forum for the future
action for a sustainable world

# the sustainable cities index

## ranking the largest 20 British cities

October 2007

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This report was compiled by Claire Cowley, Peter Madden, Tara Quinn and Tom Winter. The authors would like to thank the following people and organisations for their advice and assistance: Stephen Hall – DEFRA, Phillipa Lynch - Audit Commission, Kieran Stanley - Environment Agency and a range of local authority officers from the 20 cities who provided data and help. Please note that the report is the responsibility of Forum for the Future alone, and has not been endorsed by any of these people or organisations.


Forum for the Future - the sustainable development charity - works in partnership with leading organisations in business and the public sector. Our vision is of business and communities thriving in a future that is environmentally sustainable and socially just. We believe that a sustainable future can be achieved, that it is the only way business and communities will prosper, but that we need bold action now to make it happen. We play our part by inspiring and challenging organisations with positive visions of a sustainable future; finding innovative, practical ways to help realise those visions; training leaders to bring about change; and sharing success through our communications.


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# 1 introduction

This study ranks Britain's 20 largest cities according to social, economic and environmental performance. Through it, Forum for the Future hopes to bring some rigour to the debate about 'green' and sustainable cities. We also hope that the ranking will engender healthy competition amongst our leading cities.

## the importance of cities

Every year more and more people worldwide end up living in cities. We are now a majority urban world, and this trend will intensify. The environmental implications of this are enormous, making some issues (public transport, waste minimisation and low-carbon housing) easier to deal and some (total energy consumption, air pollution and overall quality of life) a great deal harder.

As mega-cities such as Mumbai, Sao Paulo and Shanghai grow we have no choice but to learn to live together in sustainable ways. This will mean providing a high quality of life for all urban residents. It will also mean reducing the impact that cities have on the wider world. The impact of cities tends to extend beyond their population or geographical area, with urban areas having a disproportionate environmental impact on the rest of the world. London, for example, has an ecological footprint 293 times its geographical area (a land-mass roughly twice the size of the UK).

## sustainable cities in the UK

In the UK, around nine in ten people live in urban areas. Many of our cities have seen substantial regeneration over the last decade, and huge new investments in further urban regeneration are now underway. Unfortunately, very few of these mega-schemes have taken environmental issues properly into account, and they will generate emissions that will cause huge problems in years to come. The time is now right to transform that approach.

Britain has a strong urban tradition. We should be leading the way in showing the world how to live sustainably in cities. Yet most of the examples generally highlighted in the literature – such as Curitiba, Mannheim and Gothenburg - tend to be from other parts of the world.

Some UK cities do want to turn this round. Leicester says it was the first 'Environment city', declaring its intent as early as the Rio Summit in 1992. Leeds and Peterborough set a similar path not long after, and others are now joining the fray - Manchester has set itself the goal of becoming 'the Greenest City in Britain by 2010', Bristol wants to become a 'Green Capital', Sheffield calls itself 'The Green City' while London intends to be nothing less than 'the most sustainable city in the world'.

Laudable as these aspirations are, they lack common, clear and objective baselines against which to measure progress. Many of these claims have not been externally assessed. Forum for the Future therefore felt that an objective study, where cities could be rated against others according to a broad range of criteria and benchmark themselves to measure future progress, was overdue.

We hope this index will help cities themselves, and people within them, make progress towards living in a more sustainable way and to reduce their overall impact on the environment. The real issue is a simple one: how can we blend the economic dynamism of cities with the need to create cohesive, high quality communities within environmental limits?

# 2 the indicators

Forum for the Future chose three baskets of indicators against which to rank the cities.

- The Environmental Impact of the city – the impact of the city on the wider environment in terms of resource use and pollution.

- The Quality of Life for residents – what the city is like to live in for all its citizens.

- Future Proofing – how well the city is preparing itself for a sustainable future.

These index categories were selected to reflect the sustainability of each city in a fair and balanced way. For example, if we just looked at the first category of indicators – the Environmental Impact of the city – then this might not reflect what the city is like to live in. Past research suggests that focusing on these criteria alone could favour less wealthy cities, where residents can have a lower environmental impact because of disadvantage.

Alternately, looking just at Quality of Life indicators would tend to produce results which favoured the richer cities disproportionately.

Measuring these two baskets gives a more balanced approach. But we felt that we needed a third set of measures to capture the progress each city is making on the journey toward sustainability. The Future Proofing category rates cities in terms of their progress, and how well they are preparing for the future.

Within these three categories, we also took care to select at least some indicators which reflect how city dwellers themselves rate their area, particularly in terms of 'liveability'. We used a total of 13 indicators, spread across the three baskets.

