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S U S T A I N A B L E L E G A C Y ?

Inspiring a Generation?



London 2012 will be remembered as a great success on all levels. Team GB and Paralympics GB did Britain proud in achieving a record haul of medals, the Games Makers restored our belief in the human spirit, and London's transport system was transformed from maligned Victorian infrastructure to a shining beacon of success as a great joined-up urban transport system supporting a great world city. More importantly we stuffy old Brits learned to have some fun.

Amid all this euphoria it is easy to forget that London 2012 also promised to be the most sustainable Games ever. There is much to learn here along with many perspectives to explore. An Olympic and Paralympic Games in London has everything: Europe's biggest construction project, an ambitious urban regeneration programme, the biggest new urban green space for 150 years, the biggest catering event in the world, the biggest gathering of the world's media, multi-million pound sponsorship ... and some sport.

People see the Games from different perspectives: former Mayor Ken Livingstone saw it as a regeneration project for the next 200 years interrupted by a few weeks of sport, the chair of the London Organising Committee for the Olympic and Paralympic Games (LOCOG) chair Lord Coe would be more likely to see it as an opportunity to kick-start sport participation that needed a regeneration project to make it happen. The organisations delivering the Games ranged from central government departments to government agencies providing essential services such as security, healthcare, environmental protection and risk mitigation. Huge organisations such as the publicly-funded Olympic Delivery Authority (ODA) and the privately-funded company LOCOG had to be created and dismantled, and public bodies providing services in London, such as Transport for London, needed to do things very differently during the Games.

I have had the honour to chair the Commission for a Sustainable London 2012 (CSL) throughout the programme, and I have worked with a wonderful group of Commissioners and other colleagues who see the Games from a wide variety of perspectives. We are grateful to the Institution of Environmental Sciences for giving us

the opportunity to bring together those perspectives to paint a broad picture of the most sustainable Games ever. When we consider sustainability, we look at all aspects of environmental and social sustainability, so there is something in this publication for everybody. We look at how the environmental impacts of the Games have been managed from the construction of the venues through the staging the Games to legacy, we look at how the Games have driven economic sustainability through local jobs and procurement, and we look at and the wider impact on the community such as regeneration, sport participation and legacy.

Professor Stuart Green, one of our Commissioners, has always maintained that the legacy of knowledge is just as important as the physical and socio-economic legacy of the Games. This publication is a unique opportunity to make a contribution to that legacy.

Although London has delivered the most sustainable Games ever, it is not possible to call any Olympics or Paralympics Games truly sustainable, given the excessive use of resources needed. London's Games will only be considered sustainable if we can inspire a generation to adopt more sustainable practices. I hope this special edition of the environmental SCIENTIST inspires you today.

Shaun McCarthy has over 20 years senior management experience with large companies and 7 years' experience as an independent advisor to a wide variety of corporations and governments around the world. He is Fellow of the Royal Society of Arts, a member of the Chartered Institute of Purchasing and Supply since 1995 and a Member of the Institute of Environmental Management and Assessment.

Note about cover image:

this design echoes the official 1948 poster for London Olympic Games by Walter Herz. <http://www.vam.ac.uk/users/node/3781>

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Tel 020 7730 5516
Email enquiries@ies-uk.org.uk
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Editors Emma Fenton
Jemma Percy

Subeditor Caroline Beattie

Originator Heather Barrett-Mold

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Welcome to our world – two perspectives

Jonathon Porritt and **Shaun McCarthy** give their perspective on ‘the most sustainable Games ever’.

The 2012 summer Olympics in London established many ‘firsts’ and many ‘bests’ from a sustainability point of view. The Commission for a Sustainable London 2012 (CSL) may justifiably lay claim to both of those descriptions. But then I am not exactly an unbiased commentator.

The 2012 Games were awarded to London in 2005. Sustainability had been a big part of the bidding process, eloquently captured in that compelling but elusive idea of a ‘one-planet Olympics’. As part of the process, I gave evidence to the International Olympic Committee to emphasise just how important this was. Along with WWF, BioRegional and literally countless NGOs (even in those early days!), we all saw it as *essential* to make sure that the Olympic Board, the Olympic Delivery Authority (ODA) and London Organising Committee of the Olympic and Paralympic Games (LOCOG) should live up to those inspiring commitments.

At that time, I was Chair of the UK Sustainable Development Commission (SDC) – an independent, high-level body advising the government on every aspect of sustainable development. To be honest, most of our Commissioners were either neutral about the Olympics or positively hostile – “a sustainability horror story” was how one of my colleagues described it. If the Games had to be in the UK, then surely anywhere but London?

INDEPENDENT AND REPRESENTATIVE

By contrast, I’d been an Olympics enthusiast throughout my life, and felt the Sustainable Development Commission had a *duty* to help the Department of Culture, Media and Sport (DCMS) to do the right thing in terms of providing a proper governance structure to underpin all those bold ambitions. So together with Sara Eppel, then Policy Director at the SDC, we set

about making a nuisance of ourselves lobbying for an independent, representative, properly accountable and properly funded body to scrutinise progress, hold all the different Olympic organisations to account, and report back to a growing number of stakeholders who were fired up by the prospect of this being ‘the most sustainable Olympic Games ever’.

DCMS officials were hardly overjoyed at being asked to create another scrutiny body – and suggested that the SDC might like to do it itself! Happily, we had neither the competence nor the right people, given that most of the Commissioners (like most members of the general public at that time) still felt pretty grumpy at the very idea of the Olympics. (And like most members of the general public, I bet they’re thinking about it rather differently now!)



From all of which, eventually, emerged the Commission for a Sustainable London 2012. Personally, I think the Commission has done a great job. As one of a small group of sustainability ambassadors, working closely with both the ODA and LOCOG, I could see the impact of the Commission’s interventions on both the leadership and the operational teams. The Commission was seen sometimes as ‘an irritant in the system’ (which we all saw as a good thing), sometimes as a critical friend, and sometimes as an authoritative and completely independent transmitter of performance analysis and progress updates.

For the Labour Government and the Mayor of London to have created a body of this kind was a significant innovation. It undoubtedly played an important part in ensuring the success of the Games from an all-round sustainability perspective.

Now, as the work of the Commission for a Sustainable London 2012 comes to an end, three things in particular stand out for me as being truly astonishing.

FIRST

It is astonishing that the Commission ever existed at all. Various people came together to design the sustainability commitments for the London 2012 bid, and the notion of an assurance body to hold the programme to account for achieving groundbreaking levels of sustainability was conceived before the bid was won in 2005. However, it is a long journey from coming up with an interesting new concept and making it happen in a complex political and commercial environment.

Jonathon has outlined his personal involvement in the early days above, and there is no doubt that his influence and lobbying at the highest levels of government helped to bring about this unique organisation. I also have Jonathon to thank for his role as a coach during these early days – he gave me very good sound advice on how to deal with the complex governance structures needed to satisfy the various government bodies and stakeholders involved. He was also a patient and understanding friend and mentor.

The proposition for the Commission was a big ask: an official body with direct accountability to our political leaders, with unlimited access to all information, fully independent reporting capability to the public, and an independent relationship with the press. On top of which, the delivery bodies were being asked to pay for a service that could cause them a huge amount of embarrassment. After many months of painstaking negotiation, with support from a wide range of people from a variety of organisations, we developed protocols and procedures to ensure adequate transparency with the delivery bodies without compromising the independence of the Commission or its ability to operate efficiently.

We were launched in January 2007 at the same time as the ODA sustainability strategy. The launch took place in the Cabinet Office at 10 Downing Street with the-then Prime Minister Tony Blair. This was my first (and only) visit to the Cabinet Office. Lord Coe chaired the session and also played a significant role in facilitating the Commission's work. He read everything we published in detail, took our recommendations seriously and was always available to offer advice when asked. He also made sure the Commission had an appropriate profile, introducing me personally to two Prime Ministers, the



Queen and numerous other leaders and decision-makers. Jonathon and Lord Coe were two of many people who inspired me during the development of the Commission and kept me going when it would have been much easier to just pack it in. I also had the support of a great team from the London Sustainable Development Commission, and in particular Emma Synnott, who helped to develop the concept and practical application of the Commission's work.

SECOND

The second astonishing thing is the comprehensive body of work that has been created by such a small number of people. The quality of our work is primarily shaped by 16 excellent commissioners and co-opted experts, who have given their time as volunteers, some for eight years, to help to inform our work, using their expertise and judgment to ensure that we cover all aspects of sustainability in the best possible way.

The majority of the actual work of the Commission has been done by three people plus an extra person in the Games year and my own part-time contribution of 130 days per year. Our website gives access to the work that charts the truly independent story of a sustainable London 2012. The work is thorough, professional, and deals with complex issues in a way that people can understand. It not only seeks to explain, but to evaluate and recommend corrective action. All of our recommendations have been followed up diligently.

At the outset I promised we would 'leave no stone unturned' to assure the sustainability of London 2012, and the team have done me proud in living up to that promise. We had a few changes of personnel along the way, always for good reasons, but the contributions of **Emma Synnott**, Jane Durney, **Jonathan Turner**, Deborah Morrison, **Jemma Percy** and **Rebecca Simmons** should be recognised

THIRD

The third astonishing thing is the breadth of issues we have covered. Sustainability is a much misunderstood term but we have tried to use the widest possible interpretation of it in all our work. This publication goes some way to doing justice to the range of areas we have dealt with. Emma Synnott and Ben Wilson have prepared an excellent piece on the role of strategic assurance and how the Commission has broken new ground in the light of a plethora of standards, guidelines and management systems that are crowding this space today. It also asks the question of whether such a model



can or should be replicated. Of course we would say 'yes', but it needs a lot of courage to take on such a body and I will be interested to see if it ever happens again. **Jonathan Turner** and I consider the work of the Commission in a little more detail, looking at some of the processes we have reviewed and how these have had a profound influence on the outcomes of the London 2012 programme.

Although sustainability seems an abstract concept to some, to others it is a matter of process, technical excellence and a little bit of inspiration. The two architects from our Commission, **Julie Greer** and **Andrew Myer**, have combined to consider the contribution of good design on the sustainability of the many venues and how this can influence the type of place we are trying to create in legacy. **Kathryn Firth** makes her own contribution from a perspective of the legacy owner, the London Legacy Development Corporation. Designs are ultimately for communities which are made up of people. **Neil Taylor** and **Gautam Banerji** have contributed excellent articles from their own perspectives of legacy and community.

It could be said that all aspects of sustainability contribute to healthy living. Our Health Commissioner **Dr Robin Stott** combines his long career as a physician and his equally long-lived passion for environmental protection to draw together the contribution of One Planet Living to good health, and also considers how London 2012 has contributed to this. Jonathan Pauling looks at the contribution of the London 2012 Food Vision to more sustainable and healthy living. Our air quality expert, **Dr Claire Holman**, considers London's chronic air quality problem and whether London 2012 has been part of the problem or part of the solution.

One of the more difficult issues we had to deal with was corporate ethics. Some would argue that there is a fundamental disconnect between Olympic values and those of major corporations that seek only to deliver

shareholder value. Others argue that sponsorship is an essential element of sport and that sport would not happen without our benefactors. From the Commission's perspective we concluded that we cannot act as 'ethical police' for the world's corporations, but we would deal with ethical issues directly relating to the Games. Not everybody agreed with this, and one of our Commissioners resigned. There is an issue here that should not be avoided, and our ethics expert, David Jackman, attempts to tackle this along with gold medallist and current Head of Sustainability for the America's Cup **Jill Savery**.

Our longest-serving Commissioner, **Dr Robin Stott**, has always maintained that there is no such thing as sustainable Olympic Games, because it is not possible to justify the huge amount of resources consumed just to watch sport. We can only conclude that the Games are sustainable if we can use them to inspire higher standards and changes in behaviour.

Robin's thoughts became a bit of a mantra for the Commission and helped us to focus on the longer-term aspects of our work. Two of our articles consider this in different ways. **Sarah Cameron** looks at the Games themselves against a theoretical model of behaviour change and sustainability, and draws some conclusions around what worked well and what could have been done better. Two of our academic Commissioners, Professor **Stuart Green** and **Dr Eleni Theodoraki**, combine to look at the legacy of knowledge from London 2012 and how it may be applied. Stuart should be credited with the concept of learning legacy that has now been enthusiastically adopted by the ODA and LOCOG; he came up with the idea early in the Games programme and recommended that it should happen.

Dr Gary Cox looks at skills and employment, **Heather Barrett-Mold** looks at the Games from her perspective as a biodiversity champion, and **Andy Shipley** gives



▲ Photo credit: Heather Barret-Mold

us his perspective on diversity and inclusion. As a key aspect of the Commission's work is to communicate effectively, **Jemma Percy** and **Chris Clark** provide us with their view on these unique challenges.

So, did London 2012 deliver the most sustainable Games ever? Without a doubt, yes. Could London 2012 have been more sustainable? Yes, but only marginally so. Will London 2012 fulfil its promise to inspire a generation to greater levels of sustainability in the future? Only time will tell. **ES**

Shaun McCarthy has over 20 years senior management experience with large companies and 7 years' experience as an independent advisor to a wide variety of corporations and governments around the world. He is Fellow of the Royal Society of Arts, and a member of the Chartered Institute of Purchasing and Supply and the Institute of Environmental Management and Assessment.

Jonathon Porritt, Co-Founder of Forum for the Future, is a writer and commentator on sustainable development. He is Co-Director of The Prince of Wales's Business and Sustainability Programme which runs seminars for senior executives around the world. Jonathon received a CBE in January 2000 for services to environmental protection.

CSL Resources

Learning Legacy

Lessons learned from the London 2012 construction project and from preparing and staging the Games.

<http://learninglegacy.independent.gov.uk/index.php>

The London Organising Committee of the Olympic and Paralympic Games (LOCOG) and The Olympic Delivery Authority (ODA) learning legacy site is sharing the knowledge and the lessons learned from the construction of the Olympic Park and preparing and staging the Games, to help raise the bar within construction and event sectors, and act as a showcase for UK plc.

London Legacy Development Corporation (LLDC)

Is a public sector, not-for-profit organisation responsible for the long-term planning, development, management and maintenance of the Olympic Park and its facilities after the London 2012 Games.

www.londonlegacy.co.uk

The LLDC is responsible for delivering the Olympic legacy promises made in the original London 2012 bid. This key pledge concerns the physical legacy: the long-term planning, development, management and maintenance of the Olympic Park and its facilities after the London 2012 Games. It is their task to transform and integrate the area into a sustainable and thriving neighbourhood.

Royal Holloway, Centre for Research into Sustainability (CRIS)

CRIS will be hosting the Commission's website after it shuts down in March 2013.

www.rhul.ac.uk/management/cris

CRIS is a multidisciplinary, international group of researchers and educators at Royal Holloway, University of London, UK. They are actively engaged with the understanding of organisational responses to the multiple facets of sustainability.

The Institute for Human Rights and Business (IHRB)

is dedicated to being a global centre of excellence and expertise on the relationship between business and internationally proclaimed human rights standards.

www.ihrb.org

IHRB works to raise corporate standards and strengthen public policy to ensure that the activities of companies do not contribute to human rights abuses, and in fact lead to positive outcomes.

Strategically assured: London 2012 Now what's next?



Emma Synnott and **Ben Wilson** make the case for independent assurance bodies in the context of sustainability.

The Commission for a Sustainable London 2012 (CSL) was established in 2007 to provide independent assurance over the sustainability of the London 2012 programme and into legacy. Its creation was groundbreaking both in terms of practice compared to previous Olympic and Paralympic Games and innovation in the context of traditional assurance. When, in 2005, London committed to having independent oversight of its Games-related sustainability commitments there was no blueprint for how such a process would work. This article considers what London 2012 gained from this policy experiment and the scope for its application to other projects.

The Commission's role is threefold: providing independent, credible assurance; a commentary; and engaging with wider stakeholders over the programme. Comprising 12 to 16 unpaid commissioners and co-opted experts, a paid part-time chair and a secretariat of three people, the Commission is light touch, forward-looking, focusing on the strategic challenges and issues.

A bespoke assurance framework was developed for the Commission that reflected the multi-programme, multi-stakeholder dimensions of the assurance task as well as the need to be forward-looking throughout the life of the programme. It was agreed that it would report directly to the Olympic Board and that it could report publicly via its own website.

While the Commission's remit was strategically focused, it retained the flexibility to mirror the focus of the 2012 programme itself. In its early years it focused on

governance, policies and development outcomes while in 2011 and 2012 it was assuring preparations for the Games, including site-based assurance of test events and games venues.

Since its inception, the Commission has undertaken an extensive number of thematic and annual reviews, resulting in 235 recommendations. At the time of writing just 10 per cent have either not been achieved, show no progress yet, or are at significant risk of having not been achieved. The transparency of both the assurance process and the delivery bodies' progress has been an important element in the Commission's work¹.

The concept of sustainability assurance has evolved over the past 12 years. The Sydney 2000 Games was the first where there was any sort of independent scrutiny of sustainability commitments, and yet the creation of the Commission for the London 2012 Games is the first fully fledged sustainability assurance model for an Olympic and Paralympic Games.

MODEL OF ASSURANCE

In parallel to an emergent sustainability assurance industry focused on environmental standards such as ISO 140001, a loose model of assurance began to emerge in the United Kingdom based more on strategic overview and commentary both in the private and public sectors. Corporations such as Marks and Spencer² began appointing sustainability panels to provide formal statements to accompany their annual reports. The UK Government established the first independent Sustainable Development Commission in June 2000³

which advised government on policy and latterly created a 'watchdog' role to assure the sustainability of the government estate. Within London, the-then mayor, Ken Livingstone, established the London Sustainable Development Commission in 2002⁴ to provide independent advice to him on meeting his statutory duty to have regard to sustainability in all of the mayor's actions. These bodies were creating sustainability frameworks⁵, principles and appraisal tools to help guide their strategic commentary.

The Commission model was strongly influenced by the emerging culture for strategic commentary but it soon became apparent that it required a strategic, light-touch assurance balanced with the rigour of more traditional models. Its bespoke assurance framework, the selection of Commissioners and Chair, and the appointment of the secretariat, its budget and its terms of reference all served to give the Commission a clear direction, adequate resources and technical expertise.

At the time of writing, the Commission remains the sole independent body that is focused on strategic assurance of the sustainability of a major project or event. Yet, in the years since it was set up there has been an explosion of third-party assurance activity linked to new standards such as AA1000AS, BS8901, ISO 20121, and GRI integrated reporting framework and GRI Event Organisers Sector Supplement.

FOCUS ON GOVERNANCE

Given the size of the task and the limitations on resources, the Commission identified at an early stage that the initial focus of its assurance should be on the governance structures of those bodies charged with delivering the Games. Were senior members of the structure knowledgeable and willing to be accountable on such matters? How did the governance arrangements demonstrate commitment, and were such matters given a high profile in the corporate objectives and an appropriate commitment to resourcing?

These were a useful starting point in gaining assurance but further work was often needed to gain comfort that such high-level commitment translated into genuine sustainable outcomes 'on the ground'. Subsequent assurance work often gave the Commission a valuable understanding of the 'degree of conformity' within some corporate structures and, when failures or deviations from policy were detected, the speed and rigour with which remedial action was undertaken. These provided a valuable insight as to the efficacy and reliability of the delivery bodies' own internal assurance structures, including reporting against management systems and standards such as BS8901 and the extent to which the Commission itself could rely on them for assurance.

“...the creation of the Commission for the London 2012 games is the first fully fledged sustainability assurance model for an Olympic and Paralympic Games.”

PUBLIC SCRUTINY

Amongst the many unique challenges in staging the Olympic and Paralympic Games was the degree to which the task was the subject of a huge amount of public scrutiny and comment, often provoked by the media and sometimes politically motivated. This scrutiny was not just over the work of public bodies such as the ODA, but also private companies such as LOCOG itself. This public perspective did not distinguish between public or private organisations or between primary and secondary contractors – all were expected to display the highest levels of transparency, probity and accountability. Where these were suspected as failing, there was a clear expectation that the Commission would comment and as necessary investigate and seek remedies.

The Commission had expected this from the outset and sought to promote the sustainability agenda with the general public through the website, press releases and publications. However it was clear that there were some aspects of the sustainability agenda, particularly procurement and labour rights, which were of interest to a number of influential pressure groups and NGOs. The Commission sought proactive engagement with a number of such bodies, aware that their special interests and capacity for investigative scrutiny were as much an asset for the assurance work of the Commission as they were a challenge to the Commission's own credibility.

The combination of a high level of understanding, access to key individuals in the delivery bodies and the Commission's capacity (and on occasions, willingness) to make open and public commentary created a useful tool when seeking to persuade the delivery bodies of a change in behaviour or policy direction. However it also sometimes placed the Commission in a number of challenging positions. First, some stakeholder groups had unrealistic expectations about the scope

and extent of the Commission's role and powers, and demanded a more campaigning role from its outputs. In addition the Commission's capacity to access senior decision-makers sometimes meant that it found itself supporting, in the face of adverse public comment, difficult but justifiable decisions to which it may have had a privileged understanding. Thus the Commission found itself treading a narrow line, working within a political environment without itself being drawn into adopting a political position.

Despite the challenges of working in such a political world, the Commission is widely viewed as having achieved the credibility it required early on to wield the influence it needed to ensure that delivery bodies remained on track in meeting their sustainability commitments. Indeed, the outcomes largely speak for themselves: London 2012 was by a long stretch the most sustainable Games to date, achieving the vast majority of its goals.

The Commission's specific interventions to drive better outcomes are too numerous to mention but some examples have been highlighted separately in this issue. The question for policy makers, commissioning bodies and the construction and events industry is whether it is a model that should or could be replicated. It has been estimated by LOCOG⁶ that the Commission cost just 0.02 per cent of the total programme budget, but that it helped to deliver sustainability value in the many millions of pounds (for example, sustainability sponsors contributed £15 million alone). On this basis the Commission was highly cost effective, bringing credibility, expertise and transparency to the programme and, through continuous assurance, ensuring that key commitments were not eroded over time.

EXTERNAL FACTORS

The Commission's effectiveness in implementing its assurance model at both at a strategic and operational level was not only due to its own structure, assurance framework, expertise and diligence but also due to a number of external factors:

- A contained number of organisations responsible for Games delivery which required oversight;
- The high-profile nature of the task, which created a public and political expectation of transparency and accountability in the delivery bodies, their agents and contractors;
- The very focused nature of task, both in terms of timescale and geography; and
- The existence of a number of 'good practice' regimes, particularly in construction and procurement, which set transparent and measurable process targets and outcomes.

There are other major projects within the UK which are of a size, scope and importance that arguably demand similar attention. These include High Speed 2, which will bring a new high-speed rail line from London through to northern England; CrossRail, which will bring a new rapid rail connection from west London to east London, a number of large regeneration projects within London⁷, and of course the Commonwealth Games in Glasgow 2014, which is comparable in size and scope to the Paralympic Games. None of these projects to date has an independent assurance function established to oversee their sustainability performance, although Glasgow 2014 has established an advisory committee. Furthermore, with the demise of the Commission in March 2013, London's legacy from the Games will be without independent oversight, other than through the political scrutiny of the London Assembly.

BARRIERS TO REPLICATION

What then is preventing these projects from considering and embracing sustainability assurance in its most strategic sense? We believe that there are a number of barriers that could be easily overcome:

- Understanding what independent strategic sustainability assurance means;
- Being clear about the benefits of sustainability assurance;
- Being aware of the ratio of risks to benefit of being assured – and that, if supported with a genuine sustainability programme, should result in far greater benefits than realised risks;
- Committing to being assured in this way;
- Agreeing with others a pathway for an assurance model to be established and funded; and
- Recognising that external factors are also important in an effective assurance process.

The irony is that these barriers are essentially preventing developers and event organisers from enhancing their own development outcomes and potentially saving money on total development costs. The Commission has committed to promulgating its own learning legacy in part to assist others in overcoming the knowledge-benefits barrier.

The most intractable barriers to success are more to do with identifying a suitable governance mechanism for such an assurance process. Who should fund it, what projects should it cover, who or what does it report to?

It is our view that these questions naturally lie with governments to lead on, but in the absence of this, industry sector bodies could themselves collaborate to support a model of assurance that is fit for purpose. This is an obvious route to market combined with a funding method based on 'user pays'.

CLEAR AND TRANSPARENT

The Commission's effectiveness can be attributed in large part to its strategic remit that was firmly grounded in a clear and transparent assurance process. At no stage did it aim to be a quasi-regulatory, standards-driven body. The burgeoning of sustainability assurance standards naturally sits in this quasi-regulatory space and works well as tools for individual organizations and single organisation projects. Indeed, it has been the Commission's experience that the range of third-party assurance activities instigated by LOCOG, the ODA and the Greater London Authority (GLA) provided a level of surety at the individual organisational level on very particular programme elements, which is sometimes hard to achieve with cross-programme and cross-stakeholder assurance.

It is ultimately up to others to decide whether strategic assurance has a place in the transparency and governance matrix for major projects, but it is clear from our own experience that it can add significant value to projects across many criteria. The question is perhaps not how much red tape is enough, but how can we stretch every project pound to deliver more and better for a more sustainable collective future. **ES**

Emma Synnott is a sustainable cities expert with 20 years professional experience in the public and private sectors. Emma began her career in the NSW Cabinet Office and from there specialised in social housing policy and sustainability strategy.

Ben Wilson has thirty years expertise in social housing as a housing manager and chief executive. His special interest has been in the links between housing and socio-economic programmes in the regeneration of housing estates. He now works as a freelance consultant to the housing sector specialising in organisational strategy and governance.

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Influencing design and procurement

Jonathan Turner and **Shaun McCarthy** describe how the Commission for a Sustainable London 2012 (CSL) influenced outcomes through assurance of reporting, design and procurement processes.

CSL was set up to independently assure the sustainability of the London 2012 programme and legacy. To be credible, the Commission has had to be able to influence the bodies delivering the Games and managing their legacy. The critical success factors for the Commission's influence can be summarised as follows:

- The right terms of reference and reporting lines;
- Work plans to anticipate the programme going forward and timely application of reviews;
- Good relationships with delivery bodies at all levels up to CEO to enable issues to be resolved behind closed doors;
- Good relationships with NGOs to gauge perceptions and share options confidentially;
- Direct line to senior government officials to enable political leaders to be briefed; and
- Having the ultimate option of going direct to political leaders and the media if none of the above options work.

The Commission has carried out five different types of assurance review: annual reviews of governance and strategic programme issues; thematic reviews of processes in delivery bodies; thematic reviews of

sustainability themes; snapshot reviews of issues at a single point in time; and short focused reviews of emerging issues. This article discusses the way the Commission has influenced outcomes through reviewing the key processes of reporting, design and procurement. The Commission's first review¹ addressed the governance of sustainability within the bodies delivering the London 2012 Olympic and Paralympic Games. Tackling this first was essential for ensuring that the programme was headed in the right direction, for highlighting the Commission's concerns, and for focusing its review programme. The report included a forward programme



of reviews, focused initially around the key processes that would be essential in managing the sustainability programme and ensuring sustainability commitments were delivered.

THE IMPORTANCE OF REPORTING

The Commission's first thematic report was a review of the reporting processes within the bodies delivering London 2012 and for programme-wide sustainability reporting². This was important for providing assurance about how sustainability issues were being monitored and managed across the programme. As the adage says: "if it's not being measured, it's not being managed". The review also enabled the Commission to ensure that there would be reporting processes that could be relied on to provide accurate data and performance information going forward.

The review found some good internal reporting processes in the Olympic Delivery Authority (ODA) and plans for them to be put in place in both the London Organising Committee of the Olympic and Paralympic Games (LOCOG) and the London Development Agency (LDA). However, government processes needed improvement, leading to recommendations³ that legacy plans needed clear action plans and reporting processes. LOCOG did develop reporting systems but the Commission initially found a lack of clear targets on sustainability issues to enable teams to innovate around sustainability. A recommendation was made⁴, which LOCOG responded to by setting new targets to drive performance.

