

Green infrastructure does not receive anything like the investment or management that goes into grey infrastructure. Grey to Green will fuel a debate about whether this is smart, given the dangers of climate change and the opportunities to improve public health. It also reveals the urgent need for more people, with the right skills, to manage the living landscape of our towns and cities. Grey to Green provides fresh ideas and evidence, showing how we could design and manage places in radically different ways. It will be of interest to anyone involved in greening the built environment, but above all to the people taking decisions about where to commit public money at a local and a national level.

# GREY TO GREEN

HOW WE SHIFT FUNDING AND  
SKILLS TO GREEN OUR CITIES

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on architecture, urban design  
and public space



Grey to Green campaign partners:



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# FOREWORD 'THE NATURE BY-PASS'

**Wrong direction:** we need grey infrastructure, of course, but there is a glaring imbalance between the funding for roads and for networks of green spaces

**We are at a new milestone in the planning and design of urban communities. A place where we start to co-exist with the natural environment instead of developing in conflict with it.**

Green infrastructure (GI) is at the heart of this co-existence. By this we mean a network of living green spaces. These natural assets do not receive anything like the investment or management that go into the road network or sewerage system. We do need grey infrastructure, of course. But there is a glaring imbalance in the funding and skills available to each – which is the reason for our campaign.

I think this imbalance is nonsensical, given the fundamental role that green infrastructure plays in helping us to address climate change, public health, biodiversity and community cohesion.

This is also a story about better stewardship of existing resources. Many of the elements of green infrastructure are already in place, but (like roads) its value lies in being networked. So new skills are required to connect the different elements: the tree-lined streets, parks, gardens, allotments, cemeteries, green roofs, woodlands, rivers and waterways, so that they all work together as a functioning system.

I often reflect on another urban design milestone, the garden city movement. This responded beautifully to two very British instincts: a love of gardening and a love of the countryside. It understood that the divide between town and country is illusory; that green, more than grey, makes our lives healthy, fulfilled and sustainable. Why has such a fine legacy been neglected? Perhaps it is due to the curious way in which, as Jonathon Porritt observes in his contribution to this report, humankind has somehow progressively disconnected from the natural world: a nature by-pass.

Places like Letchworth have strong environmental credentials, yet perhaps the best argument for greener places is that you really want to live there. Just look at the High Line, a new linear park created from a disused elevated freight line and already proving such a source of pride and delight for New Yorkers.

At CABE, we think an understanding of green infrastructure should be woven into every aspect of public services, from education to development control; from transportation to environmental health. A decade ago the urban taskforce was established to guide and champion an urban renaissance. It is now time to convene a green infrastructure taskforce, to galvanise us all to create great green places.

**Richard Simmons**  
Chief executive, CABE

# GREEN INFRASTRUCTURE: WHY IT MATTERS

Greening cities: just 10 per cent more urban tree canopy cover could cancel out the 4°C rise in temperatures predicted this century



**Twenty years ago, Chattanooga was a rust-belt, basket-case place near Lake Chickamauga in Tennessee. The old railroad town had one of America's most polluted rivers and a depressed economy. Today, it is seen as one of the most attractive places to live in America, and as a laboratory for new urban ideas.**

### **What does Chattanooga have to teach English places, like Hull, or Gloucester?**

It teaches that investment in the environment pays for itself many times over. Because what transformed the city was the decision to build a 10-mile park along each side of the Tennessee River. It inspired developers, and led to more investment.

Across America, and elsewhere in Europe, progressive cities are taking the idea of green infrastructure from something that is 'nice to have' to something that is fundamental to the way we prosper and develop. 'GI' is being widely recognised as providing the environmental foundation that underpins the function, health and character of urban communities. It is emerging as a new way of designing, planning and managing land.

In the UK, many of our towns and cities are endowed with a haphazard lattice of trees, parks, gardens, allotments, cemeteries, woodlands, green corridors, rivers and waterways. Set within, between and beyond urban areas, these green assets are often neglected and poorly connected. Much of the problem is that GI is seen more often as a liability and burden on the public purse than the way to deliver critical environmental services. Certainly its importance is not recognised alongside core elements of grey infrastructure.

### **A VISION OF BETTER QUALITY PLACES**

The urban landscape can be hard, dirty and congested, restricting the quality of life

– even the life chances – of people who live and work there. These kinds of places are neither resilient nor prosperous. The New Economics Foundation has argued that, by ignoring human relationships with nature, more compact cities will do nothing to secure their long-term sustainability.

Imagine instead a green urban landscape: somewhere you can walk or cycle to school or work through car-free, linear greenways; where meadows run alongside offices and shops; where you can see food being grown in the park. A literally greener place improves well being and mental health. Getting the landscape right changes the very nature of urban life.

