

Framing the future: sustainability, legacy and the 2012 London Games

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Introduction

When the International Olympic Committee (IOC) adopted 'environment' as a third pillar of Olympism at its centenary meeting in Paris in 1994, it was partly reacting to an environmentalist lobby critical of the growing scale and impact of the Games. Since then, the Olympic movement has striven to be more proactive in championing sustainable events management and in promoting positive environmental legacies through its bidding procedures for the Summer and Winter Games, its technical manuals and the Impact Studies that monitor a city's performance. Indeed, the environmental agenda has been subsumed into the broadly-adopted discourse that stresses the beneficial legacy bequeathed to the host city in return for the huge expenditure required to host the world's largest sporting event. Yet, some two decades later, Olympic hosts still struggle with the enormity of what a sustainable Games really means and with developing the mechanisms for delivering it.

This chapter opens by considering the concept of sustainability. It then proceeds to examine the acceptance of the environmental agenda by the IOC and the parallel inclusion of legacy as a central tenet of the movement. We then evaluate London 2012's progress in adopting a green agenda.

Sustainability

The idea of environmental sustainability was popularised by the World Commission on Environment and Development (WCED), a body set up by the United Nations in 1983. Chaired by Gro Harlem Brundtland, it sought to find 'long-term environmental strategies for achieving sustainable development by the year 2000 and beyond' (Brundtland, 1987, ix). Their report defined sustainable development as:

'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED 1987, 43).

The Commission's central concern was poverty reduction through increasing productive capacity in ways that ensured 'equitable opportunities for all' (*ibid.*, 44) without compromising the environment in the short- or long-term. Sustainability was conceived as having social, economic and environmental dimensions which, by implication, necessitated political will to ensure that development did not disadvantage the poor. While the report highlighted issues affecting the developing world, links were made with cities in the developed world as a result of the 'global reach' of their consumption of resources and energy. The overriding message was

that society required the 'promotion of values' that would encourage consumption within the 'bounds of the ecologically possible' (*ibid.*, 241, 44). To this end, the Commission aimed to 'raise understanding' and 'commitment to action of individuals, voluntary organisations, businesses, institutes, and governments' (*ibid.*, 4). The subsequent Conference on Environment and Development (the Rio 'Earth Summit') in 1992 encouraged governments and agencies to develop an Agenda for the 21st century (Agenda 21) to address issues including poverty, health, biodiversity, energy, emissions and pollution.

The Brundtland Report remains the starting point for debate, but the fuzziness endemic to thinking about sustainability owes much to the different ways that it is approached in different areas, each with their own priorities and understandings (Connelly, 2007). As applied by governments, public agencies and non-government organisations, it is either a concept held in high esteem and pursued with almost evangelical zeal or is pragmatically embraced with a sense of the technical standards required and the expectation that this is how things should be done. Throgmorton (2003, 43) links interest in sustainability to fear that the environmental argument was being lost after the initial impact of works such as *Limits to Growth* (Meadows et al, 1972) had subsided. Conceptually, sustainability permitted both growth and environmental stability; a 'win-win' scenario that accepted development and guaranteed livelihoods within a framework of resource conservation and enhancement. A further criticism is that of failing to develop the social dimension sustainability (Smith, 2010) relative to the narrower but more commercially relevant view of economic sustainability (e.g. see Ensor et al, 2011). Somewhat cynically perhaps, organisations often adopt the lexicon associated with sustainability as a means of reframing their operations and practices in ways that are publicly acceptable (Cavagnaro *et al* 2012, 200). Here sustainability is an 'empty signifier' – a concept that possesses a 'certain, yet unstable, contingent and contestable, temporary coherence or content' (Swyngedouw, 2010, 305), well able to absorb and naturalise differing viewpoints.

From laissez-faire to leadership

The IOC, as guardian of the philosophy and practice of the Olympic Games, finds itself as custodian of the world's largest single-city event; an event that has grown steadily over time. National Organising Committees (OCOGs) now have to stage three festivals, namely, the Olympic Games themselves, the Paralympic Games and the Cultural Olympiad. With scale has come increasing difficulty in defining what is within the direct organisational remit of the Games and what is not, including the development of extra-Olympic elements such as training camps, National Olympic Committee Houses and provision for non-accredited journalists. London 2012 is required to provide for 10,500 Summer Games athletes, 8,670 officials, 20,000 media and broadcast personnel and 7.6 million ticket holders followed by the Paralympic Games with 4200 Paralympians, 6500 officials, 6500 media and 1.5 million ticket holders (London2012, 2012a).

