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Title: **It's Not What You Build, But the Place Where You Build It: Urban Sustainability in London**

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## **It's not what you build but the place where you build it – London: World City in a Sustainable Location**

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### **Biography**

Born in Swansea, Peter studied architecture and city planning at university in London and Cardiff. His previous jobs include periods with the Historic Buildings Division of the Greater London Council (1971-72); in private practice with Gordon Cullen, Townscape and Planning Consultant (1973-75); at the national Department of the Environment (1975-79); and as Assistant Chief Planning Officer to the London Borough of Lambeth (1979-85). Peter joined the City of London Corporation in 1985. He directs the Department of Planning & Transportation and his responsibilities include supervising the preparation and approval of planning policies for the City and negotiating with developers on major planning applications.

As the British delegate on Council of Europe Working Parties, Peter studied “Suitable New Uses for Historic Buildings” and “The Economics of Building Conservation” (1976-1979). While a member of the European Commission “ROME” Network he studied the effects of Technology on the Future of European Cities (1989-1992). He was a trustee of the Building Conservation Trust (1985-1991); a member of the Steering Group for the “London World City” study (1990-1991) and for the London Pride Partnership (1994-98); a member of the London Office Review Panel since 1996; and sat on the Editorial Advisory Board of “Property Week” magazine in 1998 and 2002. A founder member and Director of the British Council for Offices since 1990, Peter received their 2003 President’s Award for “presiding over one of the most extensive periods of redevelopment in the City’s long history”. He was awarded the 2004 Barbara Miller Award from the Faculty of Building for “outstanding work in the field of construction”.

Peter lectures throughout the world. During 2006 he was a juror for the final post-graduate project review at the Yale School of Architecture and delivered a presentation at the CTBUH Conference in Chicago. In May 2007 he joined the panel for a series of seminars on “The Global City’s Financial Core” at MoMA and other venues in New York.

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### Abstract

The three factors which ensure a successful property acquisition or development have always been location, location and location. This is equally true for sustainable developments. It is vitally important to create buildings which minimise their energy consumption, environmental impact and use of limited resources, but the means by which the occupants come and go is a much more critical determinant of overall sustainability. This paper argues that a wise property developer who wishes to avoid leaving a clumsy trail of carbon footprints across the planet will therefore choose sustainable development locations.

**Keywords:** Sustainability, Urban Design, Transportation, London

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### Introduction

Is the earth getting warmer? Is man the cause of the Problem? Is there anything we can do to help? Questions which pose an increasing challenge to the world's scientists and leaders. Whatever one's answers it is inescapable that the world's natural resources have limited reserves and mankind must conserve the stocks of land, fossil fuels and water in order to survive.

Air travel accounts for 2-3% of man's annual carbon use and has been widely demonised for its ecological damage but little is made of the carbon produced by use of the internet which is variously estimated at between 1 and 8%. Our increasing reliance on imported foodstuffs and manufactured goods means that the world's shipping industry uses 4-6% of the carbon and adds a high atmospheric pollution impact as a result of the use of dirty "bunker fuel". The globalisation of manufacturing has led to businesses moving production to countries which offer cheaper labour and lower environmental standards in order to reduce costs and increase profits. Thus, the miracle of China's manufacturing expansion has been reliant on cheap and dirty coal-fired energy – the west imports cheaper products from the east and exports its pollution in return. An insatiable demand for hardwoods has now been exacerbated by the rapidly developing market in biomass fuels. This has led to the accelerating destruction of Indonesian forests and peat-land fires which produce no less than 14% of man's yearly carbon emissions.

Even in the face of such statistics of doom we are encouraged to believe that those involved in the development process are the chief perpetrators of carbon-use evil. After all, we are told, buildings account for over 40% of the man-made carbon load. This is hardly surprising, however, as people spend most of their time in buildings. Its people that waste energy, not buildings!