### **A WORKING LANDSCAPE**

Most grey infrastructure has a single function. Take supersized stormwater pipes, for instance: their sole purpose is to move excess rainfall from urban areas.

Green infrastructure, by contrast, is multi-functional. It offers us a working landscape and a sustainable alternative to that kind of traditional engineering: living roofs, large trees and soft landscape areas to absorb heavy rainfall; a network of street swales and unculverted rivers which can safely manage large volumes of water.

This kind of green infrastructure provides effective flood protection, but it does infinitely more besides. Rather than waste water, it stores and recycles it for summer irrigation. It saves energy: living roofs insulate buildings, and large trees shade offices which reduces the need for air conditioning. It cleans and cools the air: leafy streets are delightful to use. It provides green spaces to encourage exercise and socialising.

Above all, it provides places with a spirit – with character and a strong identity. It allows us to access nature, and feel part of it.

“We’ve been suffering from a ‘nature by-pass’. By this I mean the progressive disconnection of humankind from the natural world – from its rhythms, its limits, its vulnerabilities. We have somehow come to believe that we are no longer totally dependent on nature’s resources and life-support systems. At long last, we’re starting to get this sorted. And one way of approaching the challenge is from an economic perspective, seeking to put an economic value on the multiple benefits we derive from the natural world. In 2008, I helped launch some research by Natural Economy Northwest – a stunning piece of work that reminded decision-makers that the north west’s environment generates an estimated £2.6 billion in gross value added, supporting more than 100,000 jobs. So the evidence is there. And that’s why CABE’s grey to green campaign is critical – while there is still time to reverse the by-pass that is sucking the life out of us.”

**Jonathon Porritt**

Founder director, Forum for the Future

## GI AS A WAY TO TACKLE LOCAL DEPRIVATION: SHEFFIELD’S GREEN ESTATE

In 1996 *The Guardian* wrote that the Manor and Castle Green estates in Sheffield, home to some 20,000 people, were the worst estates in Britain. Not for lack of generous open green space – but neglected and purposeless, it was largely viewed as a liability. The distinguishing feature of the area known as ‘bandit lands’ was burnt-out cars.

Turning the estates around was – and remains – a long-term exercise. It began with the vision of the Manor and Castle Development Trust and Sheffield Wildlife Trust and led to a five-year action plan which has identified how investing in green infrastructure would address social and economic problems.

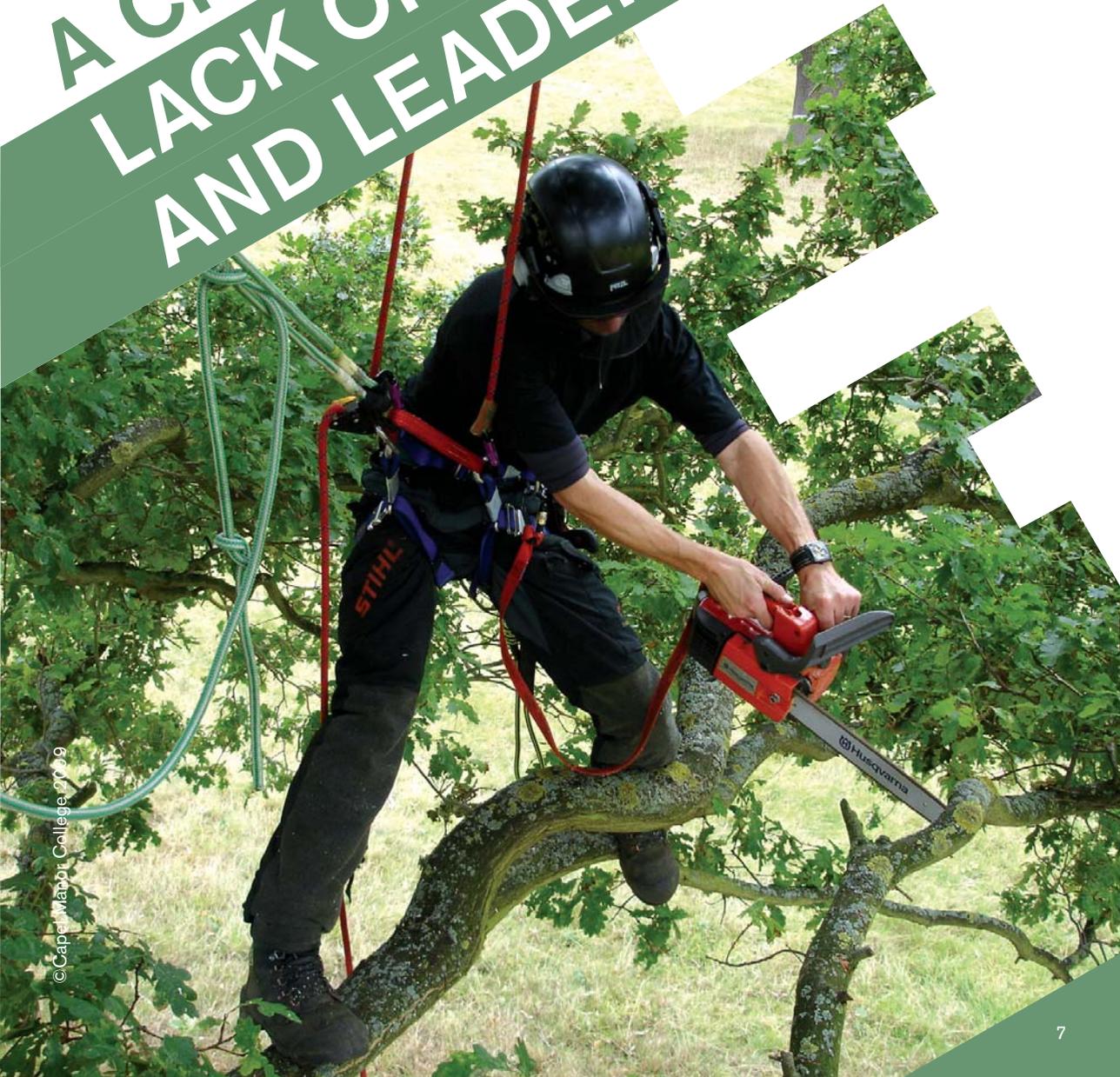
Early on, £2 million was secured from the single regeneration budget and developers. The first priority was quite basic – making green space cleaner and safer – but ambition has grown since then, with formal and naturalistic play areas, artworks, and different planting approaches, like exotic meadowland, and the piloting of sustainable urban drainage and green waste processing.

