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## *URBAN AGRICULTURE IN LONDON*

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# EUROPEAN HEALTH21 TARGET 11

## HEALTHIER LIVING

By the year 2015, people across society should have adopted healthier patterns of living

*(Adopted by the WHO Regional Committee for Europe at its forty-eighth session, Copenhagen, September 1998)*

### ABSTRACT

London is a vibrant city which is visited each year by 10 million people for business and entertainment. Although London's health mirrors the national picture, variations within the capital reflect socioeconomic conditions. Beneath the dynamic interactions of people, products and activities lies a fundamental social, economic and environmental unsustainability. London's total footprint extends to about 125 times its surface area, i.e. it requires the equivalent of the entire productive land area of Britain to sustain itself. The food industry contributes significantly to the city's overall GDP. A limited amount of agricultural activity still goes on within the Greater London boundary, but it is mostly highly chemical-intensive and focuses mainly on arable and livestock production rather than fruit and vegetable growing, which could yield greater social benefits. Dependence on an increasingly globalized food economy is also growing, leading to a gradual decrease of essential life skills such as the ability to cook a meal. There are no well developed markets for urban agriculture in London. As regards the environment, growers are using fewer pesticides since the introduction of integrated pest management systems. What is now left of London's commercial agricultural food sector is under strain, squeezed between urban housing and other developmental pressures and a skewed system of agricultural support which favours large cereal producers over small growers. Market gardening always loses out. Land is scarce and very expensive and urban agriculture is not the most lucrative way of using it. Nevertheless since green and pleasant cities attract investment there are sound economic arguments for preserving London's open spaces, as well as environmental and social ones.

### Keywords

AGRICULTURE – economics  
FOOD PRODUCTION  
URBAN HEALTH  
UNITED KINGDOM

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## Background

London is 2000 years old. The area known as Greater London is divided into 33 areas or boroughs, each run by a locally elected council which in turn is directly responsible to national government. There has been no overarching London authority since the Conservative government abolished the Greater London Council in 1986. However, in the year 2000, a new democratically elected Greater London Authority (GLA) came into being, headed by a Mayor and guided by a Greater London Assembly. The GLA is responsible, among other duties, for strategic planning, transport, economic development, and the environmental sustainability of the capital.

Greater London covers around 157 800 ha (1)<sup>1</sup> and is home to 7 million people – 12% of the population of the United Kingdom. It is one of the most densely populated parts of the European Union, with average densities of 4480 people per km<sup>2</sup>, although in Kensington and Chelsea this is as high as 13 300 per km<sup>2</sup> (2). After decades of decline, London's population is growing again and is now 4.6% higher than at its lowest level in 1998 (2).

London is a vibrant, exciting city – each year 10 million people visit it for business and for entertainment (3). However, although at £79 billion, its economy is similar to that of Saudi Arabia, and the average household income is 15% higher than anywhere else in the country, the unemployment rate, at 9.1%, is 2% higher than the national average (2). Four of the ten most deprived boroughs in the country are in London: Hackney, Islington, Southwark and Tower Hamlets (4). The United Kingdom may be a first world country but the inequality levels are among the highest in the world (5) and in London this disparity is particularly striking. There are significant differences between different groups of people, especially between those living in the relatively wealthy outer London compared with the more deprived inner London.

Around 24% of London's population is of ethnic minority origin (2), who live predominantly in inner London. Many of them suffer disproportionately from unemployment and deprivation. In Tower Hamlets for instance, around 36% of the total population are from ethnic minority communities, with Bangladeshis making up 25% of the borough's population (6). Some 47% of Bangladeshis are out of work (7). Low educational achievement is another feature of life in inner London. On average a higher percentage of young people leave school without any qualifications than in the country as a whole (2). In wealthier outer London, however, educational attainment figures are either close to, or higher than, the national average.

Inequality and deprivation do not just work against the chances of educational success. The reality is that poverty kills (8). Although London's health as a whole mirrors the national picture, variation within the capital reflects socioeconomic conditions. So, wealthier boroughs such as Bromley and Barnet, are "healthier" than the national average (9) while in Tower Hamlets mortality rates are 10–20% higher than the average (6). East London and City, one of the most deprived and most ethnically mixed health authority areas in the country, has higher morbidity rates than most other parts of the United Kingdom, and within this area, death rates from almost every cause increase with levels of socioeconomic deprivation (10). It is only recently that the government has acknowledged poverty and a poor environment to be important contributory factors to preventable illness not only in their own right, but as underlying causes of other determinants, such as poor nutrition, low levels of activity and mental health problems (8).

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<sup>1</sup> This figure will vary according to the definition of London adopted.

Mental illness is another major health concern. London's suicide rate stands at 12.7 per 100 000 population, slightly higher than the national average of 9.9 per 100 000 (11). The acuteness of these and other problems reflect London's high proportion of at-risk communities (11,12). One study (13) observed more than twice the prevalence of common symptoms among the unemployed, including depression, depressive ideas, anxiety, obsessions, poor concentration and phobias (14), while certain ethnic groups, and homeless people are more likely to suffer from a range of acute psychiatric conditions. Research among selected general practitioners' practices in Tower Hamlets found that the incidence of the severest kinds of mental illness was between 10.4 and 16 per 1000 people compared with 7.7 per 1000 nationally (10). Taken together, these factors mean that the strain on emergency mental health services can be four times higher in inner London than in more socially privileged parts of the country (15).

Our sedentary lifestyles compound the problem. As a nation we may not be eating more in calorific terms than before but we are significantly less active. Only 8% of the population are sufficiently active at a level which encourages a reduction in the risk of coronary heart disease (16). Ironically, it is in fact *inner* London borough residents who are more physically active than suburban dwellers, reflecting lower levels of car ownership and better public transport – a twist to the poverty story (17). The irony gains a double twist since it is the outer London boroughs that have more green and open spaces for walking in than the inner London boroughs.

This said, large sections of inner London's population are physically very inactive. For instance, levels of physical activity among black and Asian ethnic minority groups are consistently lower than the national average (18). A range of factors stand in the way of more active participation, including lack of awareness, fear of racism, concerns about not fitting in, dress codes, and a sense that the activity in question is in conflict with cultural beliefs and values (19). Furthermore, although there are a plethora of exercise options available for those with time and money these are not always possible for low income groups.

London's environment is also under serious strain. The use of transport seems to be inexorably rising. In 1996, transport accounted for around 34% of all the energy used in the United Kingdom (20). Levels of nitrogen dioxide and particulate emissions in London regularly exceed national air quality guidelines. Traffic and car use has been increasing – between 1986 and 1995 there was a 20% increase in the amount of traffic travelling in and out of Greater London (21) and this is set to rise further, particularly in outer London. Even though more Londoners live in car-less households than the national average (39% as compared with 31%), car ownership in London is set to increase by 23 000 a year, from about 2 250 000 in 1991 to 2 700 000 in 2011 (2). Land shortages also present a problem. As it is, 87% of housing is on brownfield land (22), way above the government's target of 60%. According to government housing projections, London will need to accommodate a further 629 000 households between now and 2016 (23). Although over 60% of the total Greater London area comprises green space of one kind or another (24), housing and other development pressures are likely to see this land area reduced.

