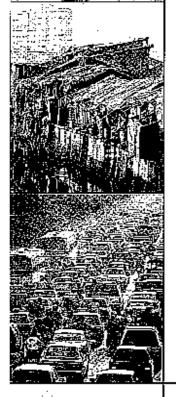**INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT**

Urban environmental improvement and poverty reduction

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for Danida

Urban Environmental Improvement
and Poverty Reduction

prepared by

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for

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The views expressed in this report are those of the authors
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International Institute for Environment and Development

IIED is an independent, non-profit organisation which aims to provide expertise
and leadership in researching and achieving sustainable development at local,
national, regional and global levels. In alliance with others we seek to help shape
a future that ends global poverty and delivers and sustains efficient and equitable
management of the world's natural resources.

The Human Settlements Programme of IIED

The Human Settlements Programme's main interest lies in reducing poverty and
in improving health and housing conditions among the urban populations of
Latin America, Asia and Africa, especially among low-income groups. The
Programme also seeks to combine this with promoting more ecologically
sustainable patterns of urban development.

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Preface

This report provides an overview of urban environmental planning and management issues in low-income settings. It starts by defining a field of action for development assistance, and ends with a review of urban environmental strategies. In between, it examines a range of policy-relevant issues, from how environmental improvements can reduce poverty, to how local governments can work with private enterprises and civil society groups to address environmental problems.

In less than a generation, more than half of the population of the developing world will be urban. A large share of these urban dwellers will almost certainly be poor. Already, environmental problems are contributing to urban poverty, and causing a large share of ill-health, injury and premature death. Urban environmental burdens are also spilling over to the surrounding regions, and contributing to global problems, such as climate change.

There is widespread agreement that these urban environmental issues must be addressed if sustainable development is to be achieved. There is still considerable debate, however, over what the most critical urban environmental problems really are, and how best to assist cities in addressing them.

To help address these urban environmental challenges, Danida already provides some support for urban environmental improvement in several countries, primarily funded through the Environment, Peace and Stability Facility (EPSF/MIFRESTA). Common features are a poverty orientation and a highly participatory approach, which involves the key stakeholders in identifying problems and setting priorities, as well as in implementing urban environmental improvements. In addition to working with its developing country partners on a range of urban environmental initiatives, Danida is engaged in a dialogue with the Danish resource base, with the aim of strengthening Denmark's capacity to provide assistance in this area.

As part of Danida's ongoing dialogue with the Danish resource base, a workshop was held in Copenhagen (Eigtveds Pakhus) on December 5, 2000 (see Annex 1 for the Agenda of the workshop and Annex 2 for a list of participants). The workshop was organised by Danida and the International Institute for Environment and Development (IIED) in London. The main goal of this workshop was to help develop a more coherent substantive framework for Danida interventions addressing urban environmental issues. The focus was mainly on secondary cities and smaller towns. A broad-based representation from private companies, NGOs, educational institutions, public authorities and other parts of the Danish resource base attended, ensuring a wide range of perspectives.

Chapters 1 - 11 are based on Briefing Papers prepared by IIED for the workshop, and revised in light of the workshop discussions. IIED prepared the final chapter (12) on *Strategies and Tools for Urban Environmental Improvement* after the workshop. Several of the chapters correspond closely to the topics of particular

working sessions. The principal authors were Gordon McGranahan, David Satterthwaite and Cecilia Tacoli of IIED. Morten Riemer (PEMConsult) contributed large parts of Chapter 11. The report also draws on papers prepared and presented at the workshop by Carl Bartone (World Bank), Joseph Kitundu (Mwanza City Council, Kenya), and Liliana Miranda (Forum Cities for Life – Ecociudad, Peru). Summaries of the workshop discussion themes, provided by Ole W. Christiansen (Dan Waste), Kate Gough (Copenhagen University), Per Kirkemann Hansen (Nordic Consulting Group), Morten Riemer (PEMConsult) and Jacob Ulrich (COWI) were used to provide the basis for most of the revisions to the Briefing Papers. Lars Mikkel Johannessen and Jens Lorentzen, of Danida, contributed at all stages of the process.

The report takes a poverty-oriented perspective on urban environmental issues, and is intended to stimulate debate on how best to combine poverty reduction with environmental improvement in low-income urban areas. It does not make operational recommendations, but is intended to be operationally relevant.

Chapter 1

1. Urban environmental issues - defining a field of action for development assistance

How the boundaries of the urban environmental agenda are defined has important operational implications for development assistance as well as for local environmental strategies. Often, very broad definitions of the urban environment are used to demonstrate the need for action, while most internationally sponsored urban environment initiatives target a comparatively narrow set of problems. This chapter explores some of the issues involved and proposes the following as the basis for identifying urban environmental problems:

Urban environmental problems are threats to people's present or future well-being, resulting from human-induced damage to the physical environment, originating in or borne into urban areas.

1.1. Justifying the increasing interest in urban environmental improvement

Urban environmental issues are receiving more attention in the international development arena. In general terms, this is easy to justify:

- The world is urbanising, and will continue to do so (see Chapter 4).
- The number of poor people living in urban areas has been underestimated in the past and is growing rapidly (see Chapter 4).
- This poverty is exacerbated by environmental threats that account for a large share of ill-health, early deaths and hardship, particularly in low-income cities and neighbourhoods (see Chapter 2).
- Urban consumption and production patterns are at the root of many global and regional environmental burdens (see Chapter 3).
- Some of the worst sites of ecological distress are found in and around cities (see Chapter 3).
- Better urban environmental management is possible, while preventing urbanisation is rarely either possible or even desirable.

In short, it would seem that helping cities to address their environmental problems can meet both poverty and sustainability goals, thereby contributing to sustainable development.

This justification for giving a greater priority to urban environmental improvement assumes a relatively broad definition of urban environmental problems and a balanced strategy for addressing them. An emphasis on reducing greenhouse gas emissions will not reduce poverty, since global warming does not, at least as yet, contribute to a significant share of poverty and ill-health in low-income cities. An emphasis on healthier sanitation in low-income neighbourhoods, on the other hand, will not reduce regional and global environmental burdens, since bad sanitation affects mainly people living in the vicinity. And neither will it do much to address the worst sites of ecological distress that, typically, involve industrial pollution of air and waterways.

The environment is one of the three key cross-cutting issues in Denmark's development policy, along with gender and respect for human rights, good governance, democratisation and popular participation. Better environmental management is also recognised as a discrete development goal. Danida's priorities suggest a poverty-oriented approach to urban environmental improvement, complementing the rural emphasis in most of Danida's development assistance.

Support for urban environmental improvement is also increasingly evident in Denmark's international assistance through the Environment, Peace and Stability Facility (EPSF or MIFRESTA in Danish) which during the years approaching 2005 is expected to rise gradually to 0.5 per cent of Denmark's Gross National Product.

Already, Danida is supporting urban environmental improvements in Tanzania, Zimbabwe, Malawi, Mozambique, Vietnam, Laos and Cambodia under the EPSF, and in Nepal, Egypt, Bolivia, Nicaragua and Bhutan under Sector Programme Support. Further, Danida supports interventions related to urban environmental issues in a number of countries under other modalities, such as NGO support, the Private Sector Development Programme and the Mixed Credits Facility.

1.2. Identifying urban environmental issues

While there is now widespread agreement that urban environmental issues are important, there is little coherence in how international agencies and others define the urban environment and identify its critical problems. This is not just a semantic question, as it is intimately related to how and where funds are allocated and who can expect to benefit from the resulting environmental improvements. Most of the confusion arises from the qualifier 'environmental' and what it should mean in an urban context.

If urban environmental issues are defined and pursued too broadly, then almost all urban development initiatives can be labelled environmental. For example, Einstein's oft-cited definition of the environment as 'everything that is not me', could be used to designate anything from better shopping facilities to better televisions as urban environmental improvement.

But if urban environmental issues are too narrowly circumscribed, many of the generalisations noted in the introductory paragraph cease to be true. For example, if urban environmental problems are taken to include only 'the degradation of urban water, air and land', many of the environmental health problems suffered predominantly by the poor (see Chapter 3), as well as the extra-urban impacts that threaten regional and global sustainability, are effectively excluded.

While both very broad and very narrow usage are common in the literature, when people complain of 'environmental problems' they are typically referring to damage to the physical environment, mostly caused by other people, and usually with harmful consequences for human welfare, either now or in the

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future. And when they talk of the benefits of environmental improvement, they are usually referring to improvements to people's quality of life that can come from addressing these problems. So common sense would seem to suggest that: *Urban environmental problems are threats to people's present or future well-being, resulting from human-induced damage to the physical environment, originating in or borne into urban areas.*

This implies that urban environmental problems include:
- Localised environmental health problems such as inadequate household water and sanitation, indoor air pollution and excessive crowding.
- City-regional environmental problems, such as ambient air pollution, inadequate waste management, pollution of rivers, lakes and coastal areas, and the loss of green areas.
- Extra-urban impacts of urban activities such as ecological disruption and resource depletion in a city's hinterland, and emissions of acid precursors and greenhouse gases.
- The urban impacts of regional or global environmental burdens that may arise from activities outside a city's boundaries, but which will affect people living in the city.

It implies they do not encompass:
- Problems largely restricted to the 'social', 'economic' or 'political' environments (e.g. most violence, unemployment and corruption).
- Natural hazards that are not caused or made worse by human activity.
- The environmental impacts of urban activities that are of no concern to humans, either now or in the future.

While problems restricted to the non-physical environment have been omitted from this account, urban environmental issues cannot be understood or addressed in isolation from their social, economic and political settings. Socio-economic considerations are inevitably important when it comes to establishing urban environmental priorities. Urban environmental problems can rarely be solved by technical measures alone. Alternatively, improvements in the physical environment can help address social, economic and even political problems.

Table 1.1 (at the end of this chapter) presents a wide range of urban environmental problems. Most are the unintended side-effects of human activity in cities. Some might more accurately be ascribed to a lack of preventive measures. In all of the examples, however, better urban practices and governance could help reduce the burdens, and it is this distinction that is most critical operationally.

1.3. The urban environment and international development assistance

By and large, the delineation of urban environmental problems given above is consistent with the perspective of most international development agencies (a notable exception being the Dutch government's DGIS, which explicitly includes the urban social environment as a focal area, alongside the urban physical environment). However, a review of a range of bilateral and multilateral donors suggests that several factors skew the operational definition of environment

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away from many of the central environmental concerns of the urban poor. The following paragraphs summarise these factors.

Responsibility for taking the lead on environmental matters is often assigned to divisions that are not directly involved in urban development assistance on the grounds that the environment generally, and natural resources in particular, are primarily rural concerns. Such divisions are unlikely to have the knowledge or influence to promote urban environmental issues. Moreover, they have a tendency to define environmental problems in terms of natural resource management, which can easily divert attention from the environmental health issues that are of particular concern to the urban poor. National and local environmental agencies in recipient countries, the natural counterparts of environmental staff in development agencies, also tend to define their role as one of 'protecting' the environment and to view most of the environmental threats in low-income neighbourhoods as beyond their mandate.

In the environment and development literature, there are also systematic inconsistencies in the way problem definitions are employed. Broad definitions are employed to illustrate the importance of **environmental issues** but narrower definitions are used to construct **environmental indicators**, while still narrower definitions are typically employed to identify **environmental programmes and projects**. Thus, for example:

- It is routinely noted that millions of deaths every year from diarrhoea and respiratory infections could be prevented by environmental improvements.
- Statistics on household access to water and sanitation are only sometimes included in lists of environmental indicators.
- The projects that target better access to water and sanitation are generally infrastructure projects and are labelled as such (i.e. they are rarely part of a donor agency's 'environment' portfolio).

This can easily give the impression that environmental initiatives are responding to a far broader set of environmental concerns than they actually are, while at the same time ignoring environmental benefits that can come from 'non-environmental' initiatives.