An incremental approach has meant that confidence and cultural change has developed at the same pace as the landscape.

Much of the improved parkland is now managed by a social enterprise, Green Estate Ltd, the vehicle for funding applications, visioning, planning, delivery and maintenance

The lessons here have spread into policy and practice across Sheffield.

# A CRISIS LOOMS: LACK OF SKILLS AND LEADERSHIP



**We urgently need to increase the number of people with the right skills to deliver green infrastructure. Decades of under-investment in green space services mean that good managers of parks and green spaces are now in seriously short supply, as are people with the technical know-how needed to deliver on the ground.**

In a survey of 54 local authorities in 2008, 68 per cent of authorities said a lack of skills in horticulture was affecting overall service delivery. The most common gaps in operational skills were horticulture (51 per cent), conservation (34 per cent), arboriculture (29 per cent) and ecology (27 per cent). The most common deficiencies in managerial skills were identified as design (29 per cent), finance and funding (24 per cent), and marketing (19 per cent).

Training budgets for local authority green space staff was worryingly low: just £160 a year on average.

Before the recession, a survey by the Homes and Communities Agency Academy revealed labour shortages of over 90 per cent in landscape architecture and urban design.

## **THE IMPACT ON PROJECTS**

Take a project like the Thames Gateway Parklands. If this is to be realised, it will require people with landscape planning and management, nature conservation, and habitat management skills. Based on a simple extrapolation of the numbers required for the London Olympic Legacy Park and assuming 11 possible landmark sites alone, the Parklands project could need around 2,000 staff for development and construction as well as up to 1,000 people for subsequent management and maintenance. This is an increase of 10 per cent on the total workforce.

So there are clearly not enough skilled people in the sector to deliver traditional

green space services, let alone exploit the multiple opportunities that come with an understanding of green infrastructure.

## **A NEW RANGE OF SKILLS**

We also need green infrastructure managers with a new range of skills. They need to break down the silos between traditional areas of professional expertise, integrating, for example, services such as green space and water management, transport planning and children's play, nature conservation and local food production. Given the complexity of ownership and management across green infrastructure networks, they need to be experts in partnership working and resource management, and have strong leadership skills.

They certainly need to know how to work better with communities. A 2008 survey of 68 people actively involved in community-led green space projects found that 70 per cent worked with local authority officers, and 54 per cent said that difficulty negotiating with them stops their projects moving forward.

In reality, green space managers are rarely in a sufficiently senior position to provide the comprehensive management needed to deliver an integrated network of green infrastructure across an area. Most local authorities have no one in a position to promote the long-term strategic thinking and secure the joined-up planning and management that green infrastructure requires. In essence, we don't have the practical or leadership skills to deliver our ambitions for green infrastructure of maximise its potential.