## **London's food system**

Beneath the dynamic interactions of people, products and activities lies a fundamental social, economic and environmental unsustainability. London's food system exemplifies, and in many ways acts as a powerful symbol of, the malaise at its core.

London's total footprint extends to about 125 times its surface area; in other words, it requires the equivalent of the entire productive land area of Great Britain to sustain itself (25). Each year, Londoners eat 2 400 000 tonnes of food (25). Most of this is purchased from supermarkets – the four largest supermarkets account for 67% of all food purchased (26). Much of it is sourced from all over the world. Over a fifth of the vegetables and 86% of the fruit eaten is imported (27) and this trend is set to rise. The environmental costs can be immense. In the last two decades the amount of food transported on United Kingdom roads has increased by around 30% and the average distance travelled by nearly 60% (20).

The by-product of food – waste – adds to the environmental problem. London produces 883 000 tonnes of organic waste a year (28). Households contribute 607 000 tonnes to this – some 40% of the total waste they produce. Although all of this could be composted, only 10% of Londoners do compost their waste (rising to 25% of households with gardens (28)); the vast majority is landfilled, creating polluting leachate and methane (28). Sewage is another unavoidable output of our food system. Although this too could be composted, hitherto most of it has been dumped at sea. With this option now banned it will be literally going up in smoke at two new purpose-built incinerators.

As far as food and the economy is concerned, the food industry contributes significantly to the city's overall GDP, and accounts for around 11% of total jobs in the city (29). However, these are generally very badly paid and of low status. A limited amount of agricultural activity still goes on within the Greater London boundary – there are around 13 566 ha (30) of farmland together providing around 3000 jobs (31). The glasshouses in the Lea Valley, for instance, parts of which are included in the Greater London boundary, produce around a third of the United Kingdom's output of cucumbers, as well as significant acreage of salads, peppers, tomatoes, and non-edible plants (32). But the London farmer is a dying breed and in any case hardly a model of environmentalism in action. Most agricultural activity is highly chemical intensive and, the Lea Valley example aside, focuses mainly on arable and livestock production, rather than fruit and vegetable growing, which could yield greater social benefits. It is perhaps symbolic that Heathrow, the world's busiest airport, was once a patchwork of market gardens, supplying the capital with fresh produce.

Our dependence on an increasingly globalized food economy is also growing, leading to a gradual erosion of what in many countries are ubiquitous, and essential, life skills. The ability to cook a meal, for instance, is a basic survival strategy. Nevertheless, research indicates that while 93% of British children aged 7–15 know how to play computer games, only 54% can boil an egg (33). As adults too, never before have we been cooking less. Instead we are buying “value-added” ready made food. This now accounts for nearly 35% of the average food bill (34).

Londoners' health is another major casualty of our food system. Cardiovascular disease accounted for 41% of premature deaths in London in 1996, followed by cancers at 24% (11). Better nutrition could have prevented many of them. Research suggests that an increase in fruit and vegetable consumption could in fact reduce the incidence of cancer by 30–40% (35), while around 30% of cardiovascular disease is diet-linked.<sup>2</sup> However, despite the abundance of fresh air-jetted produce in our supermarkets, far too few fruits and vegetables are consumed.

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<sup>2</sup> British Heart Foundation, personal communication, 1999.

## Urban agriculture in London: the present situation

Although London makes a very small contribution to the United Kingdom's overall agricultural production, the range and nature of such activity is broad. Food-growing takes place throughout the capital, from commercial farming on the urban fringe to cultivation on allotment sites, land owned or managed by local authorities, private gardens, windowsills and balconies. Approaches to food-growing include commercial enterprises, individual gardening activities and community food-growing, and the range of foods produced includes fruit and vegetables, meat, eggs, milk, honey and wine.

### Agricultural activities

#### **Commercial farm land**

There are 13 566 ha (30) of farmland (31)<sup>3</sup> in the Greater London area, of which 500 ha are under fruit and vegetable cultivation. Together they produce an estimated 8400 tonnes of fruit and vegetables and contribute £3 million to London's economy (extrapolating from national average productivity levels provided in the *Basic horticultural statistics for the United Kingdom: calendar and crop years, 1987–1997* (36)).

Horticultural production mainly takes place in the Lea Valley area to the north-east, beginning on and around the London boundary and extending 20–30 miles beyond central London. Larger enterprises are doing fairly well but smaller businesses are struggling – a familiar situation across the agricultural sector.

To the south and south-west of London, areas around Reigate, Banstead and Tandridge as well as parts of Sutton and Croydon are also used for horticulture – mainly, but not solely of the flower variety – as well as for set-aside land and golf courses. There is also one small farm of around 150 acres with a milking herd. Originally the land was owned by Surrey County Council, which allocated land to soldiers returning from the First World War as part of a Homes for Heroes scheme. Since then much of the land has been sold off under the Right to Buy scheme. There has, however, been some continuity of use, as some smallholdings have been in the same families since the First World War. Moving further outwards, sheep, cattle and arable farming enterprises predominate. Many farms are owned by landlords who are farming at a distance.<sup>4</sup>

Overall, the area under commercial cultivation is in decline (37) due to development and other pressures. Indeed, since 1949, landscapes on the urban fringe defined as “urban” have increased by 48% while agricultural landscapes have decreased by 7% (38). A phenomenon known as “hope value” has emerged whereby landowners allow agricultural land to become derelict in the hope that planning permission will eventually be granted for more lucrative types of development (39). Housing and other development pressures are likely to erode this land area further.

Furthermore, the requirement to reduce production under the Common Agricultural Policy means that otherwise good agricultural land is increasingly set aside or put to other uses. Although Bromley, for instance, has 70% of its open space in agricultural use, it is likely that the area under food production will fall (40). Instead, the Council's Countryside Services department

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<sup>3</sup> This figure combines the farming, forestry, hunting and fishing sectors.

<sup>4</sup> Conversation with Alex Baxter Brown, Downlands Countryside Management Project, Surrey County Council, July 1998.

is working in partnership with environmental organizations in creating nature trails, planting hedgerows and in woodland management (40).

### **Box 1. The Lea Valley: the Sea of Glass**

The Lower Lea Valley, extending outwards from north-east London, has been noted for its market gardens since the eighteenth century. Established on fertile loams and within easy reach of the London markets, the industry's growth was helped by a plentiful supply of water from wells and by rail access to coal for heating the glasshouses.