The biggest concern at this stage was the lack of clear programme-wide sustainability reporting and the impact this would have on the ability of the London 2012 Sustainability Group to fulfil its role in managing sustainability performance and sustainability risks across the programme. The Commission recommended⁵ "GOE [Government Olympic Executive] to urgently finalise and implement a sustainability reporting

system across the programme by October 2008, the principal elements of which will be key milestones, KPIs [key performance indicators], programme and risk management." This led to action from the London 2012 Sustainability Group to set up a reporting system, supported by a suite of KPIs. Following a further recommendation on risk management⁶, this reporting system and the Commission's recommendations were used in a risk-based approach to identify issues and manage programme-wide sustainability issues.

The cross-functional, risk-based processes enabled London 2012 to use input from CSL to identify and resolve anticipated concerns in time to resolve problems. Examples of this included the need for coordinated action and targets to be set for waste from deconstruction and transformation, addressing environmentally sensitive materials, options to recover the carbon targets following the cancellation of the planned wind turbine, and stakeholder concerns about corporate ethics and sponsors. Participation of senior officials from the Mayor's office and central government meant that the Mayor and Secretary of State were able to be briefed on issues of concern well before media or political interest became an issue.

THE CONSEQUENCES OF DESIGN

Design⁷ was considered to be a crucial process to review early in the programme in order to provide assurance over the extent to which the London 2012 sustainability aims and objectives were flowing through into the design of venues and infrastructure. In reviewing design, the Commission considered the processes in the ODA, LOCOG and the LDA (as the then interim legacy client) and programme-wide issues. A number of recommendations were made in the latter area around the need for greater coordination between delivery bodies, early integration and involvement of sustainability professionals in design process⁸. These were crucial lessons that the Commission was able to pass on from the ODA as the first organisation designing venues, to LOCOG and the LDA (and now the LLDC - London Legacy Development Corporation) who would design their venues and infrastructure at a later stage. This was one example of the role the Commission was able to play in transferring learning across the programme. The recommendations are also useful to other organisations wanting to learn from the Olympic programme.

An important recommendation made by the Commission in the design review was "That LOCOG explore the opportunities to influence the marketplace for the goods and services they require to seek to enable the requirements of the Sustainable Sourcing Code to be applied despite the goods and materials being leased and not bought⁹." This was not always successful, for example with the use of PVC and temporary heating, ventilation and air conditioning using HFC. However



LOCOG's engagement with the marketplace did lead to some interesting innovations, such as a flexible and reusable metal structure to level the arena in Greenwich Park, which prevented the need for significant earth movements or an alternative levelling material to provide fill. During the review the Commission noted that LOCOG had committed to apply waste reduction and minimisation principles to temporary venues and the fit-out of all venues; however, there were no specific targets. The Commission recommended that this be done¹⁰ and in the next edition of the London 2012 Sustainability Plan¹¹ a target was set.

One of the Commission's early recommendations was that the ODA should address environmentally sensitive materials, including HFC and PVC. There was significant stakeholder concern about HFC at the time, and supermarkets were starting to plan replacement programmes. The design review picked up that this recommendation had not been actioned and there was still no policy in place. Following a call for a 'chiller amnesty'¹² (a full review of the cooling and air conditioning equipment planned for Olympic venues and the types of cooling medium to be used), concerns about the design of the Aquatic Centre were addressed directly with the Mayor and Minister for the Olympics, resulting in a significant design change to non-HFC cooling.

THE ROLE OF PROCUREMENT

The final key process reviewed by the Commission was procurement. This was reviewed in two stages due to the timing of the programme. ODA procurement¹³ was reviewed first, with LOCOG procurement¹⁴ being reviewed a year later. Procurement was a crucial driver of sustainability performance for London 2012, as with any organisation that buys in a significant volume of goods and services, because all key sustainability criteria and commitments must be reflected in procurement specifications and then contracts.

The process-driven nature of the ODA meant that once systems were in place, the appropriate standards began to flow through from venue designs into procurement contracts. There was also successful engagement with the marketplace here as well. This was most notable with the aggregates and concrete contracts, where key sustainability commitments on recycled materials were communicated well in advance, allowing the industry to respond and deliver in excess of the requirement. The Commission did find some omissions in ODA contracts where sustainability commitments were not included, and made recommendations to address these areas in the management of the contract¹⁵. The ODA responded to these recommendations and used the contract management and sustainability assurance processes of its delivery partner to ensure that its contractors were implementing all its sustainability requirements. This

was a significant contribution to the ODA achieving near-100 per cent success in delivering challenging sustainability objectives via a complex supply chain.

When the Commission reviewed LOCOG's procurement processes during 2009, there were serious concerns about the ability of the organisation to manage the significant increase of procurement activity that was rapidly approaching. These concerns were raised with LOCOG and ultimately escalated up to the CEO. As a result of this and the CEO's concerns about the function, actions were taken, including changes in the management of the function and the recruitment of a new procurement director. He was tasked with addressing the concerns of the Commission and the CEO to prepare LOCOG for the work ahead. The Commission liaised with the new director regularly and were pleased to see new governance processes were put in place and the commitment to sustainable procurement that was reinforced within this governance. As a result, when the Commission published a report on LOCOG procurement in January 2010, it was able to report on this significant progress and ultimately conclude in later annual reviews that the procurement process in LOCOG was one of its strengths in delivering its sustainability objectives.

This highlights the importance of the behind-the-scenes work of the Commission and how it has frequently led to significant improvements in the sustainability of London 2012 that will not always be obvious. The public side of the Commission (its reports and statements) has often been only a small part of the Commission's involvement in assuring the sustainability of London 2012, with the bulk of the work being behind the scenes, influencing bodies to ensure that sustainability commitments have been and continue to be delivered. **ES**

Shaun McCarthy has over 20 years senior management experience with large companies and seven years' experience as an independent advisor to a wide variety of corporations and governments around the world. He is Fellow of the Royal Society of Arts and a member of the Chartered Institute of Purchasing and Supply and the Institute of Environmental Management and Assessment.

Jonathan Turner has worked for the Commission as Senior Assurance Officer since 2007. He has led many of the Commission's reviews and assurance engagements and managed the Commission's continuous monitoring programmes, tracking all key sustainability commitments made by London 2012 and all of the Commission's recommendations. He also has extensive experience of implementing sustainability solutions in Local Government having previously worked for Greenwich and Medway Councils.

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Stakeholder reflections

A summary of testimonies from some of the Commission's key stakeholders in regard to its contribution to the successful delivery of the 2012 Games

In 2012 the Commission for a Sustainable London 2012 (CSL) launched a new video¹ telling the story of its work. The video includes testimony of how this groundbreaking model can be applied to other major projects and the benefits it can bring. The following stakeholders gave their views in the video.

Vision for a new type of sustainability assurance

Jonathon Porritt

Former Chair, Sustainable Development Commission

Everybody has woken up to the fact that the world is not a particularly good place at the moment in terms of big sustainability issues: energy, water, waste, procurement. And unless big events, like an Olympic Games, actually succeed in reflecting that level of public concern then they're not really doing their job properly. So an Olympic Games today *has* to be able to demonstrate best practice on carbon, energy, water, waste, construction, procurement, food, ethics and good governance. That's quite a big list.

I was involved in the bid for the 2012 Olympics from very early on, in fact I gave evidence to the IOC [International Olympic Committee] about how 'green' and sustainable these Games were going to be. But obviously I never take claims like that for granted, and so as soon as the bid was successful we started talking to the Department for Culture, Media and Sport and said that they would *need* to set up an independent assurance and scrutiny body.

Richard Sumray

Chair, London 2012 Sports Forum

I wanted to make sure that, given Sydney was already developing its own policies for their Games in 2000, we had a really strong process around environmental issues. For me, making sure that they were absolutely integrated at the very beginning was going to be key to a successful London bid.

Samantha Heath

Chief Executive, London Sustainability Exchange

Our expectations for the Commission at the start were interesting because we weren't really clear how it was going to work. However, we wanted to make sure that this was the 'greenest' Games ever, and we wanted the Commission to be able to put the various organisations on the spot and call them to account.

Paul de Zylva
Friends of the Earth

I think NGOs got involved in the Games early on, and with the work of the Commission, because they recognised that it was really our opportunity to set these standards on a whole number of things from waste, transport, energy use, construction, and how to apply those lessons in everyday life and business operations. The work of the Commission was seen as important in trying to set these standards, and was a very important set of eyes and ears on the work of the organisers. I think also it brought together an easy 'one-stop-shop' for NGOs to engage with, so it was a very logical relationship to form.

Peter Head OBE
Executive Chairman, Ecological Sequestration Trust

Over the period that London bid and won and designed and delivered the Games, the context for sustainability has changed. I would say it's moved from a worry about climate change and the impacts, to a worry about food and energy and water supplies around the world. The independent Sustainable Development Commission had trained the bid team to bid a sustainable Games, but we realised as we were about to win and move it forward that actually it wouldn't be delivered unless there was an independent body that would oversee the delivery process. And therefore for us this was absolutely essential, and we fought to have the Commission set up.

The Olympics is inherently unsustainable, it's impossible to conceive of an enormous event which requires a substantial construction and development phase, and then in its running phase millions of people travelling from all over the world using prodigious amounts of fossil fuel, and it being in a country that is already way outside its sustainability limits. It is completely impossible for it to be sustainable.

Robin Stott – CSL Commissioner, Health



▲ Photo credit: Roger Barrowcliffe

A transferable model?

Jonathon Porritt

I think there's a rising tide of expectations now for all big events, not just the Olympics, but for people organising football tournaments or athletic events or even rock concerts. So what has been established with the 2012 Olympics in terms of independent governance, scrutiny of what's being claimed and what's being done, is something that now needs to be replicated for all big events of that kind. I see no reason why it shouldn't. The London 2012 Olympics has set a new benchmark; I wouldn't want to be the person who runs an event that falls short of that benchmark.

The Commission has made a real difference. It has asked difficult questions, it has held them to account in exactly the kind of way that it should have.

Peter Head OBE

The Commission has been very successful in my view, and I've talked to a lot of people involved in the Games delivery. In fact my teams in Arup were involved in designing and delivering a lot of the Games. A lot of people I've spoken to said the fact that the Commission existed was a big incentive to ensure that the actual objectives were delivered. The idea of having an independent Commission is a very good one and I think should be replicated elsewhere. But it should be remembered that it's *part* of the solution, and therefore having organisations that are committed and signed up to a pledge like they did in London is important; and also, of course, setting very good ambitions in the first place is critical. With all these things in place then I think it's an absolutely exemplary way to do this.

Paul de Zylva

The work of the Commission, I think, is one of the legacies of the Games. It's an absolute gift to other Games organisers but also other events, they don't all have to be Olympic sites. To really learn how to stage events in a sustainable way, whether it's looking at the supply chain, or construction methods through employment practices; all fantastic lessons to apply from here on in, for the rest of the 21st century.

Richard Sumray

My expectation of the Commission first of all was that it would hold the Olympic Delivery Authority [ODA] and the London Organising Committee [of the Olympic and Paralympic Games; LOCOG] to account for what they did. It *has* fulfilled those expectations in my view; having an independent body to whom the different organisations *have* to report has been a really good example of holding to account in a positive way. The Commission has been positive in its approach rather than negative and I think it's actually added to the value of its role.



▲ Figure 1. So what has been established with the 2012 Olympics that kind.

Jill Savery**Olympic Gold Medallist, Head of Sustainability for the America's Cup**

Assurance generally is something that has been around quite a long time but not as it applies to sustainability, which is such an all-encompassing word and concept. So this really is an opportunity for people to take this methodology that has been used for assurance on sustainability and apply it elsewhere. Whether it's a construction project, whether it's a major event in another country, it is absolutely replicable and I notice this in my work in particular in the United States. So I'm looking forward to seeing this model replicated elsewhere.

Claire Holman**CSL Commissioner, Air Quality**

I think the principle of the Commission could be applied to a variety of different types of public-sector contracts. I think particularly in the public sector, it could be for major infrastructure projects, it could be for major events, but it also could be for public policy. I think the advantage of the Commission is that it's independent. You can choose your commissioners to represent the interests of the particular type of project that you want to assure. I think we are also very pragmatic and I think that pragmatism is very important for its success.

Sam Gurney**Policy Officer, TUC/Playfair 2012 Alliance**

The commission has not been perfect, but it has been better than anything that has gone before and we'd really like to say to the Games organisers for Brazil "Do something similar, build on this legacy from London, and take it forwards".

Chris Townsend**Commercial Director, LOCOG**

Yes I think we have created a new partnership template that CSL could use for other sporting events or any other type of event that comes to London in the future. Hopefully we can demonstrate the success we've achieved, and CSL can use it as a perfect example of how organisations can work in partnership with them.



is something that needs to be replicated for all big events of

Influence

Gerry Walsh

Procurement Director, LOCOG

The Commission involvement with procurement predates me, in that they did some work prior to me joining LOCOG. Also at that time my commercial director Chris Townsend felt that what we hadn't done in procurement was that we hadn't sufficiently engaged with the report and indeed with the Commission, so it was very much part of my early work to make sure that we redressed that situation and I got very very close to the Commission right from the get-go when I joined.

Sam Gurney

Policy Officer, TUC/Playfair 2012 Alliance

We'd released a report which showed some really egregious problems in the supply chain – things were being made for the Olympics, mostly in factories in China, and LOCOG really weren't responding to us very well. CSL issued a press release saying this was a very serious issue and they backed us up on our arguments with LOCOG, that they needed to actually take some action on this. We think there was an issue at the beginning, when CSL was set up; they have a group of commissioners who cover various areas and none of these commissioners came from a labour rights background, which is the sort of issue that we as part of the Playfair Campaign have been looking at. So they had a lot of people who had other areas of sustainable development in their expertise but we were arguing from the start that sustainable development also involved labour rights and supply chains but, despite the fact we put forward some names, there was no one who had that knowledge who was at the heart of CSL from the beginning. And we think that means they didn't have that focus there in their work.

Simon Birkett

Founder & Director, Clean Air in London

The Commission has been fabulous at encouraging Clean Air in London to participate in the process and to speak out, and they've done that by listening, acting appropriately when they've agreed with the issues, and we've really seen some tremendous changes in respect of what kind of actions can be achieved by the organisers themselves.

Andrew Shipley

CSL Commissioner, Inclusive Design

The Commission had a very clear role in influencing the ODA in terms of access and inclusive design. We set out almost from day one to establish high-level principles that we wanted the ODA to follow to ensure that at least all the new venues meet the highest standards of access and inclusive design and, as far as possible, the existing venues too. We met with the design teams almost from day one and I believe that those meetings actually influenced the adoption of the inclusive design standards and strategy that was followed to deliver the new venues.

I'm very pleased with the way that the Commission fully embraced access and inclusive design as part of the sustainable development agenda. I think that's one of its strongest legacies in fact; that, in the future, access and inclusion should be seen as a vital element of sustainability and the work that we've done to really push that message home has led to that message being adopted in the design and construction of the Olympic Park. I think to a strong degree it will also be reflected in the work of the London Legacy Company as well.

Claire Holman

I believe that the Commission has had a good influence on the construction industry, particularly in relation to carbon. The Commission was very influential in terms of actually insisting Olympic bodies undertook a carbon footprint and the results of that carbon footprint show that the embodied carbon within the buildings themselves was one of the most important sources of carbon at the Olympics. I think that the construction industry has now taken that on board and I think that

Chris Townsend

I think one of the best examples is in our procurement programme, where we worked directly with Gerry Walsh and the procurement team and CSL to make sure that our procurement process included sustainability at the core of everything we did in terms of every procurement contract that we concluded.

Integrity is essential

Emma Synott
Manager, CSL

Assurance from the perspective of the Commission is about looking forward, it's about strategic engagement and it's about multi-programme and multi-stakeholder engagement, it is about thinking about an entire programme all as one. The Commission form of assurance is about thinking holistically.

Andrew Lawrence
Former Co-Chair, London 2012 Sustainability Group

If you think about the range of issues that we were grappling with, and the stretching nature of the targets that we set on carbon or waste or whatever it might be, you needed a professional body with a wide range of expertise and I was always pleasantly surprised at just how detailed the analysis that the Commission brought was, and at the meetings they were able to bring that real scrutiny that I think we needed.

Jonathan Turner
Senior Assurance Officer, CSL

Good evidence is vital; we track all the different sustainability commitments that London 2012 has made from the bid through all their strategies and plans. We've also made well over 200 recommendations to the Commission; I need to be able to track their performance against all of those areas. It's essential that we get the level of detail and evidence to back up our opinions on these, so when we report publicly against those commitments and against our recommendations we know we're reporting based on fact, not just on opinion.

Photo credit: Roger Barrowcliffe ►

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Communicating in the context of a sustainability assurance body

Christopher Clarke and **Jemma Percy** describe the way that communications were used to drive behavioural and organisational change.

The London Olympic and Paralympic Games was a once-in-generation opportunity to showcase the achievements of London and the UK to a global audience. From a sustainability perspective, the few short weeks of the Games were the culmination of many years of work and effort by countless individuals, thousands of companies and all the delivery bodies that drove the sustainability of the London Games.

Sustainability and legacy was a key point of difference, and high on the agenda, in the successful 2005 bid. The role of the Commission for a Sustainable London 2012 (CSL) was to keep both high on the agenda, and more importantly on track, until 2012 and beyond. Not an easy task. In this article we look at how communications worked alongside the assurance process to influence action from delivery bodies and corporate sponsors. Instead of being solely an engine of promotion and publicity, communications were strategic tools to drive the sustainability performance of all those involved in London 2012. During the Games, a range of issues emerged which challenged the sustainability credentials of London 2012 and to which there was no precedent both from assurance and communications perspectives. These were the issues that gave rise to the Beyond 2012 initiative, which is designed to ensure that the legacy of knowledge and insight that the Commission has gathered lives on, a topic also covered in this article.

THE ROLE OF COMMUNICATIONS

The focus of the Commission was to encourage change – at times difficult change. It was about challenging established practices right through from the construction phase to the legacy phase. And it was also about persuading some of the world's largest brands to do things differently. From a communications perspective we had to find new ways to keep sustainability in the headlines when eyes were focused elsewhere, such as on

the design of the Olympic Park, on ticket sales, or on the athletes. It is important to remember that there was no precedent for a body such as the Commission and it was charting new territory in every way; communications strategy was no exception.

The importance of communications was intensified because the Commission did not have statutory powers to force change. Instead it had to rely on influencing and making recommendations. Therefore communications were a strategic tool, alongside the assurance process, to magnify its recommendations. In this situation, and for assurance bodies more generally, the role of communications is fundamentally different than for many other organisations. Instead of just being about broadcasting a message and building a reputation, it is a lever of influence and change.

In the case of the Commission, some people would suggest that having greater statutory powers may well have been better, especially for an assurance body that was forging a new way of embedding economic, social and environment sustainability into such a major project. However, driving operational and behavioural change in the long-term can never be achieved by force. Instead, it is more effective when the power of the argument persuades and influences change. Change that people can believe in and support, and adopt as their own.

PUNCHING ABOVE ITS WEIGHT, DEFINING ITS VOICE

The Commission was a lean organisation with a big remit, few staff and a group of supportive Commissioners. However, by being independent and developing an effective external voice it was able to command much greater coverage than its limited resources (and budget) would typically demand. The approach of the Commission to communications was bold, brave and, many would argue at times, brazen. It had to be.

IS OLYMPIC TRANSPORT MELTDOWN ON ITS WAY?



EAST LONDON TO SEE BETTER DAYS THROUGH OLYMPIC SPIRIT?

HOW GREEN ARE THE LONDON GAMES?

LONDON 2012 - HELPING SET SUSTAINABILITY STANDARDS



LONDON 2012: OLYMPIC GAMES 'GREENEST EVER'

VISITOR NUMBERS AT VICTORIA LONDON LIVE SITE "WELL UNDER" EXPECTATIONS

LONDON 2012: PVC HITS THE MARK FOR SHOOTING VENUE

While operating within the boundaries of its Media Protocol, the Commission developed a strong media voice based on the principles of education, honesty and openness. The Commission adopted a 'tell it how it is' philosophy to communications. It did not seek to agitate for the purpose of agitating. It sought to offer solutions when possible. And yet it was not afraid to be a 'thorn in the side' of the delivery bodies, sponsors and suppliers when needed, in its pursuit of ensuring the most sustainable Games ever held.

GAMES FOOD 'IMMEDIATELY THROWN AWAY' AFTER IT IS COOKED

The communications campaign had three major phases:



CONCERN OVER WATER SHORTAGE AT OLYMPIC GAMES

1. The education phase started in 2006, and covered the role, remit and purpose of the Commission as well as defining what sustainability meant in the context of the London Olympic and Paralympic project. In many ways, this phase continued throughout the life of the Commission, with different media sectors targeted in different parts of the world.

▲ A selection of sustainability related media headlines during the London 2012 Olympic and Paralympic Games

2. The operational phase, which ran from early planning and construction work to when the London 2012 Olympic and Paralympic Games were live in summer 2012.
3. The legacy phase, which started around 2010 but was more fully focused on post-Games and current activity to ensure that the lessons of London can be drawn upon by other host cities.

COMMUNICATIONS WITHIN LIMITED RESOURCES

Whilst the aim of the Commission was firmly to “provide independent assurance and commentary” over the sustainability of the London 2012 Games, as set out in its terms of reference¹, the Commission had to be agile and strategic in its approach to communications.

The commentary aspect of this role enabled the Commission to be more timely in its response to emerging sustainability issues and to utilise a range of communications mediums, rather than being constrained to formal assurance reports which, whilst the bedrock of the Commission’s reporting, were periodic and less accessible to a general audience.

Therefore, a range of communications mechanisms were used to enable the Commission to significantly ‘punch above its weight’, facilitating a process of informing and engaging with stakeholders and the wider public.

The media protocol, enshrined in the Commission’s terms of reference, provided clear parameters for communications. This protocol essentially ensured a ‘no surprises’ policy which provided reassurance to the delivery bodies that whilst the Commission would be an independent and critical friend, it was always acting in the interests of promoting the sustainability of the Games, and not a campaigning body designed to trip them up. However, importantly, the Commission retained complete responsibility for communications approach and content.

One of the main factors of this protocol was that the Commission’s chair was the sole spokesperson. The Commission benefited from an articulate and engaging spokesperson. This made the process of engaging the public and media easier, particularly in relation to translating technical issues into accessible information for the public, and in forming trusted and productive relationships with journalists.

Having a sole spokesperson was both a benefit and a risk to the Commission’s model. Without these qualities in the sole spokesperson, the position of the Commission’s communications capacity would have been considerably weaker – the Commission profile in the media public

BOX 1. FACTS AND STATS: COMMUNICATIONS DURING THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES

The Commission experienced a high interest in sustainability from the public and from national and international media during the Games.

The Commission received almost 90 pieces of coverage in the Games-time period, split between approximately 60 per cent domestic coverage and 40 per cent international coverage. The key sustainability issues that arose during the Games were focused on the sustainability credentials of London 2012 in general, ‘green’ issues and issues relating to legacy. Other issues of interest were the provision of drinking water, transport, issues around the live sites (i.e. public spaces where the Games were broadcast), and accessibility and inclusion. As was consistent with coverage outside of Games-time, media coverage in this period focused on sustainability issues that were more locally focused, as opposed to wider issues such as climate change.

Following analysis of communications in the build-up to and during Games-time, the Commission’s post-Games report, *London 2012 – From vision to reality*, established that organisers of future events, Olympic or otherwise, can expect a significant degree of public and media attention around their sustainability activities. As the report highlights, interest in “the place, the people and the things that make the event unique”² in terms of sustainability is high, and the public and media are eager to digest even the more complex issues. This is a positive sign for the potential of embedding and expanding behaviour-change messages around sustainability in the future.

Further analysis on the communications of both London 2012 and the Commission can be found in *London 2012 – From vision to reality*².

perception of the Commission might have been less. However, having a sole spokesperson also aided the Commission in presenting a coherent narrative through a central figure.

Nonetheless, by having a more flexible arrangement and being able to draw upon the Commissioners at times would have helped to further promote the work of the Commission, particularly in more specialist areas such as accessibility and inclusion.

From 2011, the Commission experienced a significant rise in media interest in all aspects of the sustainable Games. This interest reached a peak in the months leading up to the Games, at which time a member of the Commission's secretariat was assigned to the communications role full time. The Secretariat was an essential piece of the Commission's communications apparatus; in strategising and coordinating communications activity, but most importantly, in providing the technical expertise that forms the foundation of the Commission's communications content – all communications material issued by the Commission is very strictly grounded in fact-based assurance.

Finally, the Commission's founders also recognised the need for external press support from the outset in 2006. The Commission procured the services of kwittken + company London (formally Epoch PR) to provide support through media relations, writing and issuing press releases, securing speaker opportunities and providing strategic advice and counsel to the Commission and its chair on communications and issues management. A strong relationship with the national and international media was vital in enabling impartial commentary in an area of intense media activity. Using external expertise in this area has proved very effective.

GENUINE SELF-CRITICISM

Credibility was key to the communications programme. With so many sustainability initiatives being discredited for the tendency towards 'greenwashing' in vain attempts to protect corporate reputation, pacify shareholders or just 'green' dirty businesses, the Commission set itself the goal of being open and honest at all times.

While this may sound simple, for an assurance body it was not always the case. One of the unique characteristics of an assurance body is that you have to sift through many versions of the truth (from corporations, pressure groups, government, delivery bodies) to arrive at a considered and settled perspective. However, the reality is that, in the vast majority of cases, no one is actively attempting to distort or hide the truth. It is just that the truth has a variety of lenses.

BEYOND 2012: 'COMMAND AND CONTROL' IS OVER

One of the major lessons that has emerged from communicating sustainability around the London 2012 Olympic and Paralympic Games is that a 'command and control' approach to communications is over. Gone are the days when communications controlled the message by selectively releasing information at the right time. Instead, good communications are about being willing to have an open dialogue about the issues that matter. In the context of a sustainability assurance body this becomes crucial, as its ability to do its job depends on it.

But another important lesson, is that "events, dear boy, events", as one British Prime Minister once said, have the potential to seriously derail the sustainability credentials of any major event. And London 2012 has not been without its share of such events, whether they have been failed promises around energy, crises hitting major corporate sponsors or supply-chain issues.

To help future event organisers and Olympic host cities learn the lessons of London 2012, the Commission established an initiative called Beyond 2012. The objective is to unlock new thinking and challenge established views around issues such as corporate sponsorship, food and infrastructure in a series of roundtables with all stakeholders. So far, the discussions have been productive and have helped to overcome some of the polarisation that can occur with some of these difficult, emotive and challenging issues. This work will be developed further in the forthcoming year.

While London 2012 demonstrates what can be done when sustainability is embedded in a systemic way in early planning, this initiative will hopefully guide future organisers of major events to learn from both the good and the not so good. **ES**

Christopher Clarke is co-founder and general manager of kwittken + company London, and specialises in the energy, technology and telecommunications, built environment and financial services sectors. Chris was named in the PR Week Powerbook 2011, the guide to the most influential people in PR.

Jemma Percy manages communications for the Commission, having previously worked with the Communications and Government Teams at the Sustainable Development Commission in Whitehall. Jemma graduated with a BA (Hons) in Politics from the University of Exeter, after which she spent a sabbatical year as President of the Students Guild.

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The legacy of the Commission for a Sustainable London 2012

Rebecca Simmons considers the importance of the lessons learned from London 2012.

A huge amount of work and effort has gone into making London 2012 the most sustainable Games to date. Sustainability was a fundamental part of the bid, and London 2012 was the first Games ever to have an independent assurance body to provide strategic assurance and to monitor the sustainability commitments made.

