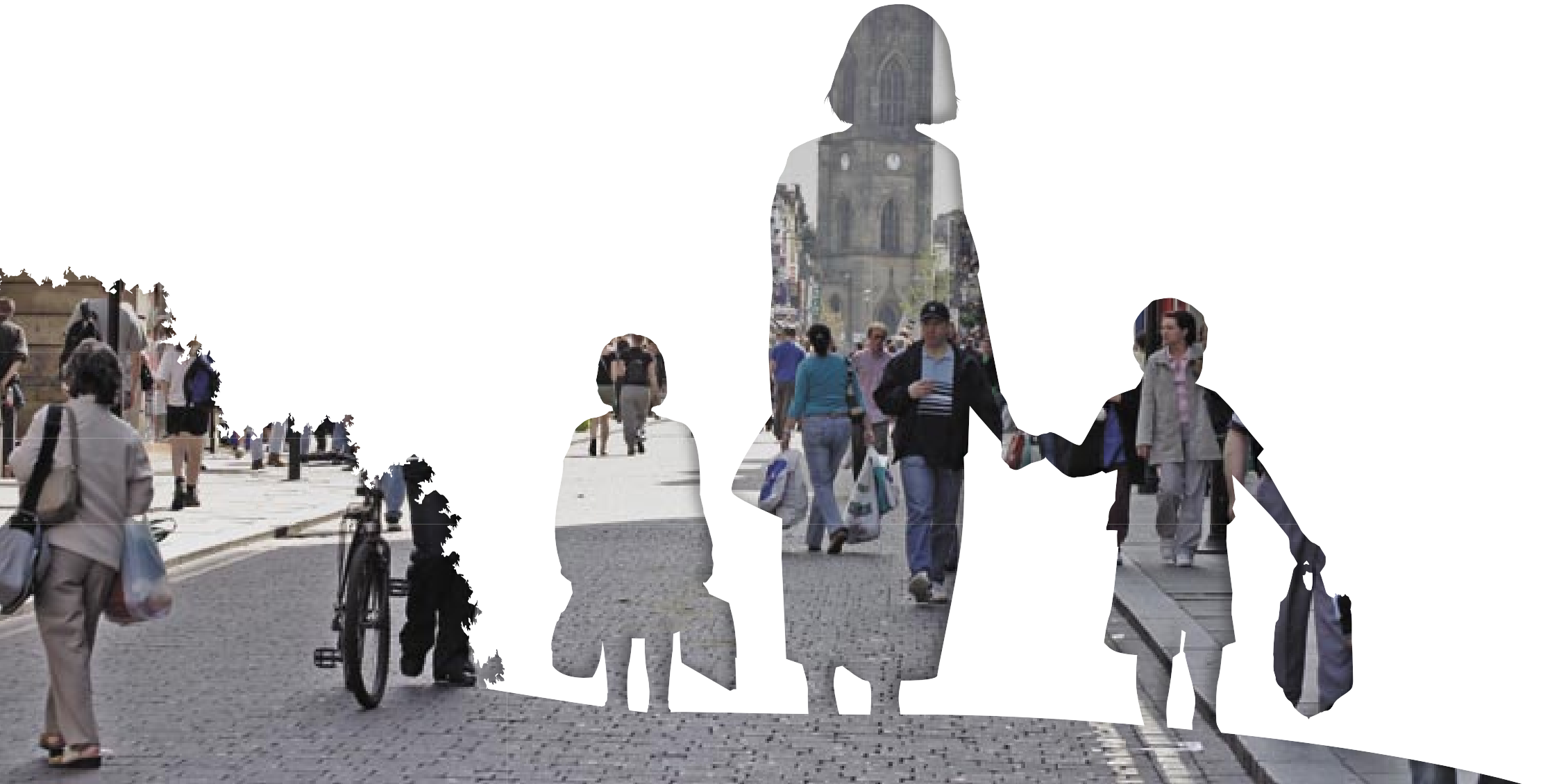
contents

1. foreword



In the UK, around nine in ten people live in towns and cities. Globally, we are now a majority urban world. If we are to prosper in the 21st century, we have no choice but to learn to live together in cities in sustainable ways. This will mean providing a high quality of life for all residents. It will also mean reducing the wider environmental impact of cities.

Britain has a long and proud urban tradition. Our cities have been crucibles for social and technological innovations that have spread across the globe. We should now be leading the way in showing the world how to live sustainably in cities.

Our major conurbations – and their leaders – face a range of challenges over the coming decades. They will have to provide clean water, efficient energy, and sustainable food, while reducing pollution and providing high quality environments for their citizens. They will have to maintain social cohesion and ensure services are available to all, while tackling the exclusion and inequality, which is at its starkest in many of our major urban areas. And they will have to continue to reposition themselves economically – in the face of rising global competition and the shift to a low-carbon world – in order to tackle current high levels of unemployment and secure the jobs of the future.

Overlaying – and intensifying – all of these pressures is climate change. Cities will have to deal not only with the policy responses – such as more expensive carbon – but also the physical impacts. Throughout human history we have built our major settlements on rivers, estuaries and coasts. Sea level rise, storms and floods are just some of the impacts with which they will have to contend.

Civic leaders face these multiple challenges while at the same time facing swingeing spending cuts. They are being asked to make very tough choices about what they support and what they stop doing. And public sector funding will remain tight for a number of years.

To succeed in the face of this bleak spending landscape, local authorities and city governments will have to deliver more for less. This means being smarter about how they run the services they provide to their citizens, whether it is effective environmental management schemes, better transportation or more efficient energy from diverse sources. It also means engaging and involving new partners – from the private sector and civil society – in making things happen.

This is a time for new thinking and more creative approaches. There is an opportunity to rethink how we live, work, produce and consume and in doing so, set our cities on course for a sustainable future.

Sometimes this will be through technological innovations – such as electric cars, hydrogen buses or smart grids. Other times it will be through social and institutional innovation – such as local food schemes, green investment funds or congestion charging. In the face of regulatory regimes that too often militate against long-term and sustainable approaches, cities will need all the creativity they can muster to generate unique ideas, get them funded and find the partners to deliver.

So, how do UK cities measure up against these multiple challenges?

This is the fourth annual Sustainable Cities Index, produced by Forum for the Future. It ranks Britain's 20 largest cities according to social, economic and environmental performance. Through it, Forum for the Future hopes to bring rigour to the debate about 'green' and sustainable cities and to engender healthy competition amongst our leading cities.

In this report, each of Britain's 20 largest cities is analysed according to three criteria – its 'environmental performance' in terms of resource use and pollution; its 'quality of life' – what the city is like to live in for all its citizens; and 'future- proofing' – how well the city is preparing itself for a sustainable future.

We selected these index categories to reflect the sustainability of each city in a fair and balanced way. The indicators, developed in discussion with the local authorities themselves, use existing data on aspects of performance on which cities are already expected to make improvements.

We hope this index will help our cities make progress towards living in a more sustainable way, towards reducing their overall impact on the environment and towards facing the multiple challenges coming down the line.