**93,900**

members of highways and civil engineer professional bodies

**5,500**

members of parks and landscape professional body

This problem is further compounded by an additional challenge. Because employers rarely demand the higher-level landscape planning, management and coordination skills that are needed to deliver green infrastructure, the jobs are simply not out there. And with no demand for these skills, courses are closing. In the last three years, three out of the 11 colleges offering professionally accredited landscape management degrees have closed their courses.

By the time we have all realised the vital importance of GI, it will be too late. Major project clients such as the Olympic Delivery Authority are already turning to overseas landscape consultants to provide the kind of expertise they need. Not least because of global warming, we need to intervene and break this vicious circle.

“In Cambridge we have been working on a strategic approach to green infrastructure that is large scale and long term – looking forward 20 years. This means ensuring that a network of parks and open spaces becomes an integral part of the region’s growth. Good landscape makes good places where people enjoy living, where they invest time and energy in their community and where there is tremendous local pride.”

**Peter Studdert**  
Director of joint planning, Cambridge Growth Areas and Northstowe

## GI AS A RESPONSE TO CLIMATE CHANGE AND DEVELOPMENT: EAST LONDON GREEN GRID

There is a perception that much of east London is characterised by post-war housing and poor-quality neighbourhoods, dominated by industry and highways.

In fact, it could lead the way in terms of sustainability, with projects such as Rainham Marshes, the Olympic Legacy Park and Barking Riverside, London’s largest housing development site.

These are all supported by the East London Green Grid, one of four sub-regional landscape frameworks developed for the Thames Gateway. It is one of the first spatial frameworks of its kind to use a landscape and human-centred approach to green infrastructure. It is designed to respond to two key drivers – climate change and future development.

The framework covers new and existing green spaces. A strong emphasis is placed on connectivity, with green corridors linking town centres and transport nodes to major employment and residential sites. Also critical is the role of river corridors and links to the green belt.

The scale of the programme, worth an estimated £0.5 billion, is extraordinary. Some 300 projects have been identified, of which 70 have been prioritised and supported by the London Development Agency.

In the short term, the 2008/2009 recession has slowed development and reduced funding from planning gain. It has also raised the question as to whether skills, training and employment should become a priority. One of the key learning points in that context is the value of a robust approach to public funding being tied to a commitment to long-term maintenance.

# WHAT NEEDS TO BE DONE?

Planning ahead: water management in schemes such as this Dutch development addresses climate change and creates a much nicer place to live

Cultuurpark Westergasfabriek, Amsterdam, landscape design by Kathryn Gustafson © CABE/Peter Neal



The Victorians took bold steps to redesign and create places that met the challenges of the day, such as sanitation and infectious disease.

Today, our changing climate and economic imperatives provide the same opportunities to remodel our towns and cities, making the critical shift from grey to green.

### **MAKING THE SHIFT, PROFESSIONALLY**

We need the people to put this new way of working into practice. There is a dual crisis: the shortage of people coming into the profession and the existing workforce being properly equipped with the skills they need to deliver green infrastructure effectively.

As part of a *Skills to grow* strategy, CABE is working with the Landscape Institute, whose *I want to be a landscape architect* campaign aims to attract more people into the profession. Chartered landscape architects are one of the leading professions with the skills to understand the strategic planning, design and management of green infrastructure. In the last recession, many landscape architects left the sector, never to return. This led to long-term shortages of experienced professionals.

The current recession has hit the building and landscape architecture industries badly. There is a real danger that the short-term crisis will lead to a failure to train sufficient numbers of landscape architects to exploit the upturn when it comes. Given the environmental imperative, this would be particularly problematic.

**CABE believes we need a minimum of 550 new entrants annually on to Landscape Institute accredited courses from 2010 and beyond to meet future demand.**

### **MAKING THE SHIFT, LOCALLY**

About 65 per cent of England is covered by some kind of strategic approach to green infrastructure. But this masks a major gap in delivery. The gap is largely at the level of local authorities, who do not have appropriately skilled and resourced teams to deliver on the ground. There is also a lack of coordination between local authority departments; for example, many have not tied together their open space strategies and climate change strategies.

Councils therefore need to: first, establish strong high-level leadership; second, provide sufficient professional coordination and skills; and third, engage local people in the design and delivery of green infrastructure.

#### **Action one: leadership**

**Each local authority needs a cabinet member with a portfolio commitment to championing an urban greening programme.** That overarching influence might lie with the leader or it might sit comfortably at the heart of an emerging sustainability portfolio. These portfolio holders should be offered training to help them understand the implications and benefits of green infrastructure, and support them to take a leadership role in making it happen.