Up to the early 19th century most production was in the open, although some nurserymen grew hothouse pineapples, melons, grapes and peaches. In the early days, glasshouse production had to face competition from cheaper, refrigerated imports, but it took off after 1845 when the tax on sheet glass was removed and as glasshouse technology developed. During this period, however, the rapid growth of towns and the polluting effects of the nearby Great Eastern Railway pushed the nurseries out of Tottenham, Clapton and Edmonton and into areas such as Cheshunt, Wormley, Enfield, Nazeing and Waltham Abbey.

The early half of the 20th century saw further changes as a result of motorized transport, enabling greater distances to be travelled and reducing the industry's reliance on London markets, although these still remained the main outlet.

The Second World War halted the industry's growth and its further migration up the valley because neither the labour nor the materials for new greenhouses were available (many of which were destroyed by bombs), and in any case urban development was on hold. Flower and luxury food-growing were banned and the glasshouses were turned over to tomato production.

However, the industry boomed after the war, reaching its peak in about 1950 when around 1300 acres were under glass. After this the industry once again started to decline as labour became more scarce and overseas competition more intense. In the 1950s many Italians came to work in the nurseries – in fact there were so many that the Italian Government set up a Vice-Consulate in Cheshunt and Italian masses were held at local Roman Catholic churches. By 1978, 50% of horticultural growers were Italian, with a further 9% from other countries.

The oil crisis of the 1970s further weakened the industry, as by now the greenhouses were oil heated. In addition, much nursery land was compulsorily purchased for housing.

Today, at around 300 acres, the area under glass is smaller than ever before but productivity has more than trebled. The 200 or so horticultural enterprises in the area range in size from less than an acre to 20 acres. Greenhouses are automated and most growing is hydroponic, often in peat-based media and with the aid of artificial fertilizers. However, pesticide use is lower now as a result of integrated pest management techniques, while technological improvements have reduced energy use. Producers are represented by the local branch of the National Farmers Union, the Lea Valley Growers Association.

*Sources: (41,42).*

### **County farms**

Some outer London local authorities still own farms, which are usually run under the auspices of their leisure and countryside departments. The 600-acre Park Lodge Farm in Hillingdon, for instance, employs five people in managing a herd of 180 dairy cows as well as 250 ewes and an

assortment of goats, donkeys, horses and pigs. Some fodder maize is also grown. Although run as a commercial enterprise the farm also hosts occasional school visits. Council-owned farmland also tends to be leased out to individual tenants, often through commercial property managers.

### **Allotments**

There are around 30 000-odd active allotment holders<sup>5</sup> gardening on 831 ha of land, of which 273 ha are in inner London and 1776 ha in outer London (43). In inner London 4% of the total is vacant, and there are long waiting lists for plots (43) – in the borough of Islington, for instance, there is a one year wait for a plot. In outer London, the figure stands at 18% (43), perhaps reflecting the fact that many houses have gardens of a considerable size.

Allotment sites are largely owned and managed by local authorities which have a duty to provide and maintain them,<sup>6</sup> unless there is clear evidence of a lack of demand. Recently the government has added to this the duty to promote allotments (44). There are also a few privately-owned allotment sites, around 6% of the total, although this figure is in decline (43), suggesting that companies are now putting the land to more lucrative purposes.

Traditionally, allotment and other food-growing in urban areas has been a pastime for lower income, elderly or retired men.. In 1993, for instance, only 6% of allotment-holders in the United Kingdom were aged under 35 years, compared with 65% over 50 years (43). This picture is still largely true but it is beginning to change as people from different ethnic backgrounds, younger people and families, take up allotment gardening. New entrants also tend to be younger and from higher occupational classes (43).

Many, but not all allotment sites in the country have allotment associations which represent the interests and concerns of allotment-holders. Some of the more forward-thinking sites in London now have self-management agreements with the local authorities whereby the allotment association is responsible for collecting rents, laying down rules and regulations and maintaining the site. Self-management can drastically improve the quality and uptake of plots on the site.

The law regarding sale of allotment-grown produce is ambiguous. As a rule, sale for commercial purposes is not permitted unless it is for the benefit of the community. How this is interpreted depends on the local authority.

The National Society of Allotment and Leisure Gardeners (Box 2) is the organization which represents and promotes the interests of allotment-holders and allotment gardening. A national charity, it has been in existence since 1930.

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<sup>5</sup> Figure based on numbers of allotment sites and vacancy levels.

<sup>6</sup> Inner London Boroughs of Westminster, Kensington, Chelsea, City of London are exempt from the obligation to provide allotments, although many in fact do so.

## **Box 2. Allotments – a potted history**

Originally, allotments were rural smallholdings held by agricultural labourers. They were introduced in the 17th century as a compensation for the private enclosure by major landowners of land previously available for common use. During the Industrial Revolution in the 18th and 19th centuries, which drew the rural poor to urban areas, allotments became a feature of urban life. By 1908, the provision of urban allotments by municipal authorities became mandatory.

The First and Second World Wars gave a real boost to the allotment movement. With food imports cut off, there was an urgent need for the nation to sustain itself by its own efforts. The government initiated major food-growing campaigns to turn parks, wastelands and garden lawns into productive vegetable plots, and in the Second World War over 50% of manual workers kept a garden or allotment. Domestic hen-keepers produced about a quarter of the country's eggs, while pig-keeping provided an important source of meat.

In 1944, 300 000 acres of allotments and gardens were under crops throughout the United Kingdom, producing 1.3 million (imperial) tons<sup>7</sup> of food – 10% of all the food produced in the country, or around half the nation's fruit and vegetable needs (45). However, major rebuilding of housing, schools, hospitals and industries after the war saw a great deal of productive land lost. Its association with wartime deprivation also meant that the impetus to grow food waned. There was a brief resurgence in allotment gardening in the 1970s and today, the picture is mixed. In some parts of the country, there are long waiting lists for allotments, while in other areas plots stand vacant and overgrown.

## ***City farms and community gardens***

The City Farms movement started in the 1970s and now there are city farms in most parts of the United Kingdom. There are eight in London alone, ranging in size from around ½ acre (.25 ha) to 5 acres (2.5 ha). Although there is usually some horticultural production (a mixture of individual allotment plots and communally kept beds) this takes second place to animal-keeping. Many keep unusual or non-commercial breeds of poultry, sheep and goats as well as non-native animals such as llamas. There may also be a café or shop on site selling some of the farm's produce.

City farms serve a primarily community and educational role, providing a day out for families and a source of educational activities for school groups. Some have developed teaching packs which link the farm's activities with school curriculum requirements. For many urban children, particularly inner-city residents, a visit to the city farm can be the first time they come into contact with agricultural animals and food-growing in the ground.