The three factors which ensure a successful

property acquisition or development have always been location, location and location. This is equally true for sustainable developments. It doesn't matter how "green" your building if the majority of its occupants have to rely on the automobile to reach it. The energy efficiency of a business is much more dependent on local climatic impact than on the power profligacy of their workforce. A development sited in a suburban or unattractive location fails to provide its users with multiple reasons for their journey and derives less value from the energy used to access it. It is vitally important to create buildings which minimise their energy consumption, environmental impact and use of limited resources. But the means by which the occupants come and go is a much more critical determinant of overall sustainability. Minimising the "access" and "cooling" energy consumption of a development will make a considerably greater contribution to global survival than adding any amount of environmental gimmickry such as solar panels in northern latitudes and windmills. Therefore, a wise property developer who wishes to avoid leaving a clumsy trail of carbon footprints across the planet will choose sustainable development locations.

### The Curse of Decentralisation



Figure 1. City of London Skyline as designed by Christopher Wren, early 18th Century. (Source: City of London Corporation)

For over 20 years journalists have been predicting that we would all be working from home in less than 10 years time. This was probably because home can be a good place to write – if the family is elsewhere! However, most people regard work as a social activity. The workplace is an indispensable source of friendship, gossip and even romance. As the cohesion of the family declines in western society so “teamwork” at the office becomes an ever more important social focus as well as a means to increase creativity and productivity. The hottest gossip is always exchanged face-to-face, rather than by ‘phone or internet, and so those who do not work in the office are often the last to know the news. It is often assumed that working at, or near, one’s home uses less energy than going to the office. However, the central concentration of specialised activities in places accessed by public transport and offering a wide range of services and leisure attractions is not only highly efficient but also more stimulating for our intellectual, emotional and sexual needs.



Figure 2. View of London Wall, 1970s. (Source: City of London Corporation)

Urbanisation is often cited as a principal cause of increasing energy consumption and potential global demise. The major cities are portrayed as unsustainable squanderers of energy and resources while decentralised rural communities are held up as beacons to future survival. In the days when the rural hinterlands produced food, materials and labour for the cities this was probably true. However, in a technologically advanced society rural living becomes increasingly unsustainable and dependent upon subsidy from major cities. The “SUV lifestyle” of the modern countryside produces ever greater demands for infrastructure, welfare services and energy. Earning one’s living as a consultant or financial dealer from a cottage in a remote village has become possible as a result of the internet. But the belief that the need to travel is reduced by electronic communication does not hold true in practice - contacts and opportunities identified via the corruption prone web increasingly need to be confirmed and developed face-to-face. The internet itself is a large consumer of energy (a major internet switching hub uses as much power as a commercial jet

aircraft at constant take-off thrust). The sought after country lifestyle of the middle classes depends upon the redistribution of limited social and infrastructural resources away from deprived urban areas. Suburban settlements are little better, with huge amounts of energy squandered to overcome settlement densities too low to support effective public transport and to combat social boredom. It is only the city centre (downtown or “where it’s at”) that is throbbing with energy you can actually absorb.

Since homo-sapiens is a social species it follows that we work and play most happily in groups. As the complexity of the task or speciality of the interest increases it follows that those with similar skills or knowledge will be more widely spread. Thus, we have to travel further to reach a gathering of like-minded companions. While the soccer enthusiast may be able to exchange stories in a local bar, the professional concerned by the sustainability of high-rise buildings may need to travel across the globe to an international conference in order to exchange information. It is pointless to measure an individual’s carbon footprint purely on distance travelled and mode of transport used. Any meaningful analysis should take account of the purpose of the journey and the benefit which results. A weekend jaunt to an eastern European city purely to consume large quantities of cheaper alcohol cannot be measured in the same units as the trans-global mercy dash of an earthquake search and recovery team.