This kind of study can be carried out using a range of different types of indicators and definitions. Quality of life indicators are potentially very diverse and subjective, with listings compiled to include everything from happiness to the weather. We believe that the indicators we have selected provide a ranking that is rigorous and fair. The indicators use existing data on aspects of performance on which cities are already expected to make improvements. We will be able to measure these indicators year-on-year.

## what are the 13 indicators?

The indicators are as follows. A full description can be found in appendix 1.

### A. Environmental Impact

**This basket of indicators reflects the wider environmental impact of the city.**

1. **Air quality** - the annual average for particulates.

2. **River water quality** – the percentage of rivers where biological and chemical qualities were deemed to be good or fair.

3. **Ecological footprint** - the impact of services, housing, travel and housing on the environment.

4. **Waste collected per head** - a partial proxy for the resources used per capita.

There is, as yet, no robust data on $C0_2$ emissions per capita on a city-by-city basis.

### B. Quality of Life

**This basket of indicators reflects what the city is like to live in and how it is performing in broader sustainability terms.**

5. **Healthy life expectancy at 65** - the number of years a person can expect to live in “good” or “fairly good” self-perceived general health.

6. **Resident satisfaction with green space.**

7. **Resident satisfaction with local bus service.**

8. **Unemployment** - the number of claimants as a percentage of working age population.

9. **Education** - percentage of the working age population with NVQ2 or equivalent.

### C. Future Proofing

**This set of indicators reflects, in more dynamic terms, the progress the city is making towards sustainability.**

10. **Local authority commitments on climate change** - local authorities were rated against three criteria on how they are tackling climate change.

11. **Green business per capita** - the number of environmental businesses listed on yell.com.

12. **Biodiversity** – percentage of land deemed to favour biodiversity.

13. **Recycling** – improvement in recycling between 2000/01 and 2005/06, and the overall level of recycling.

Where data was not available for an individual city, we used the average across the other cities in the index.

# 3 the cities

## why these places?

Forum for the Future selected the 20 major cities in its rankings by using Office for National Statistics population data, and the availability of data sets, many of which are based on local authority boundaries. The decision as to which indicators to use was based primarily on how well collated figures would represent a complete picture of sustainability, as noted above, and to an extent whether data were available at local authority level.

We made a qualitative assessment as to the definition of a 'city', considering the list of the largest local authority urban areas. Some metropolitan areas were not included as they were made up of a range of smaller urban areas rather than one distinct city. However, data is generally available from all local authorities for the indicators we have used. We encouraged local authorities and areas not covered here to rate themselves against our criteria to see how well they perform.

The 20 cities we rated are as follows:[ii iii]

Birmingham
Bradford
Brighton and Hove
Bristol
Cardiff
Coventry
Edinburgh
Glasgow
Hull
Leeds
Leicester
Liverpool
London
Manchester
Newcastle
Nottingham
Plymouth
Sheffield
Sunderland
Wolverhampton

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# 4 the top 20

## so, who won?

Our study shows that, in 2007, of the top 20 cities by population, Brighton and Hove is currently the most sustainable in Great Britain. Edinburgh comes second, while Bristol is in third place. Liverpool is the least sustainable of this top 20, with Hull in 18th place and Birmingham coming 19th.

| overall ranking | overall score |
|---|---|
| 1 Brighton and Hove | 166.9 |
| 2 Edinburgh | 156.3 |
| 3 Bristol | 154.4 |
| 4 Plymouth | 148.3 |
| 5 Leeds | 141.1 |
| 6 Cardiff | 136.1 |
| 7 Sheffield | 133.5 |
| 8 Newcastle | 133.3 |
| 9 Bradford | 129.9 |
| 10 London | 127.6 |
| 11 Nottingham | 122.7 |
| 12 Manchester | 120.2 |
| 13 Sunderland | 118.6 |
| 14 Leicester | 109.0 |
| 15 Glasgow | 104.7 |
| 16 Wolverhampton | 101.8 |
| 17 Coventry | 97.5 |
| 18 Hull | 91.0 |
| 19 Birmingham | 79.4 |
| 20 Liverpool | 76.7 |

## differences by index category

For the Environmental Impact indicators, incorporating air quality, water quality, ecological footprint and household waste per capita, Wolverhampton comes bottom and Bradford comes top. If we were judging on this ranking alone, Bradford would be the greenest city.

The Quality of Life index draws on data such as levels of education and employment, the provision of green space and public transport, and life expectancy at 65. On this index Brighton and Hove comes top, while Hull comes bottom.

The Future Proofing index seeks to quantify the extent to which a city is preparing for anticipated social and environmental changes. It measures the council's response to climate change, the number of 'green businesses' in the area, biodiversity and the trends in composting and recycling. On this index Brighton and Hove again comes top whilst Liverpool comes bottom.

