

CITIES OF THE FUTURE Dream or nightmare?

At the beginning of the 21st century, over half of the world's population will be living in an urban environment – and that number will continue rising over the next few decades. Most of this new urban growth will take place in Africa and Asia. Yet many governments seem unprepared for the challenges that urbanisation will bring.

For much of the 20th century the prevailing view has been one of deep pessimism about large cities: cities have been perceived as mushrooming out of control and representing a major problem for humankind. If urbanisation is indeed out of control, then the emergence of a new generation of very large cities may undermine any progress towards sustainable development.

Many environmentalists fear this scenario, but there are others who argue that cities are essential to national economic and social well-being, and that this well-being should in turn lead to environmental improvement. For many the problem is not urbanisation itself but more the inability of some cities to afford the necessary infrastructure to keep pace with the rate of population change and increases in consumption as incomes rise.

Other observers argue that the main problem lies in the inequalities between the urban rich and poor. These inequalities present not only a moral crisis but also the potential for economic disaster and civil unrest. Experts predict that 90 per cent of Latin America's poor will soon be living in cities and towns. For many this is a frightening prospect – not least if every city has to reinvent the wheel and make the same mistakes as those which have gone through the experience before.

Yet there are thousands of examples of how urban problems can be solved, leading others to be more optimistic about the future. They believe that with a combination of decentralised decision making and learning, cities can be the living environment of the future.

New systems of city management may be necessary to cope with the needs of today's urban populations. Some planners insist that a decentralised decision-making process is fundamental to ensuring that cities work for and not against people. Through a more people-based decision-making system, traditionally conflicting interest groups can learn to work together. The stimulation of informed debate and decision making is fundamental to the decentralisation of power.

In this respect many observers believe that effective urban management must be a self-organising system where everyone is responsible and everyone is also a player. Increasingly, outsiders are recognising that their role is not to impose solutions but to promote dialogue and cooperation and draw attention to the experiences of other cities and people across the world.

International organisations are taking up this challenge, devoting more attention to ensure that the world's new cities work for all their people. This year World Habitat Day (4 October) focuses on 'Cities for All', while the UN's Centre for Human Settlements (Habitat) was officially relaunched as the UN City Agency in May 1999.

KEY FACTS

- ✍ Shortly after the year 2000, for the first time, it is estimated that over half the world's population will be urban. [1]
- ✍ The World Bank has estimated that 25 per cent of all urban dwellers live in poverty. The United Nations Habitat II report argues that this is likely to be a considerable underestimate. National studies show urban poverty levels of more than 50 per cent in several of the poorest nations in Asia, Africa and Latin America. [2]
- ✍ Urban areas received just 5.5 per cent of the World Bank's loans in 1991 and 5.4 per cent of the International Development Association's lending for water and sewerage. [3]
- ✍ The World Bank has estimated that cities will account for between 65 and 80 per cent of developing nations' gross domestic product (GDP) in the year 2000. São Paulo, for instance, contributes 40 per cent of Brazil's GDP and 60 per cent of its manufacturing value added. [4]
- ✍ The cost of traffic congestion in Bangkok amounts to about 2.1 per cent of Thailand's total gross national product (GNP). Road traffic collision levels tend to be much higher in cities in the South than in cities in the North: fatality rates per 100,000 vehicles are 11.6 in Mumbai (Bombay), 7.9 in São Paulo, as opposed to 2.2 in Chicago, 1.6 in New York and 1.1 in Tokyo. In the case of São Paulo, 22 people are injured for every person killed in traffic collisions. [5]
- ✍ Trees are particularly valuable in reducing air pollution: a Douglas fir tree can absorb 18kg of sulphur dioxide a year without being harmed, while a sufficient roadside mass of plants can reduce local carbon monoxide levels. Increased greenery can also help reduce urban temperatures by absorbing and metabolising solar energy – unlike hard surfaces, which absorb the sun's heat and radiate it out. Taken in combination with the impacts of imported energy (such as for cars and buildings), this can lead to a substantial urban heat island effect. In Mexico City, for instance, temperatures can be 10°C higher than in surrounding areas. [6]
- ✍ The World Bank estimates that the informal sector now accounts for 75 per cent of urban employment in sub-Saharan Africa and 85 per cent in Pakistan. Such findings have led the World Bank to call on governments in the South to assist the formalisation of this sector as part of their development strategies, by reducing regulatory impediments, upgrading infrastructure and improving access to credit. [7]

NEWS PEGS

5 June 1999: World Environment Day

4 October 1999: World Habitat Day – 'Cities for All'

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SIGNPOSTS ON THE SUPERHIGHWAY AFRICAN ENVIRONMENT

A guide to web and e-mail resources for journalists

Signposts on the Superhighway sets out to encourage reporting on African environmental issues by providing a guide to relevant web and e-mail resources including news, feature and research sources for both print and broadcast media. It was compiled with the requirements of African journalists and broadcasters in mind, but it will be of use to anyone interested in the African environment.

The guide includes over 150 listings and outlines the contents of each site, how easy it is to use and how frequently the site should be 'visited'. In addition, the guide includes a short section on how to keep telephone and equipment costs down, a glossary, guides on search engines, a list of further sources of information on the Internet, a section on radio resources, tips on how to create new work patterns and even ideas on how to convince editors to get on-line!

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(Birgitte Jallof, Communications Lecturer, Roskilde University, Denmark)*

Signposts on the Superhighway is the result of the first National Training Seminar on Using the Internet for Environmental Reporting in Zambia, held in June 1997. The seminar was jointly organised by the Panos Institute, Lusaka, and the Economic Development Institute of the World Bank in collaboration with ZAMNET, Zambia's Internet service provider.

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CITIES OF THE FUTURE

Dream or nightmare?

1. THE SCALE AND PACE OF URBANISATION

Shortly after the year 2000, for the first time, it is estimated that over half the world's population will be urban. [8]

"The urban revolution will escalate over the next three decades when urban populations will grow to twice the size of rural populations. The bulk of this new urban population will be African and Asian, joining the vast pool of urban citizens in Europe, North America and Latin America, where three quarters of the population is already urbanised," comments Klaus Töpfer, Acting Executive Director of Habitat. Töpfer continues: "It is apparent that many governments are under-prepared and under-resourced in anticipating, planning and preparing for an urbanising world. The City Summit held in 1996 concluded that the onus of addressing the urban challenge rests not only with governments but with others such as local authorities, civil society, including NGOs [non-governmental organisations] and the private sector."

In terms of sheer numbers, urban concentrations are greatest in Asia, where about one third of the region's population live in cities. In Africa urbanisation is relatively new, but still over a third already live in cities and the rate of rural-to-urban migration is increasing. In Latin America it is thought that at least 74 per cent of the population is already urbanised. [9]

Habitat

The United Nations Centre for Human Settlements (Habitat) promotes sustainable urban development through policy advice, capacity building, knowledge creation and the strengthening of partnerships between governments and civil society.

In 1996 the United Nations General Assembly designated Habitat as focal point for the implementation of the Habitat Agenda (the global plan of action adopted at the Second United Nations Conference on Human Settlements). The Centre, established in 1978 with its headquarters in Nairobi, Kenya, is the lead agency for coordinating human settlements development activities within the United Nations family, focusing on the following priority areas:

- shelter and security of tenure
- urban governance
- environment and infrastructure
- reduction of urban poverty.

UNCHS (Habitat) was officially relaunched as the UN City Agency at the 17th session of the Commission on Human Settlements, in May 1999. The Habitat Agenda, the plan of action of the Habitat II Conference held in Istanbul in June 1996, attaches great importance to the promotion of participatory and enabling approaches in human settlements management and development.

The rate of urbanisation in richer countries has been fairly stable in the last 30 years. In much of the South, however, it expanded rapidly during the 1970s and 1980s before slowing from the mid-1980s. In general, levels of urbanisation are much lower in less prosperous countries than in higher-income ones.

