TRENDS IN WORLD URBANISATION

CHRISTOPHER WATSON

Centre for Urban and Regional Studies, The University of Birmingham, UK

Almost two and a half billion people representing 45 per cent of the world's population live in urban areas. In 1990, 37 per cent of the developing world's population lived in urban areas and about one third of the urban population in the developing countries lived in urban slums and shanty towns.

In 1990, more than 75 per cent of all South Americans were living in urban areas, the highest degree of urbanisation in the world. Europe ranked second with a little more than 73 per cent of the population in urban areas. The highest urban growth rate between 1960 and 1990 was in Africa at 4.9 per cent, compared with a global annual rate of 2.8 per cent (UNCHS, 1992).

The tremendous growth in urban population that has been seen through the latter half of the present century is a consequence both of demographic change and, in developing countries particularly, of substantial and continuing migration from rural to urban areas. These trends are expected to continue well into the twenty-first century (Table 1).

Table 1 also shows the differential rates at which the population in urban areas has grown since 1970 and is expected to grow to the year 2010. In the so-called First World, consisting of the more

Table 1   Percentage of Population Living in Urban Areas by World Region 1970-2010

Region	Percentage Urban				
	1970	1980	1990	2000	2010
World	37.2	41.2	45.2	51.1	56.5
First World	66.6	70.2	72.6	74.9	77.9
North America	73.8	73.9	75.2	77.3	80.2
Europe	66.7	70.3	73.4	76.7	80.1
Japan	71.2	76.2	77.0	77.7	78.4
Australia/New Zealand	84.4	85.3	85.2	86.2	88.1
USSR/CIS	56.7	63.1	65.8	67.5	71.2
Third World	25.5	27.3	37.1	45.1	51.8
Africa	22.9	28.0	33.9	40.7	47.4
East	10.3	15.2	21.8	29.0	36.0
Central	24.8	31.6	37.8	45.6	53.4
North	36.0	39.9	44.6	51.2	57.7
South	44.1	49.6	54.9	61.3	66.8
West	19.6	25.9	32.5	39.8	47.3
Latin America	57.3	65.4	71.5	76.4	79.9
Caribbean	45.7	53.2	59.5	64.8	69.2
Central	54.0	60.6	66.0	70.6	74.7
South	60.0	68.8	75.1	80.0	83.2
Asia	23.9	26.3	34.4	42.7	49.7
East	24.7	27.4	39.4	51.4	59.2
Southeast	20.2	24.0	29.9	36.9	44.4
South	19.5	23.2	27.3	32.8	39.9
West	43.2	51.5	62.7	70.3	74.9
Oceania*	70.8	71.5	70.6	71.3	73.3
Melanesia	15.1	17.9	19.8	23.7	29.8
Micronesia	25.7	36.9	47.2	55.6	62.0
Polynesia	32.4	33.5	37.4	44.2	52.1

* includes Australia and New Zealand
Source: United Nations Department of International Economic and Social Affairs (UNDIESA) 1991, quoted in Findley (1993 : 4)

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economically developed countries, modest growth rates are expected: from 72.6 per cent in 1990 to 77.9 per cent in 2010. By contrast, in the developing countries of the so-called Third World, the percentage of population in urban areas is expected to increase from 37.1 per cent in 1990 to nearly 52 per cent in 2010. The highest percentage increase is predicted for East Asia (nearly 20 per cent over 20 years); the lowest for Latin America (8 per cent) which, as noted previously, is already highly urbanised.

What forces lie behind these trends? What is the history of world urbanisation; and what are its consequences both today and in the future?

Urbanisation

In *The Containment of Urban England*, Peter Hall explains that urbanisation, or urban growth, can have at least two basic meanings:

> 'On the one hand, we can talk of urban growth in a physical sense. This is perhaps the more elementary and obvious meaning. It refers to the use of the land for urban purposes, begging for the moment the question of how to define an urban purpose. On the other hand, we can talk of urban growth in a *functional* sense. This focuses on people rather than on land or physical structures. It refers to the activities of the people (economic, social and cultural) and seeks to determine whether in any area these are urban in character or not.' (Hall *et al*, 1973: 118).