City Farms tend to be funded through a mixture of sources, including local authorities and charitable trusts, and managed by local members of the community. Almost all city farms in the country are affiliated to the Federation of City Farms and Community Gardens, a charity that works to promote and support community farming and gardening.

Community gardens are located throughout the city, on housing estates, near railways, on temporarily available land and in community centres. In most instances community gardeners grow mainly flowers and ornamental plants although fruit trees, herbs and tomatoes are also common.

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<sup>7</sup> Or 1.32 metric tonnes.

Together, London's city farms and community gardeners draw in around 650 000 visitors a year – roughly 10% of London's population (46).

### **Private gardens**

At least half of London's 2.8 million households have gardens (47). It has been estimated that put together, they comprise nearly 20% of the total area of Greater London (24) – around 30 455 ha, or roughly the size of the Isle of Wight.

### **School gardens**

Although schools have a duty to provide their pupils with sufficient space for physical exercise classes, most London playgrounds are very small and concreted over with little or no vegetation in sight. However, some schools, mainly primary or first schools, have dug up the grey tarmac and created beds for fruit and vegetable-growing instead. The amount they grow is usually minute, because the plots are usually tiny and the purpose is educational rather than nutritional.

### **Orchards**

The United Kingdom is home to around 2000 native species of apple. However, the Common Agricultural Policy has caused a dramatic decline in the number of orchards. In response, the charity Common Ground<sup>8</sup> has been promoting the “community orchard” – small, locally managed, usually organic fruit orchards – in order to raise awareness of Britain's rich and varied apple heritage. There are around 15 community orchards in London, containing both ancient and newly planted trees, and many more in the region surrounding London.<sup>9</sup> They form the focus for a variety of community cultural and environmental activities, from annual Apple Day harvest celebrations to tree-planting sessions, picnics, school trips and so on.

### **What does London produce?**

London produces a wide variety of produce from grapes (even commercially) to aubergines, potatoes, cauliflowers and cabbages. An estimate of how much is produced is not available. Nevertheless, as an indication, roughly 8400 tonnes of vegetables are produced commercially, while London's allotments produce around 7 tonnes.<sup>10</sup> To this must be added unquantified amounts from back gardens, community orchards, city farms and community gardens as well an approximate 27 tonnes of honey and meat, milk and eggs.

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<sup>8</sup> A charity working to encourage the sense of local distinctiveness and local identity through the promotion of community orchards and other activities.

<sup>9</sup> Common Ground, personal communication, January 1999.

<sup>10</sup> National Society of Allotment and Leisure Gardeners/Federation of City Farms and Community Gardens, personal communication, January 1999. Their figures are based on research undertaken in 1975 by the Royal Horticultural Society into crop yields on a 30 × 100 ft allotment. As these yields were an example of best practice not achievable by all, the productivity rates are halved here. The figure only includes occupied allotments and not those which are vacant or derelict.

## **Involvement in urban agriculture**

### ***Organizations***

A number of national and local organizations work to promote the interests of people engaged in urban agriculture, including those already mentioned (the National Society of Allotment and Leisure Gardeners, Common Ground and the Federation of City Farms and Community Gardens). The Permaculture Association of Britain works to promote permaculture and strongly emphasizes the value of urban food-growing. The Soil Association, a long-established charity which promotes organic agriculture and sets organic standards in the United Kingdom, supports urban food production as part of its campaign to promote local food links between producers and consumers. More specifically, it is developing its Food Futures initiative which brings stakeholders together to develop a strategy for creating a local food economy for their area. It is looking to set up Food Futures groups in several locations in London as well as elsewhere throughout the country. The Henry Doubleday Research Association runs a Grow Your Own Organic Fruit And Vegetables campaign.

Other institutions have made mention of the value of urban food-growing, including the Chartered Institute of Environmental Health and the London Planning Advisory Committee which states: “The value of agricultural land in contributing to sustainability is clear” and recommends that “agricultural land within and adjacent to London needs to be maintained in productive use, particularly the land of highest quality” (37). Sustain’s City Harvest in London project has worked specifically to promote urban food-growing in London.<sup>11</sup>

The recent Department of Transport, Environment and the Regions Select Committee appointed to consider the future for allotments, draws attention to the benefits of urban food production and recommends that “there is a need for urgent action to protect existing allotment sites” (48).

### ***Gardeners***

Gardening is extremely popular. There are gardening programmes on the television at prime viewing hours almost every night. The garden industry is worth £2.7 billion a year, with consumers spending around £1665 million of this on plants, tools and garden furniture.

Four fifths of British adults claim to garden in one way or another and 39% describe themselves as keen, spending as much time as possible in the garden (49). Some 14% of Londoners (13% nationally) grow at least some of their own fruit and vegetables but there is considerable variation within this figure, with the percentage rising to 21% among people aged over 65 years and falling to 5% among 20–24-year-olds (49). People falling within the AB social brackets are also more likely to grow their own vegetables (18%) than people in C (13%) or D and E (11%).

## **Markets for urban produce**

There are currently no well developed markets for urban agriculture in London. Most of the produce grown in the Lea Valley tends to be bought up by supermarkets,<sup>12</sup> which in turn distribute it across the region. Allotment and community-grown produce is either eaten by the

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<sup>11</sup> Formerly the SAFE Alliance and National Food Alliance.

<sup>12</sup> Lea Valley Growers’ Association, personal communication, January 1999.

growers and their families or shared among friends. Some is exchanged through Local Exchange Trading Schemes.

In addition, there are 13 registered organic box schemes in London as well as many other unregistered schemes which sell organic produce.

## **Environmental aspects of urban agriculture in London**

There are almost as many ways to grow food as there are growers. Some improve the natural and social environment while others are positively damaging. The mainly hydroponics-based commercial horticulture in the Lea Valley, for instance, is highly energy-intensive, relying on artificial heating and lighting, fertilizers and soil-less media such as rockwool and peat.<sup>13</sup> The produce is mostly sold on to supermarkets which distribute it on a centralized basis, so bypassing local shops. Growers do, however, use fewer pesticides now, since the introduction of integrated pest management systems.

Non-commercial food-growing presents a more mixed picture. Some allotment growers drive to their plots – having first driven to an out-of-town superstore for artificial inputs and peat – before spreading the ground with an array of chemicals. One national study (50) suggests that around 38% of allotment growers drive to their plots, while 75% use insecticides and a third weedkillers (50). Although no evaluation has been carried out, a grower doing all of these things may well negate the environmental contribution he or she makes growing the food; once all the inputs have been taken into account, the food is only nominally local.

Many other growers, however, walk to their plots, compost their waste and garden organically. There is a fast growing interest in organic gardening. Membership of the Henry Doubleday Research Association (HDRA) for instance, grew from 6000 in 1986 to 25 000 in 1999.<sup>14</sup> Membership is strongest in the south-east and, in addition to the national members, there are now 11 local HDRA groups in and around London.