The Commission for a Sustainable London 2012 (CSL) has established an assurance framework and delivered a working programme of annual thematic reviews, case studies and recommendations. It assured all stages of the planning and delivery of the Games by acting as a 'critical friend' to delivery bodies and by engaging with stakeholders to challenge and advise, within its remit to ensure that the Games were as sustainable as possible. Its threefold role of assurance, commentary and stakeholder engagement is not only a potential model for future Games but also for other major projects in London and the UK. There has also been a real value in having an independent assurance body to promote collaborative working between different organisations through stakeholder engagement.

Hosting the Games was one of the biggest projects undertaken by London. The sustainability objectives achieved could only be truly realised with government bodies and political will driving it forward. Introducing the Commission was a way to add some much-needed weight behind the promises made in the bid to make these commitments a reality. During the early days of the Commission, it worked closely with the Olympic Delivery Authority (ODA) and developed measurable targets across all areas of the Games to ensure that the sustainability commitments were met.

This led contractors and organisations to really think about sustainability and incorporate it into their bids, by proposing how they were going to achieve these targets. The process was strengthened by having a transparent assurance framework to monitor results, and led to a higher commitment from organisations to meet their sustainability objectives. Having the legal and political pressure, measurable targets and an independent assurance body ensured that contractors and organisations did indeed make London 2012 the most sustainable Games to date.

LEGACY OF INFORMATION

The Commission officially closes on 31st March 2013, and there have been discussions with external stakeholders and Commissioners about what should happen to the Commission's information in legacy and how it can be best applied going forward. The Commission is currently having an independent evaluation, and the evaluators will be interviewing the Commission's key stakeholders, gaining feedback and testimonies to establish how the Commission carried out its assurance, provided recommendations and reports, carried out stakeholder engagement and provided commentary. It will establish how it made a difference and what affect it had on the sustainability outcomes of the Games. It will also be looking at what could have been done better and what lessons have been learned.

As construction begun on the Olympic Park and Village, we asked: "Can future Games and other major projects benefit from this type of assurance?" The Commission has already recommended that the Greater London Authority (GLA) consider the value of strategic assurance for future major projects in London. The question is, will it be adopted?

Leadership and commitment to take forward sustainable lessons learned can only come from the clients themselves asking for it. The government and the public sector are the biggest employers, and now have an opportunity to bring in new standards and legislation so that sustainable standards are met and even improved upon.

The ODA and the London Organising Committee of the Olympic and Paralympic Games (LOCOG) have proved that sustainable construction can be done at a reasonable cost; sports minister Hugh Robertson described the challenge of delivering the Games within budget as “a tremendous success” and stated that:

“The work of the construction and delivery teams, from the ODA and LOCOG, has set a very high standard and I have no doubt that London 2012 has set a new benchmark for the management of Olympic and Paralympic Games in future.”

(Robertson, 2012)¹

We have also seen that labour standards can be monitored and improved, that work can be made to ensure that supply chains are more ethical, and carbon emissions reduced and waste management controlled on a large scale. London 2012 was not just about the Games; it was a major project to regenerate the East London. The task now is to take all these lessons and apply them more widely.

The Commission’s publications and reports are accessible online and can currently be found on the Commission’s website². The website has proved to be a valuable resource for research into the sustainability of the Games and has provided commentary and material to ensure all areas of its assurance is transparent. The Commission has always emphasised the value of legacy and will be finding a home for its website so that it is available to the members of the public, future and bidding Games hosts, and as a research tool for sustainability practitioners.

The Commission has been in discussions with the Centre for Research into Sustainability (CRIS)³ at Royal Holloway, University of London. CRIS is engaged in the understanding of organisational responses to the multiple facets of sustainability and is keen to host the website for ongoing academic work and research. It has particular strengths in researching business ethics,

Corporate Social Responsibility (CSR), sustainability accounting and marketing ethics, with a growing interest in sustainability in sport and sustainability assurance. By providing open access to the website, the Commission feels that there would be real practical value for researchers into sustainability but also for the ongoing visibility of the sustainable lessons learned from the Games

The Major Projects Authority (MPA) will be hosting the ODA’s learning legacy website⁴, with detailed case studies and lessons learned that will be valuable for legacy purposes going forward. The National Archives are due to hold LOCOG’s, the IOC’s and the British Olympic Association’s Olympic records and will also be archiving the commission’s website.

PLANNING FOR RIO

During the Games the Commission met with members of the Rio 2016 team and the Rio Olympic Public Authority as well as future bidding cities. There is definite interest in the lessons learned from London 2012 and the methods used to assure the sustainability promises made in the bid. To ensure the challenge of ‘raising the bar’ for Olympic sustainability set by the London Games is met, it also makes sense that the Commission’s website should stay active at least until the end of the Rio Games to provide valuable knowledge and information for the future hosts. It is also useful resource for the way that other projects in the future could benefit from having an assurance body like the Commission for a Sustainable London 2012. **ES**

Rebecca Simmons joined the Commission in April 2012. She graduated from Northampton University with a BA (Hons) in Information Systems before working in Human Resources and Publishing for the British Medical Journal.

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What the UK construction and events industries learned from the London 2012 Olympic Games

Stuart Green and **Eleni Theodoraki** evaluate the extent to which the lessons learned from London 2012 can be applied to other projects.

It perhaps goes without saying that mega sporting events such as the Olympics and Paralympics invariably have significant social, economic and environment impacts on the communities within which they are hosted, and these may be positive or negative. Their evaluation is frequently central to any assessment of sustainability. The difficulties lie in understanding where the priorities lie, and being sensitive to the way they inevitably change over time. The priorities of sustainability must respond to top-down governmental targets, and yet they must also be sensitive to the sustainability priorities of local stakeholders.

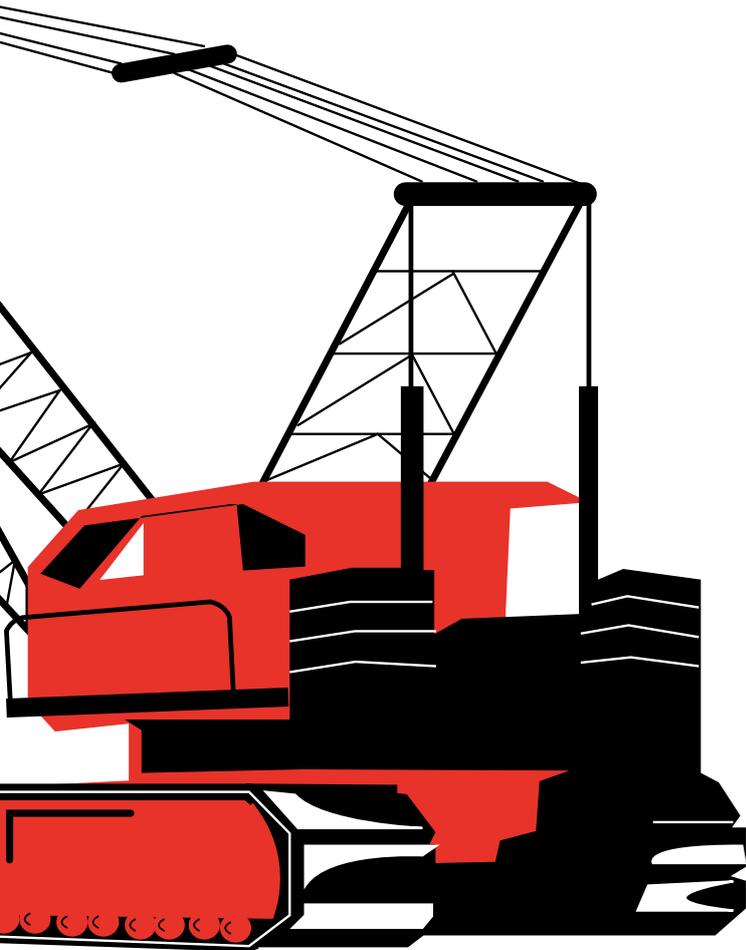
Sustainability is indeed the ultimate of all messy problems. Not only is it problematic to identify solutions, it is also problematic to agree on any shared definition of what the problem is. Priorities will undoubtedly fluctuate throughout the lifecycle of the event (bid, planning, event and post-event phases). Sometimes priorities will fluctuate in response to the changing intensity of the impacts.

The messy nature of sustainability means that each major event has to engage in a process of making sense of what it means and how it can be best enacted. This process

begins during the bidding stage and continues into legacy. It unfolds over time and is unique to every project. Lessons of course can be learned from London 2012, and some of these lessons will relate to particular solutions to particular problems. But the really big lessons relate to the sense-making process.

EACH BIG EVENT IS UNIQUE

The political and economic context within which London 2012 was delivered will never be replicated. The actors and stakeholders will never be reassembled. The impact of major events will also inevitably vary depending on the geographical location of the host city. The topic of 'additionality' is particularly contentious, and relates to the extent to which the acclaimed benefits really are additional to the status quo. Intense investment in one region may mean declined development in another as a result of opportunity costs. A difficulty frequently encountered in the measurement of additionalities is the question of whether impacts would have taken place anyway (at a later time or elsewhere) had the London 2012 Olympic Games not taken place. In this respect, it is also worth considering whether learning for the events industry from the Games hosting is fully additional.



HOW LESSONS ARE LEARNED

In seeking to identify the lessons that have been learned from London 2012 it is useful to start with the knowledge-management literature. There are two main schools of thought. The first sees knowledge as an indispensable asset that needs to be collected, stored, managed, shared and updated. The second school of thought is more cautious about the extent to which substantive knowledge can be separated from context, and hence prioritises the development of organisational learning capabilities.

Given the contested and messy nature of sustainability, and the highly contextualised nature of the lessons learned from London 2012, it is the second perspective that would seem to make sense. The question can therefore be rephrased: it is less about what lessons have been learned and more about the extent to which the construction and events sectors have increased their capacity to learn. An important part of this is the extent to which they have learned how to foster a culture of sharing and cooperation so that separate knowledge silos break down for inter-organisational learning to occur. Any discussion must also be predicated on two significant tensions: planning for Games versus planning for legacy requirements, and meeting targets versus

exploring and agreeing what sustainability means. An appreciation of these tensions and how to address them is an essential starting point. Information on the sustainability performance of major events is an important starting point, but its conversion to actionable knowledge is crucially dependent upon the ability of others who are faced with very different challenges to apply that knowledge.

INTERNATIONAL LEARNING

The International Olympic Committee (IOC) has already made a contribution, by codifying the lessons learned from the Sydney 2000 Olympic Games for future bidders and hosts. The aim was to ensure better, more consistent quality in the delivery of the event, not having to reinvent the wheel, avoidance of costly failed bids and (to some extent) negative post-Games legacies.

These are of course worthwhile aims, but the fact that the same approaches were not replicated by London 2012 rather says it all. Facts and figures relating to Sydney 2000 undoubtedly provided a useful benchmark for London 2012, but the tacit knowledge derived from Sydney 2000 was not so easily accessed and transferred. In truth, the process of re-thinking how the targets could be related to London 2012 comprised the creation of new knowledge; the same will also be true for Brazil 2016.

LEARNING FOR THE EVENTS INDUSTRY

However, the extent to which the lessons from London 2012 can inform other, more routine, events is an entirely different question. The discussion that follows focuses primarily on the learning capabilities of the events industry, but the same arguments can also be applied to the construction industry. The difficulty, of course, is that neither of these 'industries' is really a coherent industry. They are both highly fragmented and very heterogeneous. They are also both characterised by a significant reliance on outsourcing and non-standard forms of employment.

The events industry has the additional disadvantage of being young; specialised university degrees started 10–15 years ago and have grown exponentially in popularity and numbers. Often linked to tourism, conference or sport management degree programmes, event management is an interdisciplinary subject with strong ties to project management, operations, marketing and human resources management. Security, strategy and supply chain management are also increasingly topical composite elements in event management education and day-to-day practice. Graduates are employed in the public, private and non-profit sectors.

The published case studies derived from the London Olympics and Paralympics provide valuable learning resources in a range of different areas, including: sustainability standards, project management

technologies, impact evaluation processes, and legal and contractual frameworks as well as transnational operations and multiple stakeholder interdependent working. The latter category was especially notable. London 2012 pulled together sectors and industries, event owners, paid staff and volunteers, sponsors and suppliers on a previously unprecedented scale.

LEARNING FOR THE CONSTRUCTION INDUSTRY

The construction sector has likewise been well served by the publication of some excellent case studies relating to sustainability at London 2012, but again these case studies can only ever be read by individuals. Different individuals will make sense of the published outcomes in different ways, depending upon adopted frames of reference and their pre-existing levels of knowledge. Individuals will then have a significant challenge in applying what they have learned in their own organisations; they will have an even bigger challenge in seeking to change practices in other organisations. For these reasons wholesale change in industry sectors would seem unlikely to happen on the basis of published outputs alone. But the use of the published outputs in places of formal learning may help better equip the next generation of professionals to engage with the challenges of sustainability.

There is another important barrier to applying the lessons of London 2012 to other projects: to enact change it is of course not only necessary to learn new ways of working, it is also necessary to unlearn old ways of working. Embedded and institutionalised practices need to be challenged and new incentive structures need to be implemented. The difficulty lies in the fact that the individuals most likely to learn from the achievements of London 2012 are least likely to be senior enough to overcome embedded practices.

There is an argument that the lessons from London 2012 will be most effectively carried forward by the individuals who were directly involved. The doubt lies in how meaningfully the lessons can be transferred across contexts in the absence of any underpinning conceptual framework. Many people will have certainly learnt new approaches, and will learn further from adapting the approaches to different projects.

INSPIRATION FOR CHANGE

However, the real story of London 2012 lies in the inspiration that it provides to a new generation of sustainability practitioners. The sense of excitement that surrounded the delivery of the London 2012 infrastructure was almost tangible. The lessons are that sustainability *is* important, and that it can be addressed in creative and exciting ways. It is this sense of excitement that will attract new talent to the events and construction sectors. This will work exactly in the



▲ Figure 1. Construction of Aquatics Centre (Photo credit: Ben)

same way as the Games inspired the next generation of athletes. ‘Lessons learned’ can seem very prosaic – people inspired to learn new ways of responding to the challenges of sustainability is the real story. The real challenge is to maintain this sense of excitement through into legacy, and to transfer the sense of excitement to other projects that are not quite so prominent in the public eye.

The good news is that the excitement of London 2012 and the achievement of pushing forward the boundaries of sustainability was shared by many, rather than being the preserve of the few. The excitement was generated from the extensive programme of internships, the supervised work experiences of volunteer Games Makers, and through those employed directly (and even indirectly) by the London Organising Committee of the Olympic and Paralympic Games (LOCOG) and the Olympic Delivery Authority (ODA). It was generated throughout the extended supply chain and it was generated throughout the sponsoring partners. The extent of excitement (and real tangible sense of achievement) will inspire others to learn for themselves. It will inspire those on the Glasgow 2014 Commonwealth Games to move forward the frontiers of sustainability.

Such excitement is an essential part of the human condition that causes us all to rise above the cynicism of the mundane. Sober scholars will strive to set out the lessons learned in textbooks and learned papers, and this is of course important. But it is the sense of excitement that will inspire people to read these obscure publications, and to develop the capacity to learn from the messages within. The Commission for a Sustainable



Wilson)

London 2012 (CSL) is taking its role seriously by bringing together stakeholders to forge some extended and new pathways in areas where greater progress could be made. This is part of the ongoing process of making sense of sustainability. The hope is that practitioners from both sectors will continue to engage in the ongoing process of conceptualising sustainability and how it best might be achieved.

NEW STANDARDS

Perhaps the published outcome that is likely to be read most widely is the new British Standard for sustainable event management, BS 8901, which led to the introduction of the international ISO 20121. London 2012 will inspire people involved in major projects around the globe to read these publications and to rethink their preconceptions. It might also inspire people to challenge fixed ways of working. Our hopes for a more sustainable future rest on these unknown readers and their motivation to improve the world in which we live.

IMPACT STUDIES

The future activities of an inspired generation of professionals will ultimately transcend official impact assessment and evaluations. An important evaluation project was officially started by the IOC approximately 10 years ago. The Olympic Games Global Impacts study sought to evaluate impacts via 150 indicators, longitudinally and spatially, with control measures also taken from non-hosting cities as comparators. The approach was fully developed by the Vancouver 2010 Olympic Games organisers with the cooperation of academics from the University of British Columbia. LOCOG has contributed impact data from London

2012, thereby contributing to an already massive dataset. The level of analysis developed to date presents the most developed research framework for event impact assessment and evaluation.

The above-described global impact study may well serve to capture the lessons learned for the future organisers of the Olympics and Paralympics and other major sporting events; but its impact on the mundane reality of events and construction projects is likely to be minuscule in comparison with the passion for individual learning inspired by London 2012. Manuals and procedures can have an important role to play, but lessons can only be learned by people. The hope is that London 2012 has left a lasting legacy in encouraging practitioners to be more reflective in the way they engage with the messy challenges of sustainability.

THE IMPORTANCE OF LEGACY

The challenge at the time of writing is to extend the sense of excitement through into legacy. The post-event phase of London 2012 is where the really big challenges lie. After each Olympic Games the stadium lights are switched off, civic pride dissipates and the euphoria of the exuberant celebrations becomes a distant memory. It is then, and in the years and decades that follow, that the discourse over the Games' legacy is shaped: by public opinion over promises delivered or not, by the transformation of the facilities and host sites, and by the perceived utility of the new infrastructure services.

The danger is that the visionaries slowly give way to the cynics. There will be supposed revelations about cost overruns and critical commentaries on whether London has really benefited. Such evaluations must also take into account the actions that have been inspired by London 2012, the energy it has generated and the focus it has provided on the challenges of sustainability. The cynics will ignore the indirect legacy of London 2012 in terms of inspired practitioners, and the evangelists will ignore the uncomfortable facts on the ground. But what really matters is what people do, and the extent to which they innovate as a result of what they have experienced. And there will come a point when trying to link this to London 2012 becomes irrelevant. Sustainability by definition is never about yesterday; it has to be about tomorrow. **ES**

Stuart Green is a Chartered Engineer and Head of the School of Construction Management and Engineering at the University of Reading.

Eleni Theodoraki is Reader at Edinburgh Napier Business School and Director of the Edinburgh Institute for Festival and Event Management.

Sustainability, the Environment and

Heather Barrett-Mold reviews the importance of greenspaces for human health.





The link between access to greenspace and a feeling of wellbeing has been made through a significant amount of research. The European Centre for Environment and Human Health (ECEHH) based at the medical school at Exeter University, for example, has a number of research areas investigating the connection between good health and environment. Along with others, they have found that there are positive effects, and that these may be greater in the more socio-economically deprived communities. The hypothesis is that this may be thanks to opportunities for stress reduction and increased physical activity.

One of the aspects of research being undertaken by ECEHH concerns the relative value of different types of environment within greenspaces to different people, thus integrating two types of secondary data:

- health and socio-economic status; and
- ecological type (e.g. grassland, woodland, coast) and character (e.g. biodiversity, ecosystem quality, designated status).

Data derived from censuses have frequently been used to study the distribution and determinants of poor health, but ECEHH have considered self-reported good health as a measure of health and wellbeing. Responses to this type of simple health status question have been shown to be strongly related to more sophisticated, subjective and objective measures of physical and mental health¹.

STRESS REDUCTION

Reductions in stress and anxiety can be measured through positive changes to blood pressure, pulse rate and other physiological factors, and, remarkably, can be achieved within five minutes of viewing green landscapes. Research using the health records of 350,000 people in the Netherlands found that the effect of green

surroundings was greater for people with low levels of education and income. In another study, undertaken by the Commission for Architecture and the Built Environment (CABE), the incidence of anxiety was reported in 18 people per 1,000 in urban zones where 90 per cent of the area was greenspace; in areas with only 10 per cent greenery, it was reported in 25 people per 1,000². Additionally: *“Hospital patients with a view of green space suffer less pain and recover more rapidly. Their requirement for medium to strong pain-killing drugs can be reduced by 25%”* (Baines, 2010)³.

Urban greenspace, then, is something to be valued for a number of reasons, with human health and wellbeing one of them, and the development of the Olympic Park (which will become the Queen Elizabeth Olympic Park) must be considered a triumph in this sense. London 2012 made biodiversity one of its five themes of sustainability, indicating the importance of ensuring that the natural environment would be protected and enhanced as a result of the Games.

TRANSFORMATIONS

The Olympic Delivery Authority (ODA) transformed former industrial land to create a total of 102 ha of parkland. The northern area of the park has been restored with trees, woodland mixes, meadows, swales and frog ponds. The park has a significant area of wetland and wet woodland, with 1.2 km of river and 0.5 ha of reedbeds. In the south area there will be 200 m of soft banks. There are 700 habitat installations, including one for sand martins and two for otters, in the hope that they will return to the site. Pond sedge, flag iris and purple loosestrife were all planted with some of the reeds originating from the site⁴.

The southern area 2012 gardens were designed to show the British love of horticulture, the heritage of plant hunting and collecting, and the value of gardens for biodiversity. There are four gardens over half a mile of planting that form a timeline of the new plants brought into Britain⁵.

Annual meadows were used predominantly in the South Park to create a visually spectacular display during the Games. They are the largest areas of annual meadow ever to have been used in a park setting. It is no wonder that visitors without tickets were keen to get a glimpse of this spectacle and those with tickets stayed in the park for far longer than their events because of the environment.

LONG-TERM IMPACTS

It is the long-term development of the park that will have the biggest impact on the lives of local residents and other visitors. Already the theme of meadows has extended through London with the Mad About Meadows project. London in Bloom brought together

over 25 organisations to promote the creation of ‘urban meadows’ across Greater London. The project aimed to encourage community engagement, enhance the local environment and increase biodiversity. Over two years, new urban meadows were created at over 70 locations across 7000 m² of new habitat under the banner of Mad About Meadows. There was an extremely successful Mini Meadows schools competition which educated a new generation about the benefits that meadows can bring to invertebrates⁶.

In 2009, the ODA established a biodiversity action plan (BAP) for the Olympic Park, setting out the commitment to 45 ha of ecologically managed habitat, with a potential for it to mature into a Site of Importance for Nature Conservation (SINC) of at least Borough Grade 1 status. The ODA proposed a 10-year management plan for the park and has begun to monitor the biodiversity of the park. The success of this plan is dependent on the transformation of the park from Games-time use to legacy mode and then its long-term management⁷. There is a requirement to monitor the site and report against the BAP, and the next report is due in the Spring of 2013 (and will be published on the planning authority’s website). In addition the Legacy Communities Scheme has also been developed in line with the BAP⁸.

ES

“Hospital patients with a view of green space suffer less pain and recover more rapidly. Their requirement for medium to strong pain-killing drugs can be reduced by 25%”

Dr. Heather Barrett-Mold was Principal and Chief Executive of Pershore Group of Colleges; now a consultant. An ecologist, specialising in the management of chalk grassland, Heather is Chair of the Institution of Environmental Sciences as well as an expert for the Commission for Sustainable London 2012 and a Past President of the Institute of Horticulture.

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◀ Photographs on pages 32 and 35 image credit Heather Barret-Mold

Health and one-planet living

Dr Robin Stott reflects on the fact that good health, although in principle easy to achieve, is in practice extraordinarily elusive.

The social, environmental and economic building blocks for a healthy society are well known. These are the circumstances in which we are born, raised, live, work, play and die, all of which mould our genetic inheritance. Despite this understanding, the world abounds with fractured societies galloping toward environmental, economic and social destruction. How can we reverse the direction of travel?

UNDERSTANDING HEALTH WITHIN THE CONTEXT OF ONE-PLANET LIVING

One-planet living is based on insights derived from environmental footprinting. Our globe has finite resources, recycled through an intricate and interdependent web of pathways, and all life depends on the integrity of these webs. Over the past 500 million years there have been at least five extinction events that have disrupted these webs and therefore the life chances of innumerable species. However, millions of years after each extinction event, a vibrant new ecology emerges. Humans, living well in excess of the finite limits of our planet's resources, are provoking the sixth mass extinction. The Earth will probably recover over the next few million years, but this is impossible to be sure of for now.

To ensure that humans live within the Earth's resources and thus slow down the mass extinction, we need to measure and then reduce our impact on the globe. Determining the limits set by our finite home so that we can allow all the components of our web to exist together in harmony is the task of footprinters, who tell us that if the global population were to live at the same level of consumption as the minority rich world, we would need three planets' worth of resources. To sustain our good health on our only planet, over-consumers must radically reduce our footprints by moving to a low-resource-use, low-carbon economy, at the same time enabling low consumers to pursue this same trajectory. The goal is to reduce our collective impact so as to live within the planet's limits.

The ten precepts of one-planet living¹ provide a framework that will enable all to move to a low-resource-use, low-carbon economy, thereby averting the sixth mass extinction and preserving the webs of life and our own good health. Below I explore the health benefits that each precept offers, both to London and more widely. I use the unifying concept of virtuous cycles of activity, where a particular policy intervention gives synergistic environmental, social and fiscal gain. Such virtuous cycles also drive the move towards local production and consumption.

THE TEN PRECEPTS OF ONE PLANET LIVING PLANET

1. Zero carbon

The rapidly increasing atmospheric CO₂ levels (now 393 ppm) is the main driver of present climate destabilisation. Levels were around 250 ppm before the industrial revolution, and since then we have emitted increasing amounts of CO₂, now 10 billion tonnes per year. Half is taken up in the global sinks, leaving the residue in the atmosphere². The changing atmosphere and therefore climate has both direct and indirect effects on health.

The direct effects are:

- Heat-related deaths;
- Skin cancers and cataracts;
- Injuries and infectious diseases as a result of increased flooding;
- Respiratory diseases;
- Insect-borne diseases; and
- Food poisoning as the relevant organisms flourish in warmer conditions.

The indirect and more substantial effects are:

- Water shortages;
- Crop failure;
- Mass migration;
- Economic collapse; and
- High possibility of resource wars and environmental collapse leading to human conflict.

The construction industry can demonstrate how new buildings exemplify virtuous-cycle thinking, and thus create new communities, not just new estates. New developments should be mixed use and energy exporting, with the energy generated renewably and locally. Each building contract should use local labour, thus using local resources and consolidating the local community. Biodiversity should be enhanced with appropriate planting supported by grey water use. There must be public transport and pleasant walking and cycling paths to the site.

The Olympic Village comes close to this ideal, being energy and water efficient, with green roofs, sustainable drainage and efficient, locally sourced energy. The fuel to generate the energy is primarily natural gas with the addition of some biomass boilers which are not renewable - but the technology is already installed to accept biogas in the future. Overall the Olympic Delivery Authority (ODA) delivered an impressive 48 per cent reduction in emissions for the buildings and Park in legacy³. The achievement of the London Organising Committee of the Olympic and Paralympic Games (LOCOG) was less impressive, with insufficient attention paid to energy conservation during the Games. Sustainable design is insufficient - it must be coupled with sustainable operations⁴.

Warm, dry houses are essential for health. In London, 10 per cent of the 3,015,997 households are in actual fuel poverty (when more than 10 per cent of income is spent on fuel), and 760,000 (25 per cent) of households are on the edge of it⁵. Reducing the requirement for fuel, especially in old houses, would generate jobs, lower carbon and reduce fuel poverty. Insulating houses, preferably with natural materials such as sheep's wool, reduces carbon and creates jobs in insulation and in the production and procurement of wool. Fuel poverty shortens the life of 2,000 Londoners each year, and creates a £500 million health-care burden⁶. The London Legacy Development Corporation must build on the high standard of sustainability delivered by the Olympic Village as plans to develop 40,000 new homes over the next 30 years unfold.

2. Zero waste

To get to zero waste we need to mimic natural cycles where waste is minimised or used as a resource. During construction, the ODA achieved an impressive 97 per cent of waste diverted from landfill, and LOCOG is on track to achieve the ambition of zero to landfill, with 70 per cent of Games-time waste reused, recycled or composted. Not yet zero waste, but an example for both the construction and event-management sectors to follow⁷.