As noted, the formal role of environmental sustainability as a factor to consider when staging Games evolved recently, but concerns about environmental impact date back to the Winter Games 1932 at Lake Placid where conservationists protested at the felling of 2500 trees in the Adirondack State Park for the construction of the bobsled run (Renson, 2004, 48; Chappelet, 2008, 1897). Yet notwithstanding the fragility of the environment, the requirement to provide top-class sporting facilities and ancillary infrastructure was taken as paramount. It was with some pride, for instance, that organisers made drastic landscape changes at Grenoble 1968 where ‘blasters and bulldozers’ created ‘the tremendous earthworks’ required for the men’s and women’s downhill events (COJO, 1968, 78). Yet while environmental considerations were not yet readily apparent for the Summer Games, by the 1970s environmental groups had mobilised against the candidature of some winter resorts altogether. Opposition to siting facilities in Banff National Park was blamed for Calgary’s loss of the 1972 Winter Games (CODA, 1989, 51) and most famously contributing to the November 1972 referendum in Denver in which the views of the fiscal conservatives and environmentalists who objected to the scale and nature of the expenditure led to the city relinquishing the Games in favour of Innsbruck (Essex and Chalkley, 2004, 221).

It was a mixture of environmental disaster in Albertville 1992 and efforts of some OCOGs—particularly Lillehammer 1994 and Sydney 2000—that impacted on the Olympic movement. Albertville set out to integrate the environment into the planning of the Games but poor implementation drew vociferous opposition and admission that mistakes had been made (Official Report, 1993, 124). The IOC’s immediate response in downplaying the problems pointed to the Olympic movement’s lack of environmental consciousness at this point (Cantelon and Letters, 2000, 300). Nevertheless, while preparations for the Albertville Games were unfolding Gro Harlem Brundtland, in her capacity as Norwegian Prime Minister, introduced the sustainability debate as part on Lillehammer’s presentation at the IOC’s 1988 meeting in Seoul. Fresh from chairing WCED, she called for a ‘new global ethic founded on responsibilities to nature and future generations’. Moreover the Norwegian Ministry of the Environment saw the Games as a national project to demonstrate Norway’s commitment to UN Report (Lesjø, 2000, 290). The Lillehammer Games became overlain with the rhetoric of sustainable development, with one of its aims being ‘to give the Olympic Movement a third dimension, ENVIRONMENT – in addition to SPORT and CUTURE’ (OCOG, 1995, 126).

IOC Agenda

The early 1990s saw the IOC’s first moves towards a policy towards the environment, with mention of ‘environment’ in the Olympic Charter in 1991 (see Table 1) and participation in the Rio Earth summit in 1992, after which it encouraged the International Sports Federations (ISFs) and national Olympic Committees (NOCs) to sign the Earth Pledge at the Barcelona Games. The first manual for cities preparing their bids, issued in 1992, contained a section on the environment (something that caught the attention of the Sydney bid committee). An agreement with the UNEP was signed in 1994 to promote an awareness of environment in sport. The IOCs’

recognised the environment as the third pillar of Olympism in 1994 (see above) was followed by the establishment of the IOC's Commission on Sport and Environment and inauguration of a biennial conference on sport and environment in 1995.

TABLE 1 ABOUT HERE

The year 1997 saw the launch of a *Manual on Sport and Development*, which reinforced the view that the IOC should not only encourage environmentally sensitive Olympic Games but should also promote environmental sustainability among the Olympic family generally and sports organisations world-wide and 'all the way down to the individual level' (Schmitt 2005, 7). The report covered biodiversity conservation, ecosystem protection, land use and landscape, pollution, resource and waste management, health and safety, nuisances (including noise, pollution and floodlighting), the safeguarding of cultural heritage and methodology for Environmental Impact Assessment (IOC, 2005, 10, 30-32). In 1999 the IOC produced its Agenda 21 document, which sought 'to encourage members of the [Olympic] Movement to play an active part in the sustainable development of our planet'. With specific regard to staging events, it laid down a series of provisions that included involving local people, improving health benefits, energy and resource use, greater care in designing and planning the Olympic Village, the need to undertake Environmental Impact Assessment, and the desirability of 'greening' the Olympic Games (IOC, 1999, 31-4).