Urbanisation is also a political process, often a consequence and sometime the cause of political change and even conflict. For analysts such as Castells and Harvey, writing in the 1970s, 'urban areas could be understood only as a result of the conflicts between classes which were a direct outcome of the operation of the capitalist mode of production; urban form, urban issues, urban government, urban ideology could be understood only in terms of the dynamic of the capitalist system. Space was socially determined: the outcome of conflicts between different social classes' (Gilbert and Gugler, 1992).

The relative neglect of the rural poor in many developing countries today and the struggle for land in both rural and urban areas is an often dramatic illustration of such conflicts in action; and there are many historical parallels, for example, in England in the late eighteenth and early nineteenth centuries, when the enclosure of rural land led to a reduction in the supply of rural housing (Burnett 1978 : 36) and was one of the factors that contributed to the movement of population into the growing urban areas.

The City in History

Lewis Mumford's classic *The City in History*, published in 1961, traces the development of human settlements from the Palaeolithic era to the 'world cities' of the late twentieth century.

Mumford argued that 'the first germ of the city . . . is in the ceremonial meeting place that serves as the goal for pilgrimage: a site to which family or clan groups are drawn back, at seasonable intervals. . . . And though the human performances may be occasional and temporary, the structure that supports it, whether a palaeolithic grotto or a Mayan ceremonial centre with its lofty pyramid, will be endowed with a more lasting, cosmic image' (*ibid* : 18).

It was from a period about fifteen thousand years ago that archaeologists have found traces of permanent settlements, from India to the Baltic area: 'a culture based on the use of shellfish and fish, possibly seaweed, and planted tubers, doubtless supplemented by other less certain supplies of food.' (*ibid* : 19). Forest or woodland was cleared, there is evidence of domesticated animals and of long-term cultivation, for example, of fruit trees.

In this changing environment, people began to cluster together in simple, permanent settlements. New technology was developed: for hunting, mining, cultivation and storage, enabling surpluses to

be stored and protected from rodents and insects. Mumford describes 'the safe setting aside of unconsumed seeds for next year's sowing' as 'the first step towards capital accumulation' (ibid : 26). Techniques of cultivation and irrigation were developed; and people learned that the product of mixing water and clay could harden into material that enabled simple buildings to become yet more permanent.

From this network of villages, established in the Middle East and beyond between about 9000 and 4000 BC, the two great civilisations of Mesopotamia and Egypt developed, in which the city first probably took shape. 'As a special organ of civilisation, the city seems to have sprung up in a few great river valleys: the Nile, the Tigris-Euphrates, the Indus and the Hwang Ho' (ibid: 70).

The city provided a focus for political and social organisation; for the development and expression of cultural identity; for the organised division of labour; and perhaps above all for the development of trade and the accumulation of wealth. The cities of the ancient world, though immensely powerful politically, economically, culturally and sometimes militarily, seldom dominated territorially or in population numbers. It was not until the fourteenth century and the beginning of European commercial expansion that big city growth 'began to assume substantial and continuously developing proportions. With the entry into the world urban system of the capitals of nation states – Paris, London, Madrid - and the centres of international trade in the Mediterranean – Venice, Genoa, Milan, Florence, Cadiz – and the Low Countries – Bruges, Ghent - populations of over 50,000 and in some cases, 100,000 were reached and the foundations of the modern urban system of Europe were laid' (Lawton 1989: 2). In other parts of the world, such as China, large cities also began to become important in historical times (Goldstein 1988: 187).

The process of large scale urbanisation has its origins partly in the development of industrialisation; and partly through the influence of colonial expansion. In Peru, Mexico, India, the Middle East and China, where indigenous urban civilizations had already developed, urban forms were radically altered in the colonial era. 'The impact of European expansion from the sixteenth century onwards transformed urban structures in the Third World.' (Gilbert and Gugler 1992: 16) In Latin America, old cities were destroyed and new cities created by the Spanish and Portuguese; in West Africa, some of the fort settlements established by the French and British were to become the 'primate' cities of the twentieth century. Johannesburg, Cape Town, Nairobi and Salisbury (now Harare) were all established by Europeans. So, too, were Indian coastal cities such as Calcutta, Bombay and Madras. 'Only in China, North Africa and parts of the Middle East do the indigenous centres still dominate the urban system, albeit with certain foreign additions and considerable modifications' (ibid : 18). The key to these developments was international trade and even in countries which were never colonised, such as Thailand and Japan, it is significant that their major cities are located on or very near the coast. (Dogan 1988 : 51).