**ranking for Environmental Impact**

| city | score |
|---|---|
| 1 Bradford | 61.0 |
| 2 Bristol | 57.0 |
| 3 Plymouth | 55.5 |
| 4 Cardiff | 50.5 |
| 5 Sunderland | 49.0 |
| 6 Newcastle | 47.5 |
| 7 Hull | 46.0 |
| 8 Leicester | 45.0 |
| 9 Leeds | 42.5 |
| 10 Sheffield | 41.5 |
| 11 Glasgow | 41.0 |
| 12 Coventry | 39.5 |
| 13 Liverpool | 37.5 |
| 14 Edinburgh | 36.5 |
| 15 Brighton and Hove | 35.5 |
| 16 Nottingham | 33.5 |
| 17 London | 31.0 |
| 18 Manchester | 31.0 |
| 19 Birmingham | 30.0 |
| 20 Wolverhampton | 29.0 |

**ranking for Quality of Life**

| city | score |
|---|---|
| 1 Brighton and Hove | 74.4 |
| 2 Edinburgh | 62.8 |
| 3 Bristol | 56.4 |
| 4 Cardiff | 55.6 |
| 5 Plymouth | 52.8 |
| 6 London | 51.6 |
| 7 Leeds | 49.6 |
| 8 Manchester | 45.2 |
| 9 Newcastle | 44.8 |
| 10 Wolverhampton | 38.8 |
| 11 Leicester | 38.0 |
| 12 Nottingham | 37.2 |
| 13 Sheffield | 36.0 |
| 14 Bradford | 32.4 |
| 15 Birmingham | 30.4 |
| 16 Coventry | 30.0 |
| 17 Glasgow | 27.2 |
| 18 Liverpool | 27.2 |
| 19 Sunderland | 25.6 |
| 20 Hull | 24.0 |

**ranking for Future Proofing**

| city | score |
|---|---|
| 1 Brighton and Hove | 57.0 |
| 2 Edinburgh | 57.0 |
| 3 Sheffield | 56.0 |
| 4 Nottingham | 52.0 |
| 5 Leeds | 49.0 |
| 6 London | 45.0 |
| 7 Manchester | 44.0 |
| 8 Sunderland | 44.0 |
| 9 Bristol | 41.0 |
| 10 Newcastle | 41.0 |
| 11 Plymouth | 40.0 |
| 12 Bradford | 36.5 |
| 13 Glasgow | 36.5 |
| 14 Wolverhampton | 34.0 |
| 15 Cardiff | 30.0 |
| 16 Coventry | 28.0 |
| 17 Leicester | 26.0 |
| 18 Hull | 21.0 |
| 19 Birmingham | 19.0 |
| 20 Liverpool | 12.0 |

## the top performing cities

Overall, Brighton and Hove came top of all the cities rated in Great Britain. It was also top of both Quality of Life index and the Future Proofing index, though it was 15th on the index for Environmental Impact. Priority areas within its Sustainable Community Strategy include the promotion of: sustainable transport, resource efficiency and environmental enhancement, and a healthy and sustainable economy. More widely the city council's current strategic goals include ensuring that it contributes to the UK Sustainable Development Strategy.

The fact that Brighton and Hove is in the South East, the most affluent region of the country, is reflected perhaps in the higher scores for the quality of life cluster and the lower score for environmental impact. Brighton also has a very green population. In the 2005 General Election, the Green Party won 22% of the vote in the Brighton Pavilion constituency, the highest ever Green vote in a Westminster parliamentary election.

Although the score for waste collected per head was good, air and water quality and particularly ecological impact let Brighton and Hove down. Public transport, green space, healthy life expectancy and education all came up well for the city, with employment also being rated positively. Local authority commitment to tackle climate change was rated very well, along with recycling. Biodiversity and green business scores were middling.

Edinburgh came second on the overall index. The city came 14th on the Environmental Impact index (above Brighton and Hove) and second on both the Quality and Life and Future Proofing indexes. This is borne out in its current actions, with the city council signed up to Scotland's Climate Change Declaration, and recently giving the green light for a new tram system, due for completion in 2011. The Scottish capital scored very well on air quality, although the waste and ecological footprint scores were relatively poor. Employment, education and healthy life expectancy were all rated well for the city. The transport score was only average. Green business and recycling were rated well. The high Quality of Life rating reflects the city's overall affluence, capital city and UNESCO World Heritage Site status, as well as wealth of public open spaces. The high score for Future Proofing is encouraging as it indicates that the city realises that there is much still to be done in terms of sustainability.