Food seems to catalyse environmental concern and action. People are starting to think before they swallow, as the rise in organic food sales indicates. Thus while domestic garden chemical use is growing fast, from 1354 tonnes of active ingredient in 1992 to 2285 tonnes<sup>15</sup> in 1997, the problem, it appears, lies more with the lawn than the leek. Herbicides – used on lawns and hard surfaces such as driveways – account for all the increase while sales of insecticides and fungicides – substances more likely to be used by food-growers – fell from 440 tonnes in 1992 to 266 in 1997.<sup>16</sup>

Many community food-growing schemes have clear environmental aims:

- to promote biodiversity through organic growing
- to reduce waste through recycling and composting, and
- to minimize food transportation through local food production.

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<sup>13</sup> Lea Valley Growers Association, personal communication 1999 and (32).

<sup>14</sup> HDRA personal communication February 1999.

<sup>15</sup> These figures should be treated with some caution, as a wet summer can cause fluctuations.

<sup>16</sup> These figures include pesticides, herbicides and “other”.

Becontree Organic Growers, for instance, not only cultivates organically but does so without the use of mains water. It also recycles practically everything – from municipality-donated leaves (for compost), to old rubber conveyor belts (for compost bins) to old supermarket trolleys (for climbing beans). Green Adventure in South London and Growing Communities in North London both grow food locally, manage box schemes which source from growers near London, and carry out a range of conservation and other activities. Although most city farms do not have an explicitly organic remit, many are organic, to avoid the risks incurred by using chemicals around young children. Most also compost their vegetable waste and manure and provide a cheap source of compost for the local community.

Waste reduction through composting is perhaps one of the most visible benefits of food-growing schemes. This is not confined to community-based activities. One Southwark-based survey suggests that 70% of allotment gardeners compost their waste, compared with just 30% of household (largely non food-growing) gardeners (51).

The relationship between local food-growing and reduced food miles is less clear. Although eating spinach grown in London rather than Spain probably does help reduce food miles (unless it is grown very intensively), if the amount of food grown is small, the impact will be negligible. Although many allotment growers grow significant quantities of vegetables, many community schemes yield very little per participant.

This said, some United States-based research suggests a more positive picture. This found that the food growers surveyed did indeed eat more – and more seasonal – vegetables than their non-gardening counterparts, and consumed less citrus fruit and fruit juice, which they would not have been able to grow. In this case gardening may indeed reduce both food miles and the environmental impact of food processing (52). Another study from California indicates that a 4500 sq ft plot (418 m<sup>2</sup>) can supply virtually all the food an individual requires, providing space not just for growing but also for composting and other necessary activities. Relatively little land is needed to create an ecologically closed loop and practically eliminate food transportation. However, the amount of land is not available for everyone in London even if the climate were amenable to food-growing. But the California experiment does show that urban food-growing can play a significant role in reducing food miles and it also provides a useful standard against which to measure attempts at self-sufficiency. Moreover, total self-sufficiency is not useful – bulk calorie crops are better grown outside the city where land values are lower and there is more space available.

## **Economic aspects of urban agriculture in London**

What is now left of London's commercial agricultural food sector is under strain. To an extent, London's agricultural sector is squeezed between urban housing and other developmental pressures and a skewed system of agricultural support which favours large cereal producers over small growers.

Market gardening always loses out. While there are no specific policies to support small producers, horticultural or otherwise and organic or otherwise, horticultural growers receive lower levels of agricultural support than any other farming sector.<sup>17</sup> The consequences are that

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<sup>17</sup> Vicki Hird, *Double Yield: Jobs and sustainable food productions, safe alliance*, 1997 (SAFE = Sustainable agriculture, food and environment).

the notion of a profitable small-scale, organic horticultural enterprise is virtually a contradiction. One award-winning organic herb producer<sup>18</sup> is unable to make a living from horticulture, and in fact subsidizes her one-acre farm through her writing. Faced with overwhelmingly strong competition from well supported organic producers overseas, it is hardly surprising that 80% of organic fresh produce is now imported (53).

This is a pity, since it is in the fresh produce market that customer demand for organic produce is highest (53). The green lobby is not alone in campaigning for more support for organic farming. Recently, a group of the country's leading supermarkets<sup>19</sup> expressed its frustration at the lack of domestically-grown organic food supplies in the face of ever-increasing demand from consumers, and is calling for greater support for United Kingdom organic farmers (54).

For community food growers, the situation is even less lucrative. There is at present not a single project in London which is even remotely self sufficient – all are reliant on grant funding, volunteers' time or both. In fact, except for some coriander-growing on allotment sites for sale in local food shops (probably illegal, although most local authorities turn a blind eye), most food production in London is not only non-commercial but not primarily motivated by financial considerations.

The situation was different a few years ago. Allotment gardening was traditionally a working class pursuit which combined recreation with a way of supplementing the household budget. Now, while undoubtedly a welcome contribution for some, cost savings usually come fairly low on many allotment gardeners' list of reasons to garden (50). Those new on the allotment scene tend to be younger, more educated, often middle class (50) (as opposed to older gardeners who are more likely to be working class), suggesting that for subsequent generations, cost savings are likely to be even less important.

A 1993 survey found that allotment gardeners spent around £50 a year on gardening inputs (50), roughly equivalent, allowing for inflation, to the £84 which the average household (largely ornamental) gardener spent in 1997 (49). Although the aesthetic and other pleasures of growing flowers have a value in their own right, food growers gain a very tangible, or rather edible, return on their investment and one which can be costed. The National Household Survey estimates the total value of allotment and garden produce in London to be £1.19 million (44) while one US study (52) of 150 vegetable plots found that the average net economic value of the produce grown was around \$113 a year.

The Local Exchange Trading system (LETS) is another way of assigning value to locally grown food. Although it constitutes a very small part of LETS activity, the charity LETS-Link UK estimates that virtually all of the United Kingdom's 450-odd schemes trade in food, with around 10% running LETS-Grow and LETS-Eat schemes specifically to encourage more food-growing and exchange.<sup>20</sup> Green Adventure and Growing Communities, two organic box schemes, accept LETS as part payment for its vegetable boxes while North London LETS has just started a LETS café which accepts LETS currency. It has also received funding to provide non-vocational qualification training in food-handling.

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<sup>18</sup> Personal communication, July 1998. The farm is outside London but it is only one acre so the situation could apply to London.

<sup>19</sup> Asda, Co-operative, Iceland, Marks and Spencer, Safeway, Sainsbury, Tesco and Waitrose.

<sup>20</sup> Liz Shepherd, LETS-LINK UK coordinator, personal communication, January 1999.