Operationally, a distinction is often made between two different approaches to environmental improvement: investing in **'stand-alone'** environmental initiatives and attempting to **'mainstream'** environmental concerns into all development activities. It is generally held that 'mainstreaming' is ultimately more important. However, at least in its early stages, mainstreaming tends to define the environmental agenda in terms of reducing the environmental impacts of development in both urban and rural areas. Thus, in the urban context, the cross-cutting environmental goal is often expressed in terms of 'protecting' the environment or 'preventing' the degradation of urban water, land and air. Again, this can easily detract from the local environmental threats that are of particular concern to the urban poor.

Pressure from Northern environmentalists has been an important factor in convincing international development agencies to address environmental issues. Northern environmentalists are usually more concerned with regional and

global issues involving the natural environment than with local environmental health burdens faced by the urban poor. Again, this reinforces a tendency to ignore the environmental threats facing the urban poor (see Chapter 6), although it does put pressure on development agencies to address global environmental issues.

As international and local interest and capacity to address urban environmental problems increases, **new, more locally-driven environmental strategies** are also emerging. Many cities in Europe and America, and increasingly in Latin America, Asia and Africa are experimenting with city-wide initiatives to address environmental problems. Bilateral and even more often multilateral donors have been supporting a number of these initiatives, often called Local Agenda 21s. Community initiatives with strong environmental dimensions are also increasingly common. Under the Danish Environmental Assistance to Vietnam Programme, Danida has approved support for Environmental and Energy Improvements through People's Participation in Thanh Xuan Bac in Hanoi.

As discussed in several of the following chapters, there is still much to learn from these local initiatives, including perhaps how best to identify urban environmental problems in their local context. Ultimately, while it may be useful to define urban environmental problems in the abstract, operationally it may be more important to respond to local initiatives in a coherent fashion, whether or not they fit some abstract definition.

Table 1-1: The range of city-related environmental hazards by scale and type

SCALE	TYPE OF HAZARD	SOME SPECIFIC EXAMPLES
Within house and its plot	Biological pathogens	Water-borne, water-washed (or water-scarce), airborne, food-borne, vector-borne, including some water-related vectors (e.g. *Aedes* mosquitoes breeding in water containers where households lack reliable piped supplies).
	Chemical pollutants	Indoor air pollution from fires, stoves or heaters. Accidental poisoning from household chemicals. Occupational exposure for home workers.
	Physical hazards	Household accidents – burns and scalds, cuts, falls. Physical hazards from home-based economic activities. Inadequate protection from rain, extreme temperatures.
Neigh-bourhood	Biological pathogens	Pathogens in waste water, solid waste (if not removed from the site), local water bodies. Disease vectors, e.g. malaria-spreading *Anopheles* mosquitoes breeding in standing water or filariasis-spreading *Culex* mosquitoes breeding in blocked drains, latrines or septic tanks.
	Chemical pollutants	Ambient air pollution from fires, stoves and also perhaps from burning garbage if there is no regular garbage collection service. Air and water pollution and wastes from 'cottage' industries and from motor vehicles. Chemicals dumped locally.
	Physical hazards	Site-related hazards, e.g. housing on slopes with risks of landslides; sites regularly flooded, sites at risk from earthquakes. Accidents due to inadequate infrastructure or facilities (causing, for example, children to play in highly trafficked streets or pedestrians to be exposed to hazards and insecurity due to lack of proper sidewalks, open drains, missing manhole covers, and inadequate street lighting).

Workplace	Biological pathogens	Overcrowding/poor ventilation aiding transmission of infectious diseases among workers; exposure to infections among those working with sick people; exposure to faecal material among those working in waste disposal.
	Chemical pollutants	Hazardous chemicals used in production processes, especially but not only in the chemical industry. Indoor air pollution from furnaces and other combustion sites.
	Physical hazards	Accidents with machinery or equipment, burns, noise damage.
City or municip- ality within larger city	Biological pathogens	Pathogens in the open water bodies (often from sewerage); also at municipal dumps; contaminated water in piped system.
	Chemical pollutants	Ambient air pollution (mostly from industry and motor vehicles; motor vehicles' role generally growing); water pollution; hazardous wastes.
	Physical hazards	Accidents resulting from inadequate transport infrastructure (missing sidewalks, missing manhole covers, poor lighting, etc.). 'Natural' disasters and their 'unnaturally large' impact because of inadequate attention to prevention and mitigation.
	Citizens' access to land for housing	Important influence on housing quality directly and indirectly (e.g. through insecure tenure discourages households from investing in improved housing, and discourages water, electricity and other utilities from serving them).
	Heat island effect and thermal inversions	Raised temperatures a health risk, especially for vulnerable groups (e.g. elderly, very young). Air pollutants may become trapped, increasing their concentration and the length of people's exposure to them.
City-region (or city periphery)	Resource degradation	Soil erosion from poor watershed management or land development or clearance; deforestation; water pollution; ecological damage from acid precipitation and ozone plumes; loss of biodiversity.
	Land or water pollution from waste dumping	Pollution of land from dumping of conventional household, industrial and commercial solid wastes and toxic/hazardous wastes. Leaching of toxic chemicals from waste dumps into water. Contaminated industrial sites. Pollution of surface water and groundwater from sewage and surface runoff.
	Pre-emption or loss of resources	Fresh water diverted to the city, pre-empting its use for agriculture; expansion of paved area over good quality agricultural land.
Links between city and global issues	Non- renewable resource use	Fossil fuel use; use of other mineral resources; loss of biodiversity; loss of non-renewable resources in urban waste streams.
	Non- renewable sink use	Persistent chemicals in urban waste streams; greenhouse gas emissions, stratospheric ozone-depleting chemicals.
	Overuse of 'finite' renewable Resources	Scale of consumption that is incompatible with global sustainability of soil, forests, freshwater.

SOURCE: Based on D Satterthwaite (1999), *The Links between Poverty and the Environment in Urban Areas of Africa, Asia and Latin America*, United Nations Development Programme (UNDP) and the European Commission (EC), New York.

Chapter 2

2. Identifying the groups most vulnerable to urban environmental hazards

Low-income residents tend to be among the most vulnerable to exposure from environmental health hazards, the most susceptible when they are exposed, and the least able to cope with the consequences. Certain sub-groups are especially at risk, including children, women and particular occupational groups.

2.1. Low-income and vulnerability

It is not surprising that low-income groups suffer most from the ill-health, injury and premature death caused by environmental hazards. Individuals and households without adequate incomes are less able to afford accommodation that protects them from environmental risks – that is, good quality housing in neighbourhoods with piped water and adequate provision for sanitation, garbage collection and drains. In their struggle to secure a livelihood, they are liable to undertake work that exposes them (and often their families) to environmental hazards. They have the least resources to cope with illness or injury when they occur. Also, they generally have the least political power to demand that these problems be addressed.

The range and severity of the environmental health problems in many low-income settlements often go unrecognised, however:

- Their houses and neighbourhoods are the worst served with water, sanitation, garbage collection, paved roads and drains. This can be seen in the scale of the differentials between wealthy and poor areas in environmental hazards, in access to public services and in health indicators. Infant or child mortality rates in poorer districts of cities are often four or more times those in richer districts, with much larger differentials apparent when smaller areas are compared.
- It is generally poorer groups who live in the locations where the pollution levels are worst. They often choose to live in such locations, as these are the only places where they can find affordable land for their housing, close to sources of employment. There is also the tendency for polluting industries, waste dumps and waste management facilities to concentrate in the vicinity of low-income neighbourhoods, where there is less effective political resistance.
- It is generally poorer groups who suffer most from floods, landslides or other disasters because housing and land markets price them out of safe, well-located areas. Thus, they occupy the most hazardous sites, often not planned for residential settlement, and with little investment in either infrastructure to mitigate the impact or in disaster preparedness to limit the damage and ill health when disasters occur.
- Low-wage jobs often expose workers to a range of environmental hazards that threaten their health and well-being. Thus street vendors are exposed to high levels of vehicular pollution, waste pickers are exposed to hazardous materials, and cramped and crowded working conditions can create a wide range of environmental risks.

It is not only that low-income groups generally face higher levels of risk but also that they have less possibility of getting rapid and appropriate medical treatment if they are injured or fall ill as a result of some environmental hazard. They can least afford treatment and medication or income loss while recovering from sickness or injury, and often have jobs that do not provide for health insurance or sick leave. Low-income households rarely have assets that can rapidly be converted to cash to cover food expenses when an income-earner is off work or to pay for treatment to hasten recovery. Low-income groups are generally at much higher risk of suffering from psycho-social health problems because they live and work with much higher levels of environmental stress factors – for instance, greater noise levels, higher levels of overcrowding, less security and fewer services. They also have to cope with the stresses caused by much higher levels of ill-health and injury and of infant and child death within their households which are, themselves, partly the result of environmental factors.

There is considerable variation in the range and severity of environmental hazards even within and among 'low-income groups'. This can have important operational implications for attempts to improve the urban environment and simultaneously to reduce poverty. In this context, it can be useful to distinguish vulnerability from susceptibility.

2.2. Vulnerability and susceptibility

The presence of an environmental hazard (for instance, a pathogen, pollutant or physical hazard) does not necessarily mean that it will harm someone, and the characteristics of the individual, household or social group exposed to the hazard also play a role in its effect.

People or households may be more at risk from environmental hazards because they are:
- Less able to avoid them (e.g. living in a settlement lacking provision for protected water, sanitation and drainage).
- More affected by them (e.g. infants are at much greater risk of death from diarrhoea and acute respiratory infections than older groups).
- Less able to cope with the illness, injury or premature death they cause (e.g. persons who cannot afford treatment from a doctor or medicine).

Individuals or households that combine all of these disadvantages are generally termed vulnerable. But in many circumstances it is important to distinguish between **susceptibility** (where the increased risk is related to endogenous factors such as a person's nutritional status, the state of their immune system or their genetic makeup) and **vulnerability** (where it is external social, economic or cultural conditions that increase the risk – for instance, through an increased likelihood of exposure to environmental hazards or less capacity to cope with or adapt to an illness or injury).

Characteristics that influence susceptibility to environmental hazards include:
- For many biological pathogens: weak body defences (mostly a function of age, nutrition and overall health status, some a function of artificially

induced immunity as in the protection given against certain diseases by vaccines). High-risk groups include those suffering under-nutrition and those with immune systems compromised by HIV. Pregnant women and their foetuses and infants are also high-risk groups, especially in situations where there are high risks of infectious and parasitic diseases and under-nutrition.

- For physical hazards: limited mobility, strength and balance (as is evident in young children and many older people, and in people with physical disabilities).
- For exposure to chemicals: age and health status at the time of exposure. There are also certain groups such as asthmatics and elderly people with chronic respiratory diseases who are particularly susceptible to certain air pollutants.

Vulnerability to environmental hazards is much influenced by household income and assets, gender, the quality of housing and basic services, and environmental health risks within the workplace. So, among the most vulnerable groups are:

- **Individuals/households living in poor quality homes and neighbourhoods** that lack adequate provision for water, sanitation, drainage and garbage removal, and as such also lack safe indoor and outdoor living and play environments. For people living in shacks made of inflammable materials such as wood and cardboard, the risk of accidental fire is much increased, particularly when households also use open fires or portable stoves for cooking and/or heating and have no electricity so that kerosene lights or candles are used for lighting. As indicated for water and sanitation in Box 2.1 at the end of this chapter, this vulnerability can extend to a large share of the urban population in many cities.
- **The persons doing the 'dangerous' tasks within households**, which increases the duration and/or severity of exposure to environmental hazards. An analysis of vulnerability has to be gender and age aware, since many dangerous tasks are allocated to women and children. For instance, it is generally women who have to manage the disposal of human excreta where provision for sanitation is inadequate. Where there are high levels of indoor air pollution, it is generally women and young children who spend longest indoors because they have been allocated most household tasks.
- **Income-earners with particularly hazardous work** – for instance, working in factories with high levels of exposure to dangerous chemicals or hazardous machinery. Those who make a living from picking and sorting wastes also face many hazards; especially those working at large waste dumps (where residential wastes are often mixed with industrial and commercial wastes, including some toxic wastes).
- **Groups facing discrimination** in obtaining adequate incomes, housing and basic services; in many societies, particular ethnic groups or castes face discrimination in all these.