Sydney was the first city to embrace the IOC's emerging environmental agenda and was able to respond to the 1992 manual for candidate cities in preparing its bids for the 2000 summer Games. By cooperating with Greenpeace on the design of the Olympic Village and extending environmental concern to other aspects of the bid (McGeoch and Korporal, 1994, 139-40), the Sydney bid gained a depth of environmental sensitivity that the other bidding cities lacked. They also gained the endorsement of Greenpeace at the Evaluation Commission visit in March 1993 and at a press conference on the environmental aspects of the bid at the IOC's meeting to select the 2000 host city in Monte Carlo in September 1993 (*ibid.*, 140). The press dubbed it a 'green bid' — a term that became closely associated with the Sydney Games.

Olympic Legacy

The legacy agenda developed in a different way and had merged with the sustainability agenda by the first decade of the twenty-first century. The term 'legacy' had entered Olympic parlance through the Melbourne bid for the 1956 Games (McIntosh, 2003, 454) and began to be used more frequently by North American host cities -- notably Los Angeles, Calgary and Atlanta (Gold and Gold, 2007, 318-20). The idea of future benefit from required expenditure appealed to the IOC and it ran a symposium in 2002 which defined legacy as having:

'many aspects and dimensions, ranging from the more commonly recognised aspects -- architecture, urban planning, city marketing, sports infrastructures,

economic and tourist development – to others.... that are less well recognised... the so called intangible legacies, such as production of ideas and cultural values, intercultural and non-exclusionary experiences... popular memory, education, archives, collective effort and voluntarism, new sport practitioners... experience and know-how' (IOC, 2003b, 492).

The incoming IOC President, Jacques Rogge, had set up a Study Commission in 2001 to consider how the Games could be made 'more streamlined and efficient' while maintaining their status as 'the world's premier sporting event' (Pound, 2003, 4). The Commission's recommendations aimed to ensure that host cities were left with positive legacies in terms of venues, infrastructure, expertise and experience (p5). In particular, it was stressed that new permanent venues should only be built if post-Games legacy could be shown and this should be a critical element in the bidding process (*ibid*, 4, 15). The IOC's Mexico City session in November 2002 examined this Commission's preliminary report and agreed to add Olympic legacy to the IOC Charter (see Table 1).

With this decision, the twin and overlapping goals of sustainable development and legacy became embedded in the Olympic Charter. They were thus firmly in place in good time for the next batch of cities, including London, to refine their bids for the 2012 Summer Games, for which selection would take place at the IOC's Singapore meeting in 2005.

Shaping the bid

The failed attempts by Birmingham for the 1992 Olympics and Manchester for the Games of 1996 and 2000 brought home two important facts. The first was that there was real benefit from bidding for the Games in terms of place promotion, leverage of funding and internal planning goals. The second was that there was little chance of any British city other than London attracting the level of IOC support needed to win the Games. However, it was only when London regained a strategic authority (with the creation of the Greater London Authority in 2000) and a Mayor that the political infrastructure was established to facilitate a London bid. The British Olympic Association (BOA) commissioned a feasibility study in 1997 for a London Olympics which acknowledged that from a British perspective simply focussing on the benefits to sport would not generate the required stakeholder support for a British bid and that 'regeneration, legacy, employment, tourism, new housing and the health of the nation' (BOA, 2008) would need to be considered in justifying the whole bidding exercise.

The BOA study considered two potential sites: West London centred on the proposed multi-purpose reconstruction of Wembley Stadium and East London based on the Lea Valley (see Gold and Gold, 2009, 186-7). It was quickly apparent that the benefits and potentials for creating long-lasting urban development, economic and social change in East London site far outweighed the Wembley option. With the support of the London Assembly and Mayor and formation of a stakeholder group, consultants were appointed to consider the availability of land and the cost-benefit

analysis of bidding for and staging the Games in 2012. At this 'internal' stage of the deliberation, environment and sustainability *per se* were not in the brief and not considered. Neither is mentioned in the consultant's Report from May 2002, apart from the observation that 'quality environments' should be delivered to ensure 'a viable and long term legacy' (Arup, 2002, 8).