Although the emergence of megacities is most striking in low- and middle-income countries, the proportion of population living in cities of more than one million is in fact much higher in high-income countries (see Table 1). In some countries (China, for example) it appears that urbanisation is starting to shift from very large cities to intermediate-sized towns. The rate of increase in megacities is slowing down. The proportions of total national population in the capital cities of Brazil and Mexico increased up to 1980 but have decreased since. [10]

Table 1: Urbanisation trends [11]

	Urban population as a percentage of national population (%)		Average annual growth rate, 1980-1995 (%)	Percentage of national population in cities of over a million people (%)	
	1980	1995		1980	1995
Low-income countries	21	29	4.0	7	10
Middle-income countries	52	60	2.8	16	20
High-income countries	75	75	0.7	31	33
World	40	45	2.5	14	16

The intensity of the environmental and economic problems currently faced by some cities, especially in the South, may result from the rapid pace of urbanisation. Poverty and poor urban management mean that many cities in the South are expanding rapidly in an uncontrolled way. Lack of basic infrastructure and inappropriate land use often create problems – and the longer these problems are allowed to build up, the more difficult and expensive they will eventually be to solve. But low income levels make it hard for many large cities of the South to attract and support the business, domestic and state investment that is needed to solve the infrastructure problems.

1999: UN International Year of Older Persons

“By the end of the century, 20 years will have been added to the average human life from what it was in 1900. The ageing of the world's population has commenced at different times in different regions and is proceeding at varying rates. The process of this demographic transition from a youthful to a more mature society is occurring in developing countries at a much faster rate than it is in the industrialized world.

“The greater share of the senior citizens group will be living in urban centres both in the industrialized and developing regions. We must begin to prepare for this now, as this phenomenon will have a profound impact on urban planning and management in terms of the needs of older people for housing, transportation, recreation, health facilities, access to employment whether paid or voluntary, personal security and a host of other needs. “

Klaus Töpfer, Acting Executive Director, United Nations Centre for Human Settlements (Habitat)

Reasons for urbanisation

The increase in population in large cities in the South comes both from internal growth and from net inward migration from rural areas, smaller towns, other cities and indeed other nations. High internal population growth may reflect both high national population increases and also the better health care and sanitation systems often found in cities.

Large-scale inward migration to cities generally reflects economic imperatives and people's perceptions of economic opportunities. The number and range of work opportunities is greater in cities, and incomes are higher. In addition, there are a number of 'push' factors for rural-to-urban migration, including environmental problems in rural regions, from land degradation to natural disasters.

2. ATTITUDES TO URBANISATION

For many it is not the actual growth of cities that is the problem: it is the sharp differences between the urban rich and the urban poor, for whom conditions seem to get worse year on year. These inequalities present not only a moral crisis but the potential for economic disaster and civil unrest.

Development professionals increasingly agree that the traditional hierarchical systems of city management cannot cope with the needs of today's urban populations. Some planners insist that a decentralised decision-making process is fundamental to ensuring that cities work for and not against the people. It is hoped that through a more people-based decision-making system, and with the help of a mediator, traditionally conflicting interest groups can learn to work together. The stimulation of informed debate and decision making is fundamental to the decentralisation of power.

Experts predict that very soon 90 per cent of Latin America's poor will be living in cities and towns. For many this is a frightening prospect – not least if every city has to reinvent the wheel and make the same mistakes as those which have gone through the experience before.

Yet there are thousands of examples of how urban problems can be solved, leading others to be more optimistic about the future. They believe that with a combination of decentralised decision making and learning, cities can be the living environment of the future.

Akhat Badshah, director of programmes at the New York-based organisation Mega-Cities, says there has already been one positive change: "Development thinkers are beginning to turn away from the old paradigm of studying problems to studying solutions instead." Many believe that, to be effective, urban management must be a self-organising system where everyone is responsible and everyone is also a player. Increasingly outsiders are recognising that their role is not to impose solutions but to promote dialogue and cooperation and draw attention to the experiences of cities and people across the world.

For the most optimistic the city seems set to become a spawning ground for increasing participation and democracy – even pointing to a global trend towards equity.

Fear of cities

For much of the 20th century the prevailing view has been one of deep pessimism about large cities. They were perceived as mushrooming out of control and representing a major problem for humankind. For instance, in 1974 US academic Thomas Blair, in his book *The International Urban Crisis*, wrote: "The major ills of our time are brutally apparent in the giant centres of population, finance, trade, and culture... cities like New York, London, Tokyo, Paris and Moscow... The richer the resources, the worse the mess... The urban crisis is universal – it is a crisis of human settlements and of the discordant siren's sound of 'progress' which draws them ever closer to disaster." [12]

Now, 25 years later, this view would seem to many city leaders to have been unduly pessimistic. Cities such as New York and London clearly have not collapsed and indeed in many respects they have improved the quality of life they offer many of their citizens. Substantial problems remain in Northern as well as Southern cities, from deep social polarisation to pollution, congestion, disease and inadequate infrastructure, but to most city leaders these problems no longer appear insoluble.

Turning Thomas Blair's comment on its head, most people would now agree that the poorer the city, the worse its crisis. It is the most prosperous cities that have often been able to lead the way, particularly in addressing environmental problems, investing in improved public transport and providing innovative regulatory regimes to reduce urban pollution. At the same time, there are also important success stories in cities in the South which show the possibilities for improving urban conditions at relatively low cost in both North and South.

If urbanisation is indeed out of control, then the emergence of a new generation of very large cities may undermine any progress towards sustainable development. Many environmentalists fear this, and point out that as well as being responsible for extensive local environmental degradation, cities may contribute disproportionately to global environmental degradation. But for all those who still see cities as inevitably environmental disaster zones, [13] there are now others who argue that cities are essential to national economic and social well-being, and that this in turn should lead to environmental improvement. [14]

Changing attitudes

In the 1960s policy makers tended to view large cities as economically inefficient, both in their own right (because of their size and congestion) and also because they create imbalances in the national urban hierarchy. In a very large successful city such as London, wages may be inflated, with adverse effects for the whole national economy. Similarly, the very success of a large city attracts investment capital to it. When national economies were more self-contained it was argued that this effectively involved sucking capital out of less prosperous areas, contributing to unemployment in the periphery. There were thus social as well as economic rationales for limiting urban expansion, and this was the aim of redistributive regional policies in the 1960s and 1970s.

By the 1980s the generally accepted analysis of urbanisation had shifted radically, prompted in part by advocates of free trade, liberalisation and economic growth. Increasingly the argument is that cities are necessary for a nation's economic well-being. Economically prosperous cities are seen as an essential factor in a country's success in the global economy, linking it in to flows of finance capital, trade, technologies and ideas. The current policy emphasis is to promote prestige urban development projects in order to help a city emerge as one of a network of successful 'world cities' which are the key nodal points in the global economy.

For instance, *The Times* (UK) recently reported that Frankfurt has formed "a ten year masterplan to build 20 skyscrapers to lure the world's financial powerhouses to the German city" (16 February 1999, p25). From London's Canary Wharf development to the world's largest building in Kuala Lumpur, the emphasis is now firmly on developing the symbols of urban success in order to attract globally mobile investment flows into a nation.

Once the solution to urban ills was seen to lie in preventing further urban expansion. Now the answer is thought to be greater investment in cities. Seen from this perspective, the problem is not urbanisation itself but more the inability of some cities to afford the necessary infrastructure to keep pace with the rate of population change and increases in consumption as incomes rise. Many now argue that with adequate public and private investment and improved urban management most cities should be able to improve their local environment and reduce their contribution to global environmental degradation. And as cities increasingly learn from each other in sustainable city networks, new ideas on how best to improve the urban environment are beginning to spread ever more rapidly.

Only time will tell whether this optimistic view will take precedence over the more pessimistic views of those environmentalists who argue that cities are 'parasitic' or a 'cancer'. [15]

Many countries lack the capacity – legal and financial – to deal with rapid urbanisation. But citizens are increasingly demanding the chance to make decisions about their living environment. The poorest probably need the loudest voice and choice in where and how to live, as they will constitute the majority of the world's urban population in the 21st century.