Often susceptibility and vulnerability go hand-in-hand. Economic deprivation, in particular, can increase both. As described above, low-income groups tend to be particularly vulnerable to environmental hazards. While few of the

characteristics that influence susceptibility are a direct result of income-poverty, there are some strong associations, particularly in the case of biological pathogens. Overall nutritional and health status tends to be lower in low-income groups. The age structure of many low-income countries, where small children make up a large share of the population, increases susceptibility to biological pathogens. And in many low-income cities, particularly in Africa, HIV/AIDS has greatly increased susceptibility to environmental hazards.

Women are more vulnerable than men to many environmental hazards because of gender relations (i.e. as a result of the particular social and economic roles that women have, determined by social, economic and political structures). In many societies, women face discrimination within labour markets and with regard to obtaining housing, land, basic services and credit. Women are also especially susceptible to many environmental hazards when pregnant, since the reproductive system is particularly sensitive to adverse environmental conditions.

2.3. Vulnerability to disasters

The death toll from disasters of a comparable type and scale varies greatly from place to place. In a wealthy, well-managed city, it is rare for many people to die from a hurricane, flood or earthquake, but large death tolls are common in lower-income, poorly managed cities. These differences are greatly influenced by how much preventive action has been taken to reduce people's vulnerability to the disaster.

In most cities, it is low-income groups that are heavily concentrated in the sites most at risk from disasters - flood plains, steep slopes, sites around heavy industry and sites most at risk from earthquakes. Indeed, hazardous sites suit low-income groups well because the fact that they are hazardous makes other groups avoid building there, thus keeping down their value and often making them the only sites which poorer groups can occupy which are close to income-earning opportunities. Low-income groups inevitably have less money to spend on building or renting a house designed to avoid or limit damage in the event of a disaster and it is also generally the low-income neighbourhoods that have the least provision for protective infrastructure. Low-income groups also have the least resources on which to call when some disaster damages or destroys their housing.

2.4. Reducing vulnerability

The most obvious means of reducing vulnerability to environmental hazards is to improve the quality of the urban environment. This is the principal topic of many of the following chapters. A person's or household's vulnerability is also much influenced by the extent to which they can cope with the consequences of the illness, injury or premature death caused by environmental hazards. For instance:
- Can they get treatment and can they afford it and any medication they need?
- Can they get emergency services when needed?
- Can they get a loan to help them manage a sudden drop in income?

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- Do they have assets they can call on (monetary and non-monetary)?

Thus, among the factors that reduce vulnerability and risks for susceptible groups are:

- The extent of public, private and community provision for prevention-oriented health care (including provision for immunisation and services for ante-natal, childbirth and post-natal care) and emergency response to accidental injuries and acute diseases.
- Good quality homes and neighbourhoods, which reduce exposure to biological pathogens, chemicals and physical hazards, and are not vulnerable to 'natural' disasters.
- Good standards of occupational health and safety, and control of air pollution.
- Good standards of traffic management, and a transport infrastructure that can safely accommodate the non-motorised transport often used by vulnerable groups.
- Good provision for children's needs at different ages (e.g. good quality day care, pre-school, school, children's play at different ages).
- Good standards of nutrition.

There are also many different ways in which vulnerability to disasters can be reduced. For instance, for the inhabitants of a settlement at risk from flooding, vulnerability may be reduced by:

- Reducing the risk of flooding – which may be achieved 'upstream' through better watershed management.
- Offering them a safer site and help in moving there (although care is needed to offer appropriate alternatives, since hazardous sites often serve the needs of low-income households well in all other aspects so it may be difficult to find a less hazardous site that will serve their other needs).
- Helping make their homes and neighbourhoods better able to cope with floods – for instance, structural modifications to buildings and improved storm and surface drains (but tenants often face particular problems because landlords are reluctant to invest or allow tenants to alter their homes).
- Developing an effective early warning system to predict when floods are likely (so that people can take protective measures or move away temporarily).
- Ensuring emergency services are ready to respond rapidly in the event of a flood; and
- Having in place the supports the inhabitants need to cope with their losses after the flood.

There is often considerable overlap in the means needed to reduce people's vulnerability to disasters and to reduce their vulnerability to 'everyday' hazards. As external agencies have learnt to work in more participatory ways with 'vulnerable' groups, the analyses of hazards and vulnerabilities have also come to include analyses of local capacities to identify and act.

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2.5. Strengthening asset bases

The key role that assets play in helping low-income individuals or households avoid deprivation is now more widely recognised. However, the discussion of the role of assets in this has generally concentrated on those that are important for generating or maintaining income or for helping low-income people cope with economic stresses or shocks. Too little attention has been paid to the role of good quality housing, infrastructure and services in reducing low-income groups' vulnerability by protecting them from exposure to environmental health hazards, and to the role of health care services and emergency services in reducing their health impact. In this sense, it is the quality of housing and basic services that is the asset – regardless of whether the house is owned, rented or borrowed. Discussions on housing as an asset tend to concentrate on its capital value or its potential income-earning possibilities rather than on its potential role in helping its inhabitants avoid environmental hazards.

Box 2-1: Inadequacies in provision for water and sanitation in urban areas

When piped water and sanitation are lacking, urban dwellers are particularly vulnerable to environmental hazards. Many health problems are linked to water - its quality, the quantity available, the ease with which it can be obtained (and the cost), and the provisions made for its removal, once used. The health links with sanitation are also obvious; human excreta is an extremely hazardous substance. Around half of the urban population in Africa, Asia and Latin America is suffer from one or more of the main diseases associated with inadequate provision for water and sanitation.

Hundreds of millions of urban dwellers have no access to piped water supplies. Hundreds of millions more have 'access to piped supplies' but do not have a piped supply into their home or yard and thus have to rely on standpipes or other communal or public supplies to which access is often difficult and time-consuming. Large numbers of those with piped supplies only receive water through the pipe intermittently, and the quality of the water is often poor. Those not served by piped supplies often rely on vendors or kiosks, which provide an important service, but typically at a very high price: in many cities those who buy from vendors spend 5-10 per cent of their total income on water.

Perhaps as many as two-thirds of the urban population in Africa, Asia and Latin America and the Caribbean have no hygienic means of disposing of excreta and an even greater number lack adequate means to dispose of waste waters. Most urban centres in Africa and many in Asia have no sewers at all. When sewerage systems do exist, they rarely serve more than a small proportion of the population – typically the richer residential, government and commercial areas. Pit latrines and bucket latrines, often shared between many people, are the most common response. Open defecation is also a common response for the tens of millions of households who have no sanitation facility within their home or yard and no convenient public provision nearby. Ditches, gullies, streams, canals, and rivers are where most human excrement and waste water ends up, untreated. Official statistics for sanitation in most nations understate the problem because they do not distinguish between households with a toilet within their home and those that rely on communal or public provision. Many also assume that if a household has some toilet facility, it is adequate.

Chapter 3

3. Economic growth and the shifting of urban environmental burdens

This chapter provides a simplified account of the relationship between the economic conditions of cities and their environmental burdens. With increasing affluence, urban environmental burdens tend to become spatially more dispersed and temporally more delayed. Low-income cities need to pay special attention to environmental health hazards, which tend to be worst in their more deprived neighbourhoods. However, especially in more affluent cities and those experiencing rapid economic growth, it is also important to address larger scale environmental burdens, preferably before they become entrenched in the infrastructure and lifestyles of the city.

3.1. The spatial scale of urban environmental burdens

Figure 3.1 summarises the characteristic urban problems experienced at various scales from the home and workplace up to the planet as a whole (for a more detailed listing see Table 1.1). All cities both contribute to and suffer from problems at every scale. The relative severity of these problems varies enormously. Much depends on geography, and the role of the city in the wider economy, as well as the key infrastructure and services noted in the figure. Moreover, cities that are good at managing their environments will tend to perform better at all of these levels. The scale at which a city's most severe environmental burdens have their impact probably depends most critically on how wealthy the city is, and how that wealth is distributed.

Figure 3-1: Spatial Scale of Urban Environmental Problems

Spatial Scale	Household/ Workplace	Community	Metropolitan Area	Region	Continent/ Planet
Key Infrastructure and Services	Shelter Water Storage Onsite Sanitation Garbage Storage Stove Ventilation	Piped Water Sewerage Garbage Collection Drainage Streets/Lanes	Industrial Parks Roads Interceptors Treatment Plants Outfalls Landfills	Highways Water Sources Power Plants Roads	
Characteristic Problems	Substandard Housing Lack of Water No Sanitation Disease Vectors Indoor Air Pollution	Excreta laden Water/Soils Trash Dumping Flooding Noise/Stress Natural Disasters	Traffic Congestion Accidents Ambient Air Pollution Toxic Dumps	Water Pollution Ecological Areas Lost Deforestation	Acid Rain Global Warming Ozone Layer

Source: C Bartone, J Bernstein, J Lehmann and J Elgen (1994) *Toward Environmental Strategies for Cities: Policy Considerations for Urban Environmental Management in Developing Countries* no. UMP 18, World Bank (Washington, D.C)

3.2. A simplified account of the urban environmental transition

Cross-country studies indicate that household sanitary conditions tend to improve with wealth, that concentrations of various outdoor air pollutants increase and then fall, and that contributions to carbon emissions increase. These relationships are summarised in Figure 3.2. They reflect a more general urban environmental transition that helps to explain some of the great contrasts commonly observed between different cities. Whether one looks at the history of the more affluent cities or at a cross-section of cities of increasing affluence, environmental burdens tend to become more diffuse, delayed and indirect. To some extent, this involves the purposeful displacement of environmental burdens. More generally, it reflects increasing consumption and production along with environmental protection aimed at the 'here and now'

Figure 3-2: An Urban Environmental Transition

Source: G McGranahan, P Jacobi, J Songsore, C Surjadi, and M Kjellén, 2001, *The Citizens at Risk: From Urban Sanitation to Sustainable Cities*, Earthscan, London.

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In **low-income urban centres**, local environmental problems are a major cause of disease and death whilst contributions to global environmental degradation remain small. As described in Chapter 2, inadequate household water and sanitation, smoky cooking fuels, waste accumulation in the neighbourhood, disease-carrying pests – all are major contributors to ill-health and mortality, especially among children, and all involve closely interrelated local environmental processes. Virtually everyone living, working and socialising in the neighbourhood is at risk, but particularly women and children. Low-income settlements may also come to be the worst affected by global environmental damage but they have immediate concerns that are, and ought to be, the priority for local action.

In **affluent urban centres**, the most serious local environmental hazards have been displaced or reduced, while existing lifestyles pose major, if often uncertain, delayed and diffuse threats to human life support systems. Waste, once a problem primarily in and around people's homes and workplaces, now interferes with a range of regional and even global processes. Global sustainability is challenged by high levels of materials and energy consumption and waste generation, selective pressures on distant ecosystems, and new hazards arising from technologies developed to meet the demands of the affluent. And just as it is hard to live in a deprived neighbourhood in a low-income city and avoid the local environmental hazards, so it is hard to live in an affluent neighbourhood in the North and avoid contributing to global environmental burdens.

Between these two extremes are a range of city-wide and regional problems that tend to be most severe in **large, industrialising cities,** which are typically located in middle-income countries. Pollution of ambient urban air and waterways are typical examples. They reflect increasing levels of polluting activities, involving especially industries, transport and energy conversion, along with the displacement of sewerage and waste burdens from the neighbourhood to the city levels. In cross-country studies, this class of problems has received the most attention, generating the notion of the environmental Kuznets curve: an inverted U displaying the rise and then decline of environmental burdens with increasing wealth.