3. Sustainable transport

BT have shown that using electronic communication in place of meetings enhances job satisfaction, increases the amount of time employees have at home, reduces carbon and saves money⁸. Around 75 per cent of journeys in London are under two miles. Walking four miles a day improves the sense of wellbeing, extends active life by an average of four years, reduces carbon, saves money, and improves air quality⁹. London's poor air quality, largely due to vehicular emissions, is responsible for 5,000 premature deaths per year, at a cost to the NHS of around 1.5 billion pounds a year¹⁰. London 2012 was the first public transport Games, with no car parking, except for the disabled, at any venue. The ODA transported 57 per cent of building materials and waste by rail and water, reducing reliance on road transport and the subsequent impacts on the health of Londoners¹¹.

4. Sustainable materials

Recycling and reusing metals and plastics, coupled with an increasing use of natural fibres, minimises the carbon load associated with manufacture and use of many materials. The relevant processes create long-term employment, and reduce the amount of chemicals involved. The ODA comfortably exceeded its target to use at least 25 per cent secondary materials in construction, and specified a new form of tensile plastic free of phthalates, which are carcinogens¹². Temporary venues were erected where no legacy use could be identified and LOCOG had a hire strategy that ensured most of their purchases were returned for reuse¹³.

5. Local and sustainable food

Growing, harvesting, cooking and eating food as a family has benefits for carbon reduction and for wellbeing. Sustainable food production will mean eating less meat. As eating less meat and more vegetables and fruit, along with taking more exercise, is an imperative in tackling the epidemic of non-communicable disease, the move to sustainable food again exemplifies a virtuous cycle of activity. LOCOG's ambitious food vision is covered by Jonathan Pauling in this issue, but suffice to say that London 2012 has made significant progress towards healthier and more sustainable food for major events.

6. Sustainable water

The availability of clean water is a basic need for good health. The prudent use of clean water and the recycling of grey water saves both money and lives. The use of potable water was reduced to an absolute minimum by London 2012 through using sewage water recycling, rainwater harvesting and other water-efficiency measures at venues.

7. Land use and wildlife

The preservation of suitable environments for the myriad of species is dependent on ensuring that we do not destroy their habitats. For the UK this means preserving woodland, restoring meadows and reverting to smaller-scale crop farming with minimal use of fossil-fuel-based fertilisers and pesticides. The importance of green space and the natural outdoors for our psychological wellbeing is well documented. Good soil management, the basis for good affordable food, enhances the amount of carbon sequestration by soil. London 2012 has contributed through developing the biggest new urban green space Europe has seen for 150 years. Putting visitors in touch with the natural environment during the Games was an unforgettable experience for many and will continue to be a place that Londoners and its visitors enjoy for 200 years or more.

8. Culture and heritage

Local production and consumption cycles are part of the 'glue' that binds supportive communities, which are so important to good health and wellbeing. Although much of the site of the Olympic Park was low-grade light industrial wasteland, some elements of the heritage of East London were maintained. A good example of this would be the building adjoining the energy centre, which will be used as a visitor centre in legacy.

9. Equity and local economy

More equal societies are good for the health of all, but unfortunately the gap between the 'haves' and 'have-nots' is widening. The Gini coefficient¹⁴, the ratio of resources available to the most advantaged 20 per cent against the resources available to the least advantaged 20 per cent - is used to measure this inequality gap. A coefficient of 0 is absolute equality, of 1 absolute inequality. Those few countries with coefficients between 0.25 and 0.35 have the best social indicators and quality-of-life measures, with a lower prevalence of all our social ills, including the propensity for religious, racial and other forms of intolerance. This empirical evidence suggests that this range is a reasonable one to aim for. Countries and societies with a greater degree of equality have fewer problems, with potential improvements as demonstrated for London in **Table 1**.

Health or social indicator	Current data for London	If London were as equal as Norway
Life expectancy (years)	80.1	80.9
Infant mortality rate (per 1,000 births)	4.9	4.0
Obesity (per cent)	18.3	9.0
Mental illness (per cent)	17.9	5.6
Teenage births (per 1,000 girls)	27.8	7.5
Homicides (per million)	22.4	11.5
Trust (percentage who trust others)	23.0	42.0

▲ **Table 1. Current health or social indicators for London, and adjusted by comparison to Norway.**

As a way of reducing this inequality, the ODA and LOCOG set challenging targets for local and diverse employment, and for engaging people previously unemployed for more than six months.

10. Health and happiness

This is really the sum of all other interventions, but of particular importance is the psychological wellbeing associated with most of the carbon-reduction policies.

CONCLUSION

The aspiration for those of us who wish to secure a future for the global community, including humans, is to move rapidly toward a global society that is socially cohesive, more rather than less equal, and developed within the bounds imposed by our environment. Clearly no one country or city can achieve this alone, but exemplary activity, of which we saw some during the London Olympics, can point in the right direction. When the numerous large-scale projects throughout the world all embrace the 10 precepts of one-planet living, we will have started in earnest the long journey we have before our aspiration is fulfilled. My hope is that the London Olympics will at least have shown that such a journey is both possible and worthwhile. **ES**

Robin Stott worked for 27 years as a consultant physician in Lewisham University Hospital. He has a life-long commitment to understanding and seeking to improve the economic, environmental and social circumstances which are most supportive to good health. He was a founder member of the LSDC. He is currently the co-chair of the BMJ initiated Climate and Health council, sustainability advisor to the elected mayor of Lewisham, Chairman of C3 collaborating for health, a trustee of Bioregional and member of the commission for sustainable London 2012.

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East London: powerhouse or p...

The socio-economic benefits

Dr Gary Cox assesses what the Games have given its host communities.

London's bid for the 2012 Olympic and Paralympics Games was nothing if not ambitious. The London 2012 Candidature File made a bold commitment to transform East London through the regeneration potential of the Games¹:

"Staging the Olympic Games in the Lea Valley will stimulate a vital economic regeneration programme in London's poorest and most disadvantaged area. The Olympic Park will provide local people with significant improvements in health and well-being, education, skills and training, job opportunities, cultural entitlements, housing, social integration and the environment."

(London 2012, 2005)

The then Mayor of London, Ken Livingstone, together with the leaders and mayors of the five East London host boroughs had this scale of socio-economic change in mind when deciding to back the bid. It became a preeminent concern of the Mayor of London's London Development Agency (LDA) and the host boroughs in the critical years of planning and preparation for the Games. For the host boroughs, the effectiveness of the socio-economic legacy would become the touchstone for whether the Games were a success or not beyond the staging of the event itself.

FROM COMMITMENTS TO PROGRAMMES

The London 2012 Sustainability Policy² and Plan³ captured these ambitions under the themes of inclusion and healthy living. The inclusion theme aimed to use the Games to create new employment, training and business opportunities to benefit the communities living in and around the Lower Lea Valley. Likewise, this theme aimed to promote social inclusion, especially relating to disability. The healthy living theme sought to use the inspiration of the Games to encourage people to take up sport and develop more active lifestyles across the entire UK.



powderpuff? of London 2012



These commitments became embodied in the Olympic and Paralympic Games Programme Objectives agreed between the UK Government, the Mayor of London, and the key Olympic delivery bodies. Strategic Objective 3 was “To maximise the economic, social, health and environmental benefits of the Games for the UK, particularly through regeneration and sustainable development in East London”⁴.

The Commission for a Sustainable London 2012 (CSL) conducted three thematic reviews that focused on aspects of the socio-economic objectives of the Games. These were the Review of Skills, Employment and Business Capacity⁵ (2009), the Review of Inclusion and Healthy Living⁶ (2011), and the Review of Legacy⁷ (2012). These in-depth assurance reviews form the basis of the analysis in this article.

EMPLOYMENT AND SKILLS

In early 2006, the London 2012 Employment and Skills Taskforce (LEST) was set up by the Mayor of London to develop an action plan to maximise the skills and employment opportunities from the Games⁸. This resulted in a range of programmes, including the Host Borough Job Brokerage, a Pan-London Job Brokerage Network, a construction training programme and a pre-volunteering programme called Personal Best. The latter was inspired by a successful programme for the 2002 Manchester Commonwealth Games and aimed to help people into employment through volunteering training.

A London Employer Accord was agreed, which linked individuals with employers through recruitment support and training. There was also a London Development Agency Opportunities Fund, which invested £10 million in community-based worklessness projects over three years. On the business side, CompeteFor was initiated as an online service to assist businesses seeking Olympic-related tendering opportunities.

The Olympic Delivery Authority (ODA) developed its own impressive structure for recruitment and training, modelled on the highly successful local labour scheme used for the construction of Heathrow Terminal 5. This worked in conjunction with demand-side and supply-side initiatives. The ODA developed a highly sophisticated Labour Market Intelligence Unit, which forecasted demand for specific trades. A key aspect of the supply side was the integration of ODA and Tier 1 contractor recruitment structures with the host borough and Pan-London Job Brokerage Networks and Jobcentre Plus. The ODA's Employment and Skills Strategy included the full range of interventions: pre-employment training, recruitment, post-placement support, post-employment training and progression. The LEST Action Plan had a target of 4,000 public-sector apprenticeships, to which the ODA committed 2,000 placements.

Towards the end of the so-called Big Build in June 2011, data from the ODA revealed that the combined Olympic Park and Olympic Village workforce was 10,989. A quarter were residents of the five host boroughs. This was well above the target of 15 per cent for the construction workforce. These commitments originated in the 2004 Lower Lea Valley Olympics and Legacy Planning Applications⁹ and subsequently formed part of the Local Employment and Training Framework¹⁰. Success was in large part due to the target-driven approach of the ODA, oversight by the LEST Action Plan Implementation Group and the Host Borough Partnership Board, and upfront funding by the LDA. The Greater London Authority is now responsible for monitoring the legacy components of the skills and employment programmes that were created under LEST.

HEALTHY LIVING AND INCLUSION

The links between health and physical activity are obvious. However, in previous Games, the harnessing of the inspirational effects of the event to increase sports participation, particularly among young people, proved elusive. Health promotion was a major ambition behind many government and non-government stakeholders in the Olympic bid. The NHS, particularly in East London, was a keen and active supporter of the bid.

During the bid in 2004, the London Health Commission and the LDA commissioned a Rapid Health Impact Assessment of the Proposed London Olympic Games and their Legacy¹¹. The study reviewed the evidence surrounding the link between hosting a Games and increased participation in physical activity and sport. It reasoned that major sporting events should be a powerful platform to promote and positively influence lifestyle, behaviour and culture. However, the evidence of a direct link was weak. The study recommended that targeted national programmes should be put in place to capitalise on the wide health benefit opportunities arising from the Games. In essence, the health benefits arising from the Games could not be assumed, they had to be grasped.

CSL's Review of Inclusion and Healthy Living documents the programmes that were initiated by the Department of Health, Sport England, the NHS, the Greater London Authority, and the London Organising Committee of the Olympic and Paralympic Games (LOCOG). A notable example is the 2009 Mayor of London's Sports Strategy, which sought to enhance grassroots sport, including capacity building and infrastructure improvements. This was backed by a £15.5 million fund. LOCOG administered programmes such as the Get Set Education Programme and the use of the Inspire Mark to associate Olympic branding with local projects. Sponsors also included healthy living programmes in their activation programmes. In March 2010, the former government published London 2012: A Legacy for Disabled People – Setting New Standards, Changing Perceptions¹², with a view to both changing public perceptions and providing new opportunities for disabled people.

Delivery of the physical activity, sports participation and healthy living programmes were complicated by the change of national government in May 2010. The former (Labour) Government's target was to have at least two million more people being more active by 2012. Under the new government, many programmes were superseded and targets were avoided. There were also institutional changes in the way various government agencies worked and a major reorganisation of the NHS



▲ **Figure 1. Renewables Olympic Park**
(Photo credit: Jemma Percy)

commenced. These changes ultimately compromised delivery so their impact is uncertain. One of the main findings from CSL's Review was the need for baseline research on the five host boroughs and across London on the health, well-being and physical activity status of the population. Unless this occurred, it would be almost impossible to evaluate the wider impact of hosting the Games on healthy living and inclusion.

Both the ODA and LOCOG excelled in implementation of equality and diversity objectives. The ODA's achievements were seen in benchmarks for minority and local employment. LOCOG's Diversity and Inclusion Team set new standards in procurement procedures through the mandatory Diversity Works for London assessment. The ODA's Inclusive Design Strategy and Standards received the Royal Town Planning Institute's 2009 Equality and Diversity Award. The informal oversight of the inclusion theme by the Greater London Authority's equalities and diversity team was significant in ensuring success.

POST-GAMES LEGACY

The focus on the regeneration of East London and the Thames Gateway has been a focus of spatial planning in London since the London Plan 2004. The London Plan 2011 recognises the Olympic Park and surrounding areas represent "London's single most important regeneration project for the next 25 years"¹³.

In 2009, the host boroughs published the Strategic Regeneration Framework (SRF). This considered the wider regeneration of East London, particularly so that the benefits of the Games would not be confined to the area bounded by the Olympic Park. The study highlighted the stubborn gap in social outcomes between East London and other areas in the capital, accounting for the greatest cluster of deprivation in England and Wales. Central to the SRF is the principle of convergence. This vision is that "within 20 years the communities who host the 2012 Games will enjoy the same social and economic chances as their neighbours across London"¹⁴. The SRF has specific outcome objectives to be achieved

by 2015, such as: 120,000 more residents with jobs and 99,000 fewer residents having no qualifications.

For many, particularly the leaders and mayors of the host boroughs, the future transformation of East London is the real prize of hosting the Games. It is obviously too early to assess the likelihood of success. However, the planning and governance for achieving this legacy were well advanced with the establishment of the Olympic Park Legacy Company in 2009, which became the London Legacy Development Corporation in April 2012. As Brown, *et al.*¹⁵ state: “the UK has created a new type of urban regeneration body with an almost unrivalled set of assets and powers, planning regulation, planning policy, land ownership, internationally renowned sporting venues and a revitalised river valley landscape”.

CSL conducted a review of legacy, which was published in early 2012. It stated that the Olympic and Paralympic legacy in any city is a unique opportunity that must be grasped if it is to truly make a lasting difference. In the context of less than optimal economic conditions, and the wind-up of LOCOG and the ODA, there is uncertainty going forward. CSL commented that “we believe there is a danger that achievement of legacy objectives may drift off-course if care is not taken to make sure they remain responsive, strategic and targeted”¹⁷.

CONCLUSION

Powerhouse or powderpuff? A powderpuff implies a short-lived temporary effect, blown away in the next breeze of economic change. This has been the abiding feature of East London, where initiatives have had limited long-term impact or, where they have been promising, have merely resulted in residents moving away when their life chances improved. During the pre-Games period, employment and skills initiatives were highly successful. Healthy living and physical activity programmes have been more difficult to evaluate. However, in comparison to previous host cities, London 2012’s achievements have been exemplary, setting a new benchmark in standards for future Games.

The powerhouse effect has yet to come. However, the infrastructure and governance for it is in place and is up to the task of generating the much sought after transformation. The test will be how these assets are employed to create an East London powerhouse that breaks the stubborn cycle of marginalisation. **ES**

Gary Cox was a senior officer at the Greater London Authority from 2007 to 2008. He assisted in the establishment of the Commission for a Sustainable London 2012 and subsequently led a number of CSL’s thematic reviews as a consultant. He is currently the Associate Director for Public Policy, Research and Strategy at Elton Consulting in Sydney. (gary@elton.com.au)



▲ Figure 2. Olympic Park parklands. (Photo credit: Jemma Perc



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London 2012 – a game-changing Games for access and inclusion?

Andrew Shipley celebrates London 2012's innovative approach to inclusion.

The 2012 London Olympic and Paralympic Games were indeed remarkable for the ambitious nature of the commitments and targets for sustainable procurement and construction contained within the original bid laid before the International Olympic Committee (IOC) in 2005. However, I would contest that it wasn't the 'greenness' of the London 2012 Games that is so notable – after all, that title had already been claimed by the Sydney 2000 Games. What I believe makes the 2012 Games historically unique is the level to which inclusion was embedded in both aspiration and execution.

COMMITTED TO INCLUSION

The bid that gained London the 2012 Olympic and Paralympic Games set out a vision guided by the principles of inclusion and integration for everyone; athletes, spectators, journalists, sponsors, staff, contractors and volunteers. It committed both the Olympic and Paralympic Games in London to set new standards for services, facilities and opportunities for disabled people.

In describing this vision, the UK government, the British Olympic and Paralympic Committees and the Greater London Authority made a clear and definitive statement about disability equality, and that under its stewardship this spectacle was to be enjoyed on equal terms by everyone and “change society for the better”.¹

It is important to remember that whilst this commitment appears ambitious, in making it all three bodies were building on many years of continuous progress for disability rights in the UK, from the time of the introduction of the Disability Discrimination Act (DDA) in 1995. The introduction of the DDA and accompanying legal structures – such as the Disability Rights Commission, improved technical standards for inclusive design (such as British Standard 8300), Sports Council Access Standards, the Lifetime Homes Standard, and Building Regulations Part M and accompanying

Approved document – provided a legislative and technical framework that has generated increasing awareness among service providers, procurers, contractors and regulators of how to plan and deliver inclusive buildings and services. It is these very conditions that enabled the delivery bodies to establish clear performance criteria and technical standards against which compliance could be reasonably expected from industry and procurers.

It was upon this foundation that the Olympic Delivery Authority (ODA) was able to develop its award-winning Inclusive Design Strategy and comprehensive Inclusive Design Standards, which informed the design and construction of the new venues and the Olympic Park. In addition to the standards framework adopted by the ODA, it is also important to acknowledge and commend the ODA for the way it engaged a panel of user experts, the Built Environment Advisory Panel (BEAP), to assist the ODA's inclusive design team in assessing the conformity of design proposals with ODA standards.

What is particularly noteworthy about the establishment of the BEAP is that it reflects a level of good practice once common but sadly declining among local planning authorities' engagement of disabled people in the form of access groups, advising on local planning policies and supplementary guidance. It also demonstrates the quality of outcome achievable when such groups are established and retained. Indeed, the success of the group is best signified by its adoption by the London Legacy Delivery Corporation to ensure that the transformation of the Queen Elizabeth Park, stadia, and development of the new communities are in full accordance with inclusive design standards and principles.

INCLUSION MADE VISIBLE

The extent to which the aspirations for the Games as a celebration of diversity and exemplar of inclusion were achieved was tangibly visible throughout. The flame cauldron of petals from every nation, aerialists in wheelchairs, the normality with which disabled

and non-disabled spectators enjoyed the park and venues, the commonplace sight of disabled presenters and commentators on our television screens, the absolute diversity of the population of Games Makers, Paralympians becoming household names and the record-breaking performances on the track, in the pool and velodrome, are all testament to the degree to which the delivery bodies listened to and understood the needs of people, creating an inclusive culture and environment to match.

The question now, of course, is: "Where do we go from here?" How many of the lessons learned can be carried forward become embedded into everyday practice - or will it just be back to 'business as usual'? The original bid committed the Games in London to "set new standards of inclusive design in sporting facilities, residential developments, transport procurement and service delivery".

SUCCESS WITH SUPPORT

What the delivery of the inclusive Games demonstrates is that we have the tools and expertise to deliver accessible inclusive buildings and spaces in any sector, and that with vision and leadership great things are possible. However, as I write this three months after the Paralympics closing ceremony, we find ourselves at a crossroads regarding the future direction of inclusive design. Despite the great success of London 2012 as a showcase for inclusive design at its best, we face claims from the development industry that design standards are not conducive to economic growth, and potentially compromise the viability of future development. In response to this claim, the Government has commenced a review of housing design standards and regulations, and it still remains unclear whether or not this will be extended to include development more generally.

What is also clear is that in the right environment people can achieve great success. In addition to the physical environment, people also need other forms of support to enable them to achieve their goals. What must not be overlooked is that whilst the design and construction of the venues enabled athletes to achieve inspiring performances on the day, those feats were a culmination of processes combining essential input from others with the provision of resources necessary to enable athletes to fulfil their potential. This of course holds true for any human undertaking, and the achievements on the Olympic and Paralympic fields of play can be seen as emblematic of what any of us could achieve in our particular fields given the support and resources needed to enable us to succeed.

By highlighting their abilities, the bid team sought to build respect for Paralympic athletes and consequently bring about a shift in society's attitudes towards disabled people. However the athletes' performance cannot be

uncoupled from the social conditions that enabled them to reach that standard. Whilst we still bask in the reflected glory of those very performances, this country is undergoing radical reductions to disability benefits and services, resulting in withdrawal of the support structures that provided services and resources which enable disabled people to maintain independence and retain a degree of dignity, the very structures that formed the foundations on which our Paralympic champions built their inspirational achievements. Furthermore, the legal framework that provided the platform of equality and inclusion for the London 2012 bid are also under pressure, with a government-led review of current equality legislation about to commence.

INCLUSION UNDER THREAT

It appears that the very values, structures and long-term objectives that underpinned the bid that won the 2012 Games for London are now at risk. Appearances might suggest that these are seen by parts of the development industry and perhaps the Government as luxuries that are only for times of prosperity, and not the foundation for an inclusive society and sustainable economy. The obvious lessons from the great success that was London 2012 are therefore in danger of being squandered.

However, with clear leadership, the ability of our building professions to deliver new developments that work for existing and future generations is now beyond question. Also, Paralympians, Olympians and Games Makers alike demonstrated so powerfully that with the right support and resource base, we can all apply our talents and play a valuable, fulfilling role, whether in the sporting arena, the workplace or in our local communities. So the lessons that should be heeded, which policy-makers still have the opportunity to embrace, are that we can unleash limitless potential if we create the physical and social conditions to do so. It is with leadership offering this kind of vision that our economic future can be put on a more sustainable footing and our society can be truly changed for the better. **ES**

Andrew Shipley is a former Chair of the UK Institute of Inclusive Design and is a trustee of the Town and Country Planning Association. Andrew has worked for the Disability Rights Commission and served on a number of government advisory groups. He has made a contribution to a range of planning laws and publications.

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Feeding the Olympics

Jonathan Pauling reviews the largest peace-time catering operation in the world.

When people think of the Olympics they imagine the world's largest festival of sport, perhaps the huge media 'circus' that follows or the logistical challenges of transporting huge numbers of visitors, athletes, officials and dignitaries around a large city. What people probably do not realise is that 14 million meals are served over two weeks to people of so many nationalities and cultural backgrounds, and all this within an environment of heightened security.

At previous Olympic and Paralympic Games, food had been seen within this frame – one of the many logistical obstacles to negotiate with scant regard for consumer experience, let alone issues of health and sustainability. Reports from both Beijing and Toronto decried the quality of the food and the lack of any observable sustainability or ethical standards¹. Combined with the ubiquitous branding of the International Olympic Committee's (IOC) tier one food sponsors, the Olympic food experience left those with concern for health and sustainability – let alone quality and diversity – with an unpleasant taste in the mouth.

Right from the outset London committed itself to do better. Food featured heavily in the sustainability ambitions outlined in the bid documents *Towards a One Planet Olympics*² and when the bid was won, The London Organising Committee of the Olympic and Paralympic Games (LOCOG) included a commitment to develop a sustainable food strategy in their sustainability plan.

GOOD FOOD STANDARDS

London's 'foodies' had a real desire to ensure that food at the Games would be done differently. In 2004 the London Food Board had been established by the then-Mayor Ken Livingstone. This created, for the first time, a strategic approach to food issues in the city and a focal point for influence and innovation within the sector. Food experts, food trade representatives and pressure groups quickly aligned with the goal of ensuring that LOCOG delivered on its promises, and in December 2007 a partnership including

the Soil Association, the New Economics Foundation and Sustain, the food and farming alliance, jointly published a report that urged LOCOG to adopt standards for local, seasonal and organic produce as well as Fairtrade-certified products and verifiably sustainable fish³.

FOOD ADVISORY GROUP

In spring 2008 LOCOG convened the London 2012 Food Advisory Group with membership from farming, catering, food manufacturers, central government, the three food sponsors of the Games (Cadbury's, McDonalds and Coca-Cola), Sustain, the chair of the London Food Board, Rosie Boycott, and many others⁴. This kick-started an 18-month process of consultation and negotiation to agree the standards and ambitions for the Games-time catering. The process was coordinated by the Russell Partnership, a catering consultancy, and entailed convening a number of working groups established to focus on specific issues such as food safety, healthy eating, provenance, fair trade, and sustainable fish.

A great deal of work went into negotiating the standards across all the stakeholders, with the issue of fish being a particular case in point. A sub-group was chaired by Kath Dalmeny, the policy director at Sustain, that included membership from over 50 organisations with an interest in marine conservation and fish sustainability. The process to agree the wording in the standards took many months and eventually settled on "all fish demonstrably sustainable", with specific definitions of what this would mean in practice, based on the following principles:

- Exclude the worst: complete exclusion of those species and stocks identified by the Marine Conservation Society (MCS) as fish to avoid;
- Promote the best: inclusion of all Marine Stewardship Council (MSC) (or equivalent) and MCS 'fish to eat' list

- Improve the rest: systematic approach to traceability and demonstrable sustainability for the rest, with reference to the FAO Code of Conduct for Responsible Fisheries, new IUU regulation, fishery sustainability status, seasonality to avoid spawning seasons, use of a diversity of species (including shellfish).

It was a necessary, timely and ground-breaking commitment that would end up stretching the knowledge and supply chains of many of the caterers to their limits.

A VISION FOR CATERING

In December 2009 LOCOG published its London 2012 Food Vision, which set both baseline and aspirational standards for Games-time catering. It is widely acknowledged to be the first healthy and sustainable food policy of its kind to cover a major international sporting event. The document promised to “enhance everyone’s experience of the Games by celebrating the great diversity and quality of British food” while at the same time leaving behind “a strong sustainable legacy for London and the UK”⁵.

By setting clear standards below which no bid could fall and at the same time outlining a vision of best practice through its aspirational standards, LOCOG was deliberately aiming to stretch the contract caterers through the competitive tendering process. They made it clear that tenders would be judged not only on their price competitiveness but by the ability of the contracts to achieve as many of the aspirational standards as possible.

The Food Vision also set out the ambition to inspire a step change in the sustainability of the wider food sector and committed to develop a London 2012 Food Charter that would use the opportunity of the Games to “encourage organisations throughout the events, catering and hospitality sector to commit themselves to supporting and implementing local, seasonal, healthier and sustainable standards across the industry”. For those pressure groups that had invested a lot of time and energy into the Food Advisory Group and the development of the London 2012 Food Vision, this was seen as the greater prize – to embed these standards as the norm across the catering industry. Helpfully, the Commission for Sustainable London (CSL), in its thoroughgoing review of food, advised LOCOG that it would expect to see evidence of how the Food Charter would be used managed and updated over time.

KEEPING TO COMMITMENTS

Despite the public promise however, pressure groups had to push hard for LOCOG to keep to their commitment. In subsequent meetings of the Food Advisory Group it became clear that LOCOG did not want to be the delivery vehicle for this legacy initiative and that the preference was that a

Food Charter would somehow either be picked up by the industry itself, or would be quietly dropped. Members of the London Food Board were dismayed that this opportunity might be lost. They established a sub-group to put pressure on LOCOG to see through their commitment, and with the support of Rosie Boycott, convinced LOCOG informally to support a Food Legacy initiative to be delivered by the Food Advisory Group member Sustain. The project was funded by the Mayor of London through his Food Board and the New Covent Garden Market Authority with support from LOCOG. Unfortunately, because of delays caused by LOCOG’s reluctance to progress their idea of a charter – which they had originally stated in the Food Vision would be launched in spring of 2010 – the legacy project was not able to be launched until the autumn of 2011.

At the same time LOCOG was continuing to move at pace to let the catering contracts for the Games themselves. There were concerns amongst London Food Board members that not all the caterers who were being appointed completely understood how to audit their supply chains competently to ensure they were complying with the standards, especially where certified produce was used. The London Food Board convened a meeting of certification and accreditation bodies to meet LOCOG’s Head of Cleaning and Catering Contracts Jan Matthews. This became a pivotal moment when LOCOG acknowledged that these expert organisations were willing and able to support and work with them and their contractors to meet the agreed standards.