Poverty and environmental degradation

Despite the emphasis on achieving 'world city' status, environmental degradation and poverty remain rife. There is also a common fear that attempts to create a 'modern' city often involve displacing many of the poorest and most powerless communities to make way for new roads and buildings – for the rich. [16]

Poverty is a major concern now in cities in the South. The World Bank has estimated that 25 per cent of all urban dwellers live in poverty. [17] The United Nations Habitat II report argues that this is likely to be a considerable underestimate, noting that national studies show urban poverty levels of more than 50 per cent in several of the poorest nations in Asia, Africa and Latin America. In most nations the percentage of rural poverty still tends to be higher than in urban areas, but in some nations urban poverty levels are close to (India, Morocco, Colombia) or greater than (Côte d'Ivoire, Egypt, Indonesia) those of rural areas. [18]

Income-based estimates of poverty underestimate the impact of poor housing conditions on many households. Living costs also tend to be higher in cities than in rural areas, and income sources more

volatile. Intra-household differences may also be underestimated (with women, girls and the elderly more frequently suffering from under-allocation of resources).

Urban farming: Mama's project becomes national pastime

Backyard chicken pens and the occasional pigsty were once called 'Mama's projects'. But the past two decades have witnessed a dramatic expansion of urban agriculture in Dar es Salaam and most urban centres in Tanzania.

Much of this expansion is unplanned and spontaneous, a reflection of the logic of survival. Few of the job seekers of the 1960s and early 1970s thought they would, in the words of Kenyan president Daniel arap Moi, have to get their hands "honourably dirty" in order to supplement progressively thinning kitchen budgets with their own farm produce. Freedom Msangi (not his real name) embodies the typical urban farmer: "I never dreamed I would have to worry about the hoe and bending to till the soil to grow my food as I did in the villages. Now my salary is nothing to what I must spend daily," he says.

Today Freedom gets all the vegetables he needs from his garden around the house where he lives. The small chicken shed in the back yard houses 400 birds every three months, and his five-hectare farm in Mbezi in the city outskirts has employed his niece, who dropped out of school.

Up to 95 per cent of the leafy vegetables consumed in Dar es Salaam are produced in the city, along the valleys of its four rivers and on every available open space around homes of the estimated 80,000 households believed to be involved in agricultural activities.

Urban agriculture is not unique to Dar es Salaam. As much as 70 per cent of all poultry eaten in Kampala, Uganda, is raised in the city, according to recent estimates by Canada's International Development Research Centre (IDRC).

Globally, the world's wealthiest nations as well as the poorest are sharing in the reversal of the rural-urban divide; some 15 to 20 per cent of the food eaten anywhere now comes from cities. In the USA urban agriculture grew by 17 per cent within the decade of the 1980s. In the UK the abandoned steel mills of Sheffield are generating jobs and fresh vegetables that compete in the market with imports from warmer climates.

A 1994 study by the Urban Vegetable Promotion Project cited shortage of (clean) water, insects and disease among the top problems facing city cultivators. But most of them have precious little time to think about health risks because economic considerations far outweigh such concerns: in the city of Dar es Salaam most growers derive some 78 per cent of their household incomes from vegetable sales alone. To compare, urban vegetable growers in the northern city of Arusha earn 45 per cent of their monthly incomes from farming. Overall, urban farmers could earn incomes twice the 1994 minimum wages from urban agricultural activities alone.

James Mpinga, Dar es Salaam, for Panos Features

Almost invariably it is the poorest people in both the South and the North who are most adversely affected by urban environmental degradation. According to Robert Bullard, one of the key leaders in the environmental justice movement in the USA:

"Millions of Americans live in unsafe and unhealthy environments. Many economically impoverished communities and their inhabitants are exposed to greater health hazards in their homes, in their jobs, and in their neighbourhoods when compared to their more affluent counterparts... In the real world all communities are not created equal. All communities do not receive equal protection. Economics, political clout and race play an important part in sorting out residential amenities and disamenities." [19]

External aid policies

Changing attitudes to urbanisation have been reflected in policies of external donors, particularly those such as the UK government whose stated aim is to target assistance at the poorest communities.

For many years external agencies focused on improving conditions in rural areas, where historically poverty has been most widespread and acute. Behind this policy was also often a desire to reduce the pace of rural-to-urban migration, reflecting an anti-urban bias on the part of some policy makers. This has meant that until recently urban environmental problems and urban poverty issues have tended to be overlooked by external funders, in favour of rural projects. Urban areas received just 5.5 per cent of the World Bank's loans in 1991 and 5.4 per cent of the International Development Association's lending for water and sewerage. [20]

As the urban population has grown and urban problems have become more apparent, this anti-urban bias on the part of development assistance bodies has become increasingly untenable, leading both the World Bank [21] and donor countries [22] to rethink their policies in favour of a greater focus on urban poverty and urban environmental degradation. [23] This parallels the emergence among policy makers of the wish to develop successful core cities as part of their economic development drive. A city with massive environmental problems and social polarisation, with high levels of associated health problems, crime and political instability, can undermine the efforts of its leaders to attract external investment.

3. POSITIVE AND NEGATIVE ASPECTS OF CITIES

Strong economic performance in cities

Tales of urban success and 'bright lights' attract more people to cities than most urban economies can support. This leads to significant unemployment and underemployment in the cities, as well as a burgeoning informal sector where job security tends to be limited, health and safety precautions minimal, hazards high and incomes low. But despite these problems, cities play a major role in national and global economics and politics. Large cities in particular can make a substantial contribution to the overall economic performance of a nation, providing centres of commerce, trade, industry and culture. Cities can act as the engines of national growth, adding value to rural produce, serving regional markets and attracting international investment. [24] The World Bank has estimated that cities will account for between 65 and 80 per cent of developing nations' gross domestic product (GDP) in the year 2000. São Paulo, for instance, contributes 40 per cent of Brazil's GDP and 60 per cent of its manufacturing value added. [25]

The very size of cities brings 'agglomeration economies' such as access to large labour markets and the ability to link with the graduates and research capacity of top schools, colleges and universities. Proximity to other businesses also provides advantages of access to specialist products and services, including lower interest rates on loans from a strong banking network (as opposed to high interest rates often associated with rural moneylenders). Cities also have political and cultural advantages for business, not least access to government decision makers and to top class cultural facilities. In addition, cities tend to have the best developed transport infrastructure – airports, rail links and links into national road systems. Threading through all of these issues, it is the largest cities which tend to be best linked into global circuits of culture, resources, finance capital and personnel.

Urbanisation and distortion of a nation's economic development

Not surprisingly, national governments have tended to associate high levels of urbanisation with high levels of economic growth. In consequence, for many years cities have tended to benefit from a range of often indirect government interventions, not least macroeconomic policy to protect their industries and to subsidise urban energy sources. One resulting problem has been that subsidised energy promoted car use, and with it air pollution and congestion. [26] Urban bias has also had major detrimental impacts on the rural sector, which has tended to suffer from under-investment by both state bodies and private companies. In addition, the desire to keep food prices low for urban dwellers often resulted in farmers receiving poor returns for their products, locking them into a cycle of under-investment, high interest charges on loans, debt and poverty.

A major debate in relation to urbanisation in the South over the past 40 years has concerned urban primacy, where one megacity emerges which dominates the urban hierarchy of a country. The fear is

that where this occurs it may distort the overall economy, in particular with state investment favouring the large city, concentrating hospitals and education facilities. Responding to this, money, resources and skilled people get sucked into the large cities with their greater potential to provide profit-making opportunities, cultural stimulus and job opportunities. This is directly linked to under-investment elsewhere in the country.