3.3. What does this mean for development assistance?

The most obvious conclusion to draw from this transition is that in **low-income cities** it is appropriate to emphasise local environmental issues of particular concern to the urban poor and nearby rural dwellers. Supporting locally-driven environmental improvement efforts to address these issues would seem to be a suitable role for development assistance. Re-orienting the environmental agendas in low-income urban centres away from local burdens and towards global environmental burdens is in danger of reducing the benefits to the urban poor (though it may seem more consistent with modern environmental thinking, which originated in affluent cities).

It would be a serious mistake, however, to interpret this transition as a process of environmental displacement through which a city inevitably passes as it develops. There is clearly a great deal of overlapping of urban environmental burdens, and considerable variation within cities and between cities of comparable affluence. In any case, there is no need to develop typologies identifying the environmental problems a city is likely to have, when it is possible for local residents and experts to monitor their problems directly. Moreover, from a strategic perspective:

- **The global commons are being depleted and the historic transition cannot provide a model for future urban development.**
If all cities followed the model of currently affluent cities, it would almost certainly lead to environmental disaster. On the other hand, it is unfair that most of the global commons have been appropriated by the affluent (e.g. as a sink for greenhouse gases). If ways are to be found to protect the global commons without reinforcing existing inequities, this will have to involve changes in the way urban environments are managed North and South.

- **Good governance can provide the basis for reducing a wide range of environmental burdens.**
In practice, there is considerable variation in environmental burdens between cities of comparable affluence, in part because some cities (as well as communities and countries) are better at addressing environmental problems than others. Moreover, better urban environmental governance can provide opportunities for both enhancing the living environments of the urban poor and negotiating equitable reductions in global environmental burdens.

- **There are technical opportunities for addressing local, regional and even global environmental burdens simultaneously.**
Historically, environmental burdens have often been displaced (e.g. via sewage outfalls and tall smoke stacks) rather than reduced at source. This is often not the most cost-effective means of reducing local environmental burdens. Especially when new, more efficient technologies are available, the least costly way of improving local environments will also benefit the broader environment.

In short, development assistance in the urban environment field can help provide the basis for addressing a wide range of environmental burdens, including even the global environmental burdens that arise primarily from affluent urban lifestyles. However, the most effective and equitable strategy for low-income cities is likely to be one that places a priority on poverty-oriented environmental improvement. As described in the following two chapters, urban poverty is a serious and growing concern, and environmental problems are an important contributing factor.

4. The extent of urban poverty

Most wealthy people live in urban centres. Soon, most poor people will be living in urban areas too. The scale of urban poverty has been under-estimated in the statistics of governments and international agencies. This is in part because income-based poverty lines are not adjusted to take into account the higher income needed to avoid poverty in most cities and in part because there are many non-monetary aspects of deprivation. A narrow focus on income-poverty also misrepresents the nature of urban poverty, and what can be done to reduce it.

4.1. An urbanising world

There are some 1.9 billion urban dwellers in low- and middle-income nations in Africa, Asia, and Latin America and the Caribbean – representing more than two-thirds of the world's urban population. At least 600 million of these have income and asset bases too low to cover the cost of essentials, and live in homes and neighbourhoods with such poor quality, overcrowded housing and inadequate services that their lives and health are continually at risk. Although there are still many more rural than urban dwellers in Asia and Africa, and more rural than urban dwellers suffering poverty in these continents, there is a long-term trend towards increasing concentrations of population and poverty in urban areas. In addition, in many nations, a large proportion of 'poor' households have both rural and urban components to their incomes, and the inter-connected nature of rural and urban economies, migration flows, and movements of capital, goods and information make it increasingly difficult to consider 'rural' and 'urban' poverty separately (see Chapter 7).

Since 1950, the urban populations in Africa, Asia, and Latin America and the Caribbean have grown more than five-fold. These regions now account for most of the world's urban population (see Figure 4.1) and most of the world's largest cities. Asia is now home to close to half the world's urban population and Africa now has more than 300 million urban dwellers – i.e. a larger urban population than Northern America.
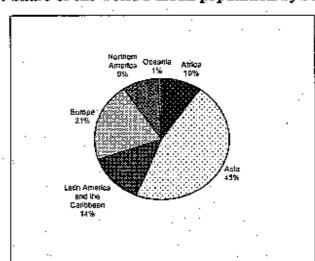
Figure 4-1: Share of the world's urban population by regions (1995)

4.2. The scale of urban poverty

There is a large gap between the conceptual understanding of poverty and its measurement in both rural and urban areas. Poverty is understood to encompass many different aspects including inadequate consumption, inadequate income and asset base, and inadequate access to basic infrastructure and services. But in most nations, poverty is measured in terms of the population falling below income-based or consumption-based poverty lines. The result is that large sections of both rural and urban populations which official statistics classify as not being among the 'poor' still face serious deprivations because of very inadequate asset bases (and the concomitant vulnerability to stresses or shocks) and inadequate access to basic services.

In many nations, governments set income-based poverty lines too low. These are usually based on the cost of a 'minimum food basket', with some small additional amount added in recognition that there are non-food essentials that have to be paid for, such as the cost of housing, water, transport, health care and keeping children at school. But the size of this small additional amount is usually unrealistically low in relation to the cost of non-food essentials, especially for people living in areas where the costs of these are particularly high. The income needed to avoid poverty is usually particularly high in the larger and/or more prosperous cities.

Relying on income-based poverty lines (which assume that the income needed to avoid poverty is the same in all locations) to identify who is poor leads to large underestimates in the scale of urban poverty. One of the key characteristics of cities is that access to virtually everything is highly monetised – access to land, to building materials, to water, to a place to defecate, getting to and from work, child care and, often, even schools and health care. Where there is little public provision for basic infrastructure and services, costs can be particularly high. Underestimates of the scale of urban poverty are particularly high when use is made of an income-based poverty line that makes no allowances for differences in living costs between countries – as in the World Bank's US$1 per person per day poverty line.

Establishing an appropriate poverty line to monitor changes in income poverty is also difficult. A poverty line should be set which reflects the income needed to avoid deprivation within each local context. For urban poverty, at the very least it should reflect the income needed not only to purchase sufficient food but also to obtain a secure shelter with adequate quality water, sanitation and garbage collection, to pay for transport and for keeping children at school, and to afford health care and medicines when needed. The 'non-food' monetary costs of avoiding poverty are generally higher in urban areas than in rural areas, as access to housing, resources and services are monetised – and usually particularly expensive in larger or more prosperous cities. But very few nations have income-based poverty lines that vary from place to place, reflecting differences in the income needed to avoid poverty. Where there is provision for this, it usually focuses on variations in the cost of food or variations in what the poorest 20 per cent of households spend on non-food items, which is not the same as the income level they need to avoid deprivation.

4.3. The multi-dimensional nature of poverty

Urban poverty is usually characterised by:

- **Inadequate household income** (resulting in inadequate consumption of basic necessities), sometimes exacerbated by an uneven distribution of consumption within households, between men and women and between men and children.
- **Limited asset base** for individuals, households or communities (including both material assets such as housing and capital goods, and non-material assets such as social and family networks and 'safety nets').
- **Inadequate provision of 'public' infrastructure and services** (piped water, sanitation, drainage, health care, schools, emergency services, etc.)
- **Inadequate protection by the law** – for instance, regarding civil and political rights, health and safety in the workplace, environmental legislation and protection from violence.
- **'Voicelessness' and powerlessness** within the political system – no means or right to receive entitlements, make demands within political systems or get a fair response.
- **Exploitation and discrimination** (often on the basis of gender, caste, age, ethnicity, etc.)

The list above can be confusing for two reasons. The first is that there are many non-poor (and non-urban) groups who suffer from some of these deprivations – for instance, exploitation, inadequate protection from the law and a lack of political voice and power. The second is that there are multiple links between many of these aspects of poverty. For instance, three of the most common reasons for the inadequate provision of public infrastructure and services are: inadequate income to pay for provision; insufficient assets to cover connection costs; and a lack political voice and power to demand improvements – and often, poor groups also face discrimination in infrastructure and service delivery. But the list remains useful as a reminder, first, of the multiple deprivations faced by lower-income groups and, second, of the most powerful underlying causes of the deprivations.

4.4. Reducing urban poverty without economic growth

The almost exclusive focus by most governments and international agencies on defining and measuring poverty by income level reinforces the notion that economic growth is the means by which poverty will be reduced. Even leaving aside any reservations about the extent to which economic growth translates into increased real income for poorer groups (who are often in the weakest position to benefit from expanded economic opportunities), this also diverts attention from the many other ways in which poverty can be reduced.

Take, for example, the case of infrastructure and services. Although it has become unfashionable for international agencies to support these, the provision of good quality water and sanitation can increase poorer groups' incomes directly when households who previously paid more than 10 per cent of their income to water vendors or kiosks and pay-as-you use toilets get better quality provision at lower cost. Good quality water and sanitation can also increase real incomes by reducing the amount that was previously spent on health care and

medicines as a result of water-related diseases, or lost when income-earners were ill or had to nurse other ill family members. Housing schemes that really respond to the needs and priorities of low-income households can also reduce poverty – again reducing the health burden from infectious and parasitic diseases and accidents, and also providing security, a larger asset base and space for income-earning activities.

But 'poverty-reducing' measures outside of economic growth depend on local institutions that can 'deliver' for the poor on one or more of the different aspects of poverty listed above. The form of local institutions that can do so varies a lot with context; they can be informal networks, community organisations, federations of community organisations, local NGOs, local foundations, municipal authorities or even, on occasion, national government agencies or local offices of international agencies.

In most instances, reducing urban poverty also has 'political' aspects since it has to include strengthening the bargaining power and the possibility to act of low-income or otherwise disadvantaged groups within their local context. This includes a greater capacity to negotiate for resources, to get more appropriate responses from local agencies (for housing, land for housing, water, sanitation, drainage, garbage collection, emergency services, schools, electricity, police, etc.), to successfully oppose anti-poor measures and to have their civil and political rights, and their rights to 'public goods and services' and to unpolluted environments, respected.

Environmental deprivation is an important dimension to urban poverty. As described in the following chapter, better living and working environments can not only contribute directly to a better quality of life for the urban poor, but can also increase their ability to maintain employment and cope with the economic challenges of urban living.

Chapter 5

5. Reducing urban poverty by improving the environment

The urban poor do not contribute appreciably to resource degradation, except perhaps in their own neighbourhoods. Indeed, they have very little access to environmental resources; even less than their rural counterparts. On the other hand, they are often exposed to high levels of environmental risks. Selective environmental improvements could reduce the extent and depth of urban poverty considerably. Much depends on which environmental improvements are selected, however.

5.1. Poverty and environmental degradation

It is often assumed (or stated) that urban poverty is causing or contributing to environmental degradation. However, this is generally not the case, except perhaps in relation to the living environments of the poor themselves.

As the earlier chapters have described, urban poverty is very strongly associated with high levels of environmental risk – largely because of poor quality and overcrowded housing and the inadequacies in provision for water, sanitation, drainage, health care and garbage collection. The very large health burdens that arise from these risks are also a major cause or contributor to poverty.

The visual image of many low-income settlements with their poor quality housing, open drains and uncollected garbage suggests a 'degraded' living environment. However, urban poverty is not strongly associated with environmental degradation in the sense of overuse of, or damage to, finite natural resource bases or the generation of ecologically damaging or disrupting wastes. It is the consumption patterns of non-poor groups (especially high-income groups) and the largely urban-based production and distribution systems that serve them that are responsible for most degradation caused by urban populations.

Urban poor groups use few non-renewable resources. Most of the houses in which poor urban people live (and often build for themselves) make widespread use of recycled or reclaimed materials, and little use of cement and other materials with a high energy input. Such households have too few capital goods to represent much of a draw on the world's finite reserves of metals and other non-renewable resources. Most low-income groups in urban areas rely on public transport (or they walk or bicycle) which means low average figures per capita for oil consumption. Low-income households, on average, have low levels of electricity consumption, not only because those who are connected use less but also because a high proportion of low-income households has no electricity supply. Thus, they are responsible for very little of the fossil fuel use that arises from oil, coal or gas-fuelled power stations (and most electricity is derived from such power stations). This was noted in relation to poor cities in Chapter 3 and is even more evident in relation to the poorest groups within these cities.