Cllr Sir Steve Bullock, the mayor of Lewisham, has shown how strong leadership can deliver green infrastructure. Lewisham adopted a green, partnership-led approach to the flooding that was taking a growing toll on residents and businesses in Lewisham. The Quaggy River had been culverted into concrete channels, closed off behind iron fences. Instead of compounding this approach to flood control with further engineering works, the channel and fences were demolished, and the river released to meander through a fully refurbished park. This has made a huge difference to the quality of the area.

### **Action two: professional coordination**

Leadership alone is not enough if councils do not have skilled staff to draft policy, work in partnership, and achieve tangible results. **Each local authority should therefore employ a technical specialist, such as a chartered landscape architect, with access to an existing budget who can ensure that GI awareness and skills to deliver are embedded across the local authority.** Chartered landscape architects are ideally placed to fulfil this role because, uniquely, they are trained in the planning, design and management of green infrastructure. This specialism could be achieved by redeploying or repositioning an existing post accompanied by re-training; or by creating a new post or funding one in a partner organisation.

In Stockton-on-Tees, the borough council appointed a strategy and development manager within its greenspace and countryside team. After coordinating the borough's input into a sub-regional green infrastructure strategy for the Tees Valley, the role grew into the management of a detailed local implementation programme, building on a wide range of activities across council services and initiating new partnerships such as the Stockton River Corridors Project with British Waterways.

### **Action three: community empowerment**

Most green infrastructure is created at a local level. CABE has conducted research with community groups to understand what they need and want to achieve with their green spaces. Many simply want more support, such as information on how to access funding, and how their project fits into the wider urban greening programme.

Councillors have a key role to play in this regard. **They should organise regular 'green surgeries' in every ward, along the lines of an alternative local Gardeners' Question Time.**

### **This would give community groups access to relevant local authority officers' expertise and resources.**

This should be supported by offering both councillors and officers training on partnership work with communities on green projects.

## **MAKING THE SHIFT, NATIONALLY**

While green infrastructure gets delivered locally, it should be planned for at a regional or sub-regional level. This in turn requires that the right national structures and policies are in place. To this end, CABE has three recommendations for national government:

- first, green infrastructure skills should be recognised as critical in the national climate change adaptation strategy
- second, a national green infrastructure taskforce should be established to champion and set an agenda for environmental policy and technical delivery.
- third, a single national database of green assets should be developed.

### **Action one: skills to adapt**

As part of the national climate change adaptation strategy, CABE recommends that the **Department for Business, Innovation and Skills lead on a jobs and skills strategy to ensure that we have the right people, with the right skills, to deliver green infrastructure.** It also needs to lead to a shift in resources within government to support the development of this sector. Too much of the debate so far on 'green' jobs and skills has overlooked this *literally* green sector.

**£1.28 BILLION**  
to widen 63 miles of the M25

**£1.28 BILLION**  
to plant 3.2 million street trees  
(saving 3 million tonnes of carbon)

## **Action two: green infrastructure taskforce**

Ten years ago, the urban taskforce was established to guide and champion an urban renaissance for our towns and cities. Its work has helped define more sustainable models of urban development and regeneration. The ecological crisis was identified by the taskforce as a key driver affecting the future of urban areas. **It is now time to convene a green infrastructure taskforce, comprising recognised national experts, to shape environmental policy and technical delivery.**

This idea was strongly supported at ParkCity – a conference jointly organised by CABI and Natural England, in 2009. If we are to shift investment from grey to green infrastructure, we need a cross-cutting and cross-government action plan to maximise the impact of environmental investment in urban communities over the coming decade.

## **Action three: join the information revolution**

Nobody understands our existing green assets: the numbers of urban and suburban green spaces in England, where they are, who owns them, or what their quality is. This lack of information obviously limits our ability to plan and manage green infrastructure strategically.

As part of the information revolution that could benefit Britain in so many ways, **central government should co-ordinate a single, shared national information resource – a kind of atlas – to record in a consistent way the location, quantity, function, type and quality of green spaces.**

This resource should then become available to national, regional and local government. This is not just CABI's ask.

The key organisations responsible for different parts of our green infrastructure are supporting our call for this shared resource.

There are precedents, such as MAGIC, the first web-based interactive map of key rural environmental schemes and designations, using standard GIS tools. And three government departments – CLG, DCMS and DEFRA – already hold and collect data on a wide variety of green spaces and their characteristics. So the problem is not a lack of resources. It is a lack of coordination.

“Green infrastructure is not an amenity. It is a necessity. Who would build a road system that didn't connect? It is the same for green spaces. The point of a green infrastructure plan is to take a strategic approach, just as we take a strategic approach to transportation.”

**Edward T. McMahon**  
Urban Land Institute

## GI AS A REGENERATION TOOL: NATURAL ECONOMY NORTHWEST

In the north-west of England, a green infrastructure programme is driving regeneration and sustainable development.