Bristol comes third on the overall index. The city came second on the Environmental Impact index after Bradford. On Quality of Life it was third and on Future Proofing it was ninth. Bristol has aspirations to become a 'Green Capital'. The Bristol Partnership has set an ambitious agenda for the city towards creating a high quality environment, tackling the causes of climate change and creating a clean and attractive built and natural environment. Bristol is also home to a number of high-profile green organisations, such as the Environment Agency, Sustrans and the Soil Association. The city performs well on the impact indicator with only air quality being significantly lower than average in the rankings.

On Quality of Life, the city's transport is rated very poorly by its citizens pulling down the score for this index, as all other scores in this group are reasonably high.

Biodiversity and recycling scores are relatively low in the Future Proofing index although the city gains the top score for green businesses.

## the poorer performers

Liverpool, which will be the European Capital of Culture in 2008, came bottom in our overall rankings. It was rated as 13th on Environmental Impact, scored 18th on Quality of Life, and came bottom for Future Proofing.

Liverpool was bottom on water quality of the 20 cities, but did not perform so badly on air quality and ecological impact. The figure for waste collected per head for the city was one of the most positive.

Employment, education and healthy life expectancy let Liverpool down in the quality of life indicators with the city performing relatively well on transport.

All indicators for Future Proofing came out relatively poorly for Liverpool, as suggested by its placing in this basket of indicators overall.

However, the city does not lack ambition in terms of its future sustainability. In its Corporate Plan, Liverpool City Council is aiming for a green and sustainable city, with key priorities including: waste minimisation, recycling, green transport, renewable energy and energy and water conservation. If it delivers on these priorities, Liverpool could make progress against indicators within all three baskets, although further development of plans in relation to climate change is required to substantially improve the city's future-proofing.

Birmingham came 19th in the overall rankings. Although Birmingham has made huge advances over recent years in the quality of its public spaces, it clearly has some way to go on the wider sustainability issues. The city came 19th on Environmental Impact, 15th on Quality of Life and 19th for Future Proofing.

Air and water quality indicators let Birmingham down in the Environmental Impact basket, although waste collected per capita and ecological impact measures were rated more positively.

On the Quality of Life indicators, Birmingham was rated poorly for employment and for education. Transport and healthy life expectancy were middling in the rankings with green space scoring relatively well.

Birmingham scored relatively poorly on local authority action on climate change, biodiversity and green business, although the recycling indicator was slightly more positive for the area.

Birmingham City Council's Plan 2006+ has a cleaner, greener, safer city as a key priority, with a focus on improving the city's transport and tackling congestion. However, more attention to Future Proofing is required.

Hull came 18th out of 20 in the overall ranking. The city came 7th on the Environmental Impact ranking, last on the Quality of Life ranking and 18th on the Future Proofing ranking. Hull's waste score was relatively poor, with air and water quality average. The Environmental Impact indicator was relatively positive for the city. Although transport was rated relatively highly, all other quality of life indicators let Hull down.

Recycling rates were relatively positive but again all other indicators let the city down in this basket.

Hull City Council's Community Strategy 2006-2011 targets an overall increase in quality of life for those living and working in the city. The focus should help to deliver improvements in the city's Quality of Life indicator, but like the other poorer performers, the focus in relation to Future Proofing must be further developed.

## other cities in the list

Plymouth came fourth on the overall index. Some might see this as a surprisingly high score for a city which suffers from the physical legacy of 1960s development. However, it scored consistently well across a range of categories, also coming third on Environmental Impact (after Bradford and Bristol), fifth on Quality of Life and 11th on Future Proofing.

Leeds came fifth on the overall index, ninth on Environmental Impact, seventh on Quality of Life and fifth on Future Proofing.

Cardiff came sixth on the overall index, fourth on Environmental Impact, fourth on Quality of Life and 15th on Future Proofing.

Sheffield came seventh on the overall index. The city has more than 200 parks, woodlands and gardens. It has been working to fulfil a fully integrated Environmental Strategy for the last three years, with a strong emphasis on it's green spaces and urban fringe woodlands, so we might expect it to do better in coming years. Sheffield came 10th on Environmental Impact, 13th on Quality of Life and third on Future Proofing.

Newcastle came eighth out of 20 in the overall ranking. The city came sixth on the Environmental Impact index. It came ninth on the Quality of Life index and 10th on the Future Proofing index.

Bradford came ninth in the overall ranking despite coming first in the Environmental Impact index. The city came 14th on the Quality of Life index and 12th on the Future Proofing index.

London has taken a lead on climate change, with one of the most ambitious civic climate change action Plans in the world. The London Climate Change Agency is a model that many other cities are now looking to follow. Overall, however it only came 10th out of 20 in the ranking. The city came 17th on Environmental Impact, reflecting the size of its Environmental Impact. It was sixth in the Quality of Life ranking. In Future Proofing, the city also came sixth.

Nottingham came 11th out of 20 in the overall ranking. The city came 16th on the Environmental Impact index, 12th on the Quality of Life index, but fourth on the Future Proofing index.