Figure 3. View of the City of London today, from the City Planning Office. (Source: City of London Corporation)

### Sustainable Commuting

Sustainable movement is frequently promoted as a need to move away from vehicles with thirsty internal combustion engines towards fuel-efficient, hybrid or electric cars. Recent research has questioned the carbon efficiency of such wisdom by demonstrating that the total embedded energy of a vehicle from drawing-board to scrap-yard vastly outweighs the impact of its fuel consumption. Measuring this full life-cycle carbon footprint produced some surprising results. The Toyota Prius hybrid car with its complex design, low-volume

components and toxic batteries only managed a miserable 93rd position in the table of carbon efficiency, way behind a Porsche 911 at 23rd and out of sight of the unexpected winner. First place went to a notorious “gas-guzzling” SUV, the Jeep Wrangler - a simple long used design with robust longevity and recyclable components.

Car commuters are also encouraged to switch to motor-cycles or scooters to reduce their carbon load and speed their journey through rush-hour traffic jams. However, the adage “4 wheels bad, 2 wheels good” does not hold true if the rider was a former user of public transport or else clocks-up greatly increased mileage on their nimble new steed. In London we are seeing annually increased sales of powered 2-wheelers of as much as 50% and virtually all of these new riders are former train or bus passengers – a backward step encouraged by exemption from the Congestion Charge and free on-street parking. Even a mountain bike rider with all the special protective kit and clothing which completes their newly fashionable image is carrying a substantial in-built carbon penalty when compared to the rapid-transit user or pedestrian.



Figure 4. The proposed Heron Tower, London, designed by Kohn Pedersen Fox Architects (Source: KPF)

### **Making Sustainable Places**

Across the globe City planners are attempting to create settlement patterns of optimised critical mass in order to achieve communities which are environmentally, socially and economically sustainable. This requires the achievement of population levels and densities which are

adequate to support the desired social and physical infrastructure. A primary school needs a local catchment population of about 2,000 within a 15 minute walk. At the other extreme a full-time opera house probably needs over 5 million people within a 1 hour journey by public transport. A world financial centre will need to trawl a vast regional population of at least 20 million and import specialist skills from around the globe in order to be sustainable.



Figure 5. The proposed 122 Leadenhall Street Tower, London, designed by Richard Rogers Partnership (Source: RRP)

The design of balanced communities is not a recent pursuit. In the 19th century Sir Ebenezer Howard and the Garden City Movement pioneered the creation of settlements limited in size to 30,000 – 40,000 people and separated by open countryside. Thus, the inhabitants would enjoy the benefits of urban living while having easy access to nature and rural recreation. Each town was split into 5 or 6 neighbourhoods of 5,000 inhabitants around a town centre and linked by rapid mass transit systems to neighbouring towns so that they would form a larger “social city”.

In the UK today, these ideas are influencing the Government’s Eco-towns Programme which aims to provide part of the targeted 3 million new carbon-neutral

homes by 2020. Unlike the New Towns Programme of the 1950s-1970s, there is now greater recognition that towns can only achieve a limited level of self-sufficiency. Increased personal mobility and the desire for greater choice means that fewer people live and work in the same neighbourhood. They change jobs with increasing frequency as businesses rise and fall on the winds of the global economy. The Eco-towns will be connected by efficient public transport links to form clusters of opportunity and critical mass.



Figure 6. The proposed Pinnacle Tower (centre left) within the City of London ‘cluster’ of high-rise buildings. Designed by Kohn Pedersen Fox Architects. (Source: KPF)



Figure 7. The proposed 20 Fenchurch Street Tower, designed by Rafael Vinoly Architects, with the City of London cluster beyond. (Source: Rafael Vinoly Architects)

While these techniques for the creation of balanced communities and sustainable places are appropriate for meeting the vast majority of settlement needs they struggle to cope with the creation of new “centres of excellence”. Whether the centre specialises in higher-education, nightlife or global finance it is almost impossible to guarantee the creation of a world-beating challenger at a new location. This accounts for the longevity of tried and tested centres such as Cambridge, Soho and the City of London. In these cases the challenge is not to create sustainable places but to make the places sustainable.