Peter Madden
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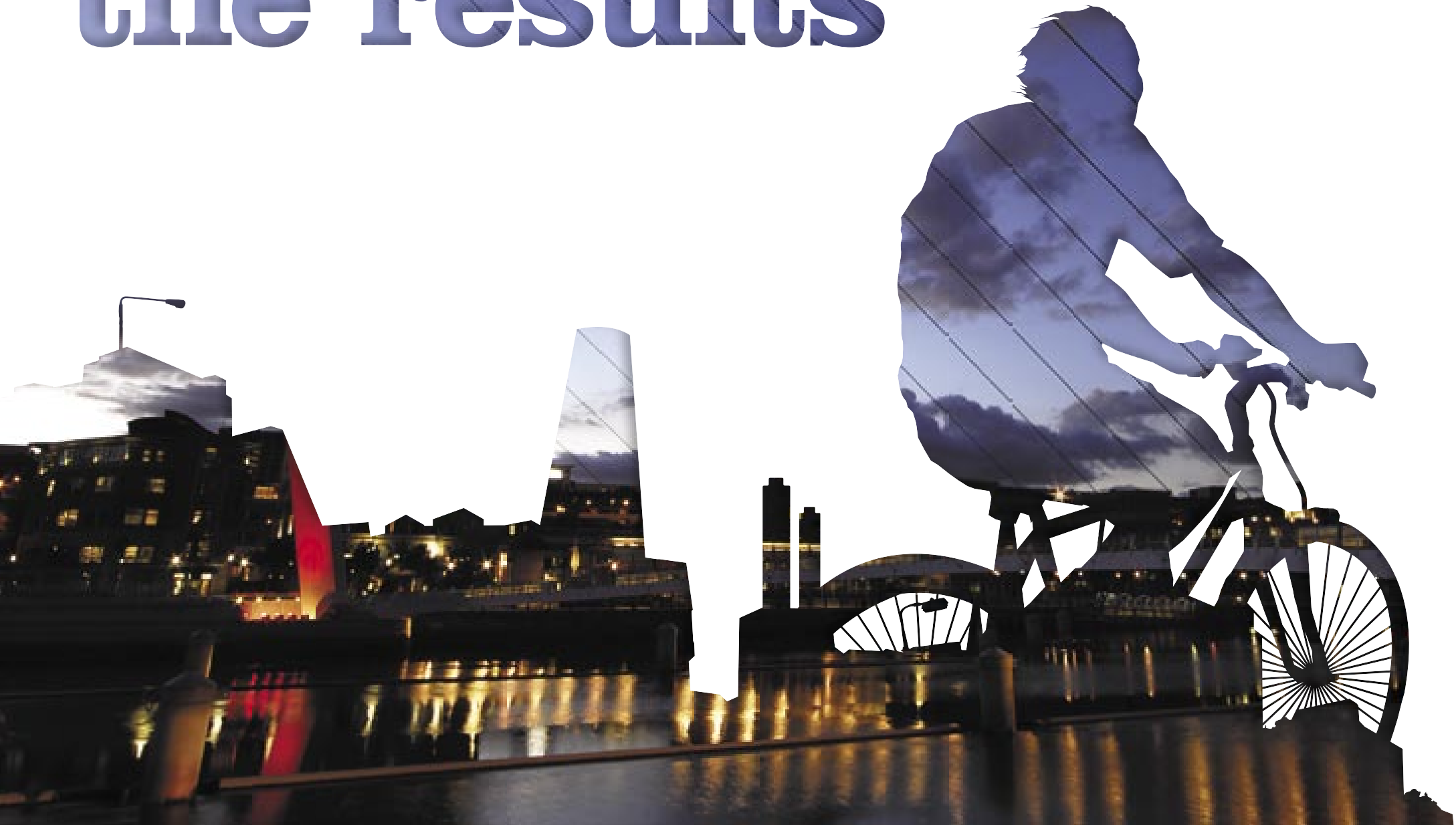
2.
the results



The Sustainable Cities Index tracks progress on sustainability in Britain's 20 largest cities, ranking them across three broad baskets: environmental performance; quality of life; and future-proofing – how well they are addressing issues such as climate change, recycling and biodiversity.

It provides a snapshot of sustainability in each city, with the aim of encouraging healthy competition, stimulating discussion and suggesting new ways of thinking about cities.

overall ranking

	2010	2009	2008	2007
Newcastle	**1**	1	4	8
Leicester	**2**	4	8	14
Brighton	**3**	3	2	1
Bristol	**4**	2	1	3
London	**5**	5	9	10
Leeds	**6**	6	13	5
Coventry	**7**	11	14	17
Plymouth	**8**	12	3	4
Edinburgh	**9**	7	6	2
Sheffield	**10**	9	7	7
Cardiff	**11**	10	5	6
Nottingham	**12**	8	10=	11
Manchester	**13**	14	15	12
Liverpool	**14**	15	17	20
Birmingham	**15**	17	19	19
Sunderland	**16**	13	12	13
Derby	**17**	*	*	*
Bradford	**18**	16	10=	9
Glasgow	**19**	19	18	15
Hull	**20**	20	20	18

All indicators are given equal weighting within each basket and all baskets receive equal weighting within the overall city ranking.

***Derby is a new entrant this year having outgrown Wolverhampton to become Britain's 20th largest city and therefore has no historic data in this index.**

Environmental performance indicators:
- **Air quality**
- **Biodiversity**
- **Household waste**
- **Ecological footprint**

Quality of life indicators:
- **Employment**
- **Transport**
- **Education**
- **Health**
- **Green space**

Future-proofing indicators:
- **Climate change**
- **Local food**
- **Economy**
- **Recycling**

overview

In our fourth annual Sustainable Cities Index, Newcastle has consolidated its position as Britain's most sustainable city. It seized the top spot last year and since then it has widened the gap with its peers.

Newcastle showed ambition as long ago as 2002 when the Carbon Neutral Newcastle partnership announced its intention to become a 'carbon neutral' city. The city has placed itself at the centre of an increasingly vibrant clean-tech cluster in the North East and it aims to become a world-class centre of science and innovation, benefiting economically and socially from the emerging green economy. With **Sunderland** and the wider North East region, it aspires to be the UK's 'electric car capital' and the region is rolling out 1,300 charging points.

Four rivals with very similar scores jockey for position behind the leader, though their strengths and weaknesses lie in different areas. **Leicester** performs best on the environment and does well on future-proofing, but falls behind on quality of life. **Brighton** is also strong on future-proofing and quality of life but has a high environmental impact. **Bristol** is the best city for quality of life and doing well on the economy, but is falling behind on environmental performance and future-proofing. **London** scores best on its future-proofing, with strong plans to reduce emissions and adapt to climate change, and the greatest number of business start-ups per person.

All these cities have set themselves ambitious targets based on long-term planning, are well-governed, and have relatively environmentally aware and active citizens. Brighton, Bristol and London all have Green Party councillors and Brighton has elected the UK's first Green Party MP. Leicester was the UK's first 'Environment City' back in 1990, the city council was one of the first to bring in measures to reduce greenhouse gas emissions, and in 1998 it was honoured with the title of Europe's 'Sustainable City'.

Overall, Britain's 20 largest cities are clearly becoming more sustainable. Since our first index in 2007 their performance has improved on 11 of the 13 indicators we track. Only employment and provision of allotments have fallen.

However, there's a marked difference in the rate of improvement. Those cities making slower progress are slipping down the rankings and it's concerning to see the gap between the top and bottom performers widening. For example, despite underlying improvements in performance against a number of indicators and ambitions to be European Green Capital, **Glasgow** has been unable to improve on last year's 19th place. **Hull**, which has yet to publish its climate change strategy, remains 20th.

Britain's 20th largest city, **Derby**, has outgrown Wolverhampton and taken its place in this index. It enters near the bottom in 17th place but sets the benchmark for the other cities on recycling, achieving a top rate of 44% of household waste.

Cities face huge challenges in the years to come: global trends like climate change, growing and ageing populations, shortages of water and other key resources, will have a profound impact on their environment, their economy and their citizens' quality of life. At a time of extreme pressure on budgets it is crucial to invest wisely for sustainable long-term success. They will need to plan for major changes in the way they work and forge new partnerships – with business, public sector bodies and community groups – to plan and implement innovative solutions.

Newcastle is leading the way in the UK, but there's huge scope for all our cities to improve on all fronts, and they have a long way to go to match the best European cities such as Copenhagen or Stockholm.

4th place — Bristol

1st place — Newcastle

top performers

The top five cities have remained the same as last year, with Brighton and Bristol having been in this group since 2007.

There is no simple answer to why some cities are doing better on sustainability than others: performance does not easily correlate to GDP per head, local authority spending, population density, or which political parties hold sway.

Rather, the strong performers tend to share a mixture of strategic long-term ambitions and high aspirations, coupled with good governance and pressure from environmentally aware populations. For example, many cities have seized the opportunity of their statutory sustainable community strategy process to mainstream action on climate change and sustainability. But bottom-placed Hull's community strategy, whilst reflecting the challenges the city faces to improve quality of life, fails to grasp opportunities to drive forward environmental sustainability and a low-carbon economy.

Newcastle tops the table for the second year in a row, extending its lead with a strong performance in all three of our baskets. The city is planning well for the transition to a low-carbon economy: its new 'Citywide Climate Change Strategy & Action Plan 2010-2020' sets out clear goals and how it will achieve them. The Newcastle Climate Change Partnership, which brings together the public sector, business, universities and NGOs, plays a vital role in driving this process.