Manchester came 12th in the overall ranking. On the Environmental Impact ranking, Manchester came 18th but on Quality of Life the city came eighth. Future Proofing was best though – the city came seventh on this.

Sunderland came 13th in the overall ranking. This was despite coming fifth on the Environmental Impact ranking and eighth on the Future Proofing ranking. The city was let down by its 19th place in the Quality of Life ranking.

Leicester came 14th in the overall ranking. The city came 8th on the Environmental Impact and 11th on Quality of Life. On Future Proofing the city came 17th out of 20. Fifteen years ago, Leicester showed early leadership in tackling environmental issues. It has now slipped back.

Glasgow came 15th in the overall ranking. The city came 11th on Environmental Impact, but 17th on Quality of Life.
On Future Proofing the city came 13th.

Wolverhampton came 16th in the overall ranking, despite coming bottom of the Environmental Impact ranking.
The city came 10th on the Quality of Life index and 14th on the Future Proofing index.

Coventry came 17th in the overall ranking. The city came 12th on the Environmental Impact ranking and 16th on the Quality of Life ranking. It also came 16th on the Future Proofing ranking.

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# 5 lessons from this index

### overall, our cities still have a long way to go

British cities still have a long way to go on the journey to sustainability. For example, while we can congratulate Brighton and Hove on coming first, it still has a very high environmental footprint. Cities like Bristol and Plymouth perform well on Quality of Life and Environmental Impact, but poorly on Future Proofing. They may be storing up problems for the future, particularly if they experience rapid economic and population growth.

Performance needs to improve across the board in cities such as Hull, Birmingham Liverpool, Coventry. They are doing badly and do not appear to be preparing well for the future.

### affluence helps

Unsurprisingly, the wealthier cities tend to do better in the index. These cities may have more resources to devote to sustainability issues. And affluence might explain why voters here are more concerned about green issues: the average vote for the Green Party in the 2005 General Election was seven per cent across the top three cities, and only one per cent across the bottom three.

### service-based cities do well

Again, this is not surprising. The top cities tend to be ones which are building their future in the service industries, and do not have to deal with such a difficult industrial legacy. Of these service industries, tourism would appear to be particularly influential. Both Brighton and Hove (first) and Edinburgh (second) earn a lot of their income from tourism, and it makes sense therefore for them to invest in a high quality physical and green environment.

### the Midlands needs to catch-up

The four cities from the Midlands which we included in the survey – Birmingham, Coventry, Leicester and Wolverhampton – all fell in the bottom third of the table. It is not clear why they performed so badly.

### iconic projects are not the answer

The dominant model of city development over the past 10 years of ‘urban renaissance’ has emphasised iconic architecture and grand projects to help re-brand and boost cities. The stars of this model of development - Manchester, Glasgow, Liverpool and Birmingham - have invested heavily in this form of civic leadership and redevelopment.

The index would seem to indicate this formula is weak at delivering environmentally and overall quality of life, and may distract from broader set of criteria of what makes a successful, sustainable and liveable city. Manchester, Glasgow, Liverpool, Birmingham are all in the bottom half of the table, pointing to a need to widen the debate and review the model, rather than all chasing a narrow formula for success.

The English cities that perform better are Leeds, Bristol and Plymouth, all cities which have not gone down the iconic ‘trophy-collecting’ regeneration road.

## leadership and resources are vital

The local authorities of all 20 cities have corporate priorities and statements of intent in relation to climate change and/or sustainability, quality of life and environmental impact. On the surface this would indicate that they are switched on and committed to making strides towards sustainability. However, as the Future Proofing indicators highlight, the challenge lies in translating these top level aims into meaningful targets, with properly resourced programmes of activity to achieve them. Without strong leadership and resources there is a danger that our cities will not be able to meet the sustainability challenges ahead and improve their overall performance in relation to the index.

# 6 conclusion

One of today's most compelling challenges is to ensure that all urban settlements meet the needs of their citizens as sustainably as possible. This is a huge challenge. Over the course of the next few years, Forum for the Future will be working to help cities make progress in achieving that overarching objective.

Forum for the Future intends to update this ranking every year, to assess cities' progress towards sustainability and to encourage improvement. We hope that cities themselves, as well as smaller towns and local authority areas, will use the data indices as their own rankings of progress. We are also keen to involve local authorities and others in discussion as to the study and ways we can encourage each other to move towards a much more sustainable future.

# 7 appendices

## appendix 1 – the 13 indicators

### A. Environmental Impact

This basket of indicators reflects the wider environmental impact of the city.