This was put clearly over 30 years ago by Tanzania's first president Julius Nyerere:

"We must not forget that people who live in towns can possibly become the exploiters of those who live in the rural areas. All our big hospitals are in towns and they benefit only a small proportion of Tanzania. Yet if we have built them with loans from outside Tanzania, it is the overseas sale of the peasants' produce which provides the foreign exchange for repayment. Those who do not get the benefits of the hospitals thus carry the major responsibility for paying for them." [27]

Because of these potential disadvantages many governments sought to counter 'urban bias' by encouraging decentralisation to smaller towns and cities or by actively adopting pro-rural policies. Such top-down, central government-led spatial planning policies – most popular in the 1960s and 1970s – achieved some successes, but they proved expensive and did little to stop the rise of megacities. Indeed, critics such as US academic Jane Jacobs have argued that policies to promote hinterland areas at the expense of cities are counterproductive and should be abandoned, since they diminish the powerful role which cities play in a nation's economy in terms of productivity and global innovation networks. [28]

Structural adjustment programmes

Responding to some of the structural problems (including debt levels) facing many developing countries, the International Monetary Fund (IMF) and World Bank have encouraged countries to undertake substantial macroeconomic adjustment programmes during the 1980s and the 1990s. These adjustment programmes have typically sought to reduce government expenditure, cutting subsidies for water, food, housing and public transport while improving the terms of trade for the agricultural sector. Other parts of the programmes require pricing systems to ensure that markets can operate 'correctly', as well as improved management of key urban services such as transport, energy and water, in particular via privatisation.

As the World Bank admits, the reforms it has been urging on developing nations have had major adverse impacts on the urban poor, even though it regards them as a short-term consequence of policies which will bring about long-term general benefits. "The consequences on daily urban life have been increased prices, declining urban real per capita incomes, shifting demand for labour (thus contributing to unemployment), reduced public expenditure, higher interest rates, and declining public investment – particularly in construction." [29]

In the late 1980s and early 1990s this led to uprisings in protest at rising food, water and transport costs, in cities around the world such as Caracas, Cairo, Khartoum, Karachi and São Paulo. Problems were particularly severe where hoped-for private sector investment failed to materialise sufficiently rapidly, in sufficient quantity or in areas of greatest need.

Supporters of structural adjustment programmes (SAPs) emphasise that effectively managed engagement with private sector operators can bring substantial new investment. Critics, on the other hand, argue that SAPs contribute to both environmental degradation and increased poverty: investment in urban infrastructure has not materialised, they say, because the overall policy goal of improving the trading position of developing nations means that investment has focused on tradable goods and services which generate foreign exchange, rather than addressing immediate domestic concerns. [30] Furthermore, much of the increased export income has gone towards servicing the increased external debts incurred in bringing about structural adjustment, rather than being reinvested in local economic activity. [31]

4. ENVIRONMENTAL PROBLEMS FACING TODAY'S CITIES

Cities remain major centres of localised environmental degradation and continue to add to global environmental problems. There is inevitably a close link here with poverty, since a lack of money and resources reduces the ability of a city's government, businesses and communities to invest in protecting the environment.

Santiago braces itself for smothering smog

Residents of Santiago are bracing themselves for the Chilean capital's annual bout with smog – and praying to San Isidro, the patron saint of rain.

This winter will mark the second year that Santiago has fought pollution under its Metropolitan Region Decontamination Plan. This master blueprint seeks to restore blue skies over the next 14 years and thus head off 11,000 premature deaths, 65 million smog-related medical visits and 292 episodes of critical pollution. Its US\$911 million price tag is to be split between the government (52 per cent) and polluters (47 per cent). But medical authorities (the Colegio Medico) and Congressional 'green bench' deputies derided the plan as "too little, too late" when it was unveiled in March 1998. The local Manufacturers' Association (SOFOPA) challenged its legality on the grounds that shut-downs cost producers some US\$10 million per day.

Santiago's smog is a noxious mix of particulate matter (from unpaved roads, mountain erosion and traffic) and gases, including 'saturation levels' of carbon monoxide and ground-level ozone (photochemical smog). While climate and geography play a role – creating the 'lid' of cold air that keeps smog trapped in this windless basin – the prime culprit is 'progress': industrial growth, urban sprawl and a glut of new cars (a 64 per cent increase between 1985 and 1996) on the city's clogged roads. Most are equipped with catalytic converters that reduce harmful emissions, but old cars still account for 50 per cent of vehicles on Santiago streets.

The transportation sector is widely cited as the city's outstanding smog villain, due to both vehicle exhaust emissions and the dust it kicks up. Private cars contaminate more per passenger than do the various components of the city's 'public' transportation system of 10,000 privately owned buses, 53,000 privately owned taxis and a state-owned subway. But a preponderance of dirty diesel motors and traffic snarls caused by anarchic schedules and stops keeps Santiago's major avenues awash in fumes from overcrowded or half-empty buses.

NGO spokeswoman and commentator on the issue Ms Abogabir says, "Don't expect a government official to solve this problem, especially with the low price of copper (Chile's major export). He doesn't have the means." She recites a long list of tasks that "everyone can do: water trees; don't hail buses in mid-street, causing traffic jams; stop using the fireplace." Yet Abogabir is one of a minority of city residents who have opted to leave their private cars at home and use public transportation around town.

Meanwhile all eyes are on San Isidro. "Pray for rain on Wednesdays," says Abogabir. "It washes the air between weekends."

Lezak Shallat, Chile, for Panos Features

Interconnections: environmental, economic and social problems

A recent document from the Organisation for Economic Cooperation and Development (OECD) summarises some of the reasons why it is important for governments and aid agencies to address urban poverty and the urban environment together, since they intersect in so many ways: [32]

1. Environmental hazards remain the major source of ill-health, injury and premature death in the urban areas of the South, where exposure to risk remains massively higher than in richer nations in Western Europe and North America.

2. Environmental risk exposure is highest among the very poorest communities, reinforcing the inability to escape poverty, since there is a direct link between loss of health and inability to work.
3. Good environmental management can help break this cycle.
4. At the moment, environmental services in the poorest communities tend to be under-provided and over-priced, whilst high-income areas often enjoy relatively good access to these services. The result can be that poor people have to buy water from private water vendors at high prices whilst high-income homes receive much cheaper mains supplies direct to their homes, often assisted by state subsidy.
5. Alternatively, economies of scale mean that it is often relatively cheap to provide basic services in cities, such as fire services, public transport, schools, sanitation and water supply. Having such services close to hand can reduce the need to travel long distances by car, reducing vehicle emissions and with this the impact on global warming.
6. Good urban environmental management can also help to limit the transfer of urban environmental costs to rural areas. Examples of this include actions to grow more food locally, to provide more water locally, and to improve provision for waste reuse and recycling rather than dumping it externally. It can also help limit urban sprawl and concentrate development where key services can be planned for and provided, in particular public transport, roads and water connections.

Problems of urban poverty and of growing affluence

In the very poorest cities, environmental health hazards tend to dominate. Water- and air-borne diseases as well as domestic accidents are rife among the poorest households – those with least space, inadequate or non-existent water and electricity connections, little or no sanitation facilities and low incomes. Open fires for cooking are particularly associated with respiratory problems and domestic accidents.

As urban economies grow and basic improvements to environmental health conditions are brought about, environmental problems linked with under-investment in collective infrastructure become more prominent. Particularly important is the rise in air pollution, congestion and collisions associated with increases in car use, especially where road building programmes are inadequate, motor vehicles old and inefficient, and crashes between cars, bicycles and pedestrians common. The cost of traffic congestion in Bangkok, for instance, amounts to about 2.1 per cent of Thailand's total gross national product (GNP). [33] Road traffic collision levels tend to be much higher in cities in the South than in cities in the North: fatality rates per 100,000 vehicles are 11.6 in Mumbai (Bombay) and 7.9 in São Paulo, as opposed to 2.2 in Chicago, 1.6 in New York and 1.1 in Tokyo. In São Paulo, 22 people are injured for every person killed in traffic collisions. [34]

As urban economies develop, industrial pollution also typically rises closer to the top of the list of environmental problems. Strong regulatory frameworks and implementation agencies are essential to address these concerns, yet too often they are missing and environmental degradation is allowed to continue unabated, transferring costs from industrialists to those whose air and water supplies are polluted, and those subsequently left to clear up any contaminated land. [35] The release of methyl isocyanate in 1984 at the Union Carbide factory in Bhopal was a classic example, resulting in 2,988 deaths, 100,000 injured and 200,000 evacuated, according to official figures. [36]

Reducing the ecological footprint of cities

As well as having their own local environmental problems, cities contribute to non-sustainable development on a global scale. Sometimes known as the 'ecological footprint' of the city, [37] in the current era of globalisation the negative environmental impacts can be spread around the world. Examples of urban impacts causing external disruption and degradation include downstream water pollution, drawing in resources from non-sustainable sources (such as rainforest timber from non-managed reserves) and the use of external land for waste tipping.