Given its potential economic value, some organizations have started community food-growing schemes with the explicit aim of benefiting and involving low-income groups. This, however, has often proved difficult. Ironically, perhaps, it is the middle-income groups, who have less need of the financial benefits food-growing can bring, who may have contributed most to the alternative and informal food economy.

Community schemes can create a sense of purpose among participants and serve valuable social and recreational functions. By promoting mental and physical wellbeing and so reducing the incidence of serious and expensive illnesses such as cardiovascular disease, they can lessen the burden on public bodies such as the National Health Service and the Social Services. Many projects involve people with special needs, all of whom have a right to work or carry out purposeful activity but who need extra financial and other support. Added to these social gains are the environmental benefits of sustainable food production and the costs avoided by engaging people in leisure activities which are *not* damaging. Moreover unpaid voluntary work has its own monetary value; one study suggests that for every £ an organization invests in a volunteer, the organization gets back between £2 and £8 worth of work (55).

The New Economics Foundation (56) has challenged the usefulness of gross domestic product as an indicator of national economic progress, suggesting an alternative index of sustainable and environmental welfare, which incorporates non-monetary costs and benefits. The emphasis here is not on “how much money can we earn?” but on “what do we need in order to sustain a high quality of life?” Rather than valuing abstractions, namely money in circulation, it considers just what the money is meant to achieve – food, health and hope for all.

A number of organizations are developing economic initiatives that incorporate social and environmental objectives. The Soil Association’s Food Futures programme brings together private, public and voluntary organizations and individuals to develop a sustainable local economic food strategy for their area. Still in its early stages, the programme has nevertheless generated interest among some local authorities in London and throughout the country. The British Trust for Conservation Volunteers (BTCV) has secured European funding to develop social enterprises in East London, as has the newly established Social Enterprise London. The International Common Ownership Movement (ICOM) promotes the development of cooperatives many of which have an explicitly social and environmental remit. All these could play a part in promoting food-growing and related business on their own, in partnership with local regeneration schemes and at a wider level, with the London Development Agency.

## **Physical factors affecting food production in London**

Food is grown on all types of land in London, from urban greenbelt to back gardens, allotments, parks, vacant and temporary patches of land and even in the grounds of hospitals.

The availability and quality of land are fundamental to any discussion of agriculture. At the moment nobody knows either how much open space there is in London nor whether, and to what extent, it is contaminated. Local authorities, for instance, may know how much land they own but usually no more than this. To remedy the situation the London Planning Advisory Committee has undertaken, and nearly completed, a survey of London’s open spaces. Invaluable though this will be, it will not cover sites smaller than a hectare and so, effectively excludes many community food-growing areas. Neither will it help identify land which could potentially be cultivated.

However, the findings will inform the planning of the new Mayor's Spatial Development Strategy which in turn will have to consider the environmental, economic and social implications of its strategies (57).

## **The urban fringe**

The urban fringe has increasingly become London's dumping ground, home to activities such as sand and gravel pits, refuse disposal sites, kennels, equestrian centres, golf courses and driving ranges, and facilities for noisy sports as well as car-breaking, horse-keeping, car boot sales, Sunday markets, car storage, motorcycle scrambling and caravan sites (39). Agricultural enterprises face additional problems such as vandalism and tipping. This is sometimes so severe that farming becomes unprofitable and agricultural land is left to deteriorate (39). These obstacles need to be addressed and, where necessary, removed because urban agriculture could potentially yield a far greater range of benefits than many of the other uses of such land.

Land ownership complicates the matter. Land may be owned by one council but managed by another, which in turn contracts out the management to a separate company which leases the land to individual tenants.<sup>21</sup> Alternatively the land might be owned by private individuals, private firms and bodies such as the Corporation of London. Faced with this patchwork of ownership, the logistics of devising a coherent policy framework in agriculture are tortuously complex.

However, policies do exist – both national and regional – which support a more environmentally productive approach to the area surrounding London. The 1995 Planning Policy Guidance 2 lists the uses of greenbelt land as being to:

- provide opportunities for access to the urban countryside for the urban population
- provide opportunities for outdoor sport and outdoor recreation near urban areas
- retain attractive landscapes, and enhance landscapes near to where people live
- improve damaged and derelict land around towns
- secure nature conservation interests, and
- retain land in agricultural, forestry and related uses.

Sustainable food production could provide for or contribute to all the above and not just the agricultural uses listed. Government Guidance on Green Belt and Metropolitan Open Land, section 7 states that boroughs should “encourage the maintenance and support of agriculture as a major economic activity in the Green Belt (reflecting the advice of PPG2 and PPG7 on retaining and protecting the best and most versatile agricultural land).” It also advises them to:

- set out strategic policies for the long-term future of the Green Belt;
- include land use policies which support efforts to improve the nature conservation and landscape character and quality of the Green Belt and Metropolitan Open Land (MOL);
- include policies and proposals which exploit opportunities for the outdoor recreational use of the Green Belt and MOL including increased public access where this does not conflict with other environmental objectives.

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<sup>21</sup> There are, for instance, commercial small holdings owned by Surrey County Council but within the administrative boundaries of Sutton, which has contracted out the management of the land to private agents, who deal with the leasing of land to tenant farmers.

The London Planning Advisory Committee – now assimilated into the new Greater London Authority – argues that the “value of agricultural land in contributing to sustainability is clear.” It points out that “Reduction in the amount of travel is one of the basic tenets of sustainability. This can apply equally to goods as to people. Therefore the distance that food has to travel from farm to shop to consumer should be reduced if possible. In order to achieve this, agricultural land within and adjacent to London needs to be maintained in productive use, particularly the land of highest quality.” (37) It also warns that “Once agricultural land has been sterilised by built development or mineral extraction it is generally lost to agricultural production.” (37).

### **Built-up areas**

Land is scarce in London. It is also very expensive and urban agriculture is not the most lucrative way of using it. Nevertheless since green and pleasant cities attract investment there are sound economic arguments for preserving London’s open spaces, as well as environmental and social ones. Furthermore, the government’s strategic guidance advises that in “meeting London’s housing need ... full account must be taken of the value of existing public and private open space. The proper provision of open space should be part of planning for new residential developments, especially in areas of deficiency.” (58).

The Mayor of London will have to prepare a sustainable development strategy for London that considers environmental and social as well as economic factors. Sustainable food production can integrate and contribute to all three. Of course it is unrealistic and undesirable to suggest that large parts of London be ploughed up for agriculture; this would run counter to the many social and environmental arguments in favour of dense, compact cities. However, urban agriculture does not have to compete with housing and other forms of development; many food-growing activities can and do squeeze into those pockets of land which are too small for other uses. A strategy to promote food-growing could make better use of land which has already been designated as green space but which is neglected or underused and in need of a face-lift.