1. Air quality – the annual average of PM10 (particulates) for local authority areas - taken from the UK air quality archive 2004 (hosted by AEA Energy and Environment on behalf of DEFRA). These particulates are a significant pollutant in the UK, shown to have detrimental impacts on health. The indicator was chosen as a suitable figure to reflect ambient air quality in local authority areas.
2. River water quality – percentage of rivers where biological and chemical qualities were deemed to be "good" or "fair" as rated by the Environmental Agency in 2005. This was chosen to reflect a city's impacts on, and management of, its rivers and the potential impact on the ecosystems reliant on them. We took the total score from 200 (sum of percentage of river water deemed to have good and fair chemical quality + the percentage of river water quality deemed to be biologically good and fair).
3. Ecological footprint (Ecological Budget UK 2006) – This indicator considers the impact of services, housing, travel and housing on the environment. It measures the global hectares of land needed to sustain the population
4. Amount of waste collected per head (Audit Commission) – This indicator is a proxy for resource use per capita.

### B. Quality of Life

This basket of indicators reflects what the city is like to live in for all its residents and how it is performing in broader sustainability terms.

5. Healthy life expectancy at 65 (ONS) – This indicator reflects the number of years a person can expect to live in "good" or "fairly good" self-perceived general health.
6. Resident satisfaction with green space (England: Audit Commission; Cardiff: Cardiff Service Questionnaire) – This was chosen because the accessibility and quality of green space in a city is integral to sustainability both in environmental and social terms. The indicator measured the percentage of residents who think that for their local area, over the past 3 years, the parks and opens spaces have got better or stayed the same. Data for Cardiff was taken from Cardiff Service Questionnaire July 2006 – the percentage of local residents rating parks good and very good.
7. Resident's satisfaction with local bus service (England: DCLG; Wales; Cardiff Service Questionnaire 2006; Scotland: Scottish Executive) – This was chosen to reflect the standard of public transport in cities. England – percentage of all respondents satisfied with local bus service. Scotland – percentage of respondents who thought that buses were on time. Cardiff - percentage of respondents very and fairly satisfied with local bus services overall.
8. Unemployment (number of claimants as a percentage of working age population- NOMIS) – This was chosen to reflect the economic status of a city and its population.
9. Education - percentage of the working age population with NVQ2 or equivalent (NOMIS). This indicator reflects a broader range of attainment outside of the narrower scope of GCSE and A-Level performance.

### C. Future Proofing

This set of indicators reflects the progress the city is making towards sustainability.

10. Local authority commitment on climate change – Local authorities were asked three questions relating to how they are tackling climate change. (a) Does the council have a published climate change action plan or equivalent? (b) Does it have ring-fenced resources designated for tackling climate change? (c) Do the council's $CO_2$ targets exceed the government's? Some councils have action plans set up for council buildings but to be awarded points the action plan had to be city-wide. To be awarded points for the climate change action plan it also had to published and on their website.
11. Green business per capita – Number of green businesses on yell.com under the categories of Environmental Consultants, Water Conservation and Management, Energy Saving Consultants, Conservation Groups and Pollution Control divided by local authority population as defined by ONS. This indicator was chosen as a loose reflection of the number of 'green' orientated businesses in a city. These businesses should help the city prepare for a future in which sustainability is taken more seriously.

12. Biodiversity – percentage of land deemed to favour biodiversity (Environment Agency 2000).
13. Recycling – improvement in recycling between 2000/01 and 2005/06, and the overall level of recycling (England: DEFRA; Scotland: SEPA; Cardiff: Cardiff City Council). This was chosen to reflect a city's effort in increasing its recycling rate, reducing its impact and making a contribution to a more sustainable future. Improvement was measured by change in percentage of recycling and composting between 2000/01 to 2005/06. Then extra points were added onto the resulting ranking to reward authorities with high recycling rates in 2005/06, three points for those over 15%, six points for those over 20% and nine points for those over 25%.

The following caveats about the data should be noted:

- Water quality: data were not available for Brighton or Edinburgh so an average was taken from the 18 other cities for these areas' indicators.
- Household waste collected per capita: Cardiff was unable to provide data so an average was taken from the 19 other cities.
- Green space: Comparable data not available for Scotland so an average of the 18 other cities was taken.
- Recycling: Newcastle and Coventry data were not available for the 2000/01 baseline, so an average was taken from 1999 and 2000 data.
- Biodiversity: Data was not available for Cardiff so an average was calculated from the other cities.