To reduce the 'footprint' of a city, greater local self-reliance must be promoted, as must trading behaviour which rewards sustainable resource management rather than resource degradation.

Examples include reducing the need for solid waste disposal sites by reducing unnecessary consumption, and developing local composting, reuse, repair and recycling strategies.

Reducing urban sprawl can reduce the land take and energy efficiency of cities. Using water more efficiently can reduce the need to build more reservoirs and pipeline connections to the city, with all the potential rural upheaval that these can cause; policies to reduce supply leakage and to reduce consumption can all play a part in better urban environmental management. All of these policy directions can reduce the amount of materials required for consumption in cities.

Specific resources

Energy conservation

The global imperative to reduce emissions of greenhouse gases links into a range of policies for reducing local energy consumption. High energy consumption is particularly associated with a poor-quality built environment while good urban design can improve energy efficiency. Areas of low-density urban sprawl, like the residential suburbs of most US and Australian cities as well as many Southern cities – distant from the main economic centres which provide work – not only take up land but also encourage car dependency. In contrast, higher-density residential development and greater mixed-use zoning can help support public transport infrastructure, as well as reduce the costs of providing water and electricity access and services such as shops, schools and clinics. In Jakarta, for instance, low-density peripheral development is associated with inadequate local service provision, whilst unclear legal status of land means that patterns of development are constantly broken up as new roads are built and industrial estates of unclear legal status move in. Poor planning controls and inappropriate design advice contribute to these problems: rapidly rising land prices have seen piecemeal dense development alongside main roads, denying access to the land behind them. [38]

Well designed high-density residential developments tend to require less domestic energy consumption. Terraced houses and flats generally lose less heat than detached houses, whilst policies to improve insulation, increase passive solar capture and to provide appropriate shade can all help reduce the energy costs of running an urban household.

Urban water and sanitation systems

Table 2: Coverage of water supply and sanitation for urban areas, 1994 [39]

Region	Urban population served by water supply		Urban population served by sanitation	
	millions of people	%	millions of people	%
Africa	153	64	131	55
Central and South America, the Caribbean	306	88	254	73
Asia and the Pacific	805	84	584	61
Western Asia	51	98	36	69
Total	1,315	82	1,005	63

Central to improved health in cities is affordable water provision and sewerage connections. Around 80 per cent of illnesses and 30 per cent of deaths in developing countries are the result of consuming contaminated water. [40] Even at the end of the UN's International Drinking Water and Supply Decade (1981-1990), the World Health Organization (WHO) estimated that 25 per cent of all urban dwellers in developing nations did not have access to safe water supplies and over 50 per cent did not have adequate sanitation systems available to them.

Official figures for 1994 show that major problems still remain, particularly in African cities. Nearly 300 million city dwellers are still not served by water supplies and almost 600 million lack sanitation. [41]

These figures tend to understate the problem, since many who appear to be served by these functions actually share them with many other households, creating problems of access and hygiene.

Orangi Pilot Project (OPP) Housing Programme, Karachi [42]

The Orangi township in west Karachi has about one million people living in 94,122 houses. Many of the inhabitants arrived in 1972 as refugees from the establishment of Bangladesh. Pakistan's largest unplanned urban settlement, it consists mainly of informal settlements and depends heavily on the informal sector of the economy. Although much house building and improvement is done directly by residents, it is frequently of low standard. Prior to the OPP starting in 1980 the township had no sanitation system and virtually no piped water.

The OPP was founded by a retired rural development adviser, who realised that as long as the settlement residents lacked access to municipal power and decision making their situation would not improve. The key, he argued, was to organise residents to help themselves. The OPP has developed a low-cost sanitation method, whereby residents are encouraged to come together at 'lane' level to collect money and build and maintain sewers in their immediate neighbourhoods, using plans and cost estimates provided by the OPP. The average cost works out at an affordable 900 rupees (US\$30) per household. Now over 84,500 houses have sanitary latrines without having received any grants or subsidies. Local people have spent US\$1.72 million in achieving work which would have cost \$US12 million if it had been done by local government. A local health programme has also been successful in raising immunisation rates. Together health and sanitation programmes have seen infant mortality rates fall from 130 per thousand in 1982 to 37 per thousand in 1991 (the national average is 95). Economically too the effects are immediate, with real estate prices rising 15-20 per cent as soon as work is completed. Neighbourhood disputes linked to filth in the lanes have also decreased, adding to social cohesion.

Following this success, residents asked for a new programme to help improve houses. A local survey found that most people got building advice from the private networks of material manufacturers and suppliers. As it was difficult to work outside this system, the decision was taken to work within it, working with private suppliers to improve the advice they offered and the range and quality of their products, particularly load-bearing concrete blocks, pre-cast concrete staircases, and pre-cast concrete batten and tile roofing. The result was a massive increase in the local production of improved concrete blocks, 60 per cent of which are now exported outside the area. The result has been a doubling of people working for the private suppliers and manufacturers, in addition to the improved housing conditions.

The immediate problem for the poorest households tends to be access to secure water supplies. As provision is expanded and incomes rise the problem increasingly becomes how to provide enough water to meet urban demand. This can lead to major reservoir and pipeline projects being developed which often have an adverse impact on rural areas, causing population displacement and loss of livelihood, adding to rural-to-urban migration. In order to increase water use efficiency and minimise external impacts, smaller-scale local sources of water need to be protected and drawn upon; supply system leakage must be minimised; and demand must be carefully managed – not least by ensuring that water is charged for in ways which allow access for the poor but discourage profligate water usage.

Improved use of green space and urban agriculture

Loss of green space to development is a cause for concern in both Southern and Northern cities. The loss of land to urban sprawl can be a major issue where it eats into valuable agricultural land. Loss of green space within the city is important because of both its aesthetic and environmental functions: plants and trees in cities can play an important role in neutralising air, water and land pollution.

Open space and vegetation can also reduce vulnerability to flash floods, helping absorb rain (unlike impermeable surfaces such as roads and pavements). Trees are particularly valuable in reducing air pollution: a Douglas fir tree can absorb 18kg of sulphur dioxide a year without being harmed, while a sufficient roadside mass of plants can reduce local carbon monoxide levels. Increased greenery can also help reduce urban temperatures, by absorbing and metabolising solar energy – unlike hard

surfaces, which absorb the sun's heat and radiate it out. Taken in combination with the impacts of imported energy (such as for cars and buildings), this can lead to a substantial urban heat island effect. In Mexico City, for instance, temperatures can be 10°C higher than in surrounding areas. [43]

Used creatively, public provision of open space can help shift development away from areas of high natural risk. This is important as poor communities have increasingly taken to building homes in vulnerable areas of cities, such as flood-prone areas or hill slopes, as they are excluded from other parts. As a result, injury and death from urban landslides and flooding have increased in some countries. [44] The municipality of Manizales, Colombia, has addressed this issue by creating a series of eco-parks where development is severely restricted, aiming to control expansion of the built-up area and to prevent construction in areas at high risk from landslides. Linked to this programme, owners of buildings in high-risk areas were offered land exchanges to allow them to move to safer areas. [45]

A related concern is urban agriculture, often regarded by technocrats as a symbol of backwardness and a low-value land use, and a victim of exclusionary land-use zoning systems. Yet there is much to be said in favour of urban agriculture. It combines many of the aesthetic and environmental benefits of green space noted above with the ability to produce food locally. This can encourage local self-reliance, local composting (and, linked to this, a reduced need for landfill sites), beneficial conversion of sewerage, stewardship of the land, community building and a healthy diet, and it reduces the need to import food from distant sources, with all the related energy costs and loss of freshness in the food. Whether in farms, marginal areas, allotments or back gardens, urban agriculture can contribute to an improved urban environment. Less desirable impacts, of course, must also be controlled, particularly those associated with livestock – noise, noxious emissions and contaminated run-off into urban water supplies.