Parks are one example. Although often well used and valued, inadequate funding and poor management (59) has turned some of them, or some parts of them, into no-go waste areas, perceived to be dangerous or simply unattractive. There is real potential for turning them into productive gardens producing food for local consumption, as Growing Communities is already doing. It is essential, however, that the local community supports and manages such schemes. Otherwise they can be resented as an appropriation of public space.

Land surrounding housing estates also has food-growing potential and there are a few initiatives already under way across the country. Back gardens are another major resource. Some 13% of the population (14% in London) already grows at least a few herbs and the odd tomato plant and, although it is up to individuals to cultivate their gardens as they please, public campaigns by local authorities and the new London-wide authority could encourage more people to use them for food-growing. There may also be opportunities for small-scale commercial cultivation, providing planning permission is received and health and safety standards are met. On a more informal basis, those unable or unwilling to do their own gardening may be ready to allow others to cultivate their gardens in return for a share of the produce.

A food-growing strategy would also include allotments and their promotion. Many councils are under tremendous pressure to sell sites off to developers in order to generate much-needed income and meet housing needs. There is therefore a risk that councils may neglect their duty to promote and maintain allotments either because they have more urgent demands on their time

and money or to reduce public demand. Poorly managed and advertised allotments are unlikely to attract or keep plot-holders, enabling councils to cite lack of demand as justification for putting the land to other use. However, once green space is lost, it is lost forever, with potentially serious consequences both for London's wildlife and the happiness of its people.

## Project profiles

Boxes 3 and 4 contain examples of two projects.

### **Box 3. Grazebrook Treescape Project**

Colleen Buzzard, Grazebrook Primary School, 87 Queen Elizabeth's Walk, London N16 5UG  
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Grazebrook is typical of many 1960s-built inner city primary schools with half its 400-odd pupils of minority ethnic origin and 24 different languages spoken. Some are refugees and asylum-seekers. Around 30% receive free lunches.

In 1993 one concerned mother galvanised action to tackle the school's general state of dilapidation. This led to improvements first on the buildings, and then the school grounds. In July 1995 a Playground Week and an exhibition bringing children and parents together to develop ideas for improving the grounds prompted a fund-raising drive. With money from the Shell Better Britain Campaign, British Telecom, the Local Projects Fund, Learning Through Landscapes, Hackney Council and elsewhere (children even contributed their pocket money), a landscape architect was commissioned who worked with children, staff and parents on their ideas.

The grounds now have a 60 metre pollution shelter-belt, planter tubs, a pergola, "gardens of the world" series of habitats, and compost-making areas which make use of the school's kitchen scraps and leafmould donated by the local park. There is also a large vegetable plot where children grow vegetables from all over the world, making this a cross-cultural garden. A Green Gang gardening project meets every Friday afternoon and a rota ensures that every class takes a turn on the garden. Teachers are now increasingly using the garden for teaching. The school also hosts an annual Farmers' Market, open to the whole community, with tasting sessions, locally produced honey, workshops and more.

Parents are involved in all sorts of ways – by donating plants, helping with the work and, more recently holding cookery classes in the school kitchens. With their autumn 1998 glut of pumpkins, the children made Syrian kibbeh, pumpkin bread, pumpkin and apple salad and pumpkin soup. They served the food to about 100 parents at an enormously successful school social evening. The children also take vegetables home and then report with great enthusiasm how they have cooked them. For many children the project has introduced them for the first time to eating fresh produce. The children are enchanted by eating food they have grown, with the reception classes eating radishes straight from the ground with tremendous relish.

With three head teachers passing through the school in two years, the school has been through difficult times. An official report singled out the gardening project for praise and urged the school to keep it going. The project has attracted a great deal of positive publicity. Recently pupils and parents involved in the project represented the school at a conference entitled Gardens for the Third Millennium in Assisi, Italy.

Most rewarding for the participants is the opportunity for "real" work together. As one of the five-year-olds put it while raking leaves, "Work is my favourite thing and my mum never lets me do it!"

#### **Box 4. Dartford Road Allotments**

Graeme Laidlaw, 262 Princes Road, Dartford DA1 2PZ. Tel.: +44 01322-409184

Dartford Road Allotments is an example of “dig local, link global”. It combines practical activities to improve the natural and social environment with democratic and autonomous management and extensive links with organizations in and beyond Dartford.

The Allotment Association, whose membership includes all plot-holders, was formed in 1991 as an initiative of the local garden society. In 1991 it assumed legal responsibility for all the financial and other affairs of the allotments. Day-to-day work is carried out by a democratically elected committee with around 12 members, which appoints the trustees.

One of the first steps it took was to double the rent, a move which has delivered results. There are now 12 water points on site compared with 4 in 1991 and all water is metered. Rubbish has been cleared away. Many of the constructions on site are now made of recycled materials. A twice-yearly newsletter keeps members in touch with news, while the local garden society runs a hut selling horticultural supplies.

The improvements have greatly increased the site’s popularity. In 1991, only 76% of it was legally tenanted; now the site is full and has a waiting list. There are now 115 tenants on what were originally 98 plots, this subdivision helping to meet demand and to make cultivation easier for busy, often younger people. There are more of these now, with the typical plot-holder around six years younger than before 1991.

The site is also home to a range of community activity. Barbecues three times a year regularly attract 60–80 people late into the night and group arrangements such as bulk-buying of manure are common. There are also coach trips, and the garden society organizes monthly horticultural lectures and an annual flower and vegetable show. There is a plot for people with learning difficulties and the association is working with a local mental health charity to get the scheme going on another site too. One plot rented by the probation service will be producing meals for the elderly in East Dartford, and offenders have also helped out with general site maintenance. Schoolchildren have used the site to carry out a recycling survey.

The Association has developed various ways of coping with its popularity. It has now formed an overspill agreement with nearby sites, which has also helped to increase the take-up more generally in the area. When plots become vacant, priority goes first to people living nearby and second, to Dartford residents. Tenants who do not keep up their plots are encouraged either to take smaller plots or to cancel their tenancies in return for a place on the Priority Reapplication List, which puts them at the top of the queue if they want to return.

The Association’s activities go beyond the site. It is active in the Local Agenda 21 Forum and catalysed the development of an Allotments Group. The Association has also been the driving force behind other groups on health, biodiversity and waste management and members are now helping set up a Food Forum which will work to develop a sustainable local food economy.