## Appendix 2 – ranking in the different indicator baskets

### ranking for Environmental Impact

| | City | Air quality | Water quality | Waste collected per head | Ecological footprint | Aggregate ranking for first basket |
|---|---|---|---|---|---|---|
| 1 | Bradford | 17 | 15 | 15 | 14 | 61 |
| 2 | Bristol | 9 | 18.5 | 14 | 15.5 | 57 |
| 3 | Plymouth | 15 | 18.5 | 2 | 20 | 55.5 |
| 4 | Cardiff | 13 | 18.5 | 8 | 11 | 50.5 |
| 5 | Sunderland | 16 | 12 | 4 | 17 | 49 |
| 6 | Newcastle | 18 | 18.5 | 7 | 4 | 47.5 |
| 7 | Hull | 10 | 11 | 6 | 19 | 46 |
| 8 | Leicester | 1 | 16 | 18 | 10 | 45 |
| 9 | Leeds | 14 | 8 | 12 | 8.5 | 42.5 |
| 10 | Sheffield | 12 | 13 | 10 | 6.5 | 41.5 |
| 11 | Glasgow | 19 | 6 | 3 | 13 | 41 |
| 12 | Coventry | 4 | 7 | 13 | 15.5 | 39.5 |
| 13 | Liverpool | 11 | 1 | 19 | 6.5 | 37.5 |
| 14 | Edinburgh | 20 | 9.5 | 5 | 2 | 36.5 |
| 15 | Brighton and Hove | 8 | 9.5 | 17 | 1 | 35.5 |
| 16 | Nottingham | 2 | 14 | 9 | 8.5 | 33.5 |
| 17 | London | 3 | 5 | 20 | 3 | 31 |
| 18 | Manchester | 6 | 4 | 16 | 5 | 31 |
| 19 | Birmingham | 5 | 2 | 11 | 12 | 30 |
| 20 | Wolverhampton | 7 | 3 | 1 | 18 | 29 |

## Appendix 2 – ranking in the different indicator baskets

### ranking for Quality of Life

| | City | Employment | Transport | Education | Green space | Healthy life expectancy | Weighted ranking for second basket |
|---|---|---|---|---|---|---|---|
| 1 | Brighton and Hove | 15 | 20 | 19 | 19 | 20 | 74.4 |
| 2 | Edinburgh | 20 | 10 | 20 | 9.5 | 19 | 62.8 |
| 3 | Bristol | 18.5 | 1 | 15 | 20 | 16 | 56.4 |
| 4 | Cardiff | 18.5 | 15 | 18 | 5 | 13 | 55.6 |
| 5 | Plymouth | 17 | 5 | 11 | 16 | 17 | 52.8 |
| 6 | London | 13 | 12.5 | 10 | 11 | 18 | 51.6 |
| 7 | Leeds | 14 | 5 | 16 | 13 | 14 | 49.6 |
| 8 | Manchester | 9 | 12.5 | 14 | 17 | 4 | 45.2 |
| 9 | Newcastle | 11 | 7 | 17 | 15 | 6 | 44.8 |
| 10 | Wolverhampton | 4 | 14 | 1 | 18 | 11.5 | 38.8 |
| 11 | Leicester | 5 | 18.5 | 2 | 12 | 10 | 38 |
| 12 | Nottingham | 6 | 18.5 | 7 | 8 | 7 | 37.2 |
| 13 | Sheffield | 16 | 8 | 9 | 4 | 8 | 36 |
| 14 | Bradford | 12 | 10 | 5 | 2 | 11.5 | 32.4 |
| 15 | Birmingham | 1 | 10 | 4 | 14 | 9 | 30.4 |
| 16 | Coventry | 7 | 2 | 12.5 | 1 | 15 | 30 |
| 17 | Glasgow | 8 | 3 | 12.5 | 9.5 | 1 | 27.2 |
| 18 | Liverpool | 3 | 16 | 6 | 7 | 2 | 27.2 |
| 19 | Sunderland | 10 | 5 | 8 | 6 | 3 | 25.6 |
| 20 | Hull | 2 | 17 | 3 | 3 | 5 | 24 |

## Appendix 2 – ranking in the different indicator baskets

### ranking for Future Proofing

| | City | Climate change strategy | Biodiversity | Green business | Change in recycling | Aggregate ranking for 3rd basket |
|---|---|---|---|---|---|---|
| 1 | Brighton and Hove | 10 | 11 | 12 | 24 | 57 |
| 2 | Edinburgh | 0 | 13 | 19 | 25 | 57 |
| 3 | Sheffield | 5 | 17 | 15 | 19 | 56 |
| 4 | Nottingham | 5 | 9 | 18 | 20 | 52 |
| 5 | Leeds | 5 | 18 | 7 | 19 | 49 |
| 6 | London | 15 | 8 | 5 | 17 | 45 |
| 7 | Manchester | 0 | 16 | 11 | 17 | 44 |
| 8 | Sunderland | 0 | 20 | 1 | 23 | 44 |
| 9 | Bristol | 10 | 6 | 20 | 5 | 41 |
| 10 | Newcastle | 5 | 10 | 17 | 9 | 41 |
| 11 | Plymouth | 0 | 15 | 14 | 11 | 40 |
| 12 | Bradford | 5 | 19 | 2 | 10.5 | 36.5 |
| 13 | Glasgow | 0 | 13 | 16 | 7.5 | 36.5 |
| 14 | Wolverhampton | 0 | 1 | 9 | 24 | 34 |
| 15 | Cardiff | 0 | 13 | 13 | 4 | 30 |
| 16 | Coventry | 0 | 7 | 8 | 13 | 28 |
| 17 | Leicester | 10 | 2 | 10 | 4 | 26 |
| 18 | Hull | 0 | 3 | 3 | 15 | 21 |
| 19 | Birmingham | 0 | 4 | 6 | 9 | 19 |
| 20 | Liverpool | 0 | 5 | 4 | 3 | 12 |