### London – Sustained Success

London is a city which has remained successful over 2,000 years of organic development and growth. The City of London endured as the centre of trade while the City of Westminster was the centre of the nation. These two adjacent but separate cities, together with a collection of neighbouring villages, coalesced to form the basis for a “world city” of the 21st century with a population of 8 million. Greater London is governed by 33 separate municipalities, including the City of London, with strategic coordination of land use and transportation overseen by the Mayor of London. Although there are only 9,000 residents within “The City” it is able to attract the highest levels of professional skill - to complete its daily workforce of 350,000 - from a population of 20 million living in the south-east region of England. This daily migration is handled by sustainable forms of transport. Over 90% of the commuting workers arrive by train or bus and less than 5% by car - the remainder cycle or walk to work.



Figure 8. The proposed City of London ‘cluster’ of high-rise buildings, as seen from Waterloo Bridge. (Source: City of London Corporation)

London is a polycentric and polycultural city. Although widely known as a world financial centre, “The City” also houses global concentrations of insurance and shipping business. In addition it is the principal legal centre of the UK and home of the internationally acclaimed Barbican cultural centre. Westminster has



Figure 9. 30 St. Mary Axe, also known as ‘the Gherkin’, designed by Foster and Partners and completed in 2004. (Source: City of London Corporation)



Figure 10. Citypoint Tower London. First completed in 1967, an extensive refurbishment, designed by Sheppard Robson and completed in 2000, increased the floorplates and added height to the top floor. (Source: City of London Corporation)

equally powerful centres of excellence in higher education, nightlife, theatre and the media. Other parts of the metropolis offer many urban “villages” with distinctive character and specialised activities. The population is truly cosmopolitan with over 300 languages being spoken in London’s schools. This rich mix of activities and cultures has produced a world city with unrivalled creativity and a unique ability to adapt to change – fundamental requirements for a sustainable future.

Business activity improves its efficiency and product quality through the competition which results from a concentration of trading activity. The cheapest and best bananas are to be found in a street famed for the sale of bananas. So it is with financial services and hence the continuing success of the City of London. In order to further increase the density of activity and, thereby, the competitiveness of the financial markets The City needs more floorspace. Since there are no longer any significantly under-developed sites in this readily accessible financial centre the only way to meet the need for expansion is through the construction of a cluster of towers which includes our new iconic mascot - the Gherkin.



Figure 11. Originally completed in 1970, the former London Stock Exchange Tower has been renovated and reclad in glass - a design by Nicholas Grimshaw Architects. (Source Nicholas Grimshaw Architects)

The buildings most frequently refurbished and reclad are the tallest buildings in The City. Lower buildings are usually demolished for complete redevelopment of the site while many of the towers from the 1970’s are stripped back to their basic structure and refitted with new services and

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redesigned exterior elevations. This retention of a high proportion of the building's embedded energy and the adaptability of the structure make a significant contribution to the sustainability of this building type. There are also useful trends in the recycling of demolition materials - with the best projects achieving levels of up to 96% - and to the use of recycled materials for the construction of new buildings. Green roofs, renewable source energy and a return to natural ventilation all make their contribution to our ecological credentials - as does the increased density of new developments.

Nevertheless, the factor which achieves the greatest separation of energy use when comparing the City with other financial business locations such as Frankfurt, suburban business parks or rural home-working is the overriding dependence upon public transport to access the widest skill base. Add to this energy efficient powerhouse of world finance a broadening range of supporting hotel, retail and leisure facilities together with the construction of architecturally outstanding buildings and attractive pocket parks and the historic brand of the City shows that its 2,000 year continuum of change is stronger than ever.

### **Conclusion**

A sustainable location for commercial development has a temperate climate, good public transport, a multi-skilled and polycultural workforce and a stimulating social and physical environment. Such a location would be the ideal site for a successful city – and probably already is.