The sophisticated approach to green infrastructure taken in that region – still unusual in the UK – stretches back 30 years, when a small number of individuals championed the idea that the natural assets of the area could deliver across all priorities and objectives.

Now Natural Economy Northwest seeks to maximise the economic benefit of existing and new investment in the region's natural environment. A broad green infrastructure partnership embraces government at every level, academia, the private sector and third sector organisations.

Two community forests around Manchester and Merseyside are demonstrating the role of woodlands in reducing the impacts of climate change, and helping communities to plant street trees and create community gardens. More recently, a £59 million 'Newlands' programme has begun reclaiming large areas of derelict land and turning it into community woodland.

As a pioneer, the region needed robust evidence to support its influencing work on green infrastructure – especially on the economic benefits – and it remains good at finding a strong evidence base for every project. Across the region, the development control process is examined at local level to see how it can support the creation and long-term management of green infrastructure. As part of the 'Town in the Forest' initiative in St Helens, planners are embedding green infrastructure in their core strategy as well as in three action area plans.

"Here's an immediate plan. At a time of major subterranean infrastructural renewal – water, gas, carbon fibre – local authorities and contractors should agree to accompany any such work with new tree pits. For every 50 metres of underground pipe renewal, a tree pit should be dug as a condition for securing the necessary permits. No urban renewal work would be permitted that did not leave as a 'green infrastructure gain' a sequence of new tree planting when completed."

**Jon Snow**

Journalist and presenter, Channel 4 News

"In San Francisco, our environmental efforts are aimed at providing a model of how cities can tackle climate change. We're using green strategies to improve our residents' lives. We are physically reclaiming street space and discarded parking lots and transforming all this into public space through our 'pavement to parks' program. And through greening projects we're increasing the amount of permeable surface, which decreases storm water run-off and makes our neighbourhoods more beautiful."

**Wade Crowfoot**

West Coast political director

# WHAT DOES GI OFFER A PLACE?



Grow your own: allotments, gardens and community orchards encourage healthier, more local and more social lives

The Cumberland Market estate, London ©Jane Sebille

**Strengthening green infrastructure is fundamentally about making the most of existing assets and it can transform the quality of places. A strategic approach to the development and management of GI can have a profound effect – not only on the way a place performs, physically and economically, but also the health of those who live and work there.**

### **You get cleaner air**

Plants act as natural filters, trapping dust and harmful chemicals, cleaning the air and helping to make towns and cities healthier and less polluted. Roadside trees can trap up to 90 per cent of traffic-related air-borne dust particles.

### **Better flood protection**

The floods of 2007 caused £10 billion worth of property damage and a great deal of misery. As climate change leads to more torrential rainstorms, green infrastructure can protect communities against flash flooding. Trees intercept rainfall and slow the rate of run-off, while parks and gardens serve as sustainable soakaways. A greener city is a more absorbent city.

### **Cooler cities which can save lives**

Living vegetation helps enormously in countering the urban heat island effect. In summer, the cooler air of a shady street or park is noticeably more comfortable. Average UK temperatures are predicted to rise by as much as 4°C this century but research by the University of Manchester shows that 10 per cent increase in the urban tree canopy cover would cancel out this increase. Across Europe more than 35,000 people died in the 2003 heatwave. For older people and the very young, green infrastructure could be a lifesaver.

### **More local food**

Green infrastructure helps to encourage a healthier, more localised lifestyle. Allotments, domestic gardens and

community orchards all play a valuable role, perhaps most importantly through increasing awareness of food issues, although Middlesbrough actually aims to be self-sufficient through its own food growing project. There are already a quarter of a million allotments in the UK, but 100,000 people are on waiting lists.

### **Sustainable waste management and renewable energy**

There is growing interest in the role that green infrastructure can play in waste management. Using natural biological systems for waste, such as mulching with locally produced woodchip and compost, can make the urban environment more self-sustaining.

A number of local authorities are now using biomass as a renewable energy fuel, through harvesting their park and street tree prunings. Public buildings and offices can cut back on the need for air conditioning by using deciduous large canopy trees to shade buildings up to six storeys high.

### **Improved public health**

New research using the health records of 350,000 people in the Netherlands found that city dwellers living near parks are healthier and suffer fewer bouts of depression. The effect of green surroundings was greatest for people with low levels of education and income. In urban zones where 90 per cent of the area was green space, the incidence of anxiety was 18 people per 1,000. In areas with only 10 per cent greenery, it was 25 per 1,000.