Throughout the nineteenth century in western Europe and to a lesser extent in the United States, a period of significant urban growth was experienced. In England and Wales, for example, 17 per cent of the population in 1801 lived in urban areas (defined as cities of 20,000 or more); by 1851 the figure had risen to 35 per cent; and by 1891 it was 54 per cent. Adopting a broader definition, the entire urban population of England and Wales was 72 per cent in 1891, compared with 37 per cent in France, 41 per cent in Prussia and 28 per cent in the United States. (Hall et al 1973 : 60).

The initial impetus for this growth was the industrial revolution, which had its origins in the late eighteenth century in the United Kingdom. But the substantial nature and scale of the urbanisation experienced at this time cannot be explained by industrialisation alone but rather by a combination of industrial activity, and the development of business and commerce. The process of expansion was facilitated by the development of public transport systems which enabled people to travel longer distances to work; and resulted in the relentless spatial growth of cities.

At this time – the mid to late nineteenth century in Britain – the relationship between urban growth, poor housing and environmental conditions, and the problems of public health and sanitation began to be recognised; and action was taken to bring about improvements in living conditions and standards of public health. The origins of British housing policy; its slum clearance, house improvement and new building programmes; its town and country planning system; and its pioneering of the New Towns movement (adopted in many other countries of the world) can be said to date initially from a nineteenth century concern with the raising of standards of public health and sanitation.

An important factor which contributed to an overall improvement in urban living conditions in many western cities in the twentieth century was the process of suburbanisation, facilitated as we have seen by the development of fixed public transportation systems (trains, trams, underground) in the nineteenth century, but even more so by the rise of the motor car in the twentieth century. Much urban growth in Western Europe and North America since the 1920s has been the result of suburbanisation: a selective process, tending to favour those with secure, better paid jobs. Those who have not benefited from the process have tended to be the urban poor, left in the cities to which they or their predecessors in earlier generations had migrated.

A consequence of these trends has been a concern for the deteriorating conditions of life in urban areas in many cities of the developed world. Many western cities have for some years been experiencing population decline and a loss of jobs and investment to what are perceived as more attractive locations in smaller regional centres. Developments in information and communications technology have contributed to this process, which has been described as counter-urbanisation or decentralised urbanisation (Fielding 1989 : 144).

Urban growth today

Throughout much of the nineteenth century, the premier city of the world, in terms of its population, was London. It was the first to reach the magic figure of one million, a population not attained by Paris until the mid-nineteenth century, New York until 1871, Berlin until 1880, and Vienna until 1885. (Jones, 1988 : 97). Outside Europe the largest cities were Tokyo and Beijing.

Today, the distribution of the world's largest cites is markedly different. London, despite its population of 7.7 million in 1980 was only the sixteenth largest urban agglomeration, behind modern giants such as Tokyo (16.9 million), Shanghai (11.7 million) and Calcutta (9.0 million).

In 1990, London did not even make the world's 'top twenty'; and it is estimated that, by the year 2000, this group will include only three cities from the First World : Tokyo (19.0 million), New York (16.8 million) and Los Angeles (13.9 million) (Table 2).

Urban growth is fuelled in two principal ways : by demographic change and by migration. Demographic trends are well-known : declining mortality rates in most developing countries have not been matched by a corresponding decline in fertility. Rural areas often cannot accommodate the increasing population and many, especially young single people, migrate to urban areas in the hope of work, housing and an income, part of which may be intended as support for family members left