SUSTAINABLE FISH

This was particularly true in respect of the issue of sustainable fish, where the complexities of the definition and of the sector meant that not all caterers fully grasped the commitment they had made. The different certification and accreditation bodies worked right up until the spring of 2012 helping the caterers understand how to implement the standard and remove some questionable ingredients from the menu. Despite this last-minute rush, the commitment of LOCOG, its contractors and the accrediting bodies to the tenets of the London 2012 Food Vision and the collaborative way it was created ensured that – in the end – the standards were met. Jan Matthews of LOCOG deserves much credit for opening up the menus to expert scrutiny, even at the final hour.

When Games-time arrived, the spectators, journalists and athletes were fed and watered on a fantastic selection of healthy and sustainable food that promoted the best of British produce. The food for the Games included:

- Fairtrade – all tea, coffee, cocoa, bananas, oranges, sugar and white and rosé wines were Fairtrade certified;
- High animal welfare standards – 100 percent of shell eggs were free-range, and in some venues, such as

the Athletes' Village and the Media Centre, RSPCA Freedom Food pork and chicken were also served;

- A high proportion of British and seasonal produce, and Red Tractor assured food, particularly milk, traditional cheese, fresh meat, seasonal fruit and vegetables and bread;
- Demonstrably sustainable wild-caught fish;
- Organic milk served with all tea and coffee;
- Healthier options promoted; and
- Free drinking water available at all venues.

McDonalds, who supplied 10 per cent of the food on the Olympic Park, bowed to pressure to comply with the standards on British chicken in an 11th-hour about-face. Following a vocal public campaign led by Green Assembly Member Jenny Jones, it agreed to completely overhaul its sourcing of the chicken that would be served at its restaurants at Olympic and Paralympic venues⁶.

PROMINENT ETHICAL FOOD

What was most appreciated by those who had worked and campaigned so hard to make sure that the food at these Games would be different was the prominent place given to communicating this message through menu boards across the Park (see **Figure 1**). In what is one of the most highly brand-protected environments in the world, the accreditation marks of several ethical and sustainability food certification schemes were communicated directly alongside those of the sponsors – a first for any Olympic and Paralympic Games, and hopefully a legacy win in its own right. Credit is due to LOCOG and Coca-Cola for championing this opportunity with the IOC, which oversees and protects the exclusivity of sponsor communication rights.

Perhaps the greatest legacy has come in the area of sustainable fish. As a direct result of the consultation process that led to the London 2012 fish standard, Sustain, with support from the UK's leading marine conservation organisations, set up the Sustainable Fish City campaign. The bold objective is for London to become the world's first Sustainable Fish City, where businesses, institutions and citizens buy, serve and eat only sustainable fish. Organisations that have already adopted the Sustainable Fish City standards include: national government, prisons and parts of the armed forces, the UK parliament, the National Trust, London Zoo, 19 top universities, several major employers for workplace catering such as British Airways, Coca-Cola, Google and Eurostar, and a wide range of venues, restaurants and caterers – large and small – together serving well over 100 million meals a year. Many of the caterers (but not all) who supplied the Olympics have committed to serve only demonstrably sustainable fish as the norm across their businesses.



▲ **Figure 1.** Food signage at Olympic Park. (Photo credit: www.s)



sustainablefishcity.net)

SUSTAINABLE FOOD IN THE FUTURE?

On the wider food legacy, there will be a number of other large international sporting events coming to the United Kingdom in the future. The proof of a truly sustainable legacy will be seen in the food that is delivered at these, and the Glasgow 2014 Commonwealth Games has already published food sustainability commitments closely mirroring the London 2012 Food Vision.

Further afield, there is hope that the London 2012 standards will influence a broader shift to the approach to food at future Games. The consultants engaged by LOCOG to develop and support the implementation of their Food Vision have been retained by the Sochi 2014 Winter Olympic and Paralympic Games, and members of the Food Legacy Group have already met with organisers from Rio 2016 to discuss their work. A truly sustainable legacy would see future Olympic and Paralympic Games take a similar open and collaborative approach to developing standards for food for their Games. It was this approach that ultimately helped cement the goodwill amongst the members of the Food Advisory Group that led to the successful delivery of the Food Vision, with its many welcome benefits for consumers, caterers, farmers, fishers and the environment.

Jonathan Pauling is a Senior Programmes and Policy Officer for the Greater London Authority working to support the London Food Board and the implementation of the London Food Strategy – Healthy & Sustainable Food for London. Jonathan was a commissioner for CSL from 2007 to 2009.

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Sustainable design and the built environment

Julie Greer and Andrew Myer describe a case study of sustainable design for the Olympic Park lighting strategy

Environmentally sustainable design involves a complex array of specialist fields, and is applicable at every level of the built environment, from overall planning through individual building design, down to small-scale detailing, specification and choice of materials. Given the scale of London 2012, the variety of facilities and number of design teams, it is only possible in this article to give an overview of the issues, along with one case study of how the sustainable design approach was applied.

After pressure from the Commission for a Sustainable London 2012 (CSL), the Olympic Delivery Authority (ODA) has established a comprehensive learning legacy programme, in association with professional and industry bodies, to disseminate lessons from the Olympic Park, help 'raise the bar' within the construction sector and act as a showcase for UK plc. Readers wanting more detail are therefore encouraged to visit the Learning Legacy website¹, as well as CSL's own case studies².

WHAT IS SUSTAINABLE DESIGN?

At the large scale, sustainable design looks for planning layout and infrastructure that minimise resource demand, optimise use of renewable resources, and ensure clean and efficient use of non-renewables, in areas such as transport, energy and water. At the Olympic Park, for example:

- improvements to London Overground and the Docklands Light Railway, along with the new high-speed rail link to St Pancras, have helped make Stratford one of the best-connected parts of the capital, enabled London 2012 to provide the "public transport Games" it promised, and point towards a more sustainable transport future for the area. However - the huge broadcast and media centre roughly the size of the Canary Wharf tower laid on its side and intended to become a major employment hub after the Games - seems likely to prove poorly located for the transport demand its use will generate;
- new pedestrian and cycling links have been created to surrounding communities to encourage more sustainable modes of transport and improve connectivity for a site formerly hemmed in by railways, waterways and urban motorways;
- the UK's largest community wastewater recycling scheme now extracts and treats black water from the outfall sewer running beside the park to provide non-potable water for irrigation

and toilet flushing across the site, as well as cooling water for the Energy Centre; and

- the Energy Centre itself provides efficient combined cooling, heating and power (CCHP) to the whole park, with a proportion from biomass fuel. However CSL is concerned that the long-term private-sector contract - chosen to avoid cost to the public purse - will restrict future renewable heat options and make it difficult to provide zero-carbon developments on other parts of the site.

An original target to generate 20 per cent of energy from on-site renewable sources, moreover, fell short, following abandonment of a planned wind turbine. To make up the shortfall the ODA has invested in energy efficiency schemes in surrounding boroughs, but while these are worthwhile and will save an equivalent amount of energy, they do little to demonstrate London 2012's intended "blueprint for sustainable living".

HIGH 'GREEN' STANDARDS

At the individual project level, many of the approaches and technologies employed are already familiar to 'green' designers, and it might indeed be unreasonable to expect too much innovation from a programme with such an immovable deadline, though many innovative and interesting measures have also been introduced for particular components. Perhaps more significantly all the Olympic venues have been designed to achieve an 'excellent' BREEAM³ rating, civil engineering structures such as bridges had to meet the highest CEEQUAL⁴ standards, and the Athletes Village is the largest UK housing development so far to meet Level 4 of the Code for Sustainable Homes⁵. Commitment to such high standards across such an enormous and time-constrained programme is remarkable and admirable, even if some of the outcomes might not immediately appear sustainable to the public eye.

Design teams had to respond to very different functional briefs for each of these facilities, but were applying a broadly similar palette of sustainable design approaches, such as:

- **reducing energy in use** - Games facilities will use at least 20 per cent less energy in operation than required by the 2006 Building Regulations, with attractive examples of daylighting and natural ventilation in the Copper Box and Velodrome;
- **reducing embodied energy** - CSL has identified that, particularly for buildings in intermittent use,

the energy required to manufacture construction materials and components, bring them to site and erect them, starts to be as significant as energy actually used in the building. In the Velodrome, for example, extensive use of timber and a lightweight steel cable-net roof has substantially reduced its embodied energy compared with more conventional structures, especially seen beside the Aquatic Centre, designed before adoption of the sustainability commitments. Here a spectacular, clear-spanning roof uses considerably *more* steel than many buildings of a similar size;

- **temporary structures** – the use of demountable structures has reduced risk of expensive ‘white elephants’, for example at the Hockey and Aquatic Centres where predicted post-Games crowds will be much smaller. The 12,000-seat Basketball Arena will be taken down entirely, though reports suggest a hope to re-use the whole building for Rio 2016 may have fallen through and its future is now uncertain. Temporary bridges will be removed to allow more parkland and ensure the Stadium will not stand among acres of unnecessary paving. However the most convincing illustrations of sustainable design are those which have been designed, such as the Copper Box and Velodrome, to meet a known post-Games use. Continuing uncertainty over the Stadium’s future, for example, still leaves a question over whether its largely temporary structure will ultimately prove the best long-term buy;
- **reducing potable water use** – water-saving fittings and rainwater collection will help to reduce consumption by 60 per cent or more in the Velodrome and Copper Box, for example;
- **protecting and enhancing biodiversity** – as part of a site-wide strategy that has transformed a ‘brownfield’ wasteland into a park of varied habitats and species-rich indigenous vegetation, individual buildings also incorporate a range of green walls, sedum roofs, bird boxes, bat boxes, and so on; and
- **material selection to minimise environmental impact** – for example absorption chillers in the site-wide CCHP system and ammonia-based cooling in the Aquatic Centre avoid the need for HFC refrigerants which have very high global-warming potential (though a disappointingly high number of temporary air conditioning units, fridges and cold stores hired for Games time did use HFCs).

At the materials end of the spectrum, the ODA’s sustainable procurement process encouraged innovation among design teams, contractors and supply chains, which led to more sustainable working practices such as:



▲ Figure 1. Games-time (left) and legacy (right) lighting plans: temporary Games period (Image credit: Speirs & Major)

- centralised low-carbon concrete production, supplying the whole Olympic Park, substituted an industrial waste product for conventional aggregate and transported raw materials to site by rail rather than road. This averted quarrying nearly 290,000 tonnes of primary material and saved more than 46,500 tonnes of carbon;
- a Timber Supplier Panel ensured all timber and timber products were certified as being from legal and sustainable sources, via either the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forestry Certification (PEFC); and
- a policy, in response to concerns raised by CSL, challenged the use of PVC and encouraged adoption of other materials with less environmental impact. This stimulated industry to innovate a non-phthalate PVC, used in a number of the building wraps, and also helped identify other products with long-term, whole-life-cycle benefits.

THE LIGHTING STRATEGY

This systematic, holistic approach is described here as applied to the Olympic Park lighting strategy⁶. For other case studies, readers are directed to the Learning Legacy and CSL websites.

The ODA's approach to planning the Olympic Park was based on six cross-cutting themes: sustainability, connectivity, health and safety, design and accessibility, legacy, equality and inclusion. Lighting was one of a number of strategies it had to develop, along with urban design, inclusive design, a waterspace masterplan and a biodiversity action plan. It also prepared a wayfinding strategy, to help visitors navigate the complexity of venues, level changes and waterways, via key routes and decision nodes. Lighting touched on all of these and presented a considerable challenge.

As with other areas of the park, long-term post-Games lighting was to be the ODA's responsibility, with LOCOG looking after Games-time – though the boundaries were not always clear. However, both budgets were tight and decisions had to be made as construction was progressing, venues were nearing completion and surfaces were being laid. The intention was to invest in lighting for after the Games and supplement it with temporary lighting during the Games.

Night-time atmosphere would play an important role in impressions of London 2012, with lighting having to create a sense of arrival, spectacle and character, as well as keep visitors safe by guiding and directing the crowds. But after the Games the night-time economy would still need lighting. What should be left in after the Games and how should it be achieved?



Lighting overlay providing higher lighting levels to wider concourse areas for the

The ODA appointed lighting designers Sutton Vane to develop an overall strategy for the Games and transformation phases through to 2014, to guide detailed lighting design for individual locations. This was to:

- establish a visual hierarchy to assist wayfinding;
- ensure the park was accessible and inclusive, with safe routes for pedestrians and cyclists;
- protect existing and planned new habitat areas;
- be appropriate for security and public safety, including CCTV and face recognition;
- consider uniformity, glare, flicker;
- consider the lifetime costs and embodied energy of fittings; and
- maximise energy efficiency by considering, for example, lamp types, controls, hours of use and renewables.

The strategy identified the northeast façade of the Aquatics Centre, the southern concourse and key bridges and underpasses as top priorities for architectural lighting, as they would all have crucial wayfinding roles post-Games⁷. The Stadium, Velodrome and Copper Box, on the other hand, were lower priorities, which would only be lit permanently if ODA funding would stretch that far. Otherwise they would only receive temporary overlay lighting during the Games.

Biodiversity was another important constraint theme and the strategy, for example, defined zones to be kept free from artificial light, as well as calling for the use of LEDs in certain areas as these do not emit ultraviolet light, which disturbs the moths that bats feed on⁸.

Lighting designers Speirs + Major were then appointed to review the strategy and develop more detailed criteria for future developments, such as ensuring appropriate interfaces between projects. This required, for example, careful negotiations between the Athletes Village and Westfield Stratford City to ensure consistency of fixtures, lux levels and colour temperature. Some areas were deliberately left unlit to protect sensitive areas such as the nearby wetlands⁹.

The main pedestrian bridge between the Olympic Park and Stratford City is a typical example of the design challenge, with the route needing to accommodate high numbers of pedestrians during the Games but its width is intended to be reduced in post-Games. Lighting within the bridge balustrade would have been insufficient for Games-time use, so temporary lighting columns were provided.

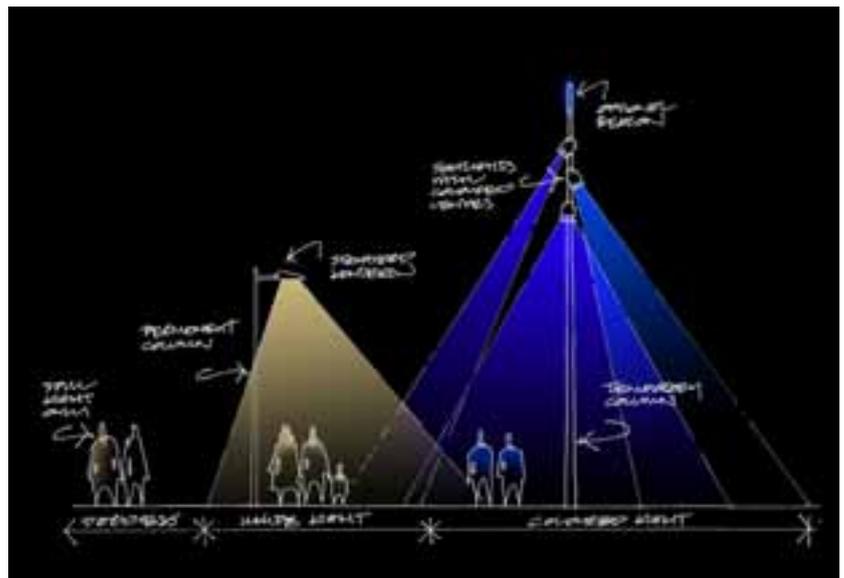
The review also revealed that the original strategy had set brighter lighting levels than necessary – taking the client group for a walk after dark demonstrated that relatively low light could still maintain a safe, welcoming night-time environment. Levels were consequently reduced, saving money and energy.

The strategy also recommended a common procurement policy, to ensure value for money through large, site-wide contracts. This also enabled the ODA to avoid clutter by limiting proliferation of columns or a confusion of features on individual units, as well as allowing them to negotiate the return of temporary lighting.

LIGHTING INNOVATIONS

To inform the procurement process, suppliers were invited to present options and discuss latest technologies at a technical workshop – for example to clarify whether LED technology was advanced enough to use throughout the park, or how to reconcile the Games-time lighting challenge and lower level post-Games requirements. In the end LEDs were not specified widely because the technology was not considered fully viable when the lamps had to be procured in 2008; and where they were used a removable tray system was included for easy replacement, future-proofing them for when the technology improved.

The main concourse, however, featured LEDs in its 32-m tall memory masts, which were topped with wind turbines and encircled by 7-m lighting halos. These are



▲ Figure 2. Permanent legacy installation and temporary Games-time 'stage' lighting for a typical walkway, minimising spill to sensitive areas (Image credit: Speirs & Major)



hardwired together by ethernet so that the lighting can be controlled by wi-fi for display purposes, and contain two circuits so that levels can be reduced after the Games. Further renewable energy is featured along the northern route across the park, where lighting columns are topped with photovoltaic (PV) panels¹⁰.

Memory of the Games-time lighting will live in the world's collective memories for many years. The ODA's "spend once for the legacy" philosophy for lighting the park will only be truly revealed in the years to come¹¹.

ES

Julie Greer was Principal Design Advisor for the ODA, where she led on the wayfinding and lighting strategies. She is a CSL Commissioner and a Director of Greer Pritchard, a design-led planning consultancy. (julie@greerpritchard.com)

Andrew Myer is a CSL Commissioner and a freelance environmental consultant, specialising in the energy and environmental impacts of buildings. During the 1990s he worked on 'greening' the Sydney Olympic Games. (andrewmyer@waitrose.com)

◀ **Figure 3. 32m 'memory masts' on the main concourse, featuring low-energy, wifi controlled LED lamps for display purposes, and topped by vertical axis wind turbines. Lighting design by Sutton Vane Associates.**

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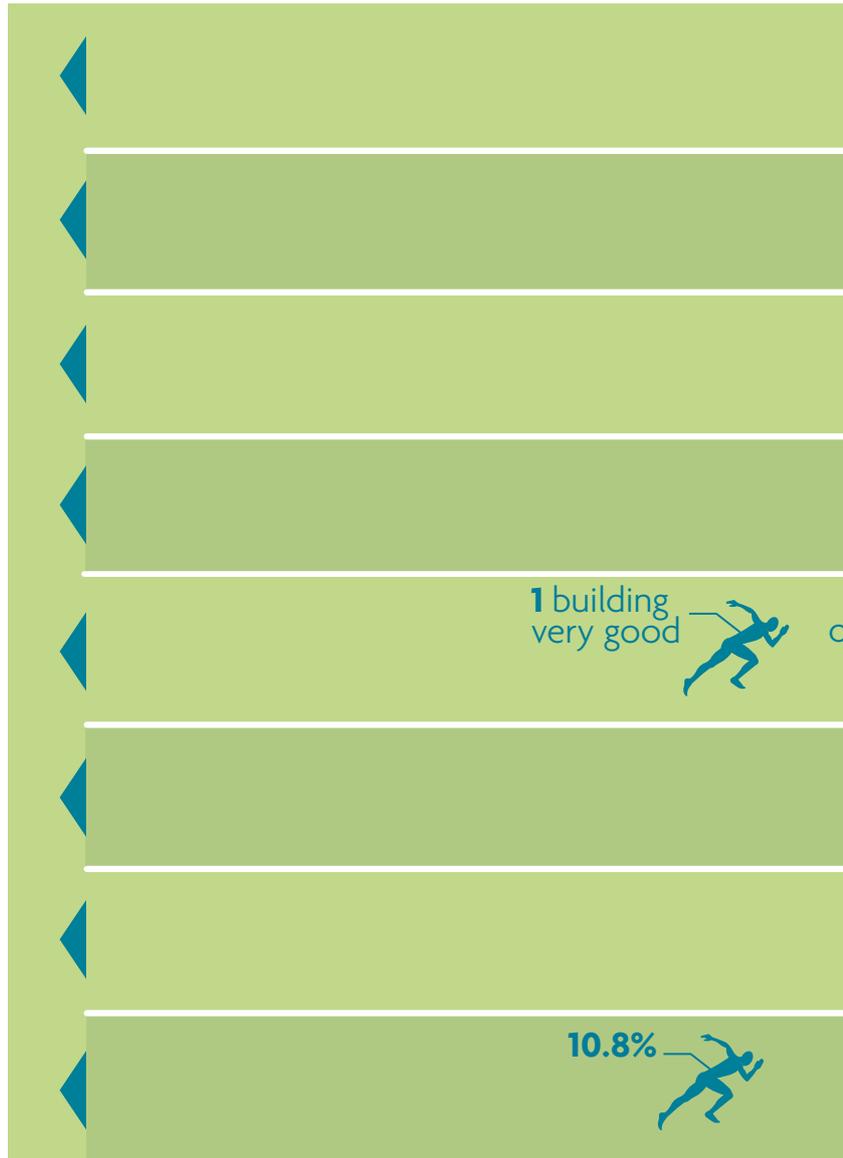
Sustainability in numbers

The ODA and LOCOG set themselves tough sustainability targets for the delivery of the Games. **Jo**

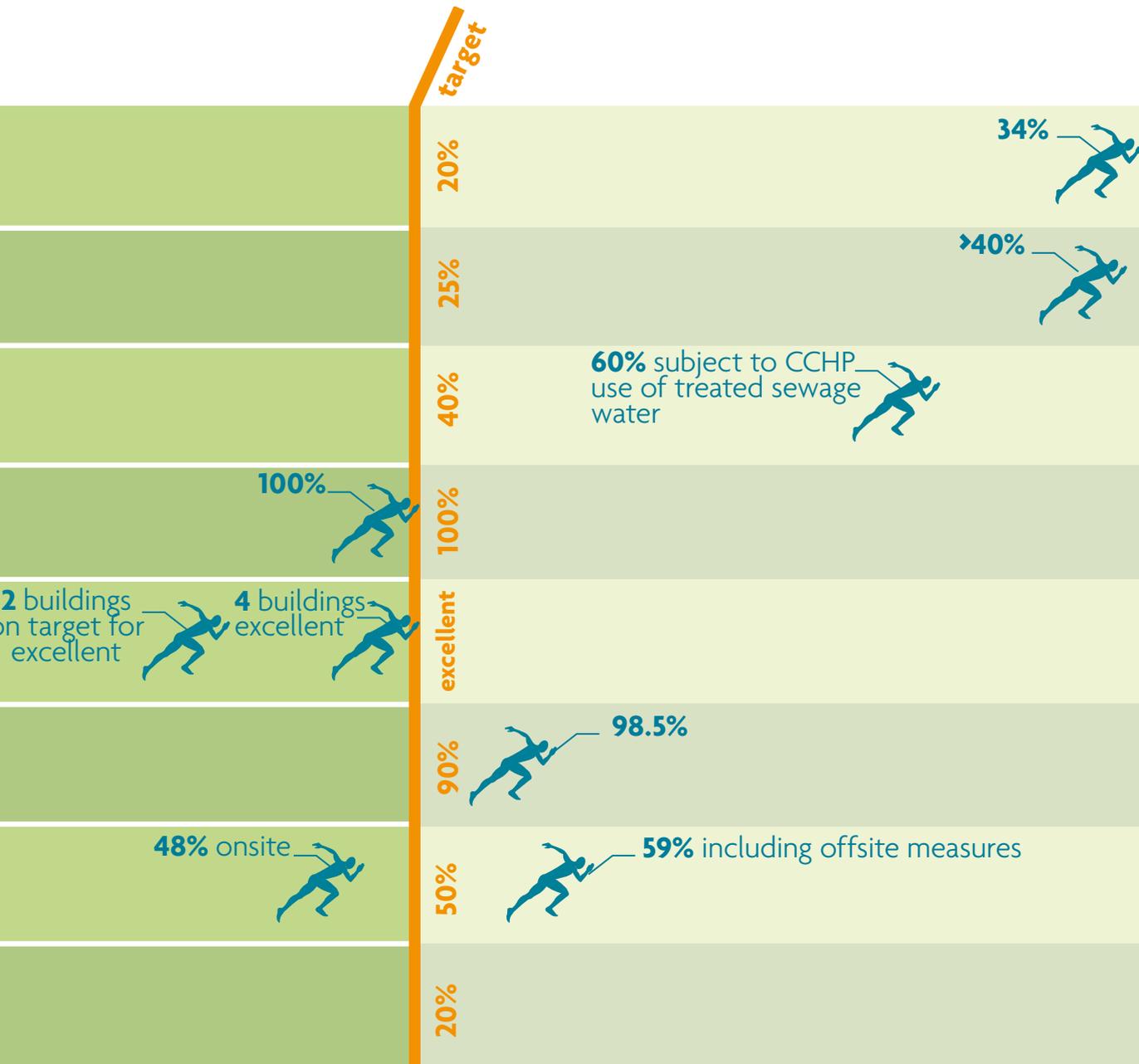
ODA statistics

Objectives

- Recycled materials**
Proportion of material in the new venues from recycled sources.
- Recycled aggregate**
Proportion of aggregate used on site from recycled sources.
- Water usage**
Reduction in demand for drinking water.
- Sustainable timber**
Proportion of timber used that was from sustainable sources.
- Sustainable buildings**
Number of new permanent venues that achieved BREEAM 'excellent' ratings.
- Demolition waste**
Proportion of waste generated onsite that was reused or recycled.
- Carbon reduction**
Reduction in carbon produced by the venues in legacy.
- Renewable energy (legacy)**
Proportion of energy used on site that was renewably sourced.



Nathan Turner and **Jenna Edgar** demonstrate how far they got in achieving those targets.



ODA statistics continued

Objectives

Habitat creation

The amount of land given over to creating new habitat.

24.9 hectares
gamestime



Nesting boxes

The number of bird and bat nest or roosting boxes installed onsite.

568 be

Construction waste

Proportion of waste generated onsite that was reused, recycled or recovered.

Moving materials

Proportion of construction materials brought to site by rail/water.

Sustainable homes

Level awarded to the Olympic Village in the Code for Sustainable Homes. (Levels 1-6 achievable, London 2012 was the 1st major development to achieve Level 4).

Health and safety

Number of deaths that occurred during the construction process.