Improving use of land and land-use planning

In too many cities in the South parallel planning systems appear to exist, one reflecting former colonial standards and technologies, the other local standards. The result can be a muddle of approaches and regulatory conflict, allowing people to circumvent building and planning controls. For instance, in some parts of a city wooden shacks may be treated as undesirable and subject to removal, while similar developments elsewhere attract improvement support. [46] However, in recent years there has been a growing awareness of the need to improve urban planning and design and to explore use of locally appropriate materials and technologies rather than uncritically accepting imported solutions and standards. Increasing numbers of professionals now seek to work with nature and to improve community involvement in their designs. This can result in simple but significant improvements, such as providing shade and improving solar capture, or positioning natural vegetation to act as wind breaks. [47]

Problems of uncontrolled rapid growth

Rapid, uncontrolled urbanisation usually brings severe environmental and social pressures. In Bangkok groundwater abstraction to feed new developments is associated with land subsidence in the east of the city. The increase in impermeable paved areas associated with urbanisation can lead to stormwater moving more rapidly through a city, creating flash floods. Erosion of soil may increase, particularly during construction activities, leading to loss of soil, flooding and blocked sewers and drains. Air quality will typically deteriorate as a result of industrial, domestic and motor vehicle emissions. Rapidly spreading informal settlements are inadequately connected to water and electricity services and have poor building standards, particularly in terms of sanitation, ventilation and poor conditions for cooking and storing food, contributing to ill-health and high mortality levels.

Groundwater extraction, land subsidence and flooding in Bangkok [48]

With a population which has grown from around 1.5 million in 1950 to close to ten million currently, Bangkok's demand for water has grown massively. About a third of its water comes from aquifers and is particularly associated with the development of private estates and industrial companies in the 1960s and 1970s. For them groundwater was a cheap resource, cheaper than municipal water charges. This however contributed to over-extraction of groundwater, which has led to problems of saline intrusion, affecting water quality, and perhaps most noticeably, land subsidence. Subsidence in east Bangkok has been at the rate of up to 10cm a year at its worst, covering an area of 4550km².

When rainfall is high the land is increasingly prone to prolonged waterlogging and flooding, involving high costs of removing the water, with damage to drainage systems, roads, pavements and buildings common.

Responding to these problems, restrictions are now being imposed on groundwater extractions and charges are being levied on consumers similar to those for the city's other water sources. However, the problems are likely to remain for some time, requiring aquifer recharge and improved land-use zoning.

5. URBAN ECONOMIES AND URBAN GOVERNANCE

Employment, unemployment, underemployment

Urban unemployment in the North is usually associated with processes of deindustrialisation and technological change. In the South the problem may be disguised in official employment figures which do not take into account underemployment (working at well below the poverty line) and misemployment in the form of child labour, prostitution and so on. It is difficult to get under the skin of this problem using conventional Northern views of employment.

In particular, for over 20 years now it has been argued that the informal economy is an essential part of the urban economy, especially in the South, and needs to be built upon rather than simply discouraged, since it accounts for the livelihoods of so many people. The World Bank estimates that the informal sector now accounts for 75 per cent of urban employment in sub-Saharan Africa and 85 per cent in Pakistan. Such findings have led the World Bank to call on governments in the South to assist the formalisation of this sector as part of their development strategies, by reducing regulatory impediments, upgrading infrastructure and improving access to credit. [49]

The World Bank tends to see the current problem facing the urban poor in the South after structural adjustment as one of "transitional unemployment", [50] but to many people it appears to be much more structural and long-term in nature. Given their expanding populations it is difficult to create enough jobs for all those who are seeking them. In particular, the need to pay off external loans means that export income which might have helped generate new local economic activities is not available. If cities in the North with relatively low population growth and limited debts find it hard to create enough new jobs, what chance is there for less well favoured cities in the South?

Governance issues

Integral to structural adjustment programmes has been an attempt to decentralise control away from central governments, both to the private sector (in particular with privatisation), to community groups (through advocacy of greater use of policies of self-help) and in some countries to local government. With growing democratisation, most countries in recent years have initiated decentralisation of powers and responsibilities to sub-national tiers of government. While this has had many positive impacts, the fact that it has taken place in a time of attempted cut-backs to state expenditure means that it has rarely been accompanied by a commensurate reallocation of resources.

So in India, for instance, despite the 74th amendment seeking to give more power to municipal authorities and considerable rhetoric about the need for municipal decentralisation, municipal bodies now receive a smaller proportion of the government's development expenditure than 40 years ago. [51] This situation is not helped by the poor record of municipalities themselves in collecting tax revenues and charging for services – fees for electricity and water provision often bear little relationship to costs. As the poorest communities are often worst hit by inadequate municipal service provision, one of the most important ways forward has been to form associations to lobby for improved attention to their needs. [52]

It is widely argued that the problems of cities in the South are often made worse by a combination of inadequate funding, incompetence and corruption. Weak institutional capacity at the local level is particularly associated with centralised government powers, leading to growing calls for greater

decentralisation in decision making and resource allocation as a means of addressing both urban and rural development. The problem of over-centralisation is particularly acute in many African countries, impeding their development efforts. [53]

The prevailing view is that government institutions have so far failed to manage urban development as effectively as they might, leading to increasing calls for greater engagement with local community groups as part of a broadening and democratisation of development processes. Fairly typical of this viewpoint is Anil Agarwal:

“While [I have] great hope that India will one day gets its rural governance in good shape, urban governance remains in a crisis. And with the economy, pollution and waste growing hand in hand, there is no doubt that India’s towns and cities will get filthier and filthier and more and more unliveable. Again, the civil society will have to help in finding the knowledge and governance models needed to bring about good urban governance, though the going will be much more difficult because of the sheer size and scale of cities and towns and their problems, and also the lack of community spirit that today pervades urban life. But one can already see a thousand mutinies if not a million. These are mutinies which have a creative protest. They will inevitably increase as the crisis grows and politicians will slowly turn more and more to NGOs [non-governmental organisations] and the civil society for answer.” [54]

While recognising such misgivings, Professor Alan Gilbert argues that in Latin American cities urban managers and politicians frequently perform well, given the scale and intensity of problems and the rapid changes occurring in their cities:

“Despite the often justified horror stories, urban government in Latin America has generally coped. Services and infrastructure have been extended and have generally kept up with booming populations. Of course there has been waste, corruption and incompetence, but a great deal has been achieved nonetheless. Without some degree of competence, the lid would have blown off the urban pot long ago.” [55]

What does appear to be agreed is that local governments on their own are rarely likely to effect positive, lasting improvements to the urban environment. It is for that reason that they need to learn to work better with other key actors, not least local community groups and businesses, using a wide variety of policy tools to address the problems which their communities face. Klaus Töpfer, Acting Executive Director of the United Nations Centre for Human Settlements (Habitat), emphasised this in a recent speech:

“Urban development policies need to be inclusive, cooperative and people-centred to be effective. The empowerment of people by governments is the key to mobilizing latent resources, strengthening the effectiveness of local authorities and fostering a more cooperative atmosphere among all urban residents.” [56]

6. MAKING MEGACITIES HABITABLE

Whilst environmental problems are prominent in many large cities in the South today, there is growing evidence of successful local policies for bringing about positive change. Usually central to these are the policies of addressing poverty, building on local initiatives, improving participation mechanisms, stronger regulatory frameworks and better policy integration.

All major concentrations of ill-health within cities are strongly associated with poverty. Diseases linked to poor access to water supply and sanitation, diseases linked to air pollution, exposure to flood and landslide risk, all show the same broad pattern: the poorest areas suffer most from environmental degradation, and the richest areas benefit most from the provision of basic urban services. [57] Policies for environmental improvement must be linked with policies to alleviate urban poverty, including housing improvements, access to work and provision of basic urban services and infrastructure, including education, health care, water, sanitation and electricity connections and public transport.