The city has responded to the recession innovatively, seeking to maintain confidence in the local economy and plan for future growth. It has invested in infrastructure, promoted business rate relief and supported business start-ups.[1] It also launched a programme of early interventions for the newly unemployed and a fund to support long-term youth training and apprenticeships.

Newcastle aims to become a world-class centre of science and innovation, benefiting economically and socially from the emerging green economy through growth in clean technology companies including wind turbines, electric cars and clean coal. Despite this its economy is highly dependent on the public sector, with few business start-ups, which may make it vulnerable to cuts in public spending.[2]

Quality of life in Newcastle, the cultural capital of the North East, is relatively high with good life expectancy, access to services and high-quality green spaces. But the city slipped from 4th to 11th place on education, a surprising fall when its Sustainable Community Strategy states "Higher level skills are critical to the success of our economy".

The same four cities as last year follow in a tight cluster. **Leicester** rises to second place and leads the environment basket, where it topped three of the four indicators. It has the lowest ecological footprint, produces the least household waste and manages its biodiversity well, but was let down by air quality, where it came 18th. Leicester also shows leadership in future-proofing with a strong climate change plan linked into existing environmental and corporate risk management,[3] a high recycling rate, and new business start-ups pursuing opportunities in sustainability and environmental management. The city has made impressive progress since 2007, when it ranked 14th overall.

Brighton is the only city to win a top three place every year since 2007. It scores well for quality of life and future-proofing, with a healthy, highly skilled population and a vibrant economy, but it falls down on environmental performance. Brighton has the worst ecological footprint of any city: despite improvements in the energy efficiency of its housing, its high-consumption lifestyle makes a disproportionate demand on the global environment.

Bristol falls to fourth place but retains the top spot in the quality of life basket, with a low unemployment rate, highly skilled and qualified residents, and improving school standards.[4] It lags behind other cities on biodiversity management and on climate change, although the city council is developing detailed plans to cut greenhouse gas emissions by 40% from 2005 to 2020. It has made good progress on reducing household waste but failed to maintain improvements in recycling. However, a promised waste action plan may help re-establish Bristol's position as leader in this area.

London stays fifth, but ranks highest for future-proofing with strong new plans to reduce emissions and adapt to climate change.[5] It is a city of extremes with the highest life expectancy, but by far the worst air quality and one of the largest ecological footprints. The city is the clear leader in the economy indicator: there are 76 business start-ups for every 10,000 people, and the Greater London Authority's fund to tackle carbon emissions will create green jobs. Overall, it has improved steadily rising from 10th in 2007.

2nd place — Leicester

1 Audit Commission (2009) Local Area Assessment reports, December 2009 http://oneplace.audit-commission.gov.uk infobyarea/pages/default.aspx

2 Centre for Cities (2010) Cities Outlook 2010 www.centreforcities.org/outlook10

3 Local & Regional Adaptation Partnership Board (2009) Adapting to Climate Change: local area's action. Case studies of progress on NI 188 www.cagconsultants.co.uk/resources/climate-change-case-study/Adapting_to_Climate_Change_Local_Areas_Action_June09.pdf

4 Audit Commission (2009) Local Area Assessment reports, December 2009 http://oneplace.audit-commission.gov.uk/infobyarea/pages/default.aspx

5 London Climate Change Mitigation and Energy Strategy and London Climate Change Adaptation Strategy

mid-table performers

Leeds retains its sixth place in the overall rankings with mid-table positions for the vast majority of indicators. The city has scored fairly consistently against most indicators since 2009 with a good improvement in performance for recycling.

The two biggest climbers have both moved up four places since last year. **Coventry** comes seventh overall and third on environmental performance. It has risen ten places since 2007 showing good progress on a number of indicators. It is this approach of addressing the multitude of competing issues that will ultimately ensure the sustainability of our cities.

Plymouth, in eighth place, ranks third for quality of life with the second highest life expectancy and an excellent improvement in education. It moves up ten places on climate change thanks to a city-wide plan, which sets out actions to cut emissions and tackle the areas where risk of climate impacts is highest. However, it has the second lowest number of new business start-ups.

Edinburgh, ninth, is best for employment – the only city where the unemployment rate remained better than the national average at the height of the financial crisis last year. It also ranks second on education. However, its residents have the worst access to local services and the second largest ecological footprint.

Sheffield, 10th, has risen up the quality of life rankings year on year with improvements in bus and tram services and pedestrian access to the city centre. It also performs well on the environment. However, it falls down on future-proofing including a big drop in recycling. Furthermore, Sheffield's State of the Environment Report 2010 recognises that the city's Energy Recovery Facility creates a perverse incentive not to increase recycling rates, as incineration requires a minimum quantity of paper, plastic and other potentially recyclable materials.

Cardiff, 11th, scores well on future-proofing. It has made notable improvements in recycling, introducing kerbside collections of food waste,[6] and now recycles as much as the best city did last year, putting it in third place. Cardiff's average household waste has finally started to fall, though it is still 19th on this measure.

Nottingham has the biggest fall since last year, dropping four places to 12th, despite winning our Green Space indicator for the second year in a row, with 22 awards across the city. As with many cities it contends with significant inequalities in health and wealth. However, life expectancy is improving, with reductions in levels of cancer and heart disease.[7]

According to The Work Foundation, "**Manchester** is often hailed as the most successful example of city regeneration in the UK".[8] This is partly borne out by its rankings on green space (second) and the economy (third). However, the city still suffers from poor air quality, life expectancy and recycling rates, leaving it 13th overall.

Liverpool, 14th, continues its steady rise from its position at the bottom of the table in 2007. It has seen improvements in biodiversity and ecological footprint, while an increase of only one place for future-proofing hides improvements in economy, climate change and recycling. Of our 20 cities, Liverpool has the best access to key services without a car, but its dense road network results in relatively poor air quality.

Birmingham has performed well since last year, moving up by two places to 15th overall despite coming 19th for quality of life. The city leapt 15 places on climate change with a new action plan, which gives a high-level cabinet committee strategic political oversight across city council departments. The city also reported that it is on track to meet its target of cutting carbon dioxide (CO_2) by 60% between 1990 and 2026.

14th place — Liverpool

12th place — Nottingham

6 Cardiff 2010 Carbon Lite Action Plan

7 Audit Commission (2009) Local Area Assessment reports, December 2009 http://oneplace.audit-commission.gov.uk/infobyarea/pages/default.aspx

8 Work Foundation (2009) Recession and Recovery: UK City Case Studies – Impacts and Responses www.theworkfoundation.com/Assets/Docs/UK_recession_recovery_%20case_studies.pdf

poorer performers

Sunderland is this year's second biggest faller, down from 13th to 16th. The city retained the top spot for climate change with its systematic approach to management, monitoring and reporting for CO_2 reduction and a detailed climate risk and adaptation strategy. Good rankings for food and ecological footprint are counter-balanced by lack of progress on recycling, biodiversity and education, and bottom places for economy and waste.

Britain's 20th largest city, **Derby**, enters the index in 17th place. It scores poorly for total waste generation but sets the benchmark for the other cities on recycling, achieving a rate of 44% of household waste. It comes bottom on green spaces, by quite some way, with only one award across 348 areas of public open space. Unemployment is higher than the national average and recent figures show this is still increasing.

Coming top for air quality does not keep **Bradford**, 18th, out of the bottom three. It does not yet have a structured approach to climate change so ranks bottom on this measure. It faces big challenges on health and education, but it ranks 11th on the economy where the Local Enterprise Growth Initiative and Bradford 'Kickstart', have helped create 946 new businesses over the past three years.[9]

Glasgow remains in 19th place despite some tangible environmental improvements, such as reducing waste and its ecological footprint. It is the only city where the unemployment rate has worsened since last year, despite a relatively highly skilled population. However, Glasgow has set itself the goal of becoming one of Europe's most sustainable cities within 10 years, improving lifestyles and opportunities for residents and business and delivering this within a vibrant and growing city.