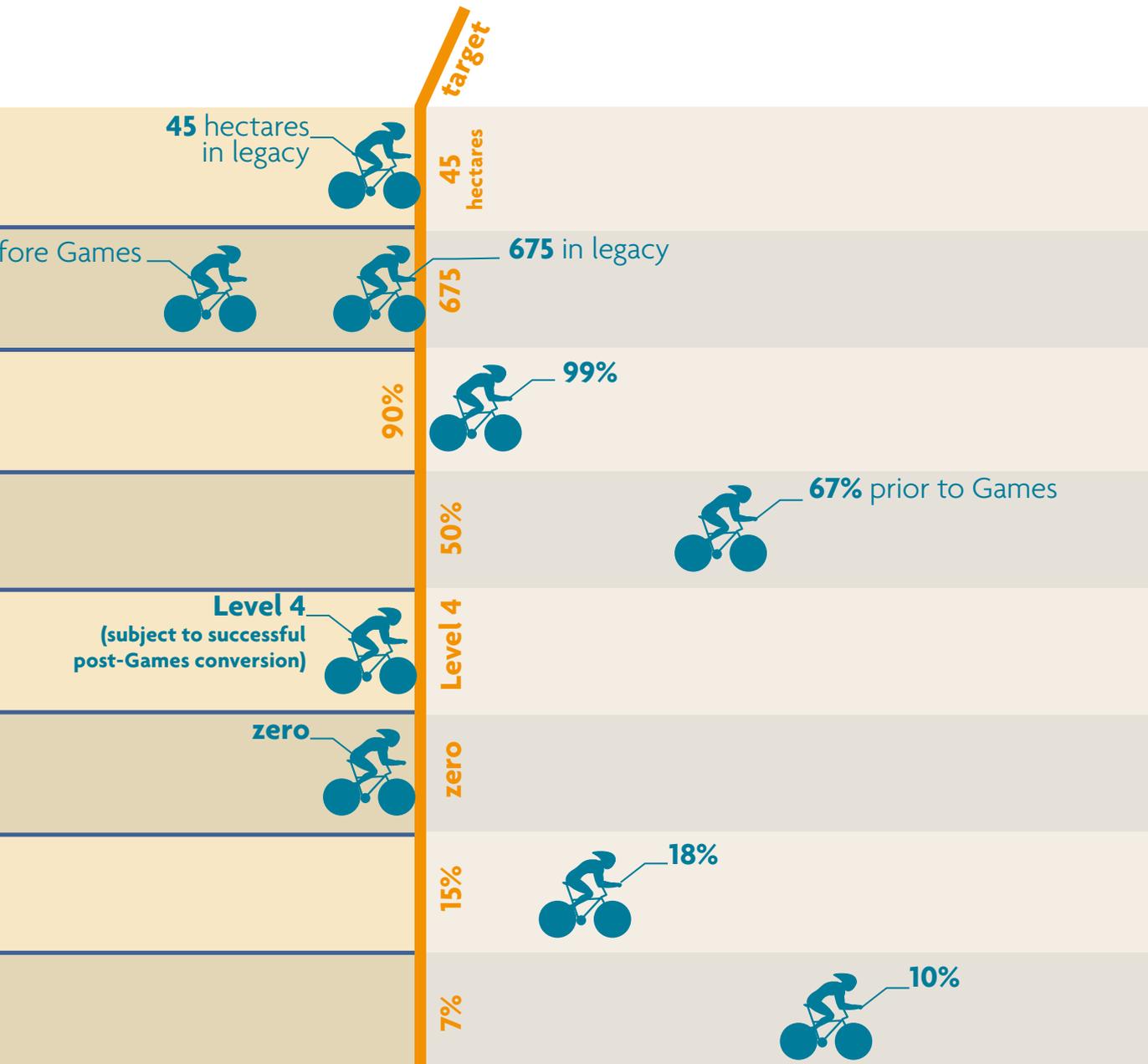
Construction workforce

Proportion of construction workforce resident in a host borough.

Workforce employment

Proportion of construction workforce that was previously unemployed.





LOCOG statistics

Objectives

Waste to landfill

Proportion of waste generated during the Games that went to landfill.

Waste recycled

Proportion of waste generated during the Games that was reused, recycled or composted.

Temporary structures

Proportion of material used for the installation and deconstruction of temporary structures and overlay that was recycled or reused.

Olympic fleet

Average CO₂ emissions of the Olympic car fleet.

Air conditioning

Percentage reduction in non-essential air conditioning.

Renewable energy (Games-time)

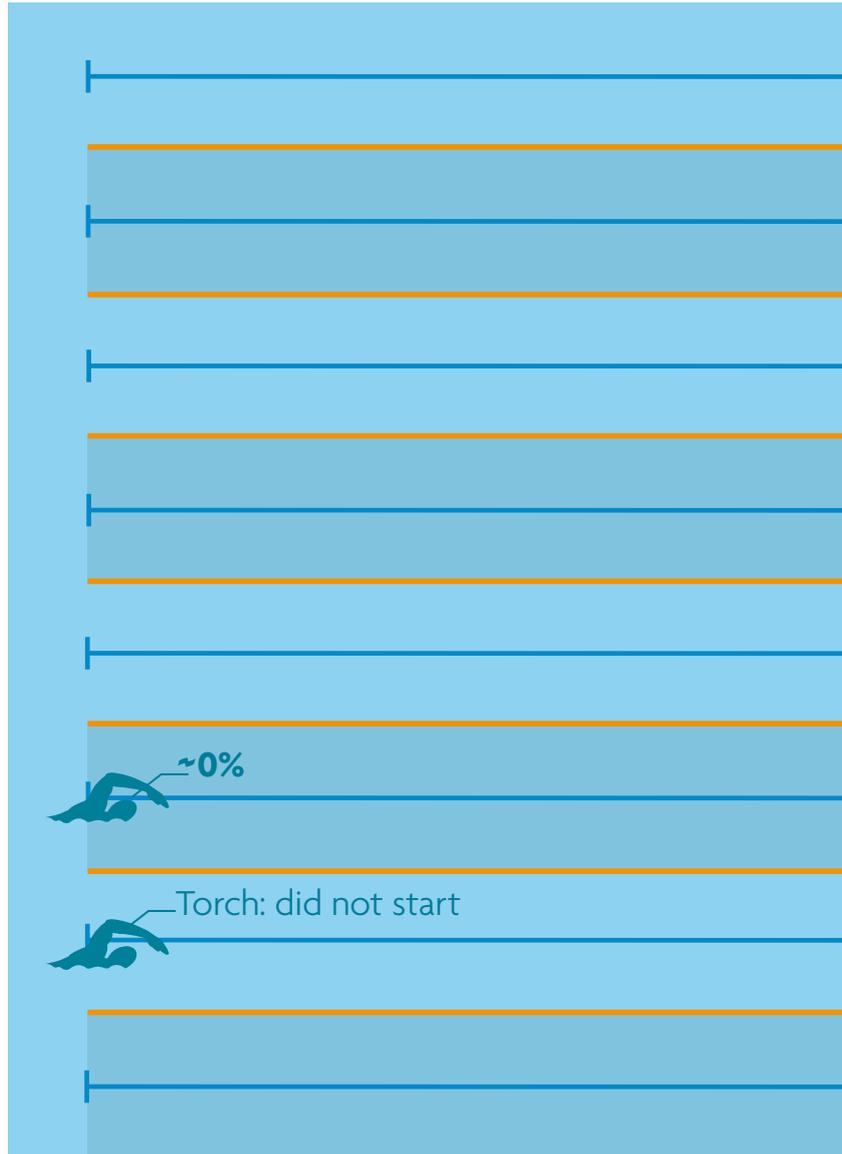
Proportion of Games-time electricity generated by new local renewable sources.*

Olympic flame

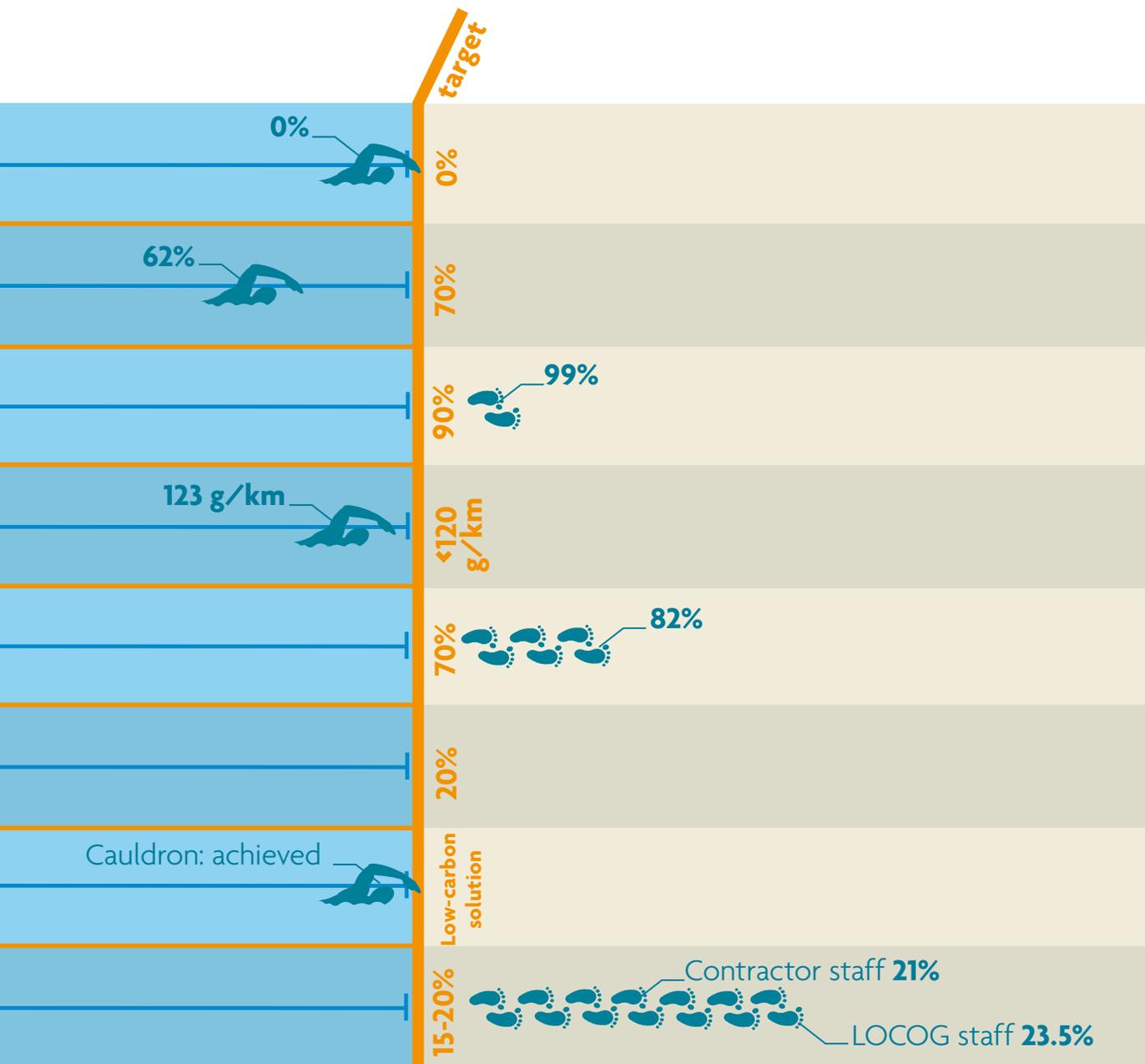
Use of low-carbon fuel solutions for the flames of the Olympic torch and the cauldron.

Games-time workforce

Proportion of Games-time workforce that was resident in a host borough.



*an equivalent carbon reduction was achieved through energy conservation (6000t target was exceeded).



Jonathan Turner has worked for the Commission as Senior Assurance Officer since 2007. He has led many of the Commission's reviews and assurance engagements and managed the Commission's continuous monitoring programmes, tracking all key sustainability commitments made by London 2012 and all of the Commission's recommendations. He also has extensive experience of implementing sustainability solutions in Local Government having previously worked for Greenwich and Medway Councils.

Jenna Edgar is a graphic designer and artist originally from Belfast. She is now employed by the IES and based in London after completing an MA in Design for Visual Communications at Chelsea College of Art and Design in 2012.

Ethics and sponsoring major events – lessons from London 2012. Now what's next?

Jill Savery and **David Jackman** explore the links between the Olympic values and the realities of funding the Olympic Games.

The modern Olympic and Paralympic Games are major international events that uniquely cut across cultural and national boundaries. The Games unite the world like no other peacetime event, and provide inspiration to billions of people around the globe; their reach is immense, and their legacy potentially profound.

The Games are marked by the notion of bringing forth humankind's highest ethics and ideals. As Pierre de Coubertin, the founder of the modern Games, envisioned, the Olympic Movement is a stage that showcases what is good and moral in humanity and in the world. Olympians strive for excellence, and inspire others to do the same. The notion of Olympism is an ethic of excellence, a life philosophy that promotes the values of excellence, friendship and respect¹.

"Olympism tends to bring together, as in a beam of light, all those moral principles which promote human perfection. Olympism is a way of life based on respect for human dignity and fundamental universal ethical principles, on the joy of effort and participation, on the educational role of good example, a way of life based on mutual understanding."

(de Coubertin)²

The ancient Olympic Games began in Olympia, Greece, starting in 776 B.C.³ Guided by Homer's exhortation: "always be the best, and excelling above any others," the Olympic Games have always been defined by the pursuit of excellence⁴.

"There are two very important words repeatedly used throughout the Homeric epics: honour (timé) and virtue or greatness (areté). The latter term is perhaps the most reiterated cultural and moral value in Ancient Greece and means something like achieving, morally and otherwise, your greatest potential as a human being."

Hooker (1996: p3)⁵

ETHICS OF SUCCESS

Success and achievement are much less valued if they are accomplished at the expense of destroying something else. If in our pursuit of excellence at the Olympic Games we destroy the environment in the process, Olympism is empty – our efforts are as for naught. The Olympic Creed reminds us "...it is not the triumph but the struggle"⁶. Olympism acknowledges that the path to excellence is as important as a victory. An Olympic champion assisted by performance-enhancing drugs taints the medal won as well as the competition. Similarly, if we value business success but find it achieved through, for example, child labour in factories or destructive natural-resource extraction, we are not inclined to celebrate that success. Achievement by means of the destruction of communities, people or the environment is not part of Olympism.

Significantly, along with sport and culture, the environment is the "third dimension of Olympism."⁷

"...to encourage and support a responsible concern for environmental issues, to promote sustainable development in sport and to require that the Olympic Games are held accordingly."

(Olympic Charter, Mission 13, 2011, p15)⁸

How should Olympic Games organisers put environmental and sustainability aims into practice, and ensure a worthwhile legacy? The London 2012 Olympic and Paralympic Games provides one example worth exploring.

London 2012's bid to host the Olympic and Paralympic Games included a commitment to deliver the 'first sustainable' Games⁹. Successful delivery of this commitment would set a new standard for all other Olympic Games (and similar sporting events); to fail

would be to ingrain cynicism and defy any hope of a sincere sustainable legacy. This commitment was relatively new for an Olympic and Paralympic Games host city, and London 2012 was arguably the first summer Olympic and Paralympic Games to embrace the holistic definition of sustainability, addressing not only environmental issues, but social and economic issues as well. London 2012 committed to embedding sustainability into the entire programme of work, which included sponsorship.

SPONSORSHIP IS VITAL

The current economic reality is that to deliver a modern Olympic Games, support from sponsors and suppliers (financial, services, products, materials) is essential. The pressure to bring in sufficient revenue to cover event delivery costs is very high. London 2012 organizers raised a staggering £2.4 billion in sponsor revenue in order to deliver the event¹⁰. It is interesting to question whether there are inherent conflicts of interest in the sponsorship of sustainable events. These conflicts might arise around issues such as workers' rights or child labour in factories that produce event merchandise or venue construction materials, environmental considerations around natural resource extraction or pollution, and health considerations for factory workers or inside sport venues.

Embedding sustainability considerations into the sport event sponsorship sales process is new, with few models available for comparison. The evaluation of a potential sponsor by an event rights holder becomes subjective very quickly, given that most large companies are not, and perhaps can never be, perfect. What criteria could be used to objectively evaluate whether a company has

meaningful and transparent processes, practices, and achievements in place with regard to sustainability?

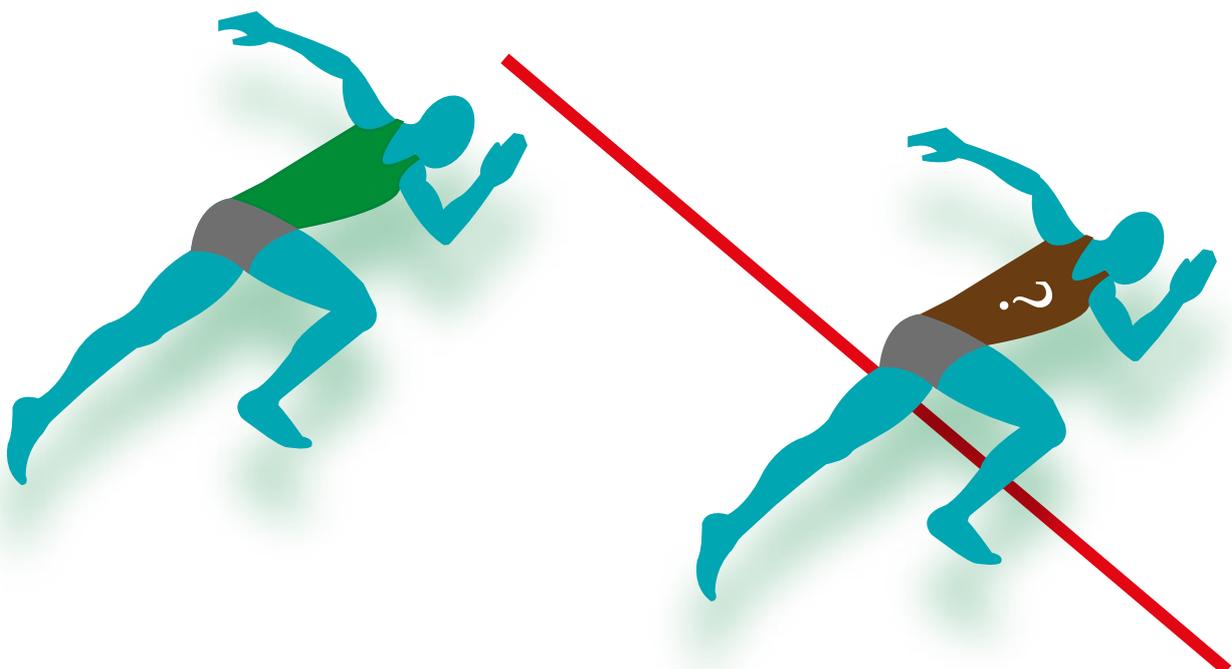
Perhaps one clear focus is to understand whether a potential sponsor corporation shows sound decision-making when sustainability issues arise, and addresses them transparently and quickly to achieve reasonably positive outcomes. There will always be many aspects to any complex sustainability issue, and the question may be how various interests are balanced and weighted. The quality of debate and veracity of evidence is critical. Stakeholder engagement should be genuine rather than token, broad and not over-managed.

Most companies now have sustainability programmes in place, but it is important to assess the credibility and depth of these efforts in the sponsorship sales process to understand whether they are up to a certain standard (defined in part by international good practice and in part by the up-front criteria developed by the Olympic Games organisers). A company's reporting may be positive and apparently comprehensive, but does it really 'walk the talk'?

SHORT-TERM PRESSURES

Olympic and Paralympic Games organising committees are by definition temporary in nature. Once the events culminate, they dissolve. The pressure to raise significant funds over a seven-year timescale increases the complexity of the challenge in developing sustainability standards and processes for selecting corporate sponsors.

Sponsorship illuminates the kinds of pressures that the founding Olympic values are under in modern times. For example, London 2012 faced criticism for allowing



▲ Green sponsors do not always win

the International Olympic Committee and London 2012 sponsor Dow Chemical Company to sponsor the wrap around the London 2012 Olympic Stadium, which required significant financial investment. The controversy stemmed from the fact that Dow had merged with Union Carbide Corporation, the company responsible for the 1984 tragedy in Bhopal, India, where a gas leak killed thousands of people¹¹. This issue emerged in the press headlines in 2011, and raised questions related to the sponsorship of the event, reasonable limits of defining corporate responsibility, and also corporate sustainability's moral authority.

Arguably, there was perhaps greater value in enhancing the quality of debate than in pointing to an approved solution. It seemed difficult to prise the argument away from specifics towards a broader vision of mutuality and respect. This raised the practical question of how to foster a deeper, healthier, and more open debate, in the run-up to a major event when all the focus was on getting to the start line.

TOWARDS A PROCESS

There is perhaps a cultural process point to be made which could make a great deal of difference if used intelligently. Introducing an agreed, embedded and structured challenge process, based on the Olympic values, could bring the effect of independent review into every level of event organisation. The foundation of such a framework would build out from the values of Olympism. These values are:

- **Respect** - "Respect for oneself and one's body, respect for one another, for the rules as well as for the environment"¹
- **Excellence** - "...how to give the best of oneself, on the field of play or in life"¹
- **Friendship** - "...building a peaceful and better world through solidarity, team spirit, joy and optimism in sport."¹

The next step would be to agree a series of questions that would be repeatedly used to test outcomes against the Olympic values. The role of this framework would be to be a perpetual prompt to guide and agitate debate towards achieving values-based solutions.

To describe these challenge frameworks is difficult without significant work, but the types of questions considered before any sponsorship decision might start with:

- Who benefits? What are the consequences?
- Who is being left out? On what basis? What opportunities may be missing?

- Did the best win? Can the best win? Is there an inside route available only to a few?
- Where will this lead to in 10, 20 years' time?

The aim is to build a greater maturity of process and increase the probability of more rounded, democratic outcomes. It also speaks to redefining the contribution of sponsorship as more than a financial input, and directs thinking towards the determination of desirable outcomes. This is, by definition, enhancing the co-operative process and a shared community experience, which is what the Olympic and Paralympic Games require by their very nature.

Decision-making should not be the protected province of an elite of sports organisers, sponsors and government agencies. Opening decisions to potentially more inputs and points of view reaches out to local neighbourhoods, suppliers and sports men and women who all hope that they get a fair chance to input. Such an open process needs to be well managed if it is to be efficient. This requires measurement and mapping progress.

How can we conceive of mapping such complex progress? We might use a maturity matrix that evaluates how core values are applied at successive levels of maturity, embeddedness and commitment. Given an organising committee's short life, it may take years to build an appropriate matrix that embeds Olympic values. So perhaps the International Olympic Committee might be an appropriate organisation to initiate an on-going effort that can be handed from Games to Games. A maturity matrix would provide not only a transparent assessment, but also a vision for future progress. Such a framework has formed the basis of a new family of British Standards for Sustainability, one of which has been adopted as the basis for a new International Standard (ISO 202012), specifically designed for sustainable event management.

WHAT IS A MORAL LEGACY?

Celebration of sport or any event can seem so transitory, but in a very real way an Olympic and Paralympic Games can be crucibles in bringing about a step change in attitudes and values. Something rather unexpected happened in the cauldron of the London 2012 Olympic stadium. A community spirit emerged that almost everyone noticed – expressed partly in the support from and for the 2012 Games Makers. These volunteers – who noticeably got the biggest cheers in the closing ceremony – were also the stars with their humour, cheerfulness and sheer commitment. It was infectious, it hinted at a concrete realisation of the Olympic values. This is a form of sustainability in that it expresses commitment to the values that both the Games and sustainable development explicitly or implicitly share – respect, integrity, cooperation and fairness.

But how can such a spirit be carried forward? Can this be called a sustainable moral legacy?

These are the sorts of question that another offshoot offshoot of the British Standards family – BS 8904: Guidance for Community Sustainable Development – answers in a practical way. Starting from sustainability values (that are very similar to the Olympic values) this framework works through challenge processes and then produces a maturity matrix of outcomes, including:

- mutuality;
- intergenerational equity;
- intragenerational equity;
- shared experience and celebration; and
- increased engagement and prosperity¹².

If sustainability can be said to include sustainability of values, then one real success of the London 2012 Olympic and Paralympic Games was the tremendous community spirit generated by the event. The Olympic values were brought to life, and perhaps new values and attitudes were forged. Any event in the future cannot neglect that spirit; it will be compared harshly if it does. But now we have to nurture that collective spirit, work out how to pass on that enthusiasm and embed the values legacy. All involved have to talk through this aspect of sustainability – sustainability of community spirit. This may be a new kind of sustainability, but in this respect London 2012 did very well indeed. **ES**

David Jackman is Chair of the BSI (British Standards Institution) Committee on Sustainable Communities - BS8904 - and primary author of the national sustainability standard BS8900, Managing Sustainable Development. He was previously a financial regulator and Chairs a financial services company. He lectures internationally on Ethics and Governance for Manchester Business School. He has developed a Community Interest Company (CIC), an Ethics Mark for values-led businesses and an Open Forum in the Lake District where he lives. He works with large corporations through his own consultancy, The Ethical Space Ltd.

Jill Savery is an Olympic gold medalist, eight-time world champion. She works for London-based sustainability charity BioRegional Development Group leading their London 2012 work. This role is aimed at supporting London 2012's commitment to minimize the footprint of The Games and maximize sustainability benefits during and after the event. Jill has a Master's Degree in Environmental Management from Yale University's School of Forestry and Environmental Studies.

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The Olympic effect on East London

Neil Taylor describes the role of Leyton Orient Community Sports Programme building up sports and excitement within the borough hosting London 2012.

My first taste of the buzz of London 2012 wasn't on a warm sunny day at the Olympic Park in a packed stadium, but on a cold February morning in 2005 on a sports field on the borders of Leyton and Stratford, surrounded by busy roads, disused railway lines and run-down housing. We (the Leyton Orient Community Sports Programme) had been working with Newham Council for the previous 12 months delivering neighbourhood sports programmes and working on practical initiatives to raise awareness of and build excitement for the 2012 bid.

The International Olympic Committee (IOC) were in town that day, driving around in hired buses making their final assessments. Newham had decided that if on every corner they passed, the IOC saw happy, contented and active young people then this would show real local support and commitment. We never saw the entourage, but that didn't matter as the 150 young people we had playing sport were focusing on their own game.

Six months later, in preparation for the announcement from the IOC in July 2005, Newham Council had put up a big screen in front of Stratford Station. The place was packed full of schoolchildren, staff who had worked on the bid, local politicians and slightly bemused passers-by. When the announcement came through the place erupted into jubilation and celebration and from then on optimism reigned.

REALISTIC POLICIES

Locally all the partners involved had agreed that we needed to go beyond the aspiration of transforming lives through hosting the Games, and had realised that we would need to expend effort, time, energy and resources into making it work for East London. We were also aware that the physical regeneration of the area was key to the future, but that it needed a human side to it. Individually and collectively we spent the next seven

years developing and formulating realistic policies and actions that would engage and inspire. This was driven by the realisation that the Games themselves would soon come and go, but that the real work was what happened afterwards and how we could shape a real legacy.

From a community sports perspective, all the key agencies and boroughs came together under the auspices of the wider Single Regeneration Framework, aiming to share knowledge and resources that would, over a 20-year period, bring our part of London up to the same levels as the rest of the capital on the key indicators of health, education and employment.

KEY SPORTS

Our group focused on establishing and delivering lasting sports plans in seven key sports, working with the legacy owners: the London Legacy Development Corporation and Lea Valley Regional Park Authority, local sports



clubs and the sports' governing bodies. The key was to get consensus, avoid duplication and displacement and over time to raise levels of participation.

In Waltham Forest we agreed that to make a real difference we needed an Activator who would work with local sports clubs and get them ready for the anticipated increase in interest in their sports. The post was funded by the borough and managed by us, put the Activator right in the heart of the community. This post has proved invaluable in building the capacity of the clubs and helping them to attract and retain new members.

We also wanted to make the Games a memorable experience for the communities we serve and to fully engage them in the process. We therefore built our own relationship with the firms constructing the park who kindly sponsored and supported our work; and with the Olympic designers and facilitators who used our facilities

in Leyton as a base for community engagement. The community engagement was achieved mostly through Open House weekends, with the Olympic Outreach teams, which enabled 50 of our young people to become Games Makers, Young Presenters and Guard of Honour participants. Our links with the sports bodies inheriting beach volleyball sand from the test events enabled us to build our own three-court urban beach.

HOSTING OLYMPIANS

The facilities we had developed, designed and built in Leyton in 2005 also had one eye on Olympic usage. We were therefore thrilled to realise this ambition by hosting the US boxing, volleyball, judo and archery teams, the Italian beach volleyball team and the US and German paralympic sitting volleyball teams. We were able to remain open to the public over the period and had many opportunities for our communities to meet and watch Olympians train and perform. The funding gained through hiring out has enabled us to invest and improve the facility and increase it as a local asset.

We have all come a long way since that cold February day in 2005. The Games have come and gone, and now as an organisation and a partnership we look forward to developing, activating and using the park and all of the other local facilities as they are improved. The issues affecting our communities may continue to remain challenging but the resolve to make legacy work and to benefit everyone continues. **ES**

Neil Taylor is a Commission Member and Chief Executive of Leyton Orient Community Sports Programme, a charity delivering sports, education and training programmes in six East London Boroughs.



London 2012 and thereafter: working towards sustainable communities

Gautam Banerji reviews the essentials for a sustainable urban community.