Urban poor groups generally have low levels of use for renewable resources. Low-income urban dwellers generally have much lower levels of use for freshwater than middle- or upper-income groups although this is due more to

inconvenient and/or expensive supplies than to need or choice. They occupy much less land per person than middle- and upper-income groups. They consume less food and generally have diets that are less energy and land intensive than higher-income groups. There are examples of low-income populations that do deplete renewable resources – for instance, where low-income settlements have developed around reservoirs into which they dump their liquid (and perhaps solid) wastes or where low-income settlements have developed on slopes which, when cleared for housing, contribute to serious soil erosion (and the clogging of drains) – but these are generally problems caused by the failure of urban authorities to ensure that they have access to other residential sites. In many low-income countries, a considerable proportion of the low-income urban population uses fuelwood or charcoal for cooking (and, where needed, heating) and this may contribute to deforestation – although claims that this is the case have often proved unfounded.

Urban poor groups generate much lower levels of waste per person than middle- or upper-income groups. The urban poor generally play a very positive role from an ecological perspective, as they are the main reclaimers, re-users and recyclers of waste from industries, workshops and wealthier households. If it were possible to determine who consumed most of the goods whose fabrication involved the generation of most toxic or otherwise hazardous wastes, or of persistent chemicals whose rising concentration within the environment has worrying ecological and health implications, it is likely to be middle- and upper- income groups. There are examples of small-scale urban enterprises (including illegal or informal enterprises) which cause serious local environmental problems – for instance, contaminating local water sources – but their contribution to city-wide pollution problems relative to other groups is usually small. In addition, it is difficult to ascribe the pollution caused by small-scale enterprises to the urban poor when many such enterprises are owned by middle- or upper-income groups.

Low-income urban dwellers have, on average, very low levels of greenhouse gas emissions per person. Low-income groups usually generate much lower levels of carbon dioxide per person than middle- and upper-income groups, as their total use of fossil fuels, of electricity derived from fossil-fuelled power stations, and of goods or services with high fossil fuel inputs in their fabrication and use is so much lower. The only exception may be for some low-income households in urban areas where there is a need for space heating for parts of the year and where a proportion of the urban poor use biomass fuels or coal in inefficient stoves or fires. This may result in these households having above-average per capita contributions to greenhouse gas emissions (and also to urban air pollution) but these are exceptional cases.

5.2. Urban poverty reduction and environmental improvement

While the urban poor contribute relatively little to the environmental burdens noted above, they are more likely to suffer the health consequences of environmental hazards (see Chapter 3). Indeed, while most diseases are more common among the urban poor, those due to environmental causes are

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especially prevalent, and account for a larger share of their overall burden of disease.

Urban environmental improvement can be an effective means of reducing poverty, particularly when the improvements lead to healthier living and working conditions for the urban poor. Table 5.1 provides a list of some of the most relevant improvements, along with their health and other benefits. Better health also has secondary benefits for poverty reduction that are not listed in the table. Healthy children are more likely to go to school, and are more likely to grow up to become healthy adults. Adults living in healthier environments not only avoid expenditures on medicines and health care, they avoid the loss of income that can result from taking time off work due to illness or to nursing sick family members. They are therefore less likely to lose their jobs, and enter a vicious spiral of ill health and destitution.

Most attempts to improve the living environments in low-income areas come from the residents themselves. However, even when the benefits far outweigh the costs, it can be difficult for poor urban households to implement improvements. Not only do the improvements often require large initial investments (even on a per household basis), their economics typically call for collective rather than purely individualistic solutions:

- **The benefits often have a public character**. For example, most water-borne diseases can be spread through personal contact, especially among children. Thus, even if an individual or household invests in adequate water and sanitation, they will still be highly exposed to water-borne diseases if their neighbours continue to do without.
- **Collective improvements are often less expensive than an uncoordinated set of individual improvements.** This not only applies to environmental problems in the public domain (such as dusty/muddy roads, poor drainage, waste accumulating on marginal lands, disease vectors breeding on public land, and local pollution problems) but also to inadequate environmental services. The per unit costs of piped water, sewerage systems, and waste collection, for example, typically decline when a larger share of local residents participate.

Such considerations have long been used to justify public ownership of environmental utilities, and pricing policies officially designed to make environmental services affordable to the urban poor. However, in a great many low-income towns and cities, the public utilities have had serious financial problems and have been relatively unresponsive to the needs of low-income residents. As a result, the subsidies have tended to go to relatively well-off residents, leaving low-income residents to rely on expensive private solutions (as noted in Chapter 2, the urban poor often pay a far higher price for clean water than wealthier residents).

Environmental improvement in low-income areas is also often impeded by insecure land and housing tenure. Many poor urban households live in informal settlements, where their legal rights are uncertain or lacking. Without land and

housing security, residents have little incentive to invest in local environmental improvements. Moreover, local governments sometimes withhold services (and discourage private enterprises from providing them) on the grounds that provision would imply de facto recognition of land rights. This makes it hard for local residents to achieve even the environmental health conditions commensurate with their poverty.

In recent decades, private provisioning has often been promoted as a means to overcome public sector failures. To take just one example, private sector participation in water provisioning has been increasing rapidly. Private provisioning does not, however, address the problems that public utilities were intended to overcome. The public benefits of local environmental improvements cannot be sold on the market, and private providers are also disinclined to provide services to 'illegal' settlements, to increase local environmental awareness, or to overcome local disincentives to environmental improvement.

Rather, like most environmental improvements, those listed in Table 5.1 are prone to both private and public sector failures. Having recognised the weaknesses in the traditional public sector approach to environmental service delivery, it is all the more important to develop new approaches to local environmental improvement, more responsive to the needs of low-income residents, and more realistic about the financial and managerial capacities of existing public and private institutions.

Table 5-1: How environmental improvements can help reduce poverty

ENVIRONMENTAL IMPROVEMENTS	HEALTH BENEFITS	OTHER BENEFITS
Improved provision and use of water and sanitation	Reduces water-related infections and parasitic diseases and some vector-borne diseases. This can lead to large reduction in death rates, especially for infants and young children. Nutritional status also improves when less food is lost to diarrhoea and intestinal worms.	Less time and physical effort needed to collect water and perform chores. Lower overall costs for those who, prior to improved supplies, had to rely on expensive water vendors.
Improved provision and maintenance of storm and surface water drainage	Reduces flooding and can eliminate breeding sites for disease vectors, bringing major health benefits. Less flooding also means reduced risk of faecal-oral infection, especially children (floods often spread excreta).	Less risk of water damage to housing, which is often low-income households' main capital asset and also where they store other assets. Also avoids damage to roads, making transport less difficult and costly.

Improved provision for solid waste management	Removes garbage from open sites and ditches in and around settlements, thereby reducing risk of many animal and insect disease vectors, as well as preventing garbage from blocking drains.	Reduces time and physical effort spent disposing of waste (for previously unserved households). Well managed solid waste collection system can provide significant income earning opportunities, especially where recycling, reuse and reclamation are facilitated.
Cleaner household fuels	Reduces respiratory and other health problems through improved indoor and outdoor air quality.	Can ease cooking and cleaning chores, and ease work burden, especially for women.
Less crowded, better quality housing	Reduces household accidents and the spread of some infectious diseases. Can also reduce exposure to indoor air pollution.	Reduces risk to low-income groups of losing their homes and other capital assets to accidental fires or disasters Secure, stimulating indoor space an enormous benefit for children's physical, mental and social development.
Avoidance of hazardous land sites for settlements	Reduces the health risk that can come from living in areas vulnerable to floods, landslides, or fire.	Also reduces the risk to assets, including especially housing. Can also decrease cost of service provision.
Better working environments	Reduces occupational health risks from accidents and exposure to toxic chemicals, as well as reducing stress.	Improves job satisfaction, and can improve productivity of both work and other activities.
Improved public transport	Reduces air pollution and its health impacts. Can also reduce accidents.	Cheap, good quality public transport keeps down time and money costs for income-earners in low-income groups getting to and from work; also enhances access to services.

Chapter 6

6. Reconciling the 'Green' and 'Brown' agendas

There are often conflicts between proponents of the 'Green Agenda' and the 'Brown Agenda' over which environmental problems should receive priority. The Green Agenda concentrates on reducing the impact of urban-based production, consumption and waste generation on natural resources and ecosystems and, ultimately, on the world's life support systems. The Brown Agenda emphasises the need to reduce the environmental threats to health that arise from poor sanitary conditions, crowding, inadequate water provision, hazardous air and water pollution, and local accumulations of solid waste. Generally, the Brown Agenda is more pressing in poor cities and the Green Agenda more pressing in affluent cities. Ways need to be sought, however, to ensure a better balance between the two and, more importantly, to make them more complementary.

6.1. The two agendas - Brown and Green

The environmental problems that many poor urban dwellers face today bear more resemblance to the concerns of the sanitary revolution promoted in the late 19th century than to the sustainability revolution promoted today. Internationally, environmental improvement has come to be associated with a 'Green Agenda' that emphasises the need for humankind to reach a better balance with nature for the sake of future generations. As described in Chapters 2 and 3, however, many of the world's urban poor are threatened by environmental health problems that have little to do with long term environmental degradation.

Partly in response to this, a Brown Agenda has emerged. A stereotypical comparison of the two environmental agendas is provided in Table 6.1. While there is no clear dividing line between the two agendas, they can be distinguished along a number of different dimensions: spatial, temporal and political. The Brown Agenda addresses issues that are more local and immediate, and which affect the poor. The Green Agenda addresses issues that are more dispersed and delayed, and which affect future generations. In terms of the urban transition described in Chapter 3, the Brown Agenda addresses the environmental burdens more typically associated with poverty, while the Green Agenda addresses the environmental burdens more typically associated with affluence.

The terms 'Brown Agenda' and 'Green Agenda' are not always used in this manner. Sometimes the 'Brown Agenda' refers to pollution reduction, while the 'Green Agenda' refers to nature protection. Increasingly, references are made to a 'Blue Agenda' (addressing water supplies unable to keep up with demand, watershed degradation, declining coastal and marine resources). Table 6.1 does, however, capture a distinction particularly relevant to any attempt to ensure that environmental improvement meets the needs of the poor as well as those of future generations.

6.2. Conflicting agendas - helping the poor versus protecting the future

Superficially at least, these two agendas are in opposition to each other. Green burdens have grown in part because Brown burdens have been displaced. Local

water shortages have been addressed by drawing on more distant sources. Local air pollution has been reduced by introducing higher stacks or more distant oil or coal-based power stations. Local solid waste problems have been addressed by removing the waste from the vicinity of people and dumping it outside the urbanised area. Land shortages have been eased by transport systems that encourage urban sprawl. And sanitary problems have been removed by using water to carry away human excreta.

Table 6-1: Stereotyping the 'Brown' and 'Green' agendas for urban environmental improvement

	The 'Brown' Environmental Health Agenda	The 'Green' Sustainability Agenda
Characteristic features of problems high on the agenda:		
First order impact	Human health	Ecosystem health
Timing	Immediate	Delayed
Scale	Local	Regional and global
Worst affected	Lower-income groups	Future generations
Characteristic attitude to:		
Nature	Manipulate to serve human needs	Protect and work with
People	Work with	Educate
Environmental services	Provide more	Use less
Aspects emphasised in relation to:		
Water	Inadequate access and poor quality	Overuse; need to protect water sources
Air	High human exposure to hazardous pollutants	Acid precipitation and greenhouse gas emissions
Solid waste	Inadequate provision for collection and removal	Excessive generation, need for recycling
Land	Inadequate access for low-income groups for housing	Loss of natural habitats and agricultural land to urban development
Human wastes	Inadequate provision for safely removing faecal material (and waste water) from living environment	Loss of nutrients in sewage and damage to water bodies from sewage released into waterways
Typical proponent	Urbanist	Environmentalist

SOURCE: G McGranahan and D Satterthwaite, 2000. "Environmental health or ecological sustainability: reconciling the Brown and Green agendas in urban development" in C Pugh (editor), Sustainable Cities in Developing Countries, *Earthscan, London.*

From a 'green' perspective, displacing environmental burdens is inequitable and economically unsound. It shifts the burdens from those who generated them onto distant people and ecosystems, and even onto future generations. From a 'brown' perspective, the fundamental inequities and economic inefficiencies lie in the inadequate local water supplies, local air pollution, lack of waste collection, poor sanitation and inadequate land available to the poor. In terms of equity, these people have the right to have their basic needs met – if necessary by the same means which others have, historically, met theirs.