Hull remains the lowest ranking city in the index for the third year in a row. It ranks near the bottom for business start-ups and comes last on employment, with 7.4% of residents claiming Jobseeker's Allowance, and this could be exacerbated next year with the withdrawal of funding from two regeneration agencies. Although it has made the biggest improvement in education of any city over the four years of the index (with the proportion of citizens with at least an NVQ2 qualification rising from 50.7% to 55.0%), it still comes last. The city ranked 19th for climate change although a new city-wide strategy and action plan is expected to be approved later this year. Since 2007,[10] when 20,000 citizens were affected by floods, the council has undertaken significant works to reduce flood risks. However, Hull still does not have a comprehensive adaptation strategy responding to the impacts of climate change.

19th place — Glasgow

"There is still huge scope for all our cities to improve on all fronts."

9 Audit Commission (2009) Bradford Local Area Assessment report http://oneplace.audit-commission.gov.uk/infobyarea/pages/default.aspx

10 ONE HULL (2009) Sustainable Community Strategy 2009–2011

3. environmental performance

The quality of our cities' natural environment is important not just because they should be pleasant places to live, but because it has an important bearing on the health and wellbeing of their inhabitants, and on wider global concerns such as resource use and climate change. Research shows the positive impact of green spaces on wellbeing, and the links between air quality and respiratory health.[11]

There has been a general improvement across all of the indicators within this basket, although the gap between the top and bottom cities, Leicester and Cardiff, has increased.

London

environmental performance — overall ranking

	2010	2009	2008	2007
Leicester	**1**	3=	10	8
Newcastle	**2**	1	8	6
Coventry	**3**	5=	6	12
Nottingham	**4=**	2	11	16
Sheffield	**4=**	7	12	10
Leeds	**6**	8=	20	9
Edinburgh	**7=**	16	16	14
Manchester	**7=**	12=	19	17
Bradford	**9**	3=	2	1
Birmingham	**10=**	5=	17	19
Plymouth	**10=**	14	1	3
Bristol	**12**	10	5	2
Liverpool	**13**	11	7	13
Brighton	**14=**	15	14	15
Glasgow	**14=**	8=	13	11
Sunderland	**16**	12=	3	5
London	**17**	17	18	17
Derby	**18**	*	*	*
Hull	**19**	19	9	7
Cardiff	**20**	18	3	4

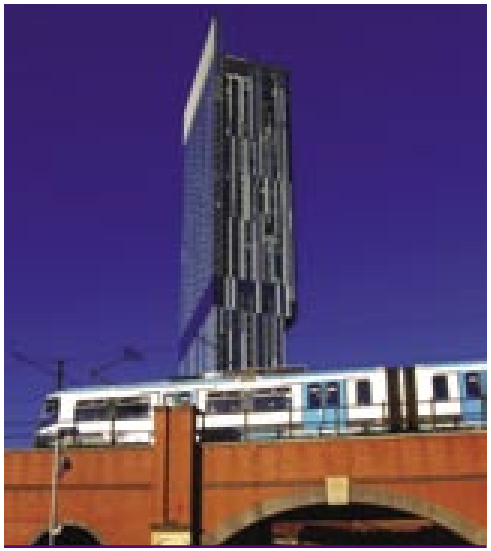
*Derby is a new entrant this year having outgrown Wolverhampton to become Britain's 20th largest city.

11 Health place and nature, Sustainable Development Commission, 2008

air quality

High levels of nitrogen dioxide are harmful to respiratory health and bad for the environment. The long-term trend across the UK's cities is down as industries move out of town and cars become increasingly efficient. However, traffic continues to increase, and busy junctions, narrow city streets, and heavy bus and lorry traffic can all create zones with poor air quality.

The relative performance, and therefore rankings, of the cities remains fairly stable compared with last year as air quality requires long-term strategic planning. Although London remains by far the worst performing city, it has seen a significant improvement in air quality. Generally our cities are improving, but there were five cities where air quality deteriorated: Bristol, Edinburgh, Glasgow, Liverpool and Plymouth.



Manchester

biodiversity

The ecological services provided by natural and diverse habitats help regulate temperature, absorb pollution, control pests and maintain soil fertility. They also play a key role in limiting the causes of climate change and helping cities cope with its impacts by absorbing carbon, providing natural defences against floods and droughts, maintaining water quality, and reducing the 'heat island effect', where cities warm up more than the surrounding countryside particularly during heat waves.

This indicator reflects what local authorities are doing to protect and manage the valuable biodiversity sites within their boundaries, both those owned by the council and those in private ownership. Most cities have improved in the last year, with the exceptions of Newcastle, which remained the same and is pushed into second place, and Hull, which did not report to DEFRA and so came bottom.

The top city, and biggest riser, is Leicester where biodiversity action plans in 2003 and 2006 are delivering real change. The city is not richly endowed with biodiversity and has a relatively high population density, but it has made outstanding progress in protecting the complexity and diversity of the natural habitats it does have.

household waste

Household waste (including all reused, recycled and composted materials) reflects levels of consumption in each city and the life cycle impacts of goods. Every city in the index has reduced waste since last year. Across all 20 the average person generates 441kg of waste a year, ahead of the UK average of 473kg per person.

Leicester is the only city in this index to reduce waste to below 400kg per person per year, putting it on a par with the best of European cities. However 56% of this still goes into landfill, requiring long-term management and creating greenhouse gases such as methane.

Two cities, Plymouth and Glasgow, have made large cuts in waste, by 7% and 6% respectively since last year's index, although they both remain towards the bottom of the ranking.

ecological footprint

A city's ecological footprint measures the environmental impact of its population's lifestyle, consumption habits and energy use. Housing and food and drink consumption have the biggest influence, but transport, pets and consumer items such as clothing are also important. Overall the ecological footprint of our 20 cities is improving, thanks in part to improvements in the energy efficiency of housing and transport.

Most of our cities have a very similar ecological footprint, but both Edinburgh and Brighton score relatively poorly. Brighton consistently performs worst on this measure as its residents spend more on food and drink, including restaurants and takeaways, and take more flights and international holidays than other cities.

Sheffield

insight: CO_2 emissions

If the world is to avoid the worst impacts of climate change, the average CO_2 emissions of every person in the UK must fall from 8.2 tonnes a year today to less than 2 tonnes by 2050.[12] In a side study this year we look at how cities have succeeded in reducing CO_2 emissions per person from 2005 to 2008.[13]

The most recent data shows per capita CO_2 emissions ranging from 7.4 tonnes in Cardiff to 5.3 tonnes in Brighton & Hove, significantly lower than the national average. This is partly because heavy industry has moved out of city centres, but also because in dense urban areas people use less transport and make more efficient use of heat and electricity.

Cardiff has shown by far the greatest reduction in per capita CO_2 emissions since 2005, down from 8.5 tonnes, but it has furthest to go. Bristol achieved the second largest reduction from 6.1 to 5.4 tonnes and now has the second lowest per capita emissions.

Most of this progress is due to reductions in commercial emissions. Cardiff, Sunderland, Hull, Leicester, and Coventry have achieved big reductions, reflecting structural changes in their economies, whereas London and Brighton's commercial emissions have remained static.

environmental performance — scores by different indicators

Ranking	City	Air quality	Biodiversity	Household waste	Ecological footprint	Total points
1	Leicester	3	20	20	20	63
2	Newcastle	14	18	9	13	54
3	Coventry	10	17	11	14	52
4=	Nottingham	5	14	18	12	49
4=	Sheffield	19	7	15	8	49
6	Leeds	15	16	12	4	47
7=	Edinburgh	18	19	7	2	46
7=	Manchester	2	10	16	18	46
9	Bradford	20	3	10	11	44
10=	Birmingham	4	13	8	17	42
10=	Plymouth	17	10	6	9	42
12	Bristol	8	8	19	6	41
13	Liverpool	6	4.5	13	16	39.5
14=	Brighton	16	6	14	1	37
14=	Glasgow	12	15	5	5	37
16	Sunderland	13	2	1	19	35
17	London	1	12	17	3	33
18	Derby	9	10	3	10	32
19	Hull	7	1	4	15	27
20	Cardiff	11	4.5	2	7	24.5