## References

1. DAVIES, L. *Four World cities: a comparative study for the Department of the Environment and the Government Office for London*. London, University College and Comedia, 1996.
2. *Focus on London 98*. London, Stationery Office, 1998.
3. *State of the environment report for London 1996*. London, London Planning Advisory Committee, 1997.
4. *1998 Index of social deprivation*. London, Department of the Environment, Transport and the Regions, 1998.
5. *Income and wealth: the latest evidence*, 1988 (Joseph Rowntree Foundation Report I, Findings Ref. 368).
6. *Tower Hamlets housing strategy statement 1999–2000*. London Borough of Tower Hamlets, 1998.
7. *Health in the East End: annual public health report 1998/99*. East London and the City Health Authority, 1998.
8. *Our healthier nation: a contract for health*. London, Department of Health, 1998.
9. BARDSLEY, M. & HAMM, J. London, East London and City Health Authority, The Health of Londoners Project, 1995 (discussion paper: *London health and lifestyles: a review of health and lifestyle survey in London*).
10. *Health in the East End: annual public health report 1997/98*. East London and City Health Authority, 1998.
11. *The health of Londoners: a public health report for London*. Summary, The Health of Londoners Project. East London and City Health Authority, 1998.
12. KING, M. ET AL. Incidence of psychotic illness in London; a comparison of ethnic groups. *British medical journal*, **309**: 1115–1119 (1994).
13. MELZER, H. ET AL. *Psychiatric morbidity survey for England*. London, HMSO, 1995.
14. BARDSLEY, M. & MORGAN, D. *Deprivation and health in London: an overview of health variations within the capital*. The Health of Londoners project, (briefing paper November 1996).
15. DUFFETT, R. & LELLIOTT, P. Psychiatric emergencies: a dilemma for London Mental health services. In: Boyle, S. ed. *The guide to the health services in the capital*. London, King's Fund, 1996 (London Monitor No. 3).
16. HEALTH EDUCATION AUTHORITY AND SPORTS COUNCIL. *Allied Dunbar National Fitness Survey: Main Findings*. Health Education Authority and Sports Council, 1992.
17. BARDSLEY, M. ET AL. *London health and lifestyles: a review of health and lifestyle surveys in London*. The Health of Londoners project, 1997 (discussion paper).
18. ACHESON, D. *Independent inquiry into inequalities in health report*. Stationery Office, 1998.
19. *Guidelines: Promoting physical activity with black and minority ethnic groups*. Health Education Authority, undated.
20. Transport Statistics Great Britain. London, Department of the Environment, Transport and the Regions, 1998.
21. *London Research Centre annual report 1997/8*.
22. BREHENY, M. & HALL, P. *The people: where will they go?* Town and Country Planning Association, 1996.
23. London Planning Advisory Committee. *Response to the Government's Green Paper 'Household Growth – Where Shall We Live?'* London Planning Advisory Committee, 1997.
24. DAWSON, D.G. & WORRELL, A. *The amount of each kind of ground cover in Greater London*. London Ecology Unit, 1992.
25. GIRARDET, H. *Urban growth and the environment*. Hong Kong, Congress Report, 1995.
26. MITCHELL, S. *Checking out the supermarkets: competition and retailing*. Report published by Office of Colin Breed, MP, 1998.
27. *Fresh market review*. Ministry of Agriculture, Fisheries and Food, 1997.
28. MURRAY, R. *Reinventing waste: towards a London waste strategy*, E colog:lea, 1998.
29. RUMFITT, A. & HEASMAN, M. *Food sector briefing paper No. 1*. Thames Valley University/West London TEC, 1996.
30. *Agricultural and horticultural census*. Ministry of Agriculture, Fisheries and Food, 1997.

31. *Labour market trends*. Office of National Statistics, 1998 (Table B16).
32. *The glasshouse industry of the Lea Valley: a brief outline of its history and its present state*. Lea Valley Growers' Association, 1993.
33. MORI. *Children's cooking skills*. Research for the Get Cooking! Project, fieldwork March 1993, data released June 22 1993.
34. STITT, S. *Schooling for capitalism: food education and the national curriculum*. Liverpool, John Moores University, Centre for Consumer Education and Research, 1995 (discussion paper).
35. *Food, nutrition and the prevention of cancer: a global perspective*. World Cancer Research Fund, 1997.
36. *Basic horticultural statistics for the United Kingdom: calendar and crop years, 1987–1997*. Ministry of Agriculture, Fisheries and Food, 1998.
37. *State of the environment report for London*. London Planning Advisory Committee, 1995.
38. LAND USE CONSULTANTS. *Landscape change in London's green belt and metropolitan open land: a study of strategic policy*. London Planning Advisory Committee, 1993.
39. *Planning in the urban fringe: final report of the joint special advisory group*. Department of Environment, Development and Transportation, Cleveland County Council, 1992.
40. *Bromley's woodland future: indicative forestry and woodland strategy*. London Borough of Bromley, undated.
41. ROOKE, P. The Lea Valley nursery industry: the growth and decline of market gardening in SW Herts. *Hertfordshire's past*, **42**: (1997).
42. LEWIS, J. *London's Lea Valley: Britain's best kept secret*. Phillimore and Co. Ltd., 1999.
43. CROUCH, D. *English Allotments Survey: report of the joint survey of allotments in England*. National Society of Allotment and Leisure Gardeners Ltd and Anglia Polytechnic University, 1997.
44. *The Government's response to the Environment, Transport and Regional Affairs Committee's report, The Future for Allotment*. London, The Stationery Office, 1998.
45. CROUCH, D. & WARD, C. *The allotment: its landscape and culture*. Mushroom Bookshop, 1994.
46. Federation of City Farms and Community Gardens, London, 1999.
47. *Composting in London*. London Pride Waste Action Programme, 1997.
48. ENVIRONMENT, TRANSPORT AND REGIONAL AFFAIRS COMMITTEE. *The future for allotments: report and proceedings of the Committee*, Vol. 1. London, The Stationery Office, 1998.
49. *Gardening review*. MINTEL, 1997.
50. SAUNDERS, P. *Towards allotments 2000: national survey of allotment gardeners' views in England and Wales*. National Society of Allotment and Leisure Gardeners, 1993.
51. *Southwark Home Composting Survey*. Community Recycling in Southwark Project, 1997.
52. A dietary, social and economic evaluation of the Philadelphia Urban Gardening Project. *Journal of nutrition education*, **23**: 161–167 (1991).
53. *The organic food and farming report*. Soil Association, 1998.
54. *Organic food news*, **10**: (1998).
55. GASKIN & DOBSON, B. *The economic equation of volunteering: a pilot study*. Loughborough University, Centre for Research in Social Policy, 1996.
56. *More isn't always better: a special briefing on growth and quality of life in the UK*. New Economics Foundation and Friends of the Earth, 1998.
57. *A mayor and assembly for London: The Government's proposals for modernising the governance of London*. Department of the Environment, Transport and the Regions, 1998.
58. *Strategic guidance for London planning authorities*. London, HMSO, 1996 (RPG3).
59. GREENHALGH, L. & WORPOLE, K. *Urban parks and social renewal*. Comedia/Demos, 1995.