The emphasis at this stage was on regeneration, with the once-in-a-lifetime opportunity provided by 'an area of low-intensity use and physical dereliction', (*ibid.*) with excellent transport connectivity near the centre of London. However, when London prepared its bid between 2003 and 2005, the ground rules had changed. The bid team increasingly worked to incorporate ideas of sustainable development and geographically-concentrated Games focusing on legacy. By the time the bid was submitted in 2004, the effects of the environmental shift were fully felt. In the Candidate File, London produced a plan for a nucleated Games, with temporary facilities where no long-term legacy use could be justified. It stressed the integral role that sustainable development would play over the seven years of preparation and delivery of the Games and beyond to post-Games legacy. Singled out for particular attention were the goals of low carbon, zero waste, conserving biodiversity, and promoting environmental awareness and partnerships (London2012, 2005a, 75).

Working with BioRegional (an organisation set up in 1992 to promote sustainability in everyday living) and the World Wildlife Fund (WWF), London 2012 also adopted a One Planet Living agenda. This was essentially a programme to promote sustainable living within the capacity of our one planet rather than the three planets that would be required if the world consumed at the rate of the UK or the five planets if global consumption matched the rates of North Americans. A joint document entitled *Towards a one planet Olympics*, which accompanied the bid, claimed to have created an 'implementation link' between the Olympic Movement's Agenda 21 and the Global Impact Studies which monitor the implementation delivery and legacy of the Games (London2012, 2005b, 2). A total of 10 One Planet Living Principles (Table 2) were listed against actions which would inform the planning and delivery of the Games and the subsequent legacy. This gave the London bid a distinctive mantra that encapsulated the environmental message graphically and introduced a fresh perspective on the environmentalist rhetoric that countered previous Games' slogans, such as Beijing's 'Green Olympics' and Vancouver's 'Sustainable Games'.

TABLE 2 about here

Table 2 also shows how the One Planet Living principles were translated in the subsequent sustainability plans. The strategy required these principles to be embedded in working practices and accounting procedures, with the independent Commission for Sustainable London 2012 (CSL) created in January 2007 to monitor sustainability plans and evaluate the progress of the various bodies responsible for staging the Games and supervising subsequent legacy use. To this end, the Commission has published annual reports and thematic reports evaluating progress. It has also defined 11 sustainable legacy expectations for the Olympics, with

considerable emphasis on socially sustainable legacies (CSL, 2012a). Legacy outcomes at national and London levels were expressed by government in June 2007 and by the Mayor of London in January 2008 (Table 3). A specific legacy promise for the disabled community was added in December 2009 (OD, 2009). In 2010, the newly installed Coalition Government reworked the legacy promises into a legacy programme comprising four strands (Table 3), which include the Big Society agenda (community participation) and which makes reference to economic growth and regeneration rather than sustainable development. In itself, this is part of a significant trend that sees sustainability confined to key official documents rather than openly promulgated (as at Beijing 2008).

TABLE 3 about here

Preparing the ground

Running through the preparation and staging of any 'sustainable' event is the overarching question of carbon generation. London 2012 approached the question of a low carbon, rather than a carbon neutral Games by pioneering a technique to map out its carbon footprint over the full seven years of the planning and implementation cycle (2005-12) rather than just focussing on the Games period itself as previous host cities had done. This meant calculating a baseline or reference footprint—the carbon emissions which could have been expected without efforts being taken to reduce it—using data from previous Games, from typical construction practices and from initial designs for venues (LOCOG, 2010, 18, 27). The resultant figure of 3.4 million tonnes of carbon dioxide (CO₂) equivalents is divided between site preparation and venue construction (50%), transport infrastructure (17%), operations (13%) and spectators (20%). From this calculation, areas for emission reduction could be identified and planned.

Demonstrating best practice during the preparation and construction phases was important given the role of the construction industry both in generating CO₂ emission (15% of the English total) and in being the largest producer of waste (BioRegional, 2011, 4). The preparation of the Olympic Park site involved demolition of buildings and soil cleansing before venue construction could begin. The goal of zero waste was set, with 90% materials being reused or recycled. Railways or water transport media were used for moving materials rather than road. Sustainable procurement policy was used for materials. In the event, 98.5% of waste was recycled or reused and only 6,672 tonnes (1.5%) went to landfill (*ibid*, 36). The Global Remediation strategy for cleansing the heavily contaminated soil on the Olympic Park site resulted in 2 million tonnes of soil being cleaned on site, with 80% then reused *in situ* (LOCOG 2012, 47). However where Olympic Park land is to be used for housing in the future, further remedial work will be required for health reasons (CSL2012, 2012b, 13).