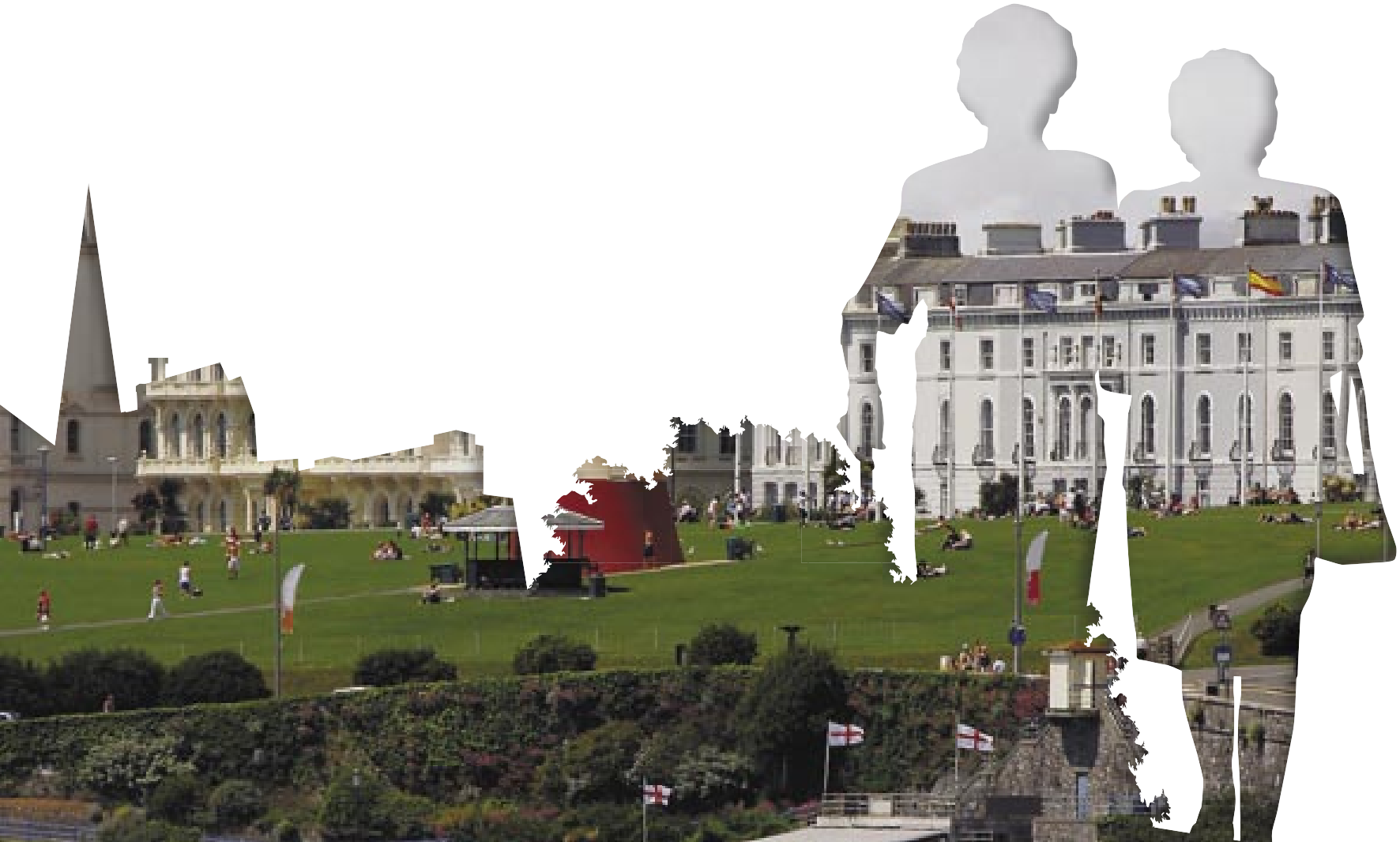
Best scores	Mid-range	Worst

The point scores for each indicator range from 1 (worst) to 20 (best).

12 www.energyblueprint.info Assumes a world population of 9.2 billion in 2050

13 National Indicator 186 www.decc.gov.uk/en/content/cms/statistics/indicators

4. quality of life



The quality of life basket aims to reflect the social and human aspects of sustainability. We have chosen indicators that measure levels of education, health (through life expectancy), employment, high quality green space and transport (through access to key services) in each city.

Quality of life in Britain's cities has improved in four of the five measures we track since we launched the Sustainable Cities Index in 2007. The only exception is employment, where the global recession has hit British cities hard, although they have improved slightly since last year.

London

quality of life — overall ranking

	2010	2009	2008	2007
Bristol	**1**	1	2=	3
Brighton	**2**	3	1	1
Plymouth	**3**	6	4	5
London	**4**	2	5	6
Sheffield	**5**	7	9	13
Edinburgh	**6=**	5	2=	2
Newcastle	**6=**	4	8	9
Cardiff	**8**	8	6	4
Leeds	**9**	9=	7	7
Nottingham	**10**	9=	14=	12
Liverpool	**11**	11	17	17=
Coventry	**12**	13	18	16
Manchester	**13**	12	10	8
Derby	**14**	*	*	*
Leicester	**15**	16	12=	11
Sunderland	**16**	14	12=	19
Bradford	**17**	17=	16	14
Glasgow	**18**	19	20	17=
Birmingham	**19**	17=	14=	15
Hull	**20**	20	19	20

*Derby is a new entrant this year having outgrown Wolverhampton to become Britain's 20th largest city.

employment

In the vast majority of our cities the proportion of residents claiming Jobseeker's Allowance is higher than the UK average (3.6%); only Edinburgh (3.1%), Bristol (3.3%) and Plymouth (3.5%) are lower. But the average summer unemployment rate in the 20 cities has decreased from 5.5% in July 2009 to 4.9% in July 2010, as private business recovers from the worst effects of the financial crisis.

The relative positions of the cities have remained more or less the same, apart from Glasgow which has fallen, the only city to see a slight rise in unemployment since 2009. However, Glasgow City Council has increased the incentive to work by introducing a 'Living Wage' of £7 per hour for its employees in April 2009, and encouraging its arm's length organisations and contractors to do the same.[14]

Liverpool showed the best recovery in underlying data, with a fall in the number of claimants from 7.6% to 6.3% of total population. A factor in this may have been the 2009 launch of a rapid response consultancy offering free intensive one-to-one business advice to small and medium-sized enterprises facing difficulties.[15] Despite this the city has not changed its rank near the bottom of the table.

transport – access to services

This indicator captures how long it takes to access key services without using a car. Local authorities play a key role in ensuring that citizens in all parts of the city have services within easy access, by planning for high density urban living rather than concentrating services on the major road network, by designing streets so that walking and cycling are faster and more convenient than driving, and by investing in local public transport.

Across the cities we have seen a general improvement since last year, when we introduced this as a new indicator. The biggest riser is Leicester, where a city centre regeneration scheme has improved access to the city centre for walkers and cyclists and introduced priority bus lanes.[16] Bradford has also shown an above average improvement. It has engaged with rural communities which have difficulty in accessing services and succeeded in improving transport in some areas.[17]

education

Successful cities need a well-skilled population to support their economy and tackle the big challenges of sustainable development. Overall, the skills level of the working population of Britain's 20 largest cities has continued to improve.

However, relative differences between cities remain wide. In Brighton more than 75% of working people have a minimum professional qualification equivalent to NVQ level 2 but only 50% to 60% meet this level in Leicester, Hull, Birmingham and Bradford.

health – life expectancy

Since we started this index in 2007 there has been a steady increase in average life expectancy at birth across all 20 cities: a child born today will have a life expectancy of nearly a whole year more than just four years ago. In fact, life expectancy in the UK has risen for the last 25 years.

All cities have improved since last year with the exception of Glasgow and Sunderland, which remain the same. However, apart from London, all of our cities have life expectancy rates below the national average of 79.6 years. There is a 6.5 year gap between our top and bottom performers, London (80.5 years) and Glasgow (74 years), and there are even wider differences of up to 10 years within city boundaries.

Life expectancy at birth is reduced by a number of key health factors associated with particularly deprived urban areas, a challenge faced by most of the cities in the index. One example of successful action is Derby, where the 'b-active' programme is helping to reduce obesity by getting people to be more active.[18] According to the Audit Commission children in Derby are healthier, less obese and more active than in many other areas.