Successful policy implementation depends on drawing on local knowledge and resources, preferably linked into attempts to work cross-sectorally to build policy synergies. Local self-help initiatives abound, perhaps most notable in the field of waste management and recycling. An excellent example is the Dike Project in Santos, Brazil, which is attempting to improve residential conditions, upgrade the local environment and provide jobs in a coordinated strategy involving local people.

Santos, Brazil

The port of Santos has around 450,000 inhabitants, with another 800,000 in outlying districts. It is 60km from São Paulo, with which it is well connected by road and rail links. The city supports a strong industrial base, with substantial foreign investment. However, it suffers from considerable air pollution, linked to industry in particular, and a serious housing crisis, with 11 per cent of the population in slums and 12 per cent in overcrowded tenements.

The Dike of the project's name was built in the 1950s as a dike and canal to regulate flooding of the River Bugre. The system quickly fell into disuse and informal settlements began in the early 1960s, which grew through the 1970s and 1980s with wooden shacks built on piles out into the middle of the river. About 22,500 people currently live in the Dike area. Water and electricity are supplied but there is no sewerage system and wastes are dumped straight into the river. Drainage systems are fragile and easily overloaded. Water quality is often poor as pipes become submerged in the polluted waters of the river. An adjacent rubbish dump was started in 1965, which provides opportunities for livelihoods from scavenging but also brings significant environmental problems, since there is no drainage system and no treatment for grease or gas. Infant mortality is high at 96 per 1,000, while the tuberculosis rate is 16.7 per 1,000.

The Dike project aims to improve the provision of basic infrastructure by linking the area with the rest of the city for drinking water, transport, sanitation, rubbish collection and social facilities. Existing good brick houses will be preserved, while sub-standard houses will be upgraded; local people will be trained and hired for related construction work. A new plant for production of prefabricated cement building materials using appropriate technology will reduce building costs and employ local people. The rubbish dump is to be treated and turned into a municipal park, drainage is to be improved and attempts made to protect and improve the natural ecosystem of the area. Finally, considerable attention is being paid to improving citizenship through systems for participation, environmental education and conservation, and indeed wider aspects of citizenship. Local TV and radio, newspapers, teaching materials and videos are all being mobilised to assist in this work.

The Philippines

In the capital of the Philippines, Manila, local government, local community groups, an international aid programme and a private company (Unilever Philippines) have come together to help improve the condition of the Paco Canal. The canal was heavily polluted from a local public market (40 per cent), from squatter and low-income communities nearby (40 per cent) and from uncontrolled dumping upstream (20 per cent). Community consultants brought together local people, market traders and hawkers, helping them to draw up an action plan and providing education on ecological waste management. The whole process has drawn heavily on experience in the nearby town of Santa Maria, illustrating the importance of learning from elsewhere. Recovery and resale of non-biodegradable waste is already underway. In addition, hawkers and vendors have set up a cooperative to create a composting and recycling facility. The cooperative members segregate wastes, run the facility and contribute to education campaigns. Unilever provides in-kind assistance and the local government collects the wastes, among other things. It is expected that, once fully up and running, 50-60 per cent of wastes will be composted and 20 per cent recycled. [58]

Curitiba, Brazil [59]

Policy integration recognises that environmental problems are almost always linked into other concerns, from addressing poverty and improving economic performance to better coordination of land use and transport planning. The city of Curitiba in Brazil has been at the forefront of successful attempts at transport and land-use policy integration, resulting in a 35 per cent decline in private car use, and has sought to introduce its policies in ways which particularly help the urban poor. [60]

Curitiba's progressive policies to merge environmental and social programmes are highly regarded around the world. Its environmental policies have been innovative, cross-sectoral and low-cost.

Growing from a population of 300,000 to 2.1 million between 1950 and 1990, Curitiba faced many of the problems associated with rapid urban expansion in the South, including congestion, flooding and water pollution. However, under strong political leadership it has emerged as a city which outperforms the regional average on most environmental indicators.

The most remarked-upon aspect of the Curitiba approach is its innovative express bus system. This involves five radial routes out of the city, with the bus lane flanked on either side by one-way roads. Land-use planning controls are used to encourage higher-density residential and commercial development along these routes, with lower-density development between them. The city bought some land before the routes were instigated and has used this to develop low-income housing close to the new industrial centre, about 8km from the city.

Tickets are cheap and can be bought before entering the buses (thus saving time) and can be used for connecting services which take people to surrounding areas. Routes are run by private operators who are paid by the local authority according to miles of route covered rather than passengers carried. This discourages 'cherry picking' by operators.

Illegal dumping in water channels added to local flood problems through the 1950s and 1960s. The city authorities responded by zoning land by riversides for drainage whilst deterring building in low-lying areas. Parklands and artificial lakes have been used to help flood control and to provide recreational opportunities. This low-cost solution has led to substantial green space being preserved in the city even as it grew rapidly in size.

As rubbish collection is difficult in many narrow streets in the city, the local authority has encouraged people to sort their solid wastes and take them to key local collection points. Here they can receive fresh food or bus tokens in exchange. The costs are only slightly higher than those of hiring waste collectors to go to individual homes.

Recognising the need to carry public opinion with them in taking forward their reforms, in 1990 the local authorities established an Open University for the Environment which provides practical short courses for a variety of clients, from householders to businesses. Schools are also involved in environmental education.

Sweden

Successful innovations have linked improvements in public transport to actions in other policy areas. During the 1980s Stockholm reduced car usage by 229km per head, while numbers of public transport trips increased from 302 to 348 per head. It managed this through increased investment in public transport and a land-use planning regime to link urban development centres directly to public transport nodes.

Switzerland

Despite its high and growing levels of wealth, Zurich has also reduced car usage. Rejecting the idea of an underground train system, which would have speeded up roads for cars, the city invested instead in improving its tram system, giving trams priority over cars at junctions. Now passengers usually wait a maximum of six minutes for a tram to arrive. As trams became more popular again, it became possible to rezone road space and parking spaces for pedestrian malls and outdoor cafés. Car trips in the city fell by ten per cent between 1980 and 1990, and with over 500 trips per head the city has the highest public transit system usage in Europe.

Denmark

Copenhagen has attempted to reclaim the streets from cars, using a combination of policies including a reduction of car parking spaces in the central area by three per cent per year, upgrading housing with improvements to urban design through landscaping, sculptures and street seating, including 3,000 seats along footpath cafés. Each year new street life is added in the shape of markets, festivals and buskers. A free bicycle use system is in place, currently involving 2,500 bicycles and hoped to increase soon to 10,000. Responding to the increased vitality of the inner areas a new light rail system is being introduced to link the city and its sub-centres, paid for out of the land development opportunities created. The result is that there has been no increase in car use in the inner city area in

the past 30 years, against the prevailing trend. Politicians, officials and the public have gradually come together in acceptance and support of this gradualist approach, since it is proven to work, not least in maintaining a viable economic infrastructure as well as the improved living conditions. When motorists suggest that they will move to the suburbs unless inner city parking and road access are improved, City Engineer Jens Rorbech simply replies: "Please go, because the reduced traffic in the city will only make it a better environment and we will get even more investment and people coming to the city."
[61]

Singapore [62]

Perhaps the most famous example of an integrated attempt to reduce road traffic problems comes from Singapore, which has used a combination of higher parking fees, park and ride, improved bus service, a mass rapid transit system, an attempt to promote staggered work hours, and area licensing. Under area licensing, access to the Central Business District was restricted in the rush hour, requiring the purchase of daily or monthly passes, except for buses and car pools, which were exempted in an attempt to foster high vehicle occupancy levels.

This combination of policies has had a major impact in reducing cars entering the restricted area and in encouraging the use of public transport and car pooling. In addition, all cars over three years old must undergo annual road worthiness checks, helping ensure high standards of mechanical and therefore energy efficiency. Some displacement of businesses and commuters to areas outside the cordon boundary might have been expected, but in practice this has not occurred, due to the benefits of the system – reduced congestion, better environment and improved access by public transport.