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## Appendix 3 - sources

1. **Air quality.** The annual average of PM10 (particulates) for Local Authority areas. Source: UK Air Quality Archive – 2004 levels.

2. **River water quality.** The percentage of rivers where biological and chemical quality is deemed to be good or fair. Data was not available for Brighton or Edinburgh and so an average from the 18 other cities was used. Source: UK Defra e-Digest Environment Statistics, Inland water quality and use.

3. **Ecological impact.** Source: Ecological Budget UK.

4. **Kg of waste collected per head.** Source: DEFRA (England) SEPA[v] (Scotland) and Cardiff City Council (Wales).

5. **Healthy life expectancy at 65.** Source: ONS[vi] (England and Wales) 2001; Scottish Executive (Scotland) 2000.

6. **Green space.** Source: Audit Commission (England) - % of residents who think that for their local area, over the past three years, that quality of parks and opens spaces have got better or stayed the same. Web source: Data for Cardiff taken from Cardiff Service Questionnaire July 2006 - percentage of local residents rating parks good and very good. Comparable data not available for Scotland so an average of the 18 other cities was taken

7. **Transport.** England and Wales: percentage of residents satisfied with the local bus service. Taken from two different sources: In England this is a BVPI,[vii] the data for Cardiff was taken from the 2006 Cardiff City Council service questionnaire. Scottish data is on the Scottish Executive website and is taken from the National Household Survey, percentage of respondents that felt that their buses are on time.

8. **Unemployment.** Job Seeker's Allowance claimants as percentage of working age population, taken from NOMIS.[viii] Stats for July 2007.

9. **Education.** Number of people with NVQ 2 equivalent: e.g. 5 or more GCSEs at grades A-C, intermediate GNVQ, NVQ 2, intermediate 2 national qualification (Scotland) or equivalent as percentage of the working population. Data taken from NOMIS. Stats are for Jan 2006 – Dec 2006.

10. **Climate change**. Local authorities were asked three questions. 1. Does the council have a published climate change action plan or equivalent? 2. Does it have ring fenced resources going towards climate change? 3. Does the council's CO2 targets exceed the government's? For each question answered yes the authority was awarded five points. Some councils have action plans set up for council buildings but to be awarded points the action plan had to be city-wide. To be awarded points for the climate change action plan it had to published and on their website.

11. **Green Business.** Number of green business (on yell.com) found under these five headings, per head of population. 1. Environmental Consultants. 2. Water Conservation and Management. 3. Energy Saving Consultants. 4. Conservation Groups. 5. Pollution Control. Data gathered September.

12. **Biodiversity.** Percentage of land deemed to favour biodiversity, provided by the Environment Agency from Land Use Cover 2000. Data not available for Wales and Scotland so an average was calculated from the other cities.

13. **Recycling.** Percentage change in household composting and recycling from 2000/2001 to 2005/2006. Newcastle and Coventry data not available to 2000/2001 - an average from 1999 and 2002 data was taken. English data from DEFRA. Scottish Data from SEPA. Welsh data from Cardiff City Council. Points were added on to rankings to ensure that councils that had high recycling rates in 2000/01 were not penalised. Three points added on if 2005/06 the percentages was over 15%. Six points if over 20%. Nine points if over 25%.

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# footnotes

i ‘City Limits’ report, Best Foot Forward, 2002.

ii Belfast was not included because of unavailability of data in many categories and therefore the index is not UK wide

iii London data was calculated by using an average of all local authorities within the Greater London Authority boundary, except for the indicator on climate change strategy.

iv Since the two other baskets both used four sets of indicators and this basket used five, the Quality of Life basket has been weighted to make it equal to the other baskets in the final analysis.

v DEFRA – Department for Environment, Food and Rural Affairs.
SEPA – Scottish Environmental Protection Agency.

vi ONS – Office for National Statistics.

vii Best Value Performance Indicator, indicators which all English local authorities have to collect on certain services.

vii NOMIS – web based national database of labour market statistics.