Bradford

green space

Access to high quality open space in a city is vital for people's physical and mental wellbeing. Green spaces also play a key role in adaptation to climate change: they can help cool the environment during heat waves, reduce flood risk by storing and soaking away excess water, and provide habitats for wildlife.

The indicator we use is a voluntary award scheme measuring the effort the councils put in, both directly and in partnership, to manage green spaces. This is the second year we have used this indicator and there has been a general improvement across the cities, with Nottingham and Manchester standing out far above the rest. The Scottish cities have jumped up the rankings due to a slight change in methodology.

14 Work Foundation (2009) Recession and Recovery: UK City Case Studies – Impacts and Responses www.theworkfoundation.com/Assets/Docs/UK_recession_recovery_%20case_studies.pdf

15 Work Foundation (2009) see above

16 Campaign for Better Transport (2010) 2010 Car Dependency Scorecard, www.bettertransport.org.uk/campaigns/traffic_reduction/scorecard

17 Audit Commission (2009) Bradford Local Area Assessment report http://oneplace.audit-commission.gov.uk/infobyarea/pages/default.aspx

18 Audit Commission (2009) Derby Local Area Agreement report http://oneplace.audit-commission.gov.uk/infobyarea/pages/default.aspx

insight: volunteering

Volunteering is about making the choice to spend time, unpaid, doing something that aims to benefit society. It contributes to environmental quality, economic development, safer and stronger communities, social inclusion and lifelong learning, all of which enhance quality of life.[19] Strong social relationships and the commitment of residents to shared goals and ideals through 'giving' their time play a significant role in a sustainable city.

One in four people in the UK gives unpaid help outside their family at least once a month, according to the UK citizenship survey,[20] but only one of our cities – Bradford – achieves this with 27% volunteering regularly. Brighton and Bristol are at 24%, Derby and Sheffield achieve volunteering rates just above 20%, but Hull and Sunderland only manage 14%.[21]

There's considerable scope for cities to increase volunteering by planning and funding measures to involve, manage and support volunteers. Young people say they would volunteer more if they were shown how their help is needed. Retired people, who are already the most active volunteers, can be encouraged through personal contacts and training.

quality of life — scores by different indicators

Ranking	City	Employment	Transport	Education	Health	Green space	Total points
1	Bristol	19	19	16	14	9	77
2	Brighton	17	9	20	17.5	10	73.5
3	Plymouth	18	16	15	19	3	71
4	London	15	6	13	20	16	70
5	Sheffield	13.5	8	17	16	15	69.5
6=	Edinburgh	20	1	19	12	14	66
6=	Newcastle	12	17	10	9	18	66
8	Cardiff	16	5	18	13	11	63
9	Leeds	13.5	3	14	17.5	7	55
10	Nottingham	6	15	7	5	20	53
11	Liverpool	3.5	20	8	3	17	51.5
12	Coventry	9	14	11	11	5	50
13	Manchester	7.5	13	5	2	19	46.5
14	Derby	10.5	12	6	15	1	44.5
15	Leicester	5	18	1	6	13	43
16	Sunderland	7.5	7	9	7	8	38.5
17	Bradford	10.5	4	4	8	6	32.5
18	Glasgow	3.5	2	12	1	12	30.5
19	Birmingham	2	11	3	10	4	30
20	Hull	1	10	2	4	2	19

Best scores | Mid-range | Worst

The point scores for each indicator range from 1 (worst) to 20 (best).

19 The Institute for Volunteering Research and Volunteering England (2007) Volunteering Works: Volunteering and social policy. Report of the Commission on the Future of Volunteering. September 2007

20 DCLG (2009) 2007–2008 Citizenship Survey. Volunteering and Charitable Giving Topic Report.

21 DCLG (2009) Place Survey: England – Headline Results 2008 (Revised). Results for local authorities www.communities.gov.uk/publications/corporate/statistics placesurvey2008

5. future-proofing

Sustainable cities need to value their environment and deliver quality of life for their citizens, but it's also critical that they plan for the future. Our future-proofing indicators set out to capture how cities are addressing some of the strategic issues that require local civic leadership. They look at how cities are preparing for climate change, how well they can cope with changes to their food supply chain, the dynamism and innovation in the local economy, and the reuse of resources.

This basket offers mixed messages. Our cities generally improved on climate change and recycling but grew worse on food. Our economic indicator has changed slightly (due to a change in government reporting) but it still offers a direct comparison between the cities and now captures a wider range of business start-ups.

future-proofing — overall ranking

	2010	2009	2008	2007
London	**1**	7	12	6
Newcastle	**2**	4	3=	9=
Leicester	**3**	1	6=	17
Brighton	**4**	2	1	1=
Bristol	**5=**	3	2	9=
Cardiff	**5=**	5=	14	15
Leeds	**7**	8	11	5
Coventry	**8**	10	8	16
Birmingham	**9**	18=	18	19
Sunderland	**10**	5=	16	7=
Plymouth	**11**	12=	6=	11
Edinburgh	**12**	9	5	1=
Derby	**13=**	*	*	*
Nottingham	**13=**	12=	10	4
Liverpool	**15**	16	19	20
Manchester	**16**	14	9	7=
Sheffield	**17**	15	3=	3
Bradford	**18=**	18=	13	12=
Hull	**18=**	17	20	18
Glasgow	**20**	20	15	12=

*Derby is a new entrant this year having outgrown Wolverhampton to become Britain's 20th largest city.

climate change

The next ten years are seen as critical to avoid runaway climate change. Cities that take a long-term view and plan to reduce emissions and adapt to climate impacts will be more efficient and resilient. These plans also have the potential to address social and economic problems, such as fuel poverty and traffic congestion, and so deliver a better quality of life for residents.

Over the past few years Britain's largest cities have done much to develop policy and strategy on climate change and this year they have continued to improve, with a wide range of different approaches. Birmingham has jumped 15 places with a city-wide strategy which includes the council's estates and operations, but it requires further work on adaptation. This is not unusual: cities are still getting to grips with the complexity of planning for climate change, and less than half have published detailed adaptation plans and targets.

We have received and reviewed documentation regarding operations and estates from a number of cities but have only included them in our assessment if they are publicly available and open to scrutiny. We are also aware of ongoing work by a number of cities in both planning and implementation and expect to see further progress in the months and years ahead.

local food – provision of allotments

There is still a huge amount of work to do to define what constitutes a sustainable food system for a city, much less measure it. However, there is a strong argument that locally produced food should be a key element. This reduces the amount of food transported over long distances. It also offers a solution to the phenomenon of 'food deserts',[22] [23] neighbourhoods without a supermarket or mainstream grocer, where the only local choice is more expensive convenience shopping and residents often end up with poorer diets. There are numerous forms of 'urban agriculture' including allotments (which we measure here), communal and collective gardens, private gardens and the use of future development land on short-term leases in cities such as Glasgow.

Local authorities have the opportunity to influence local food production through their planning system and are starting to take into account the potential for growing food in the urban landscape.[24] However, few cities are opening new allotments to cater for their growing populations and performance has got worse since last year, without much movement in the ranks. London has improved partly due to improved data.

economy

A vibrant and sustainable city will also support innovation and the creation of new enterprise. London is, not surprisingly, the clear leader in this indicator with 76 business 'births' per 10,000 people. Brighton is second with 53. The poorest performer, Sunderland, only created 22 businesses per 10,000 inhabitants.

The cities that provide a home and a market for the emerging low-carbon growth sectors – in technology, manufacturing and design – will increase their economic activity over the coming years, competing both nationally and internationally. One example of this is Low Carbon South West:[25] previously supported by Bristol City Council, this is now an independent trade association, creating partnerships across the sector and promoting the growth of environmental technologies and services.

22 www.independent.co.uk/news/uk/home-news/food-deserts-depriving-towns-of-fresh-fruit-and-vegetables-764804.html

23 www.worldchanging.com/archives/007372.html

24 The Designs of the Time (DOTT) project in 2006/07 looked at these issues within the food strand of the project www.dott07.com/go/food/urban-farming

recycling

Collection and disposal of waste takes up a significant part of council budgets, and cities should see it as a resource. Waste can be reused, recycled, composted, or turned into a valuable source of energy, using anaerobic digestion or incineration with heat recovery. Recycling is also an important means of cutting greenhouse gas emissions: it saves energy and reduces the need for landfill, a major source of methane. Each aluminium can that is recycled reduces the need to source raw materials and the significant impacts associated with mining and smelting.