From the standpoint of construction, final designs reduced the weight and increased energy efficiency and water conservation of the permanent sports venues. As the Park's most energy-efficient venue—representing a 31% improvement over 2006 Building Regulations requirements—the Velodrome utilises natural ventilation and

light, with rainwater harvesting meeting 50% of toilet-flushing requirements. Its cable-net roof also used one-tenth of the steel of a traditional truss roof and was quicker and safer to install (Epstein *et al.*, 2011, 30, 33). The Olympic Stadium employed unwanted gas pipes for roof trusses and recycled concrete in its foundations. The Aquatics Centre exploits natural ventilation for the wings that represent temporary stands for spectators, with its design somewhat reducing the amount of structural steel. Overall the carbon reduction on the venues was estimated in 2011 to be 58% of the baseline figure (LOCOG, 2012, 31), with the CSL commending the Olympic Delivery Authority (ODA) for achieving high standards of construction sustainability (procurement, risk assessment, contract management and on site construction) and meeting the sustainable development commitments (CSL, 2012b, 9). Further commendations have come from the conferment of CEEQUAL awards—the Sustainability Assessment Awards Scheme for civil engineering, infrastructure and landscaping. Twelve such awards had been won by for Olympic Park projects by April 2012 covering projects as diverse as enabling works, bridges, sewers and a multi-storey car-park (LOCOG 2012, 51).

The construction of Athletes Village, however, reflected compromises deemed necessary to get the project started in financially difficult circumstances. It was designed by an international group of architectural practices coordinated by the Australian-based property company Lend Lease. The site comprises 11 blocks, which during the Games will supply residential apartments for around 17,000 athletes and officials, along with shops, restaurants, medical, media and leisure facilities. Failure to obtain sufficient private investment for the Village led to Lend Lease's withdrawal and a troubled development history (Moore, 2012). Most notably, planning permission was rushed through ahead of consideration of the main sporting complex so that it was in place before the tougher building regulations found in the 2006 Code for Sustainable Homes came into force. The Code contained six levels, ranging from level 1 (just above conventional building regulations) to 6 (the highest environmental standard possible), with level 3 being the Government's target for publicly-funded social housing. Despite expectations that the Olympic Village would be built to level 6, it was only constructed to level 4, with lower standards with respect to heat efficiency and waste disposal. The current understanding, however, is that the final certification to level 6 will be made after the Games when Village is converted to housing in 2013 (Brylewski, 2011, 1-7).

This was not the only instance in which sustainability targets have been challenged. The original plan was to provide 20% of the Olympic Park's energy from renewable sources, with half of this supplied by a large wind turbine. This plan was abandoned in 2010 and only partially compensated for by increasing solar and small wind turbine sources (achieving 10.8% overall) and commitments to reduce energy consumption to make up the renewable gap. Although the district heating system in the Park will deliver major energy savings, it is run on biogas and natural gas (with the latter locked into a 40-year contract). Equally, the original plan to offset the carbon emissions of athletes and officials flying to the Games was abandoned in 2011. Again only partial compensation has occurred in the shape of the Target Neutral scheme run by BP, under which offsetting arrangements have been made for

emissions from the official car fleet and the 400,000 tonnes of CO₂ emissions expected from spectator travel.

The goals of sustainable practice have been easier to deliver where key Olympic agencies have greatest control, which was most commonly found in the early stages of site preparation, venue design and construction. According to Epstein et al (2011, 32), this owed much to the fact that larger contractors found it easier to comply with sustainable practice as they were familiar with sustainability working whereas small companies were not. By contrast, as more operators are involved and the time frame narrows, then it is more difficult to impose standards. The relationship between Olympic bodies and business is also further complicated wherever sponsorship is involved—although this issue perforce lies beyond the scope of this chapter (Gold and Gold, 2011).

Creating sustainable environmental legacy

After the Games, work commenced on the conversion of the Olympic Park to post-Games use followed by the creation of a virtual 'new town' that has been allotted the London postcode of E20; a development that could have a population of 30,000 by 2030. The first stage of the transformation involves the removal of the overlay (temporary venues and facilities), concourse areas, the conversion of the permanent venues to their post-Games use, the adaptation of the Athletes' village to housing (to be known as East Village), the creation of new roads, provision of cycle- and footpaths, construction of bridges to connect the Park to surrounding communities and reconfiguring of the parkland for subsequent use. The Queen Elizabeth Olympic Park reopens in three stages – the North Park visitor hub and Copper Box multiuse arena in July 2013, the remainder of the North Park around the Velodrome at the end of 2013, and the South Park around the stadium and aquatic centre at Easter 2014. However, the need to keep the project in the public eye and satisfy public curiosity about the Park once the Games are over, particularly from the thousands who did not get tickets for the Olympic Park events, has to be considered.