Agenda 21

The UN Conference on Environment and Development held in Rio in 1992 adopted Agenda 21 as a policy plan outlining the actions to be taken by governments nationally as well as internationally to achieve sustainable development. Chapter 7 of Agenda 21 summarises the environmental interventions which are required in the urban environment, and includes "promoting human resources development and capacity building for human settlement" as one of its main objectives under the heading 'Promoting Sustainable Human Settlements Development'. It lists the following interventions:

- ✍ providing adequate shelter for all
- ✍ improving human settlement management
- ✍ promoting sustainable land-use planning and management
- ✍ promoting the integrated provision of environmental infrastructure: water, sanitation, drainage, hazardous and solid waste management
- ✍ promoting sustainable energy and transport systems in human settlements
- ✍ promoting human settlement planning and management in disaster-prone areas
- ✍ promoting sustainable construction industry activities
- ✍ promoting human resources development and capacity building for human settlement development.

One of the best known recommendations of Agenda 21 has been the preparation of similar Agendas at the local level: "Local authorities should start a dialogue with the citizens, local organisations and private companies and adopt an Agenda 21 at local level".

The importance given to the development of local environmental policies is founded on the belief that "because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and sub-national environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilising and responding to the public to promote sustainable development."

This increasingly widespread adoption of Local Agenda 21 (LA21) activities has been a key source of recent innovation in community participation experiments. The intention was that each local government area in the world would produce its own LA21 strategy, though progress towards this goal

has been slow and uneven. LA21 activity requires the production of a holistic local plan covering environmental, social and economic issues, agreed upon by all the key local players in a locality, including local government, business and community groups. In the South, as elsewhere, the LA21 process served to galvanise local interest in environmental issues, raising the profile of this policy area. Central to the LA21 experience is its role as a formative process, playing a key role in building local capacity and consensus. Its essence is not so much the production of a formal written plan but rather the processes of agreeing on courses of action and responsibilities for seeing them through:

“The key to Local Agenda 21 – what makes it more than just a collection of initiatives at local level – is the ideal of actively involving the local community in working together towards sustainable development.” [63]

Local community groups have been empowered through improving education and the availability of information, helping to rectify power imbalances in local decision-making processes. Improving access to information for all can help poorer communities identify and counter proposals which might damage their local environments. This is particularly important in the light of recent US debates on environmental racism: since the mid-1980s there has been growing concern about the way in which toxic waste facilities in cities are disproportionately located in areas dominated by ‘people of colour’, leading to a rise in popular movements to counter this tendency. [64]

According to US writer Robert Bullard, “From New York to Los Angeles, grassroots community resistance has emerged in response to practices, policies and conditions that residents have judged to be unjust, unfair and illegal. A growing body of evidence reveals that people of colour and low income persons have borne greater environmental and health risks than the society at large in their neighbourhoods, workplaces and playgrounds.” [65]

One result of this growing movement has been President Bill Clinton’s 1994 Executive Order 12898, which requires all federal agencies to adopt strategies to tackle environmental injustice. [66] Addressing local asymmetries of power and information is of vital importance to urban environmental management, because well-off communities tend to be better able to identify and fend off locally unwanted land uses than poorer communities, using their better access to information, technical expertise and political structures. Using LA21 processes to improve information and education for poorer communities is therefore an essential step forward. Where LA21 remains captured by local officials and elites – as in much of China, where NGOs are not properly represented – the potential of the LA21 process is still not being fully realised. [67]

Kenya

In many cities LA21 has come as a breath of fresh air. In Nakuru, a city of 360,000 people in Kenya, previous experiences of urban planning had been negative, and the last plan (1975) had been largely ignored. While there is a strong tradition of grassroots engagement in environmental activities, in this city (whose population is still growing at seven per cent a year) the result has been piecemeal rather than coordinated development at the city-wide level. Investment in urban infrastructure and its maintenance has been low since the late 1970s, leading to a dramatic decline in the standards of urban services. Already the shift towards more consultative LA21 processes is showing how improvements can be made, including sorting out local bus park problems in the market area, addressing the issue of uncollected solid wastes which were causing blocked drains and health hazards in some parts of the city, improving water access in peri-urban settlements and the creation of new community environmental action groups, leading to joint actions with the municipal authorities to improve living conditions in local neighbourhoods. [68]

Colombia

Local indicators for environmental conditions form an important part of the neighbourhood-level Community Environmental Action Plans established in Manizales, Colombia. Using easy-to-understand indicators, environmental conditions are scored according to traffic light signals (red is a problem, yellow is a warning sign, green is good quality). The community itself is engaged in the monitoring and evaluation, and urban environmental observatories have been established – physical locations where the public can access environmental information. [69] Seattle in the USA provides another excellent example of using locally agreed and locally meaningful environmental indicators, which are reported annually in a widely available document.

Dystopia and utopia

Although some of the worst environmental problems are associated with cities, so too are some of the most innovative attempts at reducing environmental degradation. There is no single trend in evidence as to whether cities will improve or worsen in their environmental conditions and external impacts over the next century or so. But it is clear that many cities are already taking the challenges seriously, and there are plenty of examples available to allow cities to identify innovative solutions from elsewhere and to blend these with local knowledge and resources to build local solutions to urban problems. Given the drag on development that poor environmental and social conditions create (who wants to invest and work in a congested, dirty city with massive social tensions?), those cities which innovate in improving their environmental and social conditions are most likely to be the success stories of the next century.

Technological improvement will only be part of the story: more important will be innovations in managing cities better – improving local government capacity, harnessing private sector resources, involving communities and regulating unacceptable environmental damage caused by individuals, businesses and governments themselves. We need to invest more in our cities' infrastructures, creating, maintaining and operating them in equitable ways which ensure the poor are not by-passed. This can only be done by mobilising the collective resources and expertise of states, markets and local communities.

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Imagine a city of the future. Do you see clean streets, flying cars and robots doing all the work? Or perhaps your vision is more dystopian, with a Big Brother-style authoritarian regime, dark alleys full of crime, and people forced to live in hermetically sealed pods because war or some other disaster has rendered whole swathes of the city unliveable. Almost half of the world's population currently lives in cities, and by 2050 that is projected to increase to 75%, but what kind of city will they be living in? The time is ripe, say experts, to start designing smarter urban environments, both new cities needed to sustain an ever-growing population, and retro-fits on the ones that we have lived in for centuries. Greenification. The city of the future must meet the needs of its residents. Yet in surveying residents of 25 major cities, McKinsey finds that a fifth of those cities fall short of delivering satisfaction. Respondents cited numerous inadequacies: crime, congestion, fire emergency response, waste management, active mobility options, police security, lack of basic utilities, public transit, as well as poor quality of housing and government services. Given the fierce competition for talent across cities, dissatisfied urbanites are likely to vote with their feet and leave for more attractive environments. Smart In the first part of the material about future cities we analyze what the city of the future will be and explain why it will not be a skyscraper city. By the way, some of the elements of the future are relatively familiar to us, but let's start the analysis of the future of the city and its components in the right order: in this case from the idea of how we expect the city of the future to be like. Search engines give us three images of the city of the future, the first of which is some kind of skyscrapers conglomeration of bizarre shapes. And not just skyscrapers, but towers of some incredible size and height, which are aimed towards space, just like rockets. To be honest, this type does not hold any water and it is very hard to believe that Future cities are composed of a series of urban hubs: dense developments connected by high-speed rail. The regional ecology dictates where and how hubs grow; city centers move inland, away from rising seas. Biomorphic Urbanism. From regions to rooms, SOM's designs flow from one idea: development and infrastructure complement and are shaped by ecology—letting nature regenerate and support rapidly growing urban populations. Smart City of 2018 is Singapore. By Editors November 15, 2018. Uncategorized. This website uses cookies to improve your experience while you navigate through the website. Out of these, the cookies that are categorized as necessary are stored on your browser as they are essential for the working of basic functionalities of the website. We also use third-party cookies that help us analyze and understand how you use this website. These cookies will be stored in your browser only with your consent. You also have the option to opt-out of these cookies. But opting out of some of these cookies may affect your browsing experience. Necessary. Necessary. Always Enabled. Necessary