Table 2   Largest Urban Agglomerations by Population Size 1980–2000

Agglomeration/ Country	Population in 1980 (millions)	Agglomeration/ Country	Population in 1990 (millions)	Agglomeration/ Country	Population in 2000 (millions) (est)
Tokyo, Japan	16.9	Mexico City, Mexico	20.2	Mexico City, Mexico	25.6
New York, USA	15.6	Tokyo, Japan	18.1	Sao Paulo, Brazil	22.1
Mexico City, Mexico	14.5	Sao Paulo, Brazil	17.4	Tokyo, Japan	19.0
Sao Paulo, Brazil	12.1	New York, USA	16.2	Shanghai, China	17.0
Shanghai, China	11.7	Shanghai, China	13.4	New York, USA	16.8
Buenos Aires, Argentina	9.9	Los Angeles, USA	11.9	Calcutta, India	15.7
Los Angeles, USA	9.5	Calcutta, India	11.8	Bombay, India	15.4
Calcutta, India	9.0	Buenos Aires, Argentina	11.5	Beijing, China	14.0
Beijing, China	9.0	Bombay, India	11.2	Los Angeles, USA	13.9
Rio de Janeiro, Brazil	8.8	Seoul, Rep. of Korea	11.0	Jakarta, Indonesia	13.7
Paris, France	8.5	Beijing, China	10.8	Delhi, India	13.2
Osaka, Japan	8.3	Rio de Janeiro, Brazil	10.7	Buenos Aires, Argentina	12.9
Seoul, Rep of Korea	8.3	Tianjin, China	9.4	Lagos, Nigeria	12.9
Moscow, Russia	8.2	Jakarta, Indonesia	9.3	Tianjin, China	12.7
Bombay, India	8.1	Cairo, Egypt	9.0	Seoul, Rep of Korea	12.7
London, UK	7.7	Moscow, Russia	8.8	Rio de Janeiro, Brazil	12.5
Tianjin, China	7.3	Delhi, India	8.8	Dhaka, Bangladesh	12.2
Chicago, USA	6.0	Osaka, Japan	8.5	Cairo, Egypt	11.8
Jakarta, Indonesia	6.0	Paris, France	8.5	Metro Manila, Philippines	11.8
		Metro Manila, Philippines	8.5	Karachi, Pakistan	11.7

Source : UNDIESA 1991, quoted in Oberai (1993 : 59)

behind in the rural areas. Young migrants, in turn, will form their own families in their new urban location, further increasing the urban population.

The result of urban growth on the scale described has been a great increase in the number of squatter settlements; of people occupying land illegally or informally; and of people who lack any kind of shelter at all : for example, the street-sleepers of cities such as Bombay.

In a vivid summary, Gilbert and Gugler (1992 : 114) report that in urban China, houses are so crowded that every person occupies an average area of only 4.8 square metres. In Greater Bombay, 77 per cent of households with an average of 5.3 persons, live in one room. In Ghana, room densities range from 2.5 to 3.2 in the cities of Takoradi, Kumasi and Accra. In Nigeria, the average density in Lagos dwellings is 4.1 persons per room. In terms of service provision, for example, of water, lavatories and electricity, the situation is equally bad. Nevertheless, we are reminded (*ibid* : 115) that urban services in many Third World countries compare very favourably with those available in rural areas; that we must beware of applying 'western' standards in our evaluation; and that we should be conscious of differences within the Third World as well as between the Third and the First Worlds. This is good counsel.

The fact remains, however, that the continuing existence and continued growth of poor housing and environmental conditions in developing counties poses a great challenge to those concerned with the relationship between urban growth and health.

Central to this challenge is the question of housing and the services that should go with it, such as water supply and sanitation. The earliest policy response by governments in developing countries was to follow the model of industrial nations, relying on subsidised, publicly-provided housing, targeted to special groups in the population. This approach, largely abandoned since the early 1970s, was singularly unsuccessful: standards and costs (including rental costs) were too high; and often housing was provided on sites that were inconvenient for residents and far from employment opportunities (Brennan, 1993: 83). Furthermore, it was realised that the growing scale of urban housing problems could not realistically be tackled in this way. There are exceptions, however, and the role of the public sector in developing housing in both Hong Kong and Singapore is notable in this respect.

An alternative approach, developed in the 1970s, was for public authorities, often using funds loaned by international agencies such as the World Bank, to provide and service land on which people themselves could build their own dwelling on a designated, serviced plot. This 'sites-and-services' policy, although benefiting from the considerable element of 'self-help' within it, is considered to have been relatively unsuccessful for a variety of reasons : often, the poorest people do not benefit, or if they do, it may not be by living on the serviced plot allocated to them but rather, by selling it to someone better off. The location of schemes has often been unsatisfactory, far from previous places of residence or work, or both. Moreover, cost recovery of the public funds invested has often not been achieved, thus casting doubt on the replicability on a wider scale of the sites-and-services approach.