Responsibility for the Park passed from the Olympic Park Legacy Company (OPLC), which had been operating since 2009, to the London Legacy Development Corporation (LLDC). The latter body was established in April 2012 as one of the first of a new breed of Development Corporations that were created using powers from the Localism Act of 2011. The LLDC is answerable to the Mayor and the Greater London Authority and has a wider remit than the old OPLC since, besides assuming powers over the Olympic Park, it also takes over responsibility for the Thames Gateway Development Corporation. Its purpose is:

'To promote and deliver physical, social, economic and environmental regeneration in the Olympic Park and surrounding area, in particular by maximising the legacy of the 2012 Olympic and Paralympic Games, by securing high-quality sustainable development and investment, ensuring the long-term success of the facilities and assets within its direct control and supporting and promoting the aim of convergence' (LLDC, 2012a).

Within that remit, its four specific aims are to promote convergence and community participation, champion equalities and inclusion, promote high quality design and ensure environmental sustainability; aims that perhaps signal a shift from the rather technocratic approach taken by the ODA with its seven-year timeframe (LLDC, 2012b).

By 2035 the park will house five new neighbourhoods and an expanded East Village (the old Athletes' Village) encircling the remaining core of the park which is divided into two zones: the North Park and the South Park or Plaza (divided by a natural narrowing of the Park south of the Stratford International hub). A landscape design competition in 2011 produced winning entries for the two halves of the park – each with a very different quality and purpose. The North contains the wilder landscaping and wetlands, with rich biodiversity and flood prevention strategy measures. It is designed to offer possibilities for environmental education and a range of family-focussed facilities that include a Visitors Centre. The cycle paths and proximity of the Velodrome, BMX track and 5 miles (8 kilometres) of mountain bike trails makes this also an area of active recreation. By contrast, the design brief for the 50-hectare South Plaza was to create a visitor hub with the 374 feet (114 metres) high ArcelorMittal Orbit Tower the main attraction. Its legacy function was to serve as a destination for not only the local community, but Londoners, tourists and shoppers visiting Westfield. Although formal parkscapes will be created, the aim is for an animated space, on the lines perhaps of Copenhagen's Tivoli Gardens or London's South Bank. The Park's events programme will be focussed in this area, with capacity to stage outdoor events for up to 20,000 people (LLDC, 2012c).

Sustainable legacy in practice

The built legacy for East London from the Queen Elizabeth Olympic Park comprises six neighbourhoods: Chobham Manor just south of the Velodrome with 960 homes in mainly in terraces, squares and mews; East Village (the old Athletes' Village) with 2,818 homes and planning permission for a further 2500; Marshgate Wharf to the east of the Stadium—a high-density scheme for 2500 homes; Sweetwater to the northwest of the stadium with 800 homes; and Eastwick with 830 homes mainly terraced. In addition, there are three employment hubs: the Press and Broadcast Centre in the West; Waterfront Stratford city in the east; and Pudding Mill in the south accounting for 7-8,000 new jobs (OPLC, 2010). The legacy promises are, first, that all will be built to sustainable standards with district heating, grey and black water recycling and, secondly, that all the new homes will meet the government's 2016 Zero Carbon definition.

Buoyed along perhaps by a combination of the architectural determinism of a previous generation (Gold, 2007) and the utopianism that permeates significant sections of the environmental movement (Pepper, 2005), prognoses are offered for the lifestyles that will emerge in this segment of London. At household level, it is envisaged that individuals will live 'sustainable lives', practising recycling and composting (the target is zero municipal waste to landfill by 2025), cycling and

walking rather than driving, growing food in gardens, on balconies, or in allotments, jogging, cycling and walking in the park, using the sport facilities and frequenting local shops. At community level, the WWF and BioRegional wanted challenge new audiences into taking environmental action by reaching them through sport. However, in the words of the WWF's Simon Lewis, London 2012 had not achieved the task of making a connection in people's minds between sport and 'taking action for the planet' (Lewis, 2012).