The cities in the index have all made significant improvements in recycling over the past four years, though none yet meet the EU target of recycling at least 50% of household waste by 2020. Performance varies enormously from 44% in Derby to 16% in Glasgow. As a benchmark, some German cities have already achieved household waste recycling rates of 70%.

Derby's recycling scheme covers more than 90% of households, collecting organic waste, glass, tins, plastics, Tetra Pak cartons, paper and old clothes. The city also runs one of the most advanced composting facilities in the UK.[26]

25 www.lowcarbonsouthwest.co.uk

26 Derby City Council Waste and Recycling www.derby.gov.uk/Environment/RubbishWasteReCycling/RecyclingFacilities/Recyclingdiduknow.htm

insight: city technology and infrastructure

The future holds profound challenges that will require big changes in how our cities work: climate change, higher energy prices, shortages of water and other resources, and more. Cities need to plan for these and implement innovative solutions, against a background of extremely tight budgets. Here we highlight some of the steps our cities are taking.

Numerous cities are developing local renewable energy generation capacity. Nottingham has hydro-electric; Birmingham is investing in combined heat and power, solar photovoltaic, ground source heat pumps and biomass heating; Liverpool and Bristol have wind turbines.

City transport systems will also need to move to clean electricity instead of fossil fuels. Edinburgh, Manchester, Birmingham, Sheffield and Nottingham are investing in tram systems. Newcastle and Sunderland aspire to be the UK's 'electric car capital' by rolling out 1,300 charging points and electric cars in the North East.

But cities are still far from creating their own 'smart grids', a foundation of a zero-carbon energy system. Re-engineering electricity distribution systems so they can receive energy from many decentralised sources and redistribute it locally will be essential for cities to scale up renewable energy generation and electric transport systems.

future-proofing — scores by different indicators

Ranking	City	Climate change	Local food	Economy	Recycling	Total points
1	London	19	15	20	11	65
2	Newcastle	18	20	7	19	64
3	Leicester	12	19	16	15	62
4	Brighton	15.5	18	19	9	61.5
5=	Bristol	6	13	17	17	53
5=	Cardiff	13	14	8	18	53
7	Leeds	11	12	12	13	48
8	Coventry	9	16	14	7	46
9	Birmingham	15.5	2	11	14	42.5
10	Sunderland	20	17	1	3	41
11	Plymouth	15.5	8	2	12	37.5
12	Edinburgh	9	3	15	10	37
13=	Derby	3	7	6	20	36
13=	Nottingham	6	9	5	16	36
15	Liverpool	15.5	5	9	6	35.5
16	Manchester	9	6	18	2	35
17	Sheffield	6	11	3	8	28
18=	Bradford	1	4	10	5	20
18=	Hull	2	10	4	4	20
20	Glasgow	4	1	13	1	19

Best scores	Mid-range	Worst

The point scores for each indicator range from 1 (worst) to 20 (best).

6. the city of the future

Tony Gale
General Manager
GE City Infrastructure

"At GE, we believe well planned and governed urban centres will be the key to de-coupling high quality of life from high levels of consumption and waste. Cities throughout history have often been centres of new thinking and behaviour, and they can be again in creating sustainable, low-carbon urban lifestyles.

This Forum for the Future report outlines the complex challenges cities face and shows which UK cities are taking the lead. Increasingly, cities around the world are setting the pace. GE is also a sponsor of the EUCO2 initiative 80/50 in which 15 European cities, including Glasgow, are working together to achieve a 30% reduction in emissions by 2030 and an 80% reduction by 2050 from 1990 levels – another example of urban visionary thinking.

However, achieving change is going to take imagination, big thinking and a radical shift in the way cities operate.

One important aspect will be making best use of the many new and emerging technologies that are available. There needs to be more 'big thinking' on how cities structure projects and the procurement process to maximise the potential of these technologies. There is still a tendency for innovations, in areas such as energy efficiency and waste management for instance, to be shoehorned into plans retrospectively and at greater cost. Increasingly planners and contractors will need to work with technology suppliers more closely, and earlier in the procurement process than has traditionally happened, to avoid today's projects being built with yesterday's technology.

For the same reasons cities need to adopt more effective public procurement practices that encourage innovation rather than inhibit it, as is currently often the case. Good innovation often requires upfront investment in a pilot project or the joint development of potential technologies. Sometimes companies in the private sector can be reluctant to risk investments in time, money and intellectual property that can be compromised by subsequent tender processes. The public expects and should get value for money and transparency, but sometimes these arrangements do not deliver the best results. An early stage collaboration with a number of potential partners around the table is increasingly a more useful approach, with tendering going on at a later point when there has been more advanced work on the technology specification.

A more connected approach is also required. City transportation systems are an example of how increasing integration of technology with different disciplines is yielding results. Efficient transport information systems, which reduce disruption when equipment fails and minimise customer waiting times, are just as important in achieving carbon reductions and other efficiencies as the actual transportation technologies.

It will also be critical for city authorities to have good access to a range of financing options through partnerships with commercial firms and a wider enabling financial services sector.

Creating a sustainable city will mean looking beyond environmental issues. According to the United Nations, the elderly population of the world is growing at its fastest rate ever and by 2050 there will be more than two billion people aged 60 or over. Western economies such as the UK will experience the most pronounced ageing of their populations. Cities will need a healthcare system set up to cater for the increasing burden of chronic disease management and age-related conditions. Within that, technologies that can help support independent living and the tele-monitoring of chronic conditions will play a vital role. And to be truly sustainable a city also has to be economically robust and successful. Investment in education and skills will be increasingly important to achieve competitiveness.

Many cities are realising that developing environmental technologies and solutions can not only help achieve carbon targets but actually stimulate economic growth. The global market in low-carbon goods and services is already worth around £6 trillion per annum and is expected to grow by half again in the next decade – generating as many as ten million sustainable 'green' jobs globally in the process. UK cities need to seize this opportunity.

All of us involved in UK cities have a responsibility – and a fantastic opportunity – over the next few years to transform our urban fabric and infrastructure to provide healthier, cleaner and more pleasant environments for the increasing numbers of city residents. At GE we look forward to working with cities to make it happen."

GE imagination at work

7. methodology

The Sustainable Cities Index tracks progress on sustainability in Britain's 20 largest cities, ranking them across three broad baskets: environmental performance; quality of life; and future-proofing – how well they are addressing issues such as climate change, recycling and biodiversity. It provides a snapshot of sustainability in each city, with the aim of encouraging healthy competition, stimulating discussion and suggesting new ways of thinking about cities.

Hull

The baskets are intended to reflect the complexity of sustainability. The environmental impact of the city is clearly important, but this does not reflect what a city is like to live in, and past research suggests that focusing only on this aspect favours less wealthy cities. Quality of life is also important, but looked at in isolation this tends to produce results that favour the richer cities disproportionately. We've combined these two baskets with a third set of measures which look at cities' resilience and how well they are planning for future success. These three dimensions of sustainability are equally weighted in the overall ranking.

We measure 13 indicators across the three 'baskets', chosen to reflect each city in a fair and balanced way, using data that is publicly available and comparable. We have chosen to focus on areas where councils have the power to make a positive contribution to the sustainability of their city, to encourage them to improve their performance and to help citizens hold them to account.

The index shows cities' performance relative to each other, not their absolute performance – even the highest ranking cities have much more to do. Our goal is to present useful information, based on the most recent available figures from robust data sources. However, we recognise that some changes implemented by city councils require a number of years to take effect, and be reflected in the indicators.

This is the fourth year we've published the index. Wherever possible we have kept the same indicators and methodology, so that rankings can be compared with previous years. However, we have made changes in response to feedback from local authorities, to reflect where data is no longer available or where we've found more meaningful data sources. Where we've made changes we've taken care that the purpose of the indicators remains the same so that councils can be sure that year-on-year comparisons are valid. (See section 8, Indicators, for details.)

the cities

We've made two changes to the cities this year. Derby has outgrown Wolverhampton to become Britain's 20th largest city so we have included it without historic data, and removed Wolverhampton from our list. We have reverted to considering Manchester City Council instead of the Association of Greater Manchester Authorities (AGMA), as in last year's report. This change has been made to improve comparability between all of the cities and illustrates the complexity of defining a city's boundary.