**£7.2 BILLION**

total local authority spending on highways, 2008/09

**£1.1 BILLION**

total local authority spending on parks and open spaces, 2008/09

## **Critical support for biodiversity**

Nationwide wildlife surveys by the RSPB and others confirm that urban green infrastructure is now critical for biodiversity, with species such as hedgehogs, frogs, songbirds and butterflies thriving in the leafier parts of towns and cities. Viewed from above, mature neighbourhoods appear as urban forests, with gardens and other open spaces mimicking woodland glades. Streams, canals and rivers link them together to form a rich mosaic of wildlife habitats and these complex urban ecosystems make a very significant contribution to nature conservation.

## **A sustainable economy**

In *Living for the city, a new agenda for green cities*, the Policy Exchange highlighted an unexpected strong relationship between three key policy areas: greater participation in community action and local decision making; greener, healthier and safer city environments; and improved economic growth.

A green, healthy environment often goes hand in hand with commercial and economic success. The most prestigious offices, the most expensive hotels and the most profitable industrial headquarters tend to be located in the leafiest part of town, and successful managers often invest generously in planting.

Well-planned improvements to public spaces in town centres can boost commercial trading by up to 40 per cent. High-quality green spaces increase residential property values by 5–7 per cent over identical properties in the same area.

There are obvious green space job opportunities. These lie in parks and public open spaces and range from allotment officers and green keepers to park rangers and ecologists as well as linked occupations such as sport officers and streetscene managers.

But the employment potential of green infrastructure is even greater.

Wetlands for flood defence require skilled bio-engineering. From green roofs to sustainable waste and water management, technological development will require new skills for design, manufacturing and construction. All these emerging job opportunities need to be identified, and the training and resources provided to exploit this potential.

## **A beautiful, well designed place**

Now is the time to revisit our model of creating world class garden cities. When green infrastructure becomes the driving principle behind urban design, it changes how a place feels to live in. It makes places more beautiful and interesting and distinctive.

“Every place has a spirit. And the spirit of a place derives as much from the way a place is thought about or used as it does from its physical aspects. We should learn to understand and feel what gives a place its unique character and identity. Not least because that allows us to feel a part of the place we are in.”

### **Dan Pearson**

Landscape architect of the 2009 Stirling Prize winning Maggie's Centre, London and columnist for *The Observer*

# MAKING THE MOVE: SHIFTING INVESTMENT

**Green elegance:** the Barking Arboretum brings shade, cooling and beauty to the new town square

## **Given the range of benefits that it delivers, what is the current level of public investment in green infrastructure?**

In preparing this report, the sustainability team at PricewaterhouseCoopers (PwC) has undertaken a high-level analysis of a selection of figures on public spending in order to ascertain the relative orders of magnitude of green compared to grey expenditure. One of the clear conclusions is that 'green' expenditure, as defined below, appears to constitute a very small proportion of overall spend at local and national level.

PwC examined the 'budget books' of four English local authorities to establish their current levels of 'green' spending. In particular, they analysed the combined capital and revenue expenditure broadly relating to green infrastructure in one local authority in each of the following categories:

- a city
- a town/borough council
- a county
- a rural district.

A summary of the data for the local authorities that were selected for this exercise, within each of these headings, is shown in the table below. The table shows that 'green' expenditure represents 0.1 per cent to 4.3 per cent of total expenditure. This includes expenditure on: regeneration and development planning; parks and nature conservation; public rights of way; rivers and brooks; flood defence and land drainage; allotments; open space improvements; cemeteries and sustainable development.

Our preliminary analysis of these expenditure figures, albeit for a very limited selection of local authorities, suggests that investment in GI represents a fraction of total spending.

In this analysis, we found that green expenditure overall represented a mere 0.4 per cent of total expenditure. Taking the four councils highlighted above, shifting 0.5 per cent from grey to green would increase investment in services related to green infrastructure across the authorities by 141 per cent.

The range of green expenditure per head in the four authorities was respectively:

- city: £14 pa
- borough: £16 pa
- county: £2.50 pa
- district: £9 pa

Other interesting points to note from this analysis include:

- revenue and capital spend on roads for the city council was 24 times its green expenditure
- green expenditure is more significant as a share of expenditure at district level councils, though this probably reflects the much smaller range and level of expenditure undertaken in comparison to larger authorities
- within the figures quoted above for green expenditure, a large proportion relates to spending on cemeteries. Twenty seven per cent of the green infrastructure budget for the county council relates to burial ground developments and 18 per cent of the rural council GI spend relates to spending on cemeteries.

These figures are illustrative and cover only four out of more than 300 local authorities. But they do suggest that direct green expenditure at local authority level is indeed a small proportion of total spending. It would be clearly valuable to do a similar analysis for all local authorities to examine whether, as we suspect, this finding is consistent around the country.