Britain, through its geographical positioning, has a unique capacity for bringing the world to its doorstep and engaging with it to advantage. The cultural diversity of London (and more specifically of East London) gives it the confidence to assume that role. The challenge lies in making the communities sustainable through a focus on sustainable infrastructure guided by enlightened social policies and planning.

The choice of venue for the London Olympic Games 2012 was led by an ambitious vision of regeneration through the sustainable development of some of the poorest boroughs of the city. Though vibrant and diverse, these minority and economically deprived population groups underscore the need for addressing environmental justice. The fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation and enforcement of environmental laws should be at the core of our regulations and policies.

The government of the United Kingdom defined a sustainable community in its 2003 Sustainable Communities Plan:

“Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all.”

(ODPM, 2003)¹

Although it is too early to determine if this has been achieved in the host boroughs, it is essential to see that these considerations are not compromised as we work towards a lasting legacy from the Olympic Games. It is also important to realise that if development strategies fail to be sustainable they will be terminal. It is therefore imperative that we work towards a planning process

that will lead to the development of communities that are ecologically, economically, and socially sustainable.

WELL-PLANNED COMMUNITIES

A sustainable community seeks to maintain and improve the economic, environmental and social characteristics of an area so that its members can continue to lead healthy, productive, enjoyable lives. In a sustainable community, resource consumption is balanced by resources assimilated by the ecosystem. Therefore the sustainability of a community is largely determined by the web of resources providing its food, water and energy and by the ability of natural systems to process its wastes. A community is unsustainable if it consumes resources faster than they can be supplied, produces more wastes than natural systems can process, or relies upon distant sources for its basic needs. Economies therefore depend not only on the continued flow of resources but also on the protection and enhancement of ecosystems and habitats.

A sustainable community should in turn establish goals and a vision by developing more efficient and effective ways in which to live and grow. It also will involve the participation of the entire community in creating a vision of the community's future that balances economic, environmental and social needs. Building educational awareness and public consensus for ecological planning and policy issues through broad-based citizen participation should be placed at the core of this initiative. The community moreover should be sufficiently empowered to realise and sustain the collective vision it has set for its growth and development.

Sustainable development needs to be led by informed decision-making, with consideration given to both the short- and long-term consequences of these decisions. And those who make economic decisions must be responsible for the environmental consequences of those decisions. The needs of future generations can

be included in decision-making by ensuring that a long-enough horizon is used in the evaluation process as we work towards a post-Games lasting legacy.

“Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all.”

Creating sustainable communities will also require changes in lifestyles, attitudes, expectations, behaviours and values. An increasing focus on the quality of economic development will result in smarter production and consumption patterns – such as improved product durability and energy efficiency in the production and marketing of goods and services. In a world of mass production and mass consumption, the fast-reviving manufacturing sector here in Britain can help set an example in valuing quality over quantity. And the East End with its rich human capital has a pivotal role to play in this effort.

URBAN STREAMLINING

In our town planning, I would also lay emphasis on developing clustered, mixed-use pedestrian-orientated eco-communities. Clustering reduces infrastructure costs and pays for the reclamation of open space within the urban and suburban community. Clustering also encourages walking, cycling and public transport use. The Olympic Park and the master plan set for its future use has the potential to see through this vision. It is important to ensure that it is not compromised.

Utilising advanced transport, communication and production systems, and reducing car use (with its resulting traffic congestion, air and noise pollution, and operating and maintenance costs) should also be at the core of our transport policy. Using advanced communication systems to move information, in preference to people and material, will also streamline urban logistics, while employing advanced production technologies will reduce costs, increase quality and production, and reduce pollution and energy use.

We should moreover maximise conservation and develop local renewable resources. Maximising the use of conservation technology and practices will reduce the use of non-renewable resources, and develop

local renewable energy, water and material resources. Expanding recycling technology and establishing extensive recycling and composting programmes will improve the quality of life in the community through efficient waste management.

In conclusion, and as we see a new City of London unfold around the Olympic Park, connecting in with the Old City and Docklands, we should rise to the challenges ahead so as to leave a lasting legacy for future generations to cherish and take pride in. We are placed at a historical moment to set the task. We are capable of it and should stand committed to see it through to success. **ES**

Gautam Banerji is a qualified Solicitor of the Supreme Court of England and Wales and an Indian Advocate. He holds an MSc (Econ) degree from the London School of Economics and Political Science, specialising in Social Policy and Planning. He has a deep understanding of sustainable development issues impacting upon vulnerable population groups derived through his professional career with UNICEF.

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London 2012 air quality

Claire Holman reviews the air pollution burden of the Games's host city.

Poor air quality and sport are not good companions. Even super-fit Olympians and Paralympians can be affected: breathing hard during exercise means inhaling more air and pollution, which can affect competitive performance as well as an individual's general health.

British runner Steve Ovett blamed the poor air quality after collapsing following the 800m final at the Los Angeles Olympic Games in 1984¹. This city was infamous for its photochemical smog and high ozone concentrations from the 1940s².

Over the last 30 years the threat of poor air quality has been an issue for Olympic Organising Committees, particularly during the run up to the Athens 2004 and Beijing 2008 Games. London was no exception. Clean Air in London Campaigner Simon Birkett began raising the issue in the very early days of the Commission for a Sustainable London 2012 (CSL). From 2007 he began asking the Olympic Delivery Authority (ODA) and other Olympic bodies to commit to London achieving at least World Health Organization (WHO) recommended standards of air quality throughout London before the start of the Games³. Of course the ODA and the other Olympic bodies were not responsible for London's air pollution, and could do little to improve it. The problem is largely due to traffic in the capital, with significant contributions from outside the capital, including continental Europe.

NO₂ AND PM₁₀

In 1999 the European Union adopted limit values for nitrogen dioxide (NO₂) and particulate matter up to 10 microns in size (PM₁₀) to be achieved by 2005 and 2010 respectively, as well as target values for ozone, to protect human health⁴. London failed to meet both mandatory limit values. In 2010 London was given extra time, until 2011, to achieve the particle limit value by the European Commission⁵. The limit was exceeded in 2012 at some roadside locations, despite the use of a 'sticky plaster' in the guise of calcium magnesium acetate (CMA)⁶. At night this liquid is sprayed onto key roads to stick the fine particles to the road surface, reducing their release into the air.

Even more difficult to achieve are the NO₂ limit values. Modelling for Defra has shown that it will not be achieved in London until after 2020, at least a decade later than mandated⁷. There are many air quality professionals who believe that this modelling is optimistic and that attainment may take even longer. Interestingly, one of the few environmental protection commitments in the Coalition agreement was a pledge to achieve EU air quality limits!

Whilst the PM₁₀ issue is largely restricted to small areas of London, exceedence of the NO₂ limit is widespread, with 40 out of the 43 UK air-quality zones exceeding the limit. It is not just a UK problem – most EU Member States face the same issue. The limit value was exceeded in London in 2011 alongside almost every road where measurements were recorded.



▲ In London there was concern that by having dedicated routes for public transport, the knock-on impact on traffic congestion elsewhere would increase.

Research undertaken for Defra by Kings College London and others⁸ has shown that roadside NO₂ concentrations have barely changed since around 2003, although the pattern is not consistent across the country. The reasons are thought to be two-fold. First there has been a large increase in the number of diesel cars on the roads. Over half of new cars are now diesel powered. Their engines emit a higher proportion of the nitrogen oxides (NO_x) and NO₂ than petrol cars. Second, and more worryingly, there appears to have been little change in the real-world emissions over the last two decades when emission limits for diesel cars were first introduced. Emission controls for heavy-duty engines to reduce NO_x emissions have also been found to be ineffective under urban driving conditions, unless they are specifically re-calibrated for the stop-start conditions.



Routes for the Olympic family closed to everyone else, including taxis, to reduce traffic and ease pollution.

LONG-TERM HEALTH ISSUES

A study commissioned by the Mayor of London suggested that around 4,300 deaths per year in London are partly caused by long-term exposure to particulate matter up to 2.5 microns in size (PM_{2.5}), which can enter deep into the lungs, and is widely acknowledged as being the pollutant that has the greatest effect on human health⁹.

Potentially there could have been air quality issues during both the construction of the Olympic Park and the Games. The ODA undertook what was probably the most comprehensive construction monitoring programme for PM₁₀ to date¹⁰, but faced criticism for not retrofitting particulate filters to the site equipment. A report was commissioned which concluded that these filters were not cost-effective¹¹, and given the large distance of much of the works from the local community, CSL agreed with the conclusions of the report.

OLYMPIC TRAVEL

Another contentious issue was the Olympic Route Network, introduced by the International Olympic Committee (IOC) following the travel problems at the Atlanta Games in 1996. Severe traffic congestion resulted in competitors arriving late for their events – not the best way to prepare for the ultimate race of an athlete's career. In London there was concern that by having dedicated routes for the Olympic family closed to everyone else, including taxis, the knock-on impact on traffic congestion elsewhere would increase pollution. Modelling of both the traffic and the air-quality impacts suggested that overall air quality would improve very slightly during the Games, as experience from other host cities showed that general traffic levels decline during the Games¹². This was the first 'Public Transport Games', with excellent new infrastructure and no public parking provided, except for disabled people. One of the many successes of the Games was the ease of travel to and from the venues, particularly the Olympic Park, and the pre-games scare stories about London's traffic proved unfounded, as many employees took the opportunity to work from home.

GAMES POLLUTION

So what were the pollution levels during the Games? In the weeks leading up to the Games there was general concern that there would be heavy rain over the London Olympics, as the last four hosepipe bans were lifted. But on 21 July high pressure extending from the Azores reached the UK. According to the Met Office:

“There was overnight cloud, mist and fog at times but this cleared to allow some hot and humid conditions to develop in the days preceding the start of the Olympic Games. Temperatures rose with maxima over 25 °C across much of England each day from 23rd to 26th. The warmest day of the year so far was 25th when 30.7 °C was recorded at St James’s Park (London).”

(Met Office, 2012a)¹³

These are just the conditions that favour the formation of ozone in the atmosphere, the main component of the Los Angeles smog that Steve Ovett had blamed for his health problems 28 years previously. On 22 July daytime concentrations in London began to increase up to Defra’s moderate levels on 22, 23 and 24 July, and its high level on 25 July, two days before the Opening Ceremony, at Tower Hamlets’ Poplar monitoring station¹⁴.

According to Defra:

“Some athletes, even if they are not asthmatic, may notice they find their performance less good than expected when levels of a certain air pollutant are high and they may notice they find deep breathing causes some discomfort in the chest. This does not mean that they are in danger, but it would be sensible for them to limit their activities on such days if possible.”

(Met Office, 2012b)¹⁵

Not easy advice for athletes to follow during the Games!

But in the event the polluted air mass blew away just before the Olympic Opening Ceremony as a cold front brought an end to the fine, dry spell. Moderate levels of ozone were again reached towards the end of the Games from 10 to 12 August, and on the days of the Paralympic opening and closing ceremonies, but during the rest of the Paralympics concentrations were low.

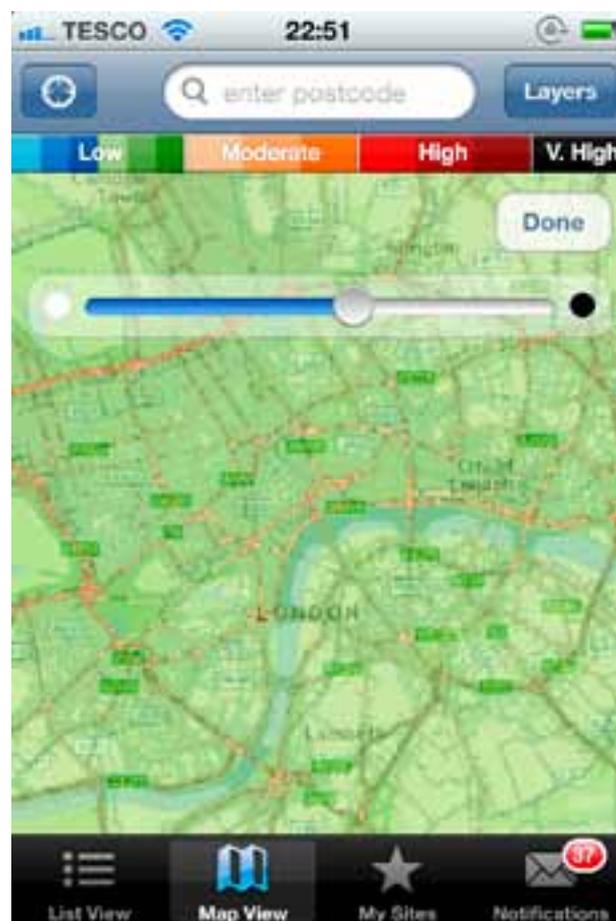
Ozone is not a local pollutant: it is formed in the atmosphere as polluted air is transported away from urban and industrial areas. There is nothing that the Olympic delivery bodies could have done to prevent the pollution episodes. However it is important that people, residents and visitors alike have easy access to air-quality information and health-related advice to enable them to take appropriate precautions.

POLLUTION NEWS

Defra provides health messages for at-risk groups and the general population for each of its air pollution bands¹⁶, but this information is not readily accessible, particularly

for visitors. In May Defra launched its UK-Air Twitter account, providing updates two to five times a day, with the specific aim of reaching a wide audience, especially with the Olympics in mind¹⁷. Kings College London, which manages the London Air Quality Network, provided an app for mobile devices, the first time in Olympic history that residents, visitors and athletes had access to real-time information on air pollution.

Over time, more detailed information on air quality during the Games will emerge from the National Environment Research Council’s ClearFlo research programme¹⁸. This collaborative scientific project, involves several academic institutions, is investigating London’s air quality by integrating meteorological, chemical and particulate measurements at street level and higher sites. This will be complemented by modelling studies to improve the ability to predict air quality.



▲ Mobile Air Quality app produced by King’s College London

In summary, the Games are unlikely to have been responsible for any air pollution episodes, although short-term ozone episodes, lasting one to three days, did occur during the Games. Efforts were made to provide visitors and athletes access to real-time air quality data and associated health advice. London Organising Committee of the Olympic and Paralympic Games (LOCOG) and the other Olympic bodies could not have done more to control air pollution and it was the first time that visitors to the Olympic and Paralympic Games had access to real-time air-quality data. **ES**

Dr Claire Holman was a CSL Commissioner from 2007 to 2013. She has worked as an air quality consultant for 30 years and is currently with Brook Cottage Consultants. Dr Holman is the Vice-Chair of the Institute of Air Quality Management and Chair of the Air Panel of the Chartered Institution of Water and Environmental Management.



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Energy, carbon and waste – did London lead or follow?

Jemma Percy talks to **Richard Jackson** and **Shaun McCarthy** about energy, carbon and waste throughout the delivery of the London 2012 Olympic and Paralympic Games.

Interviewees: **Richard Jackson**, previously Principal Sustainability Manager at the ODA [RJ]

Shaun McCarthy, Chair of the Commission for a Sustainable London 2012 [SM]

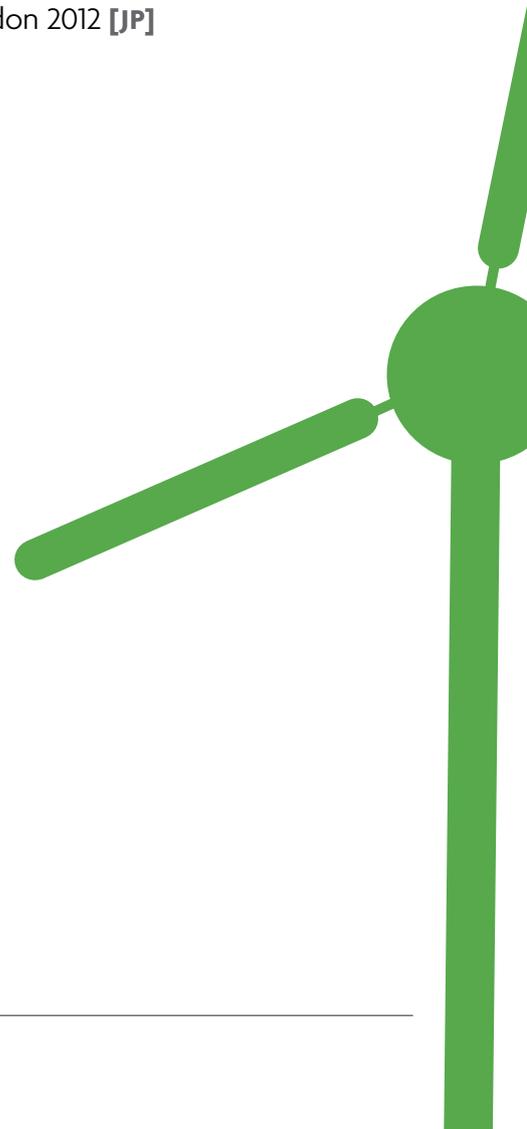
Interviewer: **Jemma Percy**, Commission for a Sustainable London 2012 [JP]



JP: The Commission has been very supportive of the ODA [Olympic Delivery Authority]'s work over the course of the London 2012 Programme. In your opinion, what have been the organisation's most significant achievements?

SM: The ODA did a fantastic job. We can point to a number of achievements: 97 per cent waste diverted from landfill, 47 per cent less carbon emissions, 25 per cent local people employed. But the really big achievement was embedding sustainability into the DNA of the organisation. The ODA developed a sustainability plan at a very early stage that was part of the contracts, the supply chain, the reporting, the risk management. There was a Sustainability Board chaired by John Armitt, the chair of the ODA. It was taken seriously at all levels, and for me, the great leap forward achieved by the ODA was not necessarily in the outcomes, but in the process.

JP: The Olympic Park has a district heating system supplied by a combined heat and power plant (CCHP) fuelled by natural gas, supplemented by biomass boilers. This system is not zero-carbon. Why did the ODA opt for it?



RJ: When we started designing, the initial step was to look at reducing carbon emissions related to energy use. We set requirements for the venue designers to achieve a 15 per cent improvement. The next step was delivering an efficient energy system for the Park. This required finding a commercial partner willing to operate that system over the long term. But the ODA was determined to minimise risk, which is why we went for the district heating scheme. It's used globally and we felt that it was appropriate for the scale required as an organisation that only had a lifetime until 2013.

JP: Realistically, what other options were available?

SM: We need to recognise that this was a private sector investment – a company investing £43 million wants minimal risk. The outcome was a very efficient solution, but one that's not very radical. The Commission advocated that acting as a catalyst for good waste-management practice in East London should involve taking the gas from the anaerobic digestion waste facilities and using it for the Energy Centre – but commercially nobody wanted to take that risk.

Another consideration is the nature of the contract: part of the investment deal was the exclusive right to sell heat on the park for the next 40 years. That restricts future options because the most commercially viable renewable energies are heat not electricity. Therefore, opportunities for new developments around other technologies are not allowable – contractually you have to buy your heat from Cofely. 40 years is a long time to lock out any other heat source. An additional 7,000 homes are to be developed – a lot of development potential, all locked into Cofely's heat source.

JP: In 2010 the ODA decided to cancel the wind turbine, which had formed part of the target to deliver 20 per cent of legacy energy requirements from renewables. Can you explain the reasons?

RJ: When we started looking at *delivery*, we looked at reliable technologies and minimising risk. We'd identified biomass boilers linked into the district heating network and the wind turbine in the north of the park. We'd done research to ensure that there was sufficient wind for the turbine to be viable.

There were a number of circumstances that led to the cancellation, mainly driven by safety. There had been one or two incidences with ice falling off blades, which led us to consider creating a safe area of 80 m around the turbine. Ultimately new regulation meant that our supplier was no longer able to meet our requirements and withdrew. Because we'd designed the site around the turbine, we went back to see whether there was another supplier who would be willing to work with us. Unfortunately, the other bidders also withdrew. As an organisation we felt that we had to be honest in terms of sustainability, not least because the Commission was looking at these issues and examining our decision-making process. That led us to consider solar. Would it deliver the same amount of energy as the turbine? Oddly enough, because we'd tried to take out a lot of *embodied carbon* from the venues by making lightweight structures, they weren't able to support solar PV on the roofs. We weren't able to achieve our renewables targets but we still achieved the 50 per cent reduction in carbon emission target.

JP: Shaun, the Commission supported the ODA in their decision to cancel the turbine. Were the alternative solutions implemented by the ODA adequate?

SM: I think the ODA's decision was the right one because 2008 was *not* a good time to source private finance. The ODA quite rightly didn't dive into expensive solutions that didn't make commercial sense and, in some cases, didn't make sense in carbon. The ODA ended up achieving 47 per cent carbon reduction and mitigating the rest through donation to the Mayor's Renew scheme, which provides energy makeovers for homes for people in fuel poverty. It was a good, cost-effective way of reducing the carbon.

With hindsight, pledging to reduce the overall carbon emissions of the park by 50 per cent compared to a business-as-usual case constructed on 2006 building regulations was absolutely right. Then saying, "And we will have 20 per cent renewables" was wrong. *Any* organisation setting sustainability targets should set targets around the 'what' and leave wriggle-room around the 'how'. So it was the right decision. The announcement

was well-managed, and expectations among the NGOs were managed so that when the announcement was made they just sent journalists to the Commission, which was great because that showed a lot of support for us.

JP: Was one of the less-talked-about losses of the turbine cancellation not having a high-profile, highly visible symbol to support renewable energies for other projects?

RJ: A 120m wind turbine would have been a very visible symbol, and in that regard it *was* a loss because it would have showed that the park truly drove a different type of development. Actually the sustainability story is mostly the things you don't see: the processes we created, dealing with waste, and driving out embodied carbon from the materials.

SM: I wrote about it at the time because politicians like having their photo taken next to wind turbines because they're sexy. Nobody wants their photo taken next to a CCHP, certainly not a membrane bioreactor. I'm not a believer in 'eco-bling', it either works as a practical thing or you don't have it. So I think we do need to move away from this idea that sustainability needs to be photogenic. I agree, you do lose an element of symbolism, but you shouldn't build things because they look great – they must have a function, and in this case the wind turbine was not going to work.

RJ: It would be interesting to look at the value of highly visible sustainable technologies in terms of their effect on people's behaviours.

JP: Let's move on to talk about waste. London 2012 was meant to be a catalyst for the development of new waste infrastructure in East London. The scale of ambition was huge, but critics might argue that the project failed to meet that ambition.

RJ: In 2004, when we were developing the first masterplan for the site and looking at the whole of the lower Lea Valley, there was a great deal of ambition to create economic, social, and environmental regeneration right through the area. One of the questions that we had was, "Is there an opportunity for waste infrastructure in East London?" and that tied nicely with the LDA promoting the waste industry: looking at job creation, business opportunities and a new plastics-recycling facility in Dagenham. So there was a feeling that we could really help to kick-start a market. But it was always on the basis that we bring in market players who saw a viable opportunity to set themselves up in East London.

Once we had won the bid and the right to host the Games, we saw more of the challenges: you're dealing with a market which is well-established in terms of how construction wastes are dealt with. The opportunity was

more around municipal waste: how to deal with some of the materials that we generate from our households, from the retail units that might be around the park in the future.

From an ODA point of view, whilst we could see the opportunity, really our job was delivering the park, on time, on budget and to the quality that we'd set. The question of how to influence a wider waste infrastructure was one for which we were looking to a wider set of players to help us answer. The question still *can* be answered, I don't think we've necessarily lost the opportunity, but I do think it needs a body to take hold of it and lead on the question of waste. It is a massive opportunity, certainly in London with a lot of municipal and commercial waste. Certainly in East London there is the potential to develop an industry around waste. But it does need leadership and I don't think the ODA was the right body to do that.

JP: Shaun, what are your feelings on the possibilities that existed in this area?

SM: David Higgins [Chief Executive of the ODA] was determined that the ODA shouldn't be building waste facilities. I supported that decision; in hindsight maybe I should have pushed harder. I thought that authorities in London, policy makers and the waste industry had the wherewithal to come together to deliver facilities



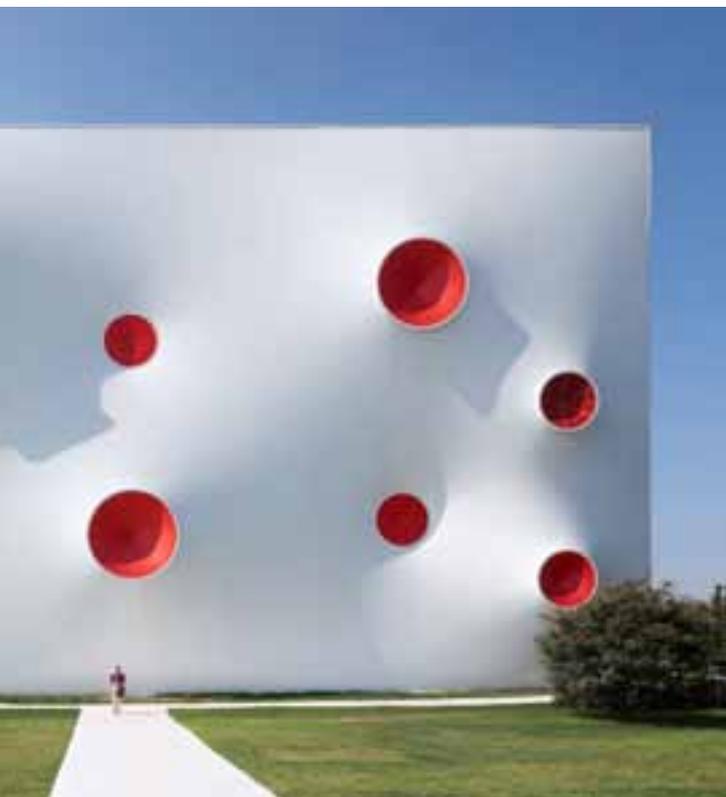
▲ Image credit: Hufton & Crow. The Olympic shooting range used PVC.

in East London, but it just didn't happen. Look at the *political* and *economic* dimensions of the time. When Ken Livingstone was mayor he had a strong view that there should be a single waste authority for London and it should be under his control. But central government had a strong view that it shouldn't. Everything related to waste got consumed by that debate.

The new mayor set up the London Waste and Recycling Board and private-sector developers were saying "We can do this – we just need to see what this Board can do for us in terms of subsidies". But the Board delivered nothing for two-and-a-half years. It also got bogged down – this time in legal issues around whether it was allowed to give money to businesses, and therefore the private sector would not invest. So it stalled, mired in politics, bureaucracy, and risk-averse industry.

RJ: I think one of the difficulties for the ODA was that the Olympics was being used, not just by the waste industry, but by a lot of people, as the catalyst to unlocking potential. The difficulty for us was trying to manage all of these high expectations. Yes the Games should be a catalyst for growth, but it cannot be the ODA that delivers that. That's got to be the players surrounding the ODA who have a critical role to play in using the power of the Games to drive growth within London in particular areas.

JP: Shaun, if the political and bureaucratic barriers



designed by MAGMA Architecture, was one of the venues that

that you've outlined weren't in place, what would the Commission have liked to have seen catalysed out of the Olympics?

SM: I would love to have seen anaerobic digestion in East London, close to the Olympic Park, sufficient to deal with East London's food waste. At the moment, the vast majority of East London's food waste goes to landfill. I know there still are private companies prepared to invest in this. But they want to understand what long-term government policy is going to be. So, there is still the opportunity, there are sites available, there's the *will* in the industry to solve this problem. But at the moment there still remain insurmountable political barriers.

RJ: I think one of the things that worked well for construction waste was recycling materials, because there's value in them and the waste industry is geared up to recycle construction materials. We started to look at how to reduce the amount of waste that we generate. Why do we need offcuts? Why don't we size things so that they are ready to be fitted? We spent a lot of time working with WRAP [Waste Resources Action Programme] to look at reducing the amount of waste. The other thing that was interesting was the question of "Can we use this in its current form?" So, if there is timber available, can we offer this to some of our other contractors or to local communities? If there's a user out there it means it doesn't have to be shredded for animal bedding or go through a process of upcycling/recycling.