For the large majority of poor people in urban areas in most developing countries, 'home' is not a publicly provided dwelling, or even a small house on a specially serviced plot. It is much more likely to be in housing which is variously described as a 'shanty', or a 'squatter settlement'; and which is 'informal' or even 'illegal'. The main characteristics are that it has been built by the people themselves; and that the area they live in may lack initially any kind of basic infrastructure, for example, water, sanitation, drainage, roads, footpaths and facilities for rubbish disposal. Typically, such areas become centres of informal economic activity, with the housing itself doubling as a workshop in which the family is engaged in producing items that can be sold.

An important focus for housing and environmental policies since the 1970s has been the upgrading of these informal settlements, sometimes accompanied by their legalisation and sometimes not. (The issue of land rights, though crucial to an understanding of Third World development, is too large to address at this point).

Upgrading, or upgradation as it is sometimes called, can result in the installation of basic services, including electricity; and an attempt to bring about simple environmental improvement. Other facilities may also be provided, such as schools and health centres, so that the settlement begins to take on an air of permanence and stability, in which the conditions of everyday life can be improved.

CONCLUDING COMMENTS

The relationship between housing, poverty and health, that came to be so clearly understood by reformers in nineteenth century Britain (and which remains very important in all the developed countries) is equally clear in the developing world today. The World Health Organisation refers to the three main groups of factors that together affect the health of the low-income population in the cities:

'The first, essentially economic in origin, includes low income itself, limited education, an inadequate diet, overcrowding and insanitary conditions. The second group is related to the man-made urban environment, with its industrialisation, pollution, traffic and stress. The third is the result of the social instability and insecurity that have become almost characteristic of life in certain urban areas, leading to alcoholism, drug addiction, sexually transmitted diseases and a variety of other hazardous conditions ... These three groups of factors contribute to ill-health and to the prevalence of malnutrition, diarrhoea, acute respiratory infections and the transmission of communicable and vector-borne diseases, which are among the most important causes of mortality and morbidity, especially in the vulnerable groups of the urban population, such as mothers, infants and children ...' (WHO, 1988: 11-12).

Faced with these problems and anxieties, it is tempting to conclude that they are so enormous as to be insurmountable and from a personal, or even a particular professional perspective, that may well be the case. It is clear that population and urban growth will continue for the foreseeable future to be major issues in the developing world. And in developed countries, although many cities are declining in population, urban areas are faced with serious social and economic problems, of great concern to those who live there and to their governments, both local and national.

There are prospects for beneficial change, for example in the emphasis at present being given by many governments and international organisations to the importance of human development, central to which is a concern for basic education, health and nutrition; and through which, it is believed, economic activity and economic growth can be enhanced. (UNDP, 1992).

Also at the international level, is the United Nations' *Global Strategy for Shelter to the Year 2000* (UNCHS, 1990) which arose from the International Year of Shelter for the Homeless in 1987. This calls on national governments everywhere to deploy 'all possible tools and resources' in helping to achieve the global objective of adequate shelter for all by the year 2000. Even if this target should prove to be optimistic, it is appropriate that the UN, as a world organisation, should take centre stage in encouraging a committed national and international response to current trends in world urbanisation.

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INSECT PESTS AS DISEASE VECTORS

T.D.HEALING
Communicable Disease Surveillance Centre, 61, Colindale Avenue, London, NW9 5EQ.

The role of biting pests such as lice, bedbugs and fleas in the transmission of human pathogens is well known. The role of other urban pests such as cockroaches, ants and flies is less clear. There is a large body of evidence that the latter carry a wide range of pathogenic organisms but whether they act as reservoirs or vectors of these organisms is largely unknown.

The first part of this paper deals with the biting pests and gives details of the types of disease that they can transmit. These include not only diseases that are well known to be transmitted by this means (such as typhus) but also recent evidence about the role of these pests as possible transmitters of Hepatitis B virus, and a brief discussion of whether or not they can act as vectors of HIV.

The main part of the paper is devoted to a detailed review of the groups of organisms that are known to be carried by the other types of urban insect pests. These include viruses, bacteria, protozoa, fungi and helminths.

Simply finding an organism in or on an insect pest is not sufficient evidence that the pest is acting as a vector. The final part of the paper is devoted to a discussion of the evidence that these pests may indeed transmit human pathogens.