6.3. Complementary agendas - helping the poor and protecting the future

While the table above emphasises the contrasts between the two agendas, they also have a number of common features. Both are concerned with the complex and unintended side-effects of human activity, even if the Brown Agenda focuses more on immediate, localised and health-related effects, and the Green Agenda on delayed, dispersed and ecological effects. The notion that prevention is usually the best cure is also central to both agendas. Both also face the challenge of ensuring that actors whose principal motivations lie elsewhere take environmental effects into account. And again, both agendas are concerned with equity, even if the Brown Agenda focuses more on burdens affecting low-income groups in the present and the Green Agenda on burdens likely to affect, especially, future generations.

Moreover, the conflicts between the two agendas often reflect a tendency to address the two sets of issues independently, using crude policy instruments. It is not the 30 or so litres of water per capita per day that people need to meet their health needs that threaten natural water supplies but, rather, making water 'affordable' by across-the-board subsidies and then supplying it in systems that leak up to 50 per cent of the water. Much the same applies in relation to other environmental services.

Meeting the needs of the poor is not a major threat to sustainability except when it allows environmental abuse by all sectors of society. Similarly, pursuing environmental sustainability is not a major threat to the environmental health of the poor except when it is used to justify maintaining the most deprived residents' already inadequate access to environmental resources.

More careful and equitable use of environmental resources can often bring better environmental services with less ecological damage. Thus, the recycling of waste can help remove waste from urban neighbourhoods (serving the Brown Agenda) while also reducing damage to natural resources (serving the Green Agenda). Similarly, the preservation of urban wetlands (the Green Agenda) can be linked to improvements in sanitation (the Brown Agenda).

Simply transferring the environmental priorities and policy tools of the Northern Green Agenda to Southern cities is, however, clearly inappropriate. Claiming that the Green Agenda will solve the environmental health problems so prevalent in many Southern cities is not only untrue but could be harmful to the most vulnerable residents. Donors whose mandate is poverty reduction

cannot be wholehearted champions of the Green Agenda if that means diverting attention from more immediate environmental hazards that tend to affect the poor. It would also be inappropriate, however, to treat the two agendas separately and ignore the potential complementarities between them.

6.4. The importance of assisting locally-driven initiatives

Cities that have the capacity to address their own local environmental problems efficiently and equitably are more likely to be able to respond to the Green as well as the Brown Agenda. The more environmentally successful Northern cities have worked hard to gain local support for environmental improvement and to ensure that local environmental issues are given prominence. This applies to recent successes (such as Leicester's environmental city initiative) but also to cities with a history of good environmental management (such as Stockholm). In Southern cities, there is far more justification for giving prominence to local environmental issues. Moreover, in the South as well as in the North, locally-driven initiatives often do take extra-urban environmental impacts seriously.

6.5. Conclusion

Finding the best means of developing and financing urban environmental initiatives that address both the Brown Agenda and the Green Agenda remains a major challenge. In principle, urban environmental initiatives could reconcile them by analysing their conflicts and complementarities, and designing measures that avoid the former and build on the latter. These conflicts and complementarities remain poorly understood, however. In practice, especially in poor cities, the more obvious priority is to assist in the development of locally-driven environmental initiatives. As described in a number of the chapters that follow, this brings issues of governance to centre stage.

Chapter 7

7. Rural-urban linkages

Urban centres are linked to their surrounding regions by relations of interdependence which have important repercussions on the use and management of resources, and on the livelihoods of urban and rural residents. Rural-urban interactions can be divided broadly into two categories. 'Spatial' linkages refer to the movement of people, goods, money, information and other social transactions between urban centres and rural areas. 'Sectoral' interactions describe the interdependence between agriculture on the one hand and industry and services on the other. The two categories often overlap – for example, many urban enterprises rely on demand from rural consumers, and access to urban markets is often crucial for agricultural producers. Both types of interaction make it difficult to manage either urban or rural environments independently.

7.1. What is 'urban' and what is 'rural'? The implications of administrative definitions

The difference between urban centres and rural areas may seem so obvious that definitions should not be an issue. However, there can be major variations in the ways in which different nations define what is an urban centre. The criteria used to identify urban centres include population size and density, and availability of services such as secondary schools, hospitals and banks. However, the combination of criteria applied can vary greatly. Even the population thresholds used can be different: for many African nations it is 5,000 inhabitants, while for most Latin American and European nations it can be as low as 2,000 or 2,500 or even just a few hundred inhabitants.

It is also important to keep in mind that most of the urban population does not live in cities but in market towns and administrative centres. Small and intermediate urban centres are often central in rural-urban linkages, given their usually strong links and complementary relationship with their surrounding regions. However, the functions fulfilled by these centres can vary considerably from one centre to another, and are largely determined by the geographical, ecological, historical, economic, social and cultural characteristics of the region.

This wide fluctuation in definitions has three important implications:
- Official classifications should be treated with caution – for example, a large proportion of settlements classed as 'rural' in China and India would fall within the 'urban' category if the criteria and population thresholds adopted by many other countries were used. Given the size of the population of these two countries, this would significantly increase the overall proportion of urban residents in Asia and in the world.
- International comparisons are difficult, as they may look at settlements which, despite being classed in the same category, may be very different in both population size and infrastructure. In addition, the reliability of data on urbanisation trends within one nation can be compromised by changes in the definition of urban centres over time.
- Public investment in services and infrastructure tends to concentrate on centres which are defined as urban. As a consequence, investment can bypass settlements not defined as urban even if these can, and often do,

have an important 'urban' role in the development of the surrounding rural areas. Within national and regional urban systems, larger cities also tend to be favoured with public investment over small and intermediate-sized urban centres, including those with important roles in supporting agricultural production, processing and marketing.

7.2. Outside the city boundaries: the peri-urban interface

The physical boundaries of urban built-up areas often do not coincide with their administrative boundaries. The areas surrounding urban centres generally have an important role in providing food for urban consumers, with proximity lowering the costs of transport and storage. It is difficult to make generalisations about the nature of peri-urban areas, as it depends on the combination of a number of factors including the economic and infrastructural base of the urban centre, the region and the nation; the historical, social and cultural characteristics of the area, and its ecological and geographical features. Peri-urban areas around one centre are also not necessarily homogenous: high- and middle-income residential developments may dominate one section, while others may host industrial estates and others may provide cheap accommodation to low-income migrants in informal settlements.

The peri-urban interface around larger or more prosperous urban centres is also the location where processes of urbanisation are at their most intense and where some of the most obvious environmental impacts of urbanisation are located. They are often characterised by:

- **Changes in land use**: land markets are subject to competitive pressure as urban centres expand, and speculation is common. Whether low-income groups such as small and marginal farmers or residents of informal settlements can benefit from these changes, or whether they end up losing access to land, depends largely on land rights systems.
- **Changing farming systems and patterns of labour force participation**: because peri-urban agriculture can be highly profitable, small farmers may be squeezed out by larger farmers who can invest in agricultural intensification. As a consequence, wage agricultural labour often becomes more important than small-scale farming, attracting migrant workers. On the other hand, residents of peri-urban areas may benefit from employment opportunities in the city.
- **Changing demands for infrastructure and pressure on natural resource systems**: with many rural dwellers' access to resources having to compete with urban demand (for example, for water, fuelwood and land for non-agricultural uses) or affected by urban-generated wastes.

Variations in the characteristics of peri-urban areas can be important. For example, in the growing number of extended metropolitan regions in Southeast Asia, agriculture, small-scale industry, industrial estates and suburban residential developments co-exist side by side. Availability and affordability of transport are essential for the intense movement of goods and the extreme mobility of the population. In other contexts, and especially in less industry-based economies such as many countries in sub-Saharan Africa, agriculture still prevails in peri-urban areas although often with significant shifts in land

ownership and use. This is especially the case where smallholder productivity is low because of the increasing costs of inputs and limited credit availability. Other problems include poor access to urban markets due to a lack of roads and physical infrastructure and the tight control over access to the urban market-places by middlemen and large traders. Thus, despite proximity to urban consumers, small farmers may easily be squeezed out, especially as the value of land in peri-urban areas increases with the expansion of the built-up centre.

7.3. The extra-urban impact of urban activities: cities' ecological footprints

Most cities draw heavily on their surrounding regions for freshwater resources. Most urban wastes end up in the region surrounding the city, for example, solid wastes disposed of on peri-urban land sites (either official or illegal) and liquid wastes either piped or finding their way through run-offs into rivers, lakes or other water bodies close by. Peri-urban areas may also be affected by urban air pollution.

This interdependence is illustrated by the concept of a city's ecological footprint, which points to the large land area on whose production the inhabitants and businesses of any city depend for food, water and other renewable resources such as fuelwood, and also for the absorption of carbon to compensate for the carbon dioxide emitted from fossil fuel use. This initial definition can be expanded to include other elements such as nutrient balances and heavy metals. The size of a city's ecological footprint is, typically, several times the area of the city itself. However, it can vary considerably and is influenced by:

- **The city's wealth and the energy intensity of its production base**: while the ecological footprint of major cities in the North can transcend national boundaries, most urban centres in the South draw their resources from close by.
- **The basis on which the city boundary is defined**: the ecological footprint's size as a multiple of the city area depends on whether the administrative boundaries are limited to the intensively built-up area or extended to include the city-region.

The concept of ecological footprint is linked to the idea of carrying-capacity, or the need to balance resource consumption and waste discharge with the preservation of the functional integrity – and therefore of the productivity – of ecosystems.

7.4. Understanding rural-urban differences and rural-urban linkages

There is a need for an understanding of development that

- Encompasses both rural and urban populations and the inter-connections between them;
- Acknowledges that where people live and work and other aspects of their local context influence the scale and nature of deprivation (whether they live or work in rural or urban areas); and
- Recognises that there are typical 'urban' and 'rural' characteristics that cause or influence people's livelihoods, although care is needed in making

generalisations because of great diversity between different urban locations (and rural locations).

Figure 7.1 emphasises some of the most 'rural' characteristics of people's livelihoods in the column on the left and some of the most 'urban' characteristics in the column on the right. These should be regarded as two ends of a continuum with most urban and rural areas falling somewhere between these extremes. The text noted earlier the importance of non-farm income sources for many rural households (including remittances from family members working in urban areas) and the importance of agriculture and/or of rural links for many urban households (including urban centres with many residents who work seasonally in rural areas).

For all the contrasts between 'rural' and 'urban' highlighted in Figure 7.1, there are many exceptions. Spanning the continuum between 'rural' and 'urban' characteristics, is a 'rural-urban' interface in which there are complex mixes of 'rural' and 'urban' characteristics. For instance, many of the areas around prosperous cities or on corridors linking cities have a multiplicity of non-farm enterprises and a considerable proportion of the economically active population that commute daily to the city or find work seasonally or temporarily in urban areas. Many rural areas also have tourist industries that have fundamentally changed employment structures and environmental pressures.