Data for London is collected from all 33 London Boroughs and an average is taken to create data for Greater London.

Although large enough in population, Belfast is not included because of a lack of available data measured in a similar way to the English, Scottish and Welsh cities.

The cities in the index are selected using Office for National Statistics population data. We have made a qualitative assessment based on the list of the largest local authority urban areas. We've chosen not to include some metropolitan areas because they are made up of a range of smaller urban areas rather than one distinct city.

8. indicators

The Sustainable Cities Index measures 13 indicators across three distinct baskets: environmental impact; quality of life; and future-proofing. We have deliberately chosen a small number, giving an insight into the sustainability of cities rather than an exhaustive representation.

The indicators were selected for their public availability and comparability across the 20 cities and to ensure we reflect the sustainability of each city in a fair and balanced way. All indicators are given equal weighting within each basket and each basket receives equal weighting within the overall city ranking.

We have made a few changes to the indicators since last year, as detailed in the individual sections below.

Cardiff

environmental impact basket

This basket focuses on the cities' environmental performance, looking at data on air quality, biodiversity and resource use.

Air quality – annual mean background concentrations of nitrogen oxides as NO_2 in the city in 2009 (measured at a number of different collection points). Nitrogen oxides are a respiratory irritant, a greenhouse gas, an ozone precursor, and a contributor to acid rain. They are a good indicator of transport emissions, as 75% or more of the long-term ground level concentrations of NO_2 in urban areas comes from traffic.

In 2008 we changed the data that we use to rate air quality in response to some of the comments received from local authorities. The current indicator uses data that gives an average background concentration across the whole local authority, rather than using just one data collection point.
Source: UK National Air Quality Archive, Estimated Background Air Pollution Maps for 2009 http://laqm1.defra.gov.uk/review/tools/background-maps-info.php?year=2008

Ecological footprint – The impact of food and other consumer goods, housing, transport (including air travel), and private and public services on the environment (using 2006 data). The impact is measured by the amount of global land needed to sustain each resident of the local authority. The ecological footprint takes into account the impact of products produced in other areas or countries but consumed in the local authority. At the same time it excludes the impact of goods, services and energy manufactured or generated in the local authority and exported to other areas or countries.

The methodology has remained the same since last year, but the equivalence factors for the global hectare have been changed. While this remains a valid and comparable indicator between cities for each year, the changes mean that we cannot compare a city's ecological footprint between years.
Source: Stockholm Environment Institute, Biology Department, University of York, Footprint Results from BRIO model, October 2009. www.resource-accounting.org.uk/downloads

Household waste – All household waste collected per head of population from April 2008 to March 2009 (including for reuse, recycling and composting). Waste is a partial proxy for resource use per capita.
Source: Waste Data Flow www.wastedataflow.co.uk

Biodiversity – The percentage of local nature sites that have undergone conservation management during the five-year period 2004/5–2009/10. Whilst a data set existed for the English cities, data for Cardiff, Edinburgh and Glasgow was obtained directly from the local authorities. Cardiff did not have complete data regarding conservation management over the five-year period, and as such their score on this indicator may be lower than it should be.
Source: Communities and Local Government Floor Targets www.fti.communities.gov.uk/fti/ and Cardiff, Edinburgh and Glasgow councils.

quality of life basket

The data in this basket aims to give an indication of what the city is like to live in and how it is performing on social sustainability. In the quality of life basket we changed both our transport and green spaces indicators in 2008 but they have remained consistent from 2009 to 2010.

Health: life expectancy from birth – Life expectancy at birth in the period 2006–2008 (average of male and female life expectancies). This is a measure of health and longevity.
Source: Office for National Statistics rolling averages for male and female life expectancies 2006–2008, published 2010. www.statistics.gov.uk

Green space – Number of green spaces per 100,000 inhabitants that held Green Flag or Green Pennant awards in 2010.

The Green Flag Awards were introduced in Scotland in 2008, through a pilot in the cities of Edinburgh and Dundee, and we have used Edinburgh's actual number of awards. No data is available for Glasgow so we have given it the average number of awards across all cities in the index.
Source: Green Flag Award Scheme www.greenflagaward.org.uk/

Transport: access to services – The number of minutes per month per person (reflecting both the average and maximal values) spent walking and/or taking public transport, or cycling to four key services: food; GP; further education; and secondary school (2009). This indicator reflects the accessibility of a city's services without using a car. The indicator does not measure the environmental impact of transport as this is already captured in the ecological footprint indicator.

Some data was not available for Cardiff, Edinburgh and Glasgow and so in these cases averages of the other cities scores were used. The data collection method for Scotland and Wales differed, and as such may have resulted in an overestimation of travel times compared to the other cities.
Source: Derived from the core national accessibility indicators www.dft.gov.uk /pgr/statistics/datatablespublications/ltp/coreaccessindicators2009, and the accessibility domains of the Scottish and Welsh Indices of multiple deprivation with assistance from Derek Halden Consultancy Ltd www.dhc1.co.uk

Employment – The number of unemployment benefit (Jobseeker's Allowance) claimants in July 2010 as a percentage of the 2009 resident working age population. The Jobseeker's Allowance (JSA) is payable to people under pensionable age who are available for, and actively seeking, work of at least 40 hours a week.

The working age population now measures the total population aged 16–64, whereas in previous years it was females aged 16–59 and males aged 16–64.
Source: Office for National Statistics official labour market statistics for July 2010. www.nomisweb.co.uk

Education – Percentage of the 2009 resident working age population with NVQ2 or equivalent or higher qualification. The working age population now measures the total population aged 16–64, whereas in previous years it was females aged 16–59 and males aged 16–64.
Source: Office for National Statistics official labour market statistics for Jan–Dec 2009. www.nomisweb.co.uk

future-proofing basket

These indicators aim to measure how well prepared the city is for the future and how central sustainability issues are to the city's plans.

Climate change – Local authorities were given points based on 27 key criteria, which sought to cover councils' adaptation and mitigation strategies and commitments within their own estates and operations as well as city-wide. We contacted all of the cities directly and assessed publicly available local authority climate change action plans and/or strategy documents against the following criteria:

- Do they acknowledge the issue (e.g. that they should have a city-wide plan)?
- Do they have a clear vision?
- Do they have a strategy for achieving this vision?
- Is there an action plan?
- Do they have targets?
- Are the targets SMART (i.e. Specific, Measureable, Achievable, Relevant and Time scaled)?
- Do they mention or show how they will measure progress?
- Have the cities reported against progress on their most recent SMART targets?
- Do they show significant progress towards these targets?

For each question answered yes the council was awarded points against four categories: half a point if it applied to their own estates or operations, and a full point if it applied city-wide or to adaptation measures. This therefore gave a total of 3 points per question, with a maximum total of 27 points overall.
Source: Documents that are publicly available on council websites in September 2010, or that are to be made public by the end of 2010.

Economy – Number of business start-ups per 10,000 inhabitants in 2008. The indicator now gives a more comprehensive measure of business start-ups than in previous years, because the 2008 statistics additionally include the launch of employing businesses which are not VAT-registered.
Source: Office for National Statistics 'Business Demography: Enterprise Births and Deaths' Table 1.1. www.statistics.gov.uk

Recycling – Percentage of collected household waste reused, recycled or composted between April 2008 and March 2009.
Source: Waste Data Flow. www.wastedataflow.co.uk

Local food: provision of allotments – the number of allotment plots per 1,000 residents (2008/09), intended to show participation in local food production.

The number of plots was calculated using an extrapolation from a data set that contained the number of sites with waiting list data, the number of plots on these sites and also the total number of sites. This was updated using changes to the number of allotment sites available within the city. Data for Cardiff, Edinburgh and Glasgow was obtained by contacting councils directly, and therefore may be more accurate. It does not include collective or short-term growing sites.
Source: Transition Towns West Kirby and The National Society of Allotments and Leisure Gardeners Ltd: A survey of allotment waiting lists in England www.transitiontownwestkirby.org.uk/files/allotment_waiting_lists_09.xls and Cardiff, Edinburgh and Glasgow councils.