JP: The ODA did not have a policy on HFCs or PVC until the Commission intervened. Shaun, can you explain the Commission's role in influencing the introduction of such a policy?

SM: We recommended that there should be a policy on both issues but that recommendation was not implemented for a year-and-a-half and I ended up getting angry. I asked the ODA for a chiller amnesty – to be told of all of chillers that had been designed into the park. It was an interesting lesson in how you can plan the most sustainable Games ever, have an exemplary sustainability policy but unless you specify exactly what you want, designers will carry on doing what they've always done – which is to design HFCs into buildings like the Aquatics Centre.

If I look back at the 260-odd recommendations the Commission made, this is the only one I can think of that cost more money. For me there were two wider issues: one was a point of principle: you would set back the cause of HFC-free cooling 15 years because people would just say: "If the ODA couldn't do it, why should we bother?" The other was risk, because Greenpeace were campaigning heavily on it at the time. Their view was that, even if we fix CO₂ problems with energy

consumption, if the proliferation of HFCs around the world carries on, in 50 years' time we will end up with as much CO₂ equivalent in the atmosphere. There came a point where a political decision needed to be made. In my role as chair I do have the opportunity to go to the political leadership. So I went to the Mayor. I've only done that twice: once on PVC and once on HFCs. He told the ODA to fix it and it got fixed.

It was much the same with PVC. PVC also ended up as a good story. The result was a generic specification for tensile plastic that the industry couldn't make, and then an Italian company developed a product that *could* meet the specification, so the world now has a safer form of PVC.

RJ: The strategy was published in January 2007 but that was almost a year-and-a-half after we won the right to host the Games. That gives you some idea of how much time was spent in developing the strategy, the amount of consultation you have to do to get the right standards and targets in place.

We didn't have an HFC and PVC policy before. With HFC we wanted to question the way that we cool a lot of our venues and alternatives to this system. The PVC policy was a lot more complicated. Industry was arguing that there was already a lot of work looking at how to remove the harmful elements in plastics, and they were concerned that we'd created a policy which said "no PVC, just alternatives". We were clear that we would accept that some products were going to have PVC in them, but we wanted our design teams to go through a series of criteria to assess whether there are alternatives or less harmful PVC products. That also led to the Italian company seeking out a way of designing a new product that would meet our needs for temporary venues. Therefore the policy drove innovation, which made a lot of headlines and certainly is an example of the great opportunities of big projects to drive the supply chain.

JP: That seems a good note to lead into our final question about the legacy of the ODA. How influential was the work of the ODA in positively influencing the practice of the wider construction industry?

RJ: As we approached 2010 and our works were being constructed, we started to capture the lessons we learned and share them. We spent almost 18 months pulling together material, which is available through a learning legacy website. Alongside that, we've presented to a wide range of audiences. There is a very positive perception to a lot of the material that we've presented. I worried

that people would say, "Well of course you were able to do this *because* you're the Olympics, you're not a normal project". What we've tried to show to industry that there are lots of the things that we're doing that should be standard practice within the industry and we're starting to see people wanting to take on board the things that we did. There are a lot of people who want to work with WRAP, want to use toolkits we developed and learn from the Olympics.

SM: There is evidence emerging in the construction industry that the ODA really has changed things. If you look at Crossrail, the next really big project in London, they've hoovered up all the ODA's sustainability standards and added a few of their own, so Crossrail has raised the bar again.

I also work as a consultant running the Sustainable Supply Chain School for the construction industry. It's a collaboration of six construction contractors who know that if they want to offer truly sustainable solutions they need sustainable supply chains. This is an education initiative for 2,000 small businesses within the supply chains of major construction companies.

There's not a *direct* Olympic connection but, had the ODA not done what it did, I don't think six of the biggest construction companies in the UK would have worked together round a table and gone to the Construction Industry Training Board to ask for £1.5 million to run the project. And I think that's because the ODA have demonstrated that it can be done. Contractors are

...what is it about using and wasting less material, and using less energy that costs you more?

starting to work out that there's profit in this, that they can genuinely save money and win more work if they offer more sustainable solutions. I'm starting to feel optimistic for the construction industry. The concern is the huge supply chain – 200,000 to 500,000 small business. So far with the supply chain school we've only touched 2,000 of them but I think there's a recognition of the challenge and I think that the ODA *has* changed the game in that respect.

RJ: There was one other thing that struck me as I've talked about the Olympics. The question we always get asked is, "Of course this cost more money, so tell us about the value you get from doing sustainability". What we've said to people is, "There are certain decisions we've made that will have cost us more. For example the non-potable water network and the sewage water treatment system, because it's a new technology. That

said, we found that we've saved money through a lot of things, for example reducing the amount of waste that we've generated, reusing material that we had on the park site, looking at reducing the amount of materials that go into venues, taking out steel from some venues through value engineering. All of that is driving greater value and delivering a sustainable outcome, and I think what people now want to know is, "How can I demonstrate to my CFO and my CEO that sustainability is a good thing?"

JP: Shaun, you're an advocate for the cost savings around good sustainability practice. Do you agree with Richard's reflection that there's an appetite for this?

SM: Absolutely – what is it about using and wasting less material, and using less energy that costs you more? There is a desire from the market to make sustainability a premium product so they can charge more for it – but that doesn't mean it *costs* more. So for me sustainability doesn't cost more, but bad procurement does.

I think something that the ODA got right was signalling their requirements at a very early stage. If you suddenly say, "We want low-carbon concrete" you will pay a premium. But because the ODA went out to the industry and said, "In 12 months' time, when we go out to tender, we will be expecting you to compete around your carbon footprint" they did. Everybody knew what was expected, and then you generate competition, and competition drives prices down. If you introduce a new requirement very late, then that will drive the price up. And the Aquatics Centre is probably the example of that. It's a case of working with the market, procuring well, and not taking nonsense from suppliers that want to make a premium out of it. If you manage your supply chain in the wrong way then costs will go up, and that's what creates this myth that sustainability costs more – it's bad procurement.

JP: The issues of construction, infrastructure and supply chains were covered in the Commission's Beyond 2012 roundtable series in January 2013. Shaun, can you briefly say a bit more about that initiative?

SM: We recently facilitated workshops with key players from different sectors, and discussions to solve issues around sustainable standards and behaviour. The question that we've posed for the construction industry is: The ODA has proved that sustainable construction can be done at a reasonable cost so why aren't commissioning organisations asking for it? Primarily this question is to Government which procures a lot of construction but doesn't ask for the same standards that the ODA has delivered.

The outcomes of these sessions will be public and will inform our Making a Difference review which is to

be published on 20th March 2013. What I'm hoping is that the Commission then leaves behind a report that provides evidence that finally answers our starting position as a Commission: "Can we really call London 2012 sustainable?" **ES**



A podcast of the full interview will be available at www.ies-uk.org.uk/resources

Inspiring a generation? Pro-environmental behaviour change and the London 2012 Olympic and Paralympic Games

Sarah Cameron introduces the concept of pro-environmental behaviour change and evaluates London 2012's efforts to inspire that change.

The London 2012 Olympic and Paralympic Games described their mission to “inspire behaviour change” as one of their “principal ambitions”, captured in the slogan “Inspire a Generation¹”. This ambition was twofold, seeking to inspire both participation in sport and pro-environmental behaviour. This article will focus on the latter.

PRO-ENVIRONMENTAL BEHAVIOUR CHANGE

In the early 21st century, with evidence that human activity is causing a range of environmental problems such as climate change and declining biodiversity what is required to overcome these issues is being debated. Some argue that the overarching structures of society, such as the economic system, need to change to address environmental issues. Others argue that individual behaviour contributes to environmental problems, through choices made about how much energy to use, whether to recycle, and what products to buy. Within this view, individuals have a role to play in addressing environmental issues by changing their behaviour to adopt more environmentally friendly habits, a concept described as pro-environmental behaviour change. The latter view has become popular in policy to address environmental issues. This is due to the predominance of an individualist ideology within the neoliberal economies of the 21st century, where trying to change the behaviour of individuals is seen as a more desirable and feasible policy option than trying to change embedded structures of society^{5,6}.

WHAT LONDON 2012 DID

This wider trend towards behaviour change was reflected in the London 2012 Olympic programme. The ‘greenest games ever’ did not go as far as to challenge the economic model of the Olympics, with sponsorship by companies considered by some to be environmentally and ethically questionable; instead London 2012 championed the idea that the inspirational power of the Games could be harnessed to encourage people to adopt pro-environmental behaviour. So what did London 2012 delivery bodies actually do? These are the major initiatives of the Games that sought to achieve their goal of inspiring behaviour change:

- Defra created an £800,000 Inspiring Sustainable Living Fund which funded four projects, detailed in the table overleaf.
- Over 2,700 community projects, “united in their ambition to use the Games as the inspiration to make real and lasting change” were given the Inspire Mark³. Of these, 120 were categorised as sustainability projects, ranging from walk-to-school initiatives through to local food-growing projects.
- London 2012 sponsors and sustainability partners, including EDF Energy, BP, BMW and Cisco, held sites on the park. Predominantly these sites promoted the sponsors’ business activities, though some had educational or

Bio-Regional's One Planet Experience: an interactive exhibition centre located in the London Borough of Sutton which explained how the 2012 Games aims to be the greenest games ever, plus an additional exhibition located in the Athletes' Village and a programme of engagement with local residents (in Sutton) and athletes. This project also secured support from Coca-Cola;

Groundwork London's Transform Project: aimed to transform 20 derelict and neglected sites into local green spaces/community gardens, encourage and support residents to create less waste/recycle more, and increase levels of environmental volunteering and community involvement in the five host boroughs;

East Potential Inspired to Sustainable Living: provided practical advice and support to East Thames residents in Newham to increase understanding and practice of sustainable approaches to energy, water and waste. The project also worked with Focus E15 Foyer residents to encourage healthy eating through the use of growing sites and workshops amongst disadvantaged young people;

Sustrans Active Travel Champions: provided training and support for volunteers to act as champions to encourage people to make healthier and more environmentally friendly travel choices in communities located close to Olympic venues in London and the South of England. (Grant Thornton, Ecorys, Loughborough University and Oxford Economics, 2012, pp151-152)²

▲ Table 1: Sustainability schemes around the olympics

behaviour-change components. For instance, the EDF Energy showcase provided information on energy use, and BP encouraged spectators to sign up to Target Neutral to offset their carbon emissions from travelling to the Games.

- London 2012 delivery agencies encouraged sustainable behaviours at and on the way to the Games. For instance, the decision not to have car-parking meant that spectators had to use public transport, walk, or cycle to the Games. Waste bins were designed to encourage segregation of recyclable and compostable items. Ample information was provided on the web, on ticket packs and via tannoy announcements to encourage active travel, recycling, and other sustainable behaviours; and

- The London Legacy Development Corporation has plans to encourage behaviour change amongst staff and in the communities surrounding the Queen Elizabeth Olympic Park.

EVALUATION

Just as London 2012's ambitions to leave a positive economic and social legacy must be subject to rigorous evaluation, so too must the more nebulous promise to inspire behaviour change. The data presently available is insufficient to assess the impact of London 2012 efforts to inspire pro-environmental behaviour change. Here I will provide a summary of the evaluation efforts taking place, including emerging findings, followed by a brief analysis of the London 2012 approach to pro-environmental behaviour change.

A range of evaluation efforts are taking place. An independent consultancy has been enlisted to evaluate the projects funded by Defra's Inspiring Sustainable Living Fund by August 2013, though it is unclear to what extent they will measure behaviour change outcomes. The Games' Meta-Evaluation Report 4 provides some initial evaluations, though this is focused primarily on methods of engagement and numbers of people engaged rather than the impact of this engagement. It is expected that more data will be available to feed into Meta-Evaluation Report 5.

Some initial data is emerging from various opinion surveys. A survey of host borough residents showed that 21 per cent of respondents reported that they had made a change, such as increasing recycling, as a result of the Games². Similarly, spectator questioning by the Commission for a Sustainable London 2012 (CSL) showed that 25 per cent of respondents reported that they would do something different to be more sustainable as a result of the Games. These are promising findings, though self-reporting on its own is not a particularly robust measure of change. If this survey data can be complemented by measurements demonstrating whether environmental impacts have indeed reduced amongst target audiences, this will provide evidence to assess the degree to which London 2012 has inspired more sustainable behaviour.

ANALYSIS

London 2012 initiatives to inspire sustainable behaviour were targeted at a range of locations and communities around London and the UK, through Inspiring Sustainable Living Fund and Inspire Mark projects³, as well as more general communications to Olympic spectators and viewers. The approaches ranged from involving people in practical activities, such as cycling or planting food, to providing information to help people adopt 'greener' behaviours. Research on pro-environmental behaviour change shows that the most effective initiatives employ a combination of tactics, with informational campaigns alone unlikely

to generate behaviour change^{4,5}. Three of the four Inspiring Sustainable Living Fund projects sought to engage people in practical activities in addition to providing information, increasing the likelihood of success. Some of the sustainability partner activities sought to engage, whereas others provided information. The 120 sustainability-themed Inspire Mark projects used a range of approaches.

Empowering third-sector organisations and local communities to run their own projects is commendable, as it places ownership for initiatives within groups that have an ongoing presence, compared to the short lifespan of the London 2012 delivery bodies. However, such a scattered audience has made measurement and evaluation a challenge, and has led to inconsistent approaches, which demonstrated varying knowledge of how to influence behaviour.

'GREEN' GAMES EXPERIENCE

The major behaviour change success for London 2012 was in the spectator experience itself. Fair-trade and healthy menu items were readily available at venues in compostable packaging. The colour-coded, clearly labelled bins for recyclable, compostable, and non-recyclable items made waste segregation straightforward. Bins for non-recyclables were half the size of the others, encouraging the public to first assess whether items could be recycled or composted. Observations by CSL showed that the Olympic Park and other Games venues were noticeably free of litter and the bins were for the most part used correctly by the public. In short, London 2012 made it easy for people to adopt pro-environmental behaviour at the Games.

Whilst it would be premature to suggest that sustainable behaviour at the Games will lead to more sustainable behaviour in other locations such as the home or workplace, London 2012 set a powerful example, by creating a Games experience where pro-environmental behaviour was the norm.

CONCLUDING THOUGHTS

London 2012 made bold promises to inspire more sustainable behaviour. Did London deliver? There were many achievements: third-sector organisations and local communities were empowered and engaged to create change; the Games provided a visitor experience that normalised sustainable behaviour; and for London 2012 to have an approach to inspire sustainable behaviour amongst the wider public is in itself groundbreaking. And yet, the promise to "inspire a generation" is not an easy one to live up to. Perhaps the step missing from the London 2012 programme was to really think through what this idea of "inspiring a generation" really meant, and how it could be achieved.

As it was, the collection of initiatives, worthy in their own right, did not quite demonstrate a grand strategy behind all the grand promises. If governments, businesses and future mega-events can learn from the London 2012 efforts to inspire pro-environmental behaviour change, this will be a positive legacy outcome for the London 2012 Games. **ES**

Sarah Cameron is a Commissioner on the Commission for a Sustainable London 2012. She has developed and delivered award-winning behaviour-change projects, and is currently conducting PhD research on political behaviour and social change. (sarah.cameron@anu.edu.au)

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IES: New members and re-grades



Fellows	Occupation	(F)
Simon Turner	Environmental Adviser - Nuclear	

Members	Occupation	(M)
Ian Almond	Geo-Environmental Engineer	
Andrew Biggerstaff	Senior Engineering Geologist	
Richard Boyle	Senior Technical Manager	
Lefranc Basima Busane	Environmental Manager	
Toby Campbell	Regional Manager	
Juan Chua Chui	Transfer Station Manager	
Allan Clark	Senior Geo-Environmental Engineer	
Angela Craddy	Environment Sustainability Consultant	
Emma Del Gallo	Senior Environmental Scientist	
Abdulraheem Fahm	Principal Environmental Consultant	
Tololope Ajayi	Senior Environmental Affairs Advisor	
Jonathan Flitney	Air Quality Specialist	
Andrew Frost	Director	
Jeremy Gittins	Environmental Consultant	
Simon Howard	Senior Geo-Environmental Consultant	
Keith Huxley	Director	
Jason Kanellis	Geo-Environmental Engineer	
David Lord	Managing Director	
Claire Lynch	Air Quality Consultant	
Theresa Mercer	Research Fellow	
Lindsay Muir	Quality Engineer	
Arthur Nwachukwu	Graduate Teaching Assistant	
Ole Pahl	Senior Lecturer Subject Group Leader	
Lucy Parkin	Principal Policy Analyst	
Edward Porter	Director	
John Roseblade	Group Leader	
Alan Smith	Environmental Consultant	
Vicky Smith	Environmental Consultant	
Rosalind Spain	Environmental Consultant	
Kong Sang Tse	Assistant Environmental Health & Safety Manager	
Matthew Williams	Senior Consultant	
William Benjamin Williams	Environmental Forensic Scientist	
Chun Yu Wong	Environmental Consultant	
Adam Wood	Geoenvironmental engineer	

Associates	Occupation	(A)
Avril Challoner	Graduate Scientist	
Phillip Colyer	Geo-Environmental Consultant	
Holly Etheridge	Laboratory Technician	
John Fielding	MSc Student	
John Findlay	Environmental Advisor (Radiological)	
Nicole Giglia	Supervisor & Marketing Officer	
Roma Gore	Graduate Environmental Scientist	
Wesley Hickman	Retail Colleague	
Michael Holmes	GI Intern	
Gareth Hughes	Environmental Scientist	
Charlotte Moore	Environmental Consultant	
Lara Murphy	Legal Assistant	
Matthew Needle	Graduate	
Cathal Redmond	Senior Environmental Specialist	
Hannah Rose	Graduate	
Edmund Taylor	Air Quality Consultant	
James Thomas	Graduate Environmental Engineer	
Daniel Trump	Personal Banker	
Daniel Wakeling	Student	
Ceri Watkins	Graduate	
Robert Zivtins	Charity Volunteer	

Affiliates	Occupation	(Af)
Tasneem Bashir	Student	
Nicholas Dunn	Teacher	
Lee Jenkins	Environmental Waste Manager	
Roari Rhodes	Student	

 <p>is for esteemed individuals in environmental science and sustainability who are held in high regard by their peers</p>	 <p>is for those individuals who have substantial academic and work experience within environmental science.</p>
 <p>is for individuals beginning their environmental career or those working on the periphery of environmental science.</p>	 <p>is for individuals with an interest in environmental issues but don't work in the field, or for students on non-accredited programs.</p>

Behaviour change – inspiring a generation

Victoria Stonebridge emphasises the important role that people play in sustainable communities.

When the London 2012 Games bid team promised a sustainable Games in 2005, they recognised the opportunity to use the power of the world's greatest sporting event to establish a legacy of positive change. This was embodied in Games-time in an Olympic Park designed for all, and sporting events staged in venues where sustainability was placed at the heart of their design, with sustainability infrastructure used to provide water, heat and connections. These elements laid the foundation from which sustainable lifestyles could develop in the Park.

During October and November 2012, the Olympic Park was handed over from the London Organising Committee for the Olympic and Paralympic Games (LOCOG) to the London Legacy Development Corporation, so that the latter could begin the work of transforming the Olympic Park into Queen Elizabeth Olympic Park.

PEOPLE AT THE CENTRE

So what lies ahead in terms of sustainability and Queen Elizabeth Olympic Park? The Legacy Corporation has a good sustainability platform on which to operate the park and create five neighbourhoods with up to 7,000 homes. This therefore represents an opportunity to continue London 2012's aim to inspire change, and is embedded in the Legacy Corporation's sustainability vision and narrative: sustainable infrastructure for sustainable lifestyles.

The Legacy Corporation's vision for Queen Elizabeth Olympic Park is a thriving place with people at its heart. The Legacy Corporation recognises the important role people will have in the ongoing sustainability of the park and its venues, and therefore sees behaviour change as the area in which it can develop programmes that inspire and enable sustainable lifestyles for residents, employees and visitors. The overarching ambition is to make sustainable lifestyles desirable and, together

with Park events and projects, help spread sustainable living to the Park's surrounding communities. In turn continuing the aspiration that the bid team set for the London 2012 Games. This is premised on the belief that a build or a neighbourhood is only as sustainable as the people who use, manage and interact with it.

So how is the Legacy Corporation intending to deliver this? Behaviour change requires the integrated use of a set of functions that are often distributed among a range of organisations; these functions include landlord, place management and engagement. In the case of the Legacy Corporation, we are in the unique position of being responsible for all three functions.

PARK LANDLORD

As a landlord or developer, we are ensuring that the transformation of the Park and the future neighbourhoods ensures that they enable people to practise healthy and sustainable (i.e. low-carbon, and low-resource) lifestyles. Examples include the provision of high-quality cycle lanes and high levels of cycle parking as well as local community facilities, and increasing the amount of open space for outdoor activity.

Furthermore we are working closely with our contractors to ensure that they come to the Park by public transport, and are recycling and reusing their waste and unwanted materials in the appropriate way. This is all part of developing the Park brand, to ensure that sustainability, whether it is about food or travel, for example, is always in focus.

PARK OPERATOR

The Legacy Corporation is the long-term steward of the Park and venues, and we are working with the operators who will be running and managing them. Our combined role will be to develop programmes for engaging with our long-term Park workers and visitors. Learning from

LOCOG's Games-time activity, the crucial thing for the Legacy Corporation is the reinforcement of the message that sustainable behaviours are not necessarily about going without, but are more likely to be about doing something slightly differently. Our role is to ensure that the messages are never preachy, but encouraging and informative, and measures are in place to help facilitate desirable behaviours.

This work will inform the programmes that we will be developing with our partners in relation to the residents who will be living in the Park. A key example of this is travel: in the early years, most people will need to travel to the Park, therefore continuing the Games-time message that this is a public transport Park is crucial on our website and in our public communications. As we near the Park's reopening, we will be working with Transport for London (TfL) to update the cycle maps to include the Park's cycle lanes. As a Park operator, we will also be running events, and these provide a fantastic opportunity to promote behaviour change, especially around food, waste and travel.

PARK ENGAGEMENT

However, for some of these activities, there will be a few months or years before we start seeing results, so we have a number of what we call 'outside-in projects' which fall under our engagement function. Primarily these projects are about building anticipation of the Park reopening on 27 July 2013 and also allowing local communities to build an idea of the types of things they will be able to do once the Park reopens.

Two such projects are our Sport and Healthy Living projects, both of which focus on encouraging people to lead healthier and more active lives. Another is Growing Links, which is working with local growing groups to improve their knowledge and skills, and create a network of groups who in time can link into

the Park and environmental champions. Linking these projects with the existing local groups begins to develop participation in the Park and behaviour change in the local neighbourhoods, and in turn initiates a process of ongoing dialogue. This is to build up a clear picture of what behaviour change is being sought locally and what this might look like in relation to the Park, as well as the right types of messages and incentives linked to the different audiences. As we do not have a community in the Park it is important that we work with existing communities to understand the barriers to behaviour change and to harness bright ideas that we can then implement within our programmes. We also hope to build a network of local 'ambassadors' or 'champions'.

Behaviour change will be key to ensuring the successful delivery both of our targets and a thriving Queen Elizabeth Olympic Park. However it will not all happen overnight, and to facilitate sustainable behaviours and lifestyles it is necessary for us to take a long-term perspective and to use a range of methods, including communications and education, incentives and disincentives, infrastructure, partnerships and assistance to secure our desired outcomes. **ES**

Victoria Stonebridge works within the Regeneration and Community Partnerships department at the London Legacy Development Corporation where she is heavily involved in shaping the Legacy Corporation's behaviour change work and its sustainable event programme. She has been involved in the Legacy Project since 2010 both working on sustainability and consultation activities, prior to what she worked for a sustainability consultancy involved in the Legacy project. Victoria holds a Masters in Sustainable Development from the University of Exeter.

Queen Elizabeth Olympic Park – the creation of an integrated pi

Kathryn Firth looks to the future of the main London 2012 site.



iece of city



London's tradition of catalysing the growth of new urban areas around the creation of public parks represents far-sighted and ambitious investment in the quality of a neighbourhood. The Legacy Corporation sits firmly within that tradition as it transforms the 226 hectare East London Olympic site into a new piece of the city, to be named Queen Elizabeth Olympic Park.

The scale of the site, coupled with the critical fact that most of the site is under public ownership, make it possible for this unique form of development, land management, long-term value creation and exemplary design aspiration. Almost £300 million will be spent transforming the new park which will be home to 102 ha of open space, nearly four miles of waterways, up to 8,000 homes and a new commercial district that will bring jobs to the area.

The Legacy Corporation's ambition is for Queen Elizabeth Olympic Park to become a benchmark for sustainable living. We are committed to continuing the standards already met on the site and maintaining the Olympic Park's position as a pioneer of sustainability.

Through targeted investment and intelligent design we will encourage people in and around the park to make sustainable choices and opt for healthier, more active lifestyles. The quality and configuration of the public realm has a critical role to play if the Legacy Corporation is to fulfil this ambition.

PROMOTING CONVERGENCE

Queen Elizabeth Olympic Park provides a missing piece of the jigsaw of strategic open spaces defined by the East London Green Grid - a network of green spaces that connect with town centres, public transport nodes, the countryside in the urban fringe, the Thames and major employment and residential areas. The potential benefit to London's economy is to promote walking, cycling and accessibility, reduce environmental risks to make business locations more sustainable, and shape and support growth more generally.

◀ Image credit: LLDC.



▲ Image credit: LLDC.

Initiatives such as the Green Grid will promote cross-boundary partnership on a local and regional level as well as improving East London's provision of open space critical in the area around Queen Elizabeth Olympic Park where new neighbourhoods will be created for 100,000 new residents in an area already deficient in open space provision. Since the park will not have many residents living nearby in the years immediately after the Olympics the Legacy Corporation is developing a programme of relatively small grassroots activities as well as larger events in the public spaces to establish the park as a visitor attraction.

In 2011 James Corner Field Operations won an international competition to transform the Olympic concourse into a landscape inspired by London's tradition of pleasure gardens. A series of 'outdoor rooms' are created using a winding ribbon of meadow planting designed by the Dutch designer Piet Oudolf.

TURNING BARRIERS INTO CONNECTIONS

The Olympic site, not surprisingly given its industrial heritage, has considerable infrastructure barriers, from waterways to viaducts and highways. Its topography, which naturally divides itself into three levels – the River Walk, the Canal Walk and the City Terrace Walk was carefully studied in order to understand how this fragmented landscape could be knitted back together

again. The best will be brought out of the site not only by achieving continuity of movement along each level, but also through the creation of memorable places where the levels intersect.

Queen Elizabeth Olympic Park and the surrounding networks of new public realm projects all act as connectors. The range of projects is rich and varied, including new connections along and across the rivers and canals, proposals for a generous new public space along the River Lee Navigation (the most used public path within the Lea Valley Regional Park) and multiple small-scale local spaces and routes embedded in the urban fabric of neighbouring communities.

PLACES OF EXCHANGE

Public spaces must support social life and provide amenity value to community facilities. For this reason they have been located and will be designed such that:

- they are shared between existing and new communities, thanks to their location at the edges of new development rather than at the centre;
- they have a welcoming, civic scale that supports interaction and communication; and
- they incorporate uses that cater for different types of users.

CONCLUSION

While the 2012 Olympic Games will leave behind a fantastic infrastructure of parks and public spaces at the centre of the legacy site, the masterplan for the Games was fundamentally inward facing. It is one of our primary tasks to ensure that the Olympic Park connects outwards to neighbouring areas, because it is critical that physical and perceptual links encourage the Park's regular use by a local public and that they come to treat the Park as theirs. **ES**

Kathryn Firth is the Chief of Design at the London Legacy Development Corporation and urban designer. She has worked on a range of masterplanning and urban regeneration projects in the US, Europe, the Middle East and the UK. They include projects in sensitive heritage contexts such as London's Somerset House masterplan and courtyard redesign. She ran the MSc City Design and Social Science in the London School of Economic Cities Programme for 6 years.



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