7.5. Governing across and beyond the rural-urban boundary

If well managed, the interactions between towns and countryside are the basis for a balanced regional development which is economically, socially and environmentally sustainable. Local development is increasingly associated with decentralisation processes, on the assumption that local government is 'closer' to citizens – meaning that it is both more accountable to them and that it has a better understanding of local needs and priorities. With regard to rural-urban linkages, local government can play an important role in facilitating positive interactions and limiting negative exchanges:

- It is best placed for decision-making on physical transport and communication infrastructure; however, expenditure for infrastructure can be significant and well beyond the means of local government. Wider alliances, which increase access to financial resources, are therefore necessary.
- The management of natural resources and wastes is an important area of local government intervention. However, it often includes much wider areas than those administered by local authorities, and requires alliances with other local, regional, national and sometimes cross-border governments.
- National level policies also have an important role, for example, with respect to access to land and land ownership and titling in both rural and urban areas. Clearly, this is not the responsibility of local authorities but is nevertheless crucial for local development planning and practice.

Figure 7-1: Livelihoods and the rural-urban continuum

RURAL →	Rural-urban inter-face	← URBAN
Livelihoods drawn from crop cultivation, livestock, forestry or fishing (i.e. key for livelihood is access to natural capital)		Livelihoods drawn from labour markets within non-agricultural production or making/selling goods or services
Access to natural capital as the key asset and basis for livelihood		Greater reliance on house as an economic resource (space for production, access to income-earning opportunities; asset and income-earner for owners – including de facto owners)
Access to land for housing and building materials not generally a problem		Access to land for housing very difficult; housing and land markets highly commercialised
More distant from government as regulator and provider of services		More vulnerable to 'bad' governance
Access to infrastructure and services limited (largely because of distance, low density and limited capacity to pay?)		Access to infrastructure and services difficult for low-income groups because of high prices, illegal nature of their homes (for many) and poor governance
Fewer opportunities for earning cash; more for self-provisioning. Greater reliance on favourable weather conditions.		Greater reliance on cash for access to food, water, sanitation, employment, garbage disposal and other services
Urban characteristics in rural locations (e.g. prosperous tourist areas, mining areas, areas with high value crops and many local multiplier links, rural areas with diverse non-agricultural production and strong links to cities)		Rural characteristics in urban location (urban agriculture, 'village' enclaves, access to land for housing through non-monetary traditional forms)

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In short, understanding rural-urban linkages matters because it provides the basis for measures that can improve both urban and rural livelihoods and environments. Ignoring them means that important opportunities will be lost, and in many cases it will also contribute to poor and marginal people's hardship. There are urban initiatives that can reduce ecological damage to rural areas, and help support regional development. However, with a narrow urban-centric approach, such initiatives are unlikely to be given the priority they deserve.

Chapter 8

8. Good governance for good environments

Many urban environmental problems arise because urban authorities are unwilling or unable to control pollution, to meet their responsibilities for infrastructure and service provision, or to provide the framework for NGO, community and private sector provision. There are also failures of governance, when the political and administrative institutions of government are not accountable to citizens for their policies and expenditure priorities. However, a number of urban centres have developed innovative Local Agenda 21s that demonstrate new ways of tackling environmental problems, including working across sectors and linking community action and NGO and municipal support.

8.1. Environmental problems; political solutions

Most urban environmental problems have underlying economic or political causes. It may even be misleading to refer to many of the most pressing environmental problems in low-income cities as 'environmental'. They often arise not from some particular shortage of an environmental resource (e.g. land or freshwater) but from economic or political factors which prevent poorer groups from obtaining them and from organising to demand them.

The severe water shortages that much of the urban population face is a serious environmental problem but, often, the underlying cause is not a scarcity of freshwater but governments' failure to ensure that available water is supplied efficiently and equitably; a competent organisational structure for maintaining and expanding the water system is often lacking. There are cities with serious constraints on expanding freshwater supplies – where the city and its production base have grown to exceed the capacity of local freshwater resources to supply it on a sustainable basis. Even in such cities, however, providing adequate supplies to poorer groups is likely to require less water than that saved by better maintenance of the existing system and more realistic charges for other water users.

Similarly, in most cities, it is not land shortages that cause so many low-income groups to live in overcrowded conditions and concentrate on dangerous sites (for instance, flood plains or steep slopes) but the failure of the authorities to plan for and allocate more suitable sites.

8.2. The weakness of city and municipal authorities

Most environmental problems also arise from the failure or limited capacity of government:
- To control industrial pollution and occupational exposure.
- To ensure that city-dwellers have the basic infrastructure and services essential for health and a decent living environment (whether the providers are private, NGO, community-based or public sector).
- To plan in advance to ensure sufficient land is available for housing developments for low-income (and other) groups; and
- To implement preventive measures to limit risks from, for instance, traffic and extreme weather events.

The large health burden caused by environmental hazards is also linked to the inadequacies in provision for community-based health care and emergency services.

This does not mean that government agencies should undertake all these tasks. As other chapters emphasise, community, NGO or private sector provision is often more effective – or simply the only possibility because of the weakness of local government. But ensuring these are effective requires:

- A supportive public framework within which private or community land developers and infrastructure and service providers can operate.
- Measures to ensure more public accountability by industries for their emissions and waste management.
- Frameworks to make markets work, as in, for instance, ensuring a competitive market among private water suppliers, bus companies, land developers and building material suppliers.
- A forum within which different stakeholders can present their views, and work together for collective solutions.

In large part, a lack of support for private sector and community-based initiatives is also a failure of governance. The term governance is understood to include not only the political and administrative institutions of government (and their organisation and inter-relationships) but also the relationships between government and civil society. There is a lack of accountability among most urban authorities towards their citizens for their policies and expenditures (including a lack of transparency in the way that decisions are made and resources allocated). In many urban centres, the judiciary also does not function as a means of allowing citizens to hold their governments to account.

For most countries, the grave limitations of urban government can be partly explained by the national economy's weakness; effective government action in ensuring a healthy environment for citizens is much more difficult without a stable and reasonably prosperous economy. In many, it is also related to the limited powers and resources allowed to urban governments by higher levels of government. Also, where national governments are unaccountable and corrupt, and use patronage as a political tool, there is a tendency for local governments to follow suit. Nevertheless, there are often measures that can be taken at the local level to improve governance, even in difficult circumstances.

Remedying these failures of government within cities and city-districts, and addressing the reasons which underlie them should be central to any urban environmental agenda. Strengthening the capacity of city and municipal governments to address the 'Brown Agenda', including lack of sanitation, drains, piped water supplies, garbage collection and health services is generally a pre-condition for building the institutional capacity to address the 'Green Agenda' of protecting natural resources and reducing greenhouse gas emissions (see Chapter 6).

Building more effective government responses to environmental problems includes:

- A shift from a focus on improving urban management to a focus on 'good governance', which includes a more effective framework of support for citizen groups and NGOs within more accountable and transparent government structures (see Chapter 9).
- A more explicit linking of 'environmental improvement' with poverty reduction (see Chapter 5).
- Environmental agendas within each urban centre which respond to the specifics of each location, society and culture within national frameworks that reward good 'regional' and 'global' practice (including limiting the ecological costs passed onto other ecosystems or into the future); and
- New professional attitudes that allow experts and government officials to co-operate more closely with community groups, and allow government officials to co-operate more closely with private enterprises, without compromising the public interest (see 8.4 below).

8.3. A city-specific environmental agenda

Each city has its own mix of environmental problems, in part linked to its own unique local environmental context, in part linked to the factors that shaped its development, and in part linked to its existing demographic, economic, social and cultural base. Where resources are limited, these problems can only be addressed with a knowledge of local resources (and how these can be mobilised), a knowledge of local constraints (and how these can be overcome) and the use of approaches that reduce capital requirements. Potential solutions will need to be discussed locally and influenced by local citizens' own needs and priorities.

One of the most significant innovations in addressing urban environmental problems during the 1990s has been Local Agenda 21s.[1] At base, these are about 'good governance' for environment and development. They usually involve the development of a particular document – the Local Agenda 21 – but its significance should be that it was developed through a broad, inclusive consultation process that helps develop consensus between different (often conflicting or competing) interests. Similar approaches have also been promoted through, for example, the Sustainable Cities Programme, and are discussed in more detail in Chapter 12.

Local Agenda 21s can become ways of:
- Institutionalising consultation, participation and accountability. **Environmental planning moves into the public arena as it shifts from being something determined or driven by professionals to something developed, discussed and influenced by public consultation.**

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[1]The term 'Local Agenda 21' comes from Agenda 21, the document formally endorsed by the government representatives attending the UN Conference on Environment and Development (also known as the Earth Summit) in Rio de Janeiro in 1992. Local Agenda 21s are seen as the means by which most of the measures contained in the 40 chapters of Agenda 21 are to be implemented.

- Integrating concerns for environment and development. Local Agenda 21s should provide a means through which citizens' concerns and priorities for environmental quality become more influential in government – both in the use of government resources and in government regulation and control of private sector development.
- Ensuring that plans are driven by local concerns – although they should take into account the regional concerns and national and global issues, particularly regarding resource use and waste generation.
- Ensuring co-ordination and co-operation between different government agencies, as they involve the different public bodies or agencies active within any locality (including those responsible for infrastructure and service provision, land use management and environmental regulation).
- Tapping pride in a locality's natural resources and cultural heritage, and in the quality of its governance (including its Local Agenda 21).

Box 8.1 gives two examples of Local Agenda 21s which show their potential. They also show the willingness of citizens, community organisations and local NGOs to 'buy in' to environmental planning and management, if these are organised in ways that encourage and support their participation.

Many innovative Local Agenda 21s were possible because of some coincidence of key local and national changes, especially decentralisation (which gave more scope for local action, even if it often did not transfer public resources), and strengthened local democracy. Some were formed in response to particular environmental hazards, as in the Ilo example noted below, where all citizens wanted action taken on the very high levels of air pollution and the other environmental costs generated by the Southern Peru Copper Corporation.

Local NGOs or universities often have important supporting roles. The innovations in Ilo and in Local Agenda 21s in many other Peruvian cities were also supported by a National 'Cities for Life' Forum organised by a Peruvian NGO, Ecociudad. The work of this Peruvian NGO is interesting in that it took on the role of encouraging and supporting local authorities all over Peru to develop Local Agenda 21s. It is usually assumed that this is a task for national governments – but, in this instance, there was little interest from national government in doing this. Ecociudad has organised workshops and exchanges to allow local authorities to share their experiences and has advised many local authorities on how to develop Local Agenda 21s. It has developed manuals and other documents to help guide them and has developed new courses with universities.

Box 8-1: Examples of Local Agenda 21s

MANIZALES (Colombia): A local environmental action plan (Bioplan-Manizales) was developed with widespread consultation and became integrated into the municipal development plan and the municipal budget. It includes measures to protect and revitalise the city's rich architectural heritage, improve public transport (partly funded by a tax on petrol), reduce the risk of landslides and relocate those who lived on slopes at high risk of landslides. The relocation programme was linked to the development of eco-parks, some on slopes too steep for permanent settlement and others with important ecological functions – for instance, one integrated into the city's watershed and another focusing on conserving biodiversity. Some eco-parks are managed by community associations. Community-based environmental initiatives helped to generate jobs – for example, managing eco-parks, running tree nurseries and increasing recycling. The city has also developed an 'environmental traffic lights' indicators programme through which progress in each of its 11 communes is tracked with regard to social conditions, community involvement, natural resource use, energy efficiency and waste management. They are called traffic lights because, for each indicator, public boards show whether things are improving (green), getting worse (red) or are relatively stable (amber). The monitoring of progress is also helped by environmental observatories set up in different parts of the city.

ILO (Peru): In this port city in southern Peru with around 60,000 inhabitants, the quality of the environment has been transformed over an 18-year period with major improvements in the quality of housing and in the provision of water, sanitation, garbage collection, electricity, paved streets and green areas. Some 300 projects have been financed and implemented through partnerships between the municipal government and neighbourhood management committees – with these also able to draw support from other institutions including local NGOs. The total value of their investments is more than US$10 million. The municipal council also avoided the problem of squatting, despite the city's six-fold increase in population since 1961, by developing an urban expansion area where low-income households could obtain a site on which to develop their own housing and receive basic infrastructure and services. A large coastal area along the seafront has been reclaimed for public use (with the municipal authorities helping to move the industries, settlements and institutions that were located there). Development plans occur within a coherent environmental plan and this has received long-term political support with six successive mayors.