One set of figures that is readily available at national level relates to the so-called green fiscal stimulus that was announced in last year's pre-budget report. This report announced a total economic stimulus package of £3bn, of which around £500m (17 per cent) related specifically to 'green initiatives'.

It is important to note that much of what was included in the £500m goes far beyond what we have considered here to be green expenditure (such as mainstream public transport provision and flood defences). Nevertheless, this provides us with another benchmark against which to assess the extent of green expenditure.

It therefore seems reasonable to say that direct spending on GI represents a relatively small proportion of total spending; green expenditure is probably less than 1 per cent of total spending at local authority level.

Given the range of wider benefits that accrue from green infrastructure, this suggests that in principle we could grow GI expenditure significantly (in proportionate terms) by shifting a relatively small absolute amount of resource 'from grey to green'.

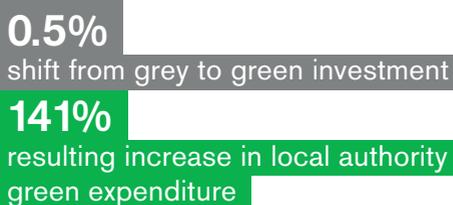
From a strategic perspective, the custodians of public spending at national and local level might well explore further the opportunities for shifting spending from grey to green while maintaining the delivery of other public benefits and goals.

## GREENING THE GREY

The debate so far relates to how we might be able to 'grow the green'. That is, transfer some expenditure from grey to green infrastructure.

However, given increasingly straitened public finances, it is worth noting that significant benefits would also be achieved by 'greening the grey' – by integrating green requirements into all mainstream infrastructure projects.

This could be achieved, for instance, if the bidding process for all infrastructure projects was used to incentivise the development of green infrastructure.



BUDGET	'GREEN' EXPENDITURE		TOTAL EXPENDITURE
LARGE TOWN/CITY	£18 million	0.5%	£3,932 million
BOROUGH	£1 million	4.3%	£23 million
COUNTY	£3.5 million	0.1%	£2,789.5 million
RURAL DISTRICT	£1.5 million	4.0%	£37.5 million

#### Notes

- a. All figures relate to 2009/10 and are rounded to the nearest thousand. All figures are drawn from the respective local authorities' budget books.
- b. In determining the expenditure that is deemed 'green' we have used the 'analysis by portfolio' contained with the budget books. We have included all 'green' expenditure that is easily identifiable within the portfolio analysis (detailed under point c below). We recognise that there may be other 'green' expenditure that is not identifiable in this way from within the budget books.
- c. 'Green' expenditure is broadly interpreted to include expenditure on: regeneration and development planning, parks and nature conservation, public rights of way, rivers and brooks, flood defence and land drainage, allotments, open space improvements, cemeteries, sustainable development.

# IN CONCLUSION: GREY TO GREEN

Meadow lands: green infrastructure will deliver  
places where people love to live

**Perhaps the greatest obstacle to understanding our cities in terms of green infrastructure is the challenge it poses for ‘business as usual’. This kind of soft engineering is in stark contrast to a more orthodox, capital-intensive, technologically based approach to the way you design and manage a place.**

Traffic planners and highway engineers, for example, are used to tackling congestion with road-widening schemes and sophisticated traffic management systems. Now they need to provide green routes to school and networks of low-key interconnected cycleways. Flood defence may still need concrete flood barriers and energy-consuming pumping schemes. But green infrastructure offers a more sustainable alternative of wetlands for flood defence, sheltering tree canopies, absorbent green spaces, and living plants in the streets and on the buildings themselves.

Thinking in terms of green infrastructure will therefore mean change. It may involve teaching students out of doors on a regular basis, planning short journeys more thoughtfully, growing local food in public spaces, managing wetlands and accepting gradual environmental improvement instead of high-cost quick fixes. Some people will find it difficult to work with nature after years of working in less sustainable ways, while others are likely to embrace the idea much more readily.

**As a result, we need not only a shift in investment strategies but a change in culture. Indeed, the one depends upon the other.**

Green infrastructure needs to be championed at the highest level. It demands fresh thinking, refined technical skills and visionary political commitment.

For far too long, a shortage of committed champions has meant that the benefits of green infrastructure have been routinely undervalued. Joined-up policy making is hard for big institutions to achieve and needs endorsement at the highest level.

CABE believes that every local authority should aim to weave functional green infrastructure throughout its services, from education to development control and from transportation to environmental health.

A strategy for green infrastructure should sit comfortably at the heart of a local authority’s sustainability portfolio, reinforced with a commitment to the necessary skills training and career development.

**It will help to deliver the vast majority of a council’s national performance indicators. And just as important, it will create the kind of places where people love to live.**

**“Green spaces create a civilised city.”**

**Boris Johnson,**  
Mayor of London

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