To some extent, Lewis was hinting at an underlying change in emphasis. The sustainability message has not been in the foreground in pronouncements by official agencies or Government. Indeed, the word 'sustainability' has largely dropped out of the vocabulary. BioRegional was one of the key players in designing the concept of the One Planet Games, but it features only fleetingly in the Government report on legacy published in March 2012 (DCMS, 2012). Moreover, the page relating to BioRegional (*ibid.*, 40) is the only place that the word sustainability is used. Notably, this refers to the 'One Planet Experience Centre' set up by BioRegional in the autumn of 2011 which explains the concept of the One Planet Games, outlines the progress in achieving these aims and, with the help of interactive displays shows people how to save energy and reduce waste. What the report fails to convey is that the exhibition is located at Hawkridge, a small and undistinguished suburb in Surrey that lies far off the London Underground system. Unsignposted and remote, it has very few visitors. BioRegional intend to place a version of the exhibition in the Olympic Village during the Games to show athletes and officials the principles underlying the Olympic Project and another possibly available for spectators. However, the wider public will be none the wiser.

Having said this, there is evidence of Government implementing new ways of sustainable working, based on the imprimatur developed at London 2012. One example of this is the Civil Service Reform Plan (June 2012) which is using the experience of new working practices developed for the Olympic period to reduce dependency on traditional working patterns when, on busiest days, 3 million additional journeys are expected on the London transport network (DfT, 2012). The goal for the Department for Transport is to reduce travel by 50% during Games time by working from home, using hub offices closer to staff homes, re-routing travel and changing mode of travel. A trial week in August 2011 resulted in a 69% change of commuting and business trips (DfT, 2011). A further trial was held in February 2012 covering 16 government departments. The Civil Service Reform Plan has a section that expresses the hope that changes piloted over the summer of 2012 can be translated into 'longer term change' through sharing buildings between Departments, creating hub offices outside central London, providing mobile devices to 'empower a mobile and diverse workforce', training managers to manage staff working in these new ways (Civil Service, 2012, 30).

Learning legacy

We have always maintained that an Olympiad can only be considered sustainable if it can influence more sustainable behaviour beyond the Games.’ (CSL, 2012b, 3)

This is a challenge given that organisations involved in delivery have already been wound up, are winding down or will be disbanded soon after the Games. The Learning Legacy initiative set up in the autumn of 2011 is one way of capturing the knowledge built up by the ODA. It covers ten themes: archaeology; design and engineering innovation; equality, inclusion and employment skills; health and safety; master planning and town planning; procurement and supply chain management; project and programme management; sustainability; systems and technology; and transport. Under each heading micro reports, case studies, research summaries and champion products. Under sustainability, for example, there are 67 documents covering everything from bird and bat habitats to supply chain management, and codes of practice. However there still remains the issue of creating a learning legacy in the public domain to complement the knowledge passed on to the IOC family by the LOGOG as well as capturing the experience of the GLA in areas of procurement, waste policy and food policy. CSL also highlight the need for some sort of strategic sustainability assurance for London to take on the role of the CSL once it is wound up in March 2013.

This last stipulation, however, may well prove pious hopes. While calculating short-to-medium term legacy is certainly possible, the persistence of bodies to measure longer-term legacy remains more difficult. Today’s ‘Olympic’ sites will not stand alone but will be drawn into future developments that transcend their boundaries—something, for example, that is already anticipated for London’s post-Games Queen Elizabeth Olympic Park. Hence even if the will and funding remain to support legacy measurement, the continuing point of persisting with that activity in light of changing circumstances may not be readily apparent once the event itself has faded into distant memory.

Conclusion

This chapter set out to consider the interplay between two key Olympic agendas: sustainability and legacy. We have traced the emergence of these two notions and the role they have played in addressing concern about the growing size and cost of the Games by presenting the possibility of long term positive outcomes. In the case of London, the challenge was to transform an area of East London that was essentially derelict, contaminated and lightly-used and transform it into a series of new communities with open space, industrial parks, schools, sports and community facilities using the Olympic Games to kick-start the process. In parallel with this, the aim was create the facilities to stage the Games with minimum environmental impact and create a built environment and open space that would continue to demonstrate the principles of sustainable management and living once the Games were over. The remaining challenge is to ensure this happens once the Games have left town, the final Olympic Games Impact Study has been written and new agencies

take over the management of the complex strands of the physical, social, economic and environmental legacy.

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