Sources: Velasquez, L. S. 1998. Agenda 21; a form of joint environmental management in Manizales, Colombia. *Environment and Urbanization.* 10(2):9-36; Follegatti, J. L. L. 1999. Ilo: a city in transformation. *Environment and Urbanization.* 11(2):181-202.

8.4. New professional attitudes

There is a need for new attitudes among professionals whose training also equips them to work co-operatively with low-income households and the community organisations they form, as well as with private enterprises.

If, as many specialists have recommended, more support is to be channelled to citizen-directed, community-level initiatives, professionals need to learn how to work co-operatively and respectfully at community level.

Professional resistance to innovative local solutions is a major constraint. Architects are loath to cede to low-income groups the right to develop their house design and room layout. Planners do not want their zoning structures or sub-division regulations questioned. Transport engineers don't want to negotiate with each low-income settlement about the amount of space to be allocated to roads – and thus have their regulations and methodologies for calculating space allocation to roads questioned. Water engineers don't want to engage in discussions about the depth of trenches and size of pipes with community organisations, even if this has large cost implications for the members of these organisations. Underlying these are the more fundamental constraints posed by inappropriate building codes, infrastructure standards and planning norms.

Many case studies show how the most pressing environmental problems can be greatly reduced at a relatively modest cost – especially where local groups and institutions play a central role in developing solutions. **In many cities, there is also a considerable demand (i.e. capacity and willingness to pay) for water, sanitation, health care and garbage collection but the combination of an institutional incapacity to deliver cheap and effective services and a reluctance on the part of professionals to permit innovative (non-standard) local solutions inhibits action.**

New professional attitudes are also important with respect to the private sector. Already, government officials in many cities are being asked to engage more with the private sector. In contrast to low-income communities, where average incomes are far lower than in the public sector, incomes at the high end of the private sector tend to be far higher. This creates a different challenge, but one that also requires a high degree of professionalism to ensure that partnerships are based on mutual respect and a recognition that the role of the public sector is to serve the public interest through existing legal and policy frameworks. As described in Chapters 10 and 11, partnerships with the private sector can be an important vehicle for urban environmental improvement.

Chapter 9

9. The potential role of civil society organisations

The shift in thinking from supporting 'government' to 'governance' has helped to highlight the important role of community-based organisations, local NGOs and non-profit groups in ensuring (and developing) more appropriate responses to environmental (and other) urban problems. It has also encouraged external agencies to consider how they can support these groups. This chapter discusses the different ways in which civil society organisations help address environmental problems and the kinds of government and international agency support that they need.

9.1. Enabling frameworks

Improving urban environments depends not only on what urban governments fund and regulate but also on how they encourage and support the efforts and investments of households, citizen groups, NGOs and the private and non-profit sector. In most urban centres in Africa, Asia and Latin America, the investments made each year by households and communities in improving their homes and neighbourhoods greatly exceeds the investments made by government agencies. Supporting this investment is a central part of environmental improvement. Government-led programmes and public-private partnerships, described in other chapters, can help support unorganised initiatives, ranging from home improvements to household level waste sorting. There are also many opportunities for engaging with organised civil society groups.

However, in many nations, local governments lack the capacity to do so – or have little interest in this (see Table 9.1). In nations where decentralisation and democratic reforms have made urban governments more accountable, there is greater scope for external agencies to support local government action. Where urban governments remain undemocratic and unaccountable, then it is more appropriate to support the community processes that build cities from the bottom up'. This is not in conflict with strengthening local government, in that strong, well-organised and democratic community organisations are an essential part of democratic local governments.

9.2. A framework of support for civil society

It is worth distinguishing between two different kinds of civil society organisation that are active in environmental issues. The first is one whose primary purpose is to work at grassroots level to improve the environment – for instance, community organisations formed by the residents of low-income neighbourhoods and the local NGOs that work with them. The second is one that concentrates on documenting environmental problems and using this as the basis for demanding action – for instance, documenting the 'state of the environment' in a city or highlighting the extent to which air pollution standards are being violated and who are the main contributors to this.

Table 9-1: The different roles for external agencies within the different extremes in terms of local government structures

The continuum in terms of resources available to public institutions	The continuum in terms of local government structure, accountability and representative nature	
	From undemocratic, unaccountable and often clientelist local government structures	*....to democratic and accountable local government structures*
From poorly resourced local government institutions unable to provide environmental services or to put in place the framework ensuring provision by private, NGO or community enterprises	External support targeting low-income areas, and reducing environmental burdens that affect especially the urban or rural poor. Also strengthening and supporting community-level action where possible. Many community-level initiatives need support outside of traditional government structures. But there is also the need for long-term commitment to making public sector institutions more accountable and effective.	External agencies helping build capacity of local governments, especially to work with and support a wide range of civil society groups (including community based organisations and NGOs) in infrastructure and service provision and in guaranteeing rights. Also helping to build local capacity to engage constructively with the private sector and civil society simultaneously.
.... to relatively well resourced local government institutions capable of ensuring provision of infrastructure and services, land management and pollution control	To meet low-income groups' needs, external agencies have to give priority to strengthening and supporting civil/community organisations that are pressing for changes in government provision and accountability and in the legal-institutional means of ensuring this. Also supporting provision outside of state structures (e.g. community, NGO).	External funding and support for local government having a major role in infrastructure and service provision, pollution control and land management. For services that are privatised, increasing government capacity to enforce quality and value for money from privatised service providers (or helping civil society groups to do so). Helping to ensure legal and institutional structure is in place to guarantee people's civil, political and environmental rights.

With regard to the first of these, there is tremendous potential in new partnerships between local governments, community organisations and NGOs. Joint programmes can be set up to drain stagnant pools; to re-block existing settlements so that pipes, drains and access roads can be installed and space made for schools and health centres; to locate and destroy disease vectors within homes and their surrounds; to design educational programmes on health prevention and personal hygiene; and to set up emergency life-saving systems through which first aid can be provided in each neighbourhood and through which seriously ill or injured persons can be rapidly transported to a hospital. Well organised communities can also be contracted to provide collective services, such as waste collection. One of the most impressive aspects of the Local Agenda 21 in Ilo (Peru), described in Chapter 8, was the 300 local projects

financed and implemented through partnerships between the municipal government and community-level management committees.

There may be considerable potential for environmental improvement without local government, as shown by the early work of the Pakistani NGO Orangi Pilot Project with low-income households and community organisations in Orangi, the largest unauthorised settlement in Karachi. The fact that good quality sewers/drains were extended to hundreds of thousands of people with full cost recovery shows what can be achieved with minimal external funding and with most of the investments made by the poor households themselves. Once the local government saw this approach working, they also saw how they could use their limited funds to better effect through working with initiatives such as these. So what began as a small community-funded initiative supported by a local NGO (and ignored by government and denounced as inappropriate by a UN agency) ended up being an example that is now copied by government agencies, NGOs and community-based organisations in other parts of Karachi and other cities in Pakistan. There are other examples of innovations developed by local NGOs that, once implemented, encouraged local governments or national government agencies to support comparable initiatives – as with, for example, the influence of the Barrio San Jorge programme in Buenos Aires on programmes in other municipalities, funded by the national government.

9.3. Different NGO approaches

Environmental NGOs usually use one of four approaches:
- A market orientation – with initiatives to introduce and pay for improved housing, infrastructure and services through market-related mechanisms and local entrepreneurs. Credit often plays an important role within this, as it allows low-income households to afford the capital costs of improved infrastructure (or improving their own home) and to spread the repayments over time.
- Welfare approaches with NGOs offering assistance to those in need, often fulfilling a role that government agencies should provide – for instance, provision for water or garbage removal.
- Making claims on the state, with the NGO active in the advocacy of citizen rights and in putting pressure on local authorities or other state agencies to provide infrastructure or services to the poor.
- Civil society-driven alternatives through programmes which involve a combination of community and state support to provide or improve housing, infrastructure and services in non-traditional ways.

The first two approaches are generally the most common – with the second also the one most often funded by international aid. But the third and fourth deserve more consideration in that they seek to improve local governance, not bypass it. (See Table 9.2)

Table 9-2: Different NGO approaches

Approach	Typical activities	Primary focus	Attitude to government	Strategies for increasing scale
Market	Water-vending; piped water provision; waste collection and recycling; credit for house improvement	Informal entrepreneurs and co-operatives; households able to repay loans	Government should encourage informal sector provision and support where possible	Improve existing activities among the poor
Welfare	Water; emergency housing; primary health care	Communities in need	Little direct contact; may campaign for better provision	Seek more external funding
Claim-making on the State	Campaigns and pilot projects for environmental justice; housing rights; better services	Decision-makers and policy-makers	Responsibility of government is to provide	Changes in government policy and action
Civil society-driven alternatives	All forms of housing improvement and infrastructure; services at level of community	Communities in need	New models of governance to support greater community involvement.	Community-to-community learning; local partnerships with State agencies

Claim-making on the state: The lack of public recognition of, and support for, the needs of low-income groups leads to NGOs taking on a 'claim-making' role, arguing for improved provision in a wide range of infrastructure and services both for neighbourhood improvement and for more effective pollution control. Success depends on a supportive political environment. Certain city authorities have deliberately changed their policies or procedures to provide more scope for greater participation of grassroots organisation in municipal plans and activities, for instance, through participatory budgeting (as pioneered by Porto Alegre in Brazil and now also in use in many other Brazilian cities) and some Local Agenda 21s (see Chapter 8).

Civil society-driven alternatives: This approach combines NGOs working directly with low-income groups to improve conditions with using successful 'pilot projects' to negotiate support for many more projects from local governments and external agencies. Many are also based on community savings and credit groups. Examples include the many community development initiatives:
- In Thailand, supported by the Urban Community Development Office.
- In India, supported by the National Slum Dwellers Federation, the Indian NGO SPARC and co-operatives of women pavement dwellers.
- In South Africa, through the South African Homeless People's Federation and the supporting NGO, People's Dialogue on Land and Shelter.

- In Pakistan, through Orangi Pilot Project as mentioned earlier.

The methodology developed by the Indian NGO SPARC has particular relevance and has been followed (with local adaptations) by many other NGOs. It involves two critical components:

- Developing pilot projects with low-income groups and their community organisations to show alternative ways of doing things (building or improving homes, running credit schemes, setting up and running public toilets, organising community-determined resettlement when low-income households have to be moved, etc.)
- Engaging local and national officials in a dialogue with communities about these pilot projects and about how they can be scaled up (or the number of such initiatives multiplied) without removing community management.

These negotiations with government agencies can be undertaken with constant reference to what has been achieved. An important part of this is to bring government officials and politicians to visit the pilot projects and talk to those who implemented them. This approach includes 'claim-making on the state' but, by being able to demonstrate solutions that work, the engagement with the state is more productive.

The pilot projects also stimulate other groups to initiate comparable actions and there is a constant interchange between those involved in different initiatives. This is not an exchange of professional staff but of, for instance, the women living on the pavements or in squatter settlements who manage their local co-operative savings and credit schemes. This direct interchange between community organisers has helped develop and spread knowledge and has supported the formation and development of new community initiatives. Community members exchange ideas not only about what they do and how they do it but also about the strategies that they found useful in negotiating with government and other external agencies.

Community exchanges also help build federations of urban poor groups within cities, which work together to change local, provincial or national institutional constraints on community initiatives. Although most community exchanges are local (for instance, between groups within a city) or regional (inter-city), an international dimension also developed which is now supported by a new umbrella organisation supporting federations of the urban poor, namely, Shack Dwellers International.

However, while local (or international) NGOs can be important supporters of civil society-driven alternatives, they can also be key constraints. They often impose their agenda on communities, in part because they retain management and financial control. It is also difficult for professionals to recognise and support the right of community structures to make key decisions; or to have the patience to allow community processes to develop their capacity for planning and management; or to ensure that their NGO is accountable to the community groups with which they work.

Some international agencies have sought to institutionalise ways of funding a multiplicity of local community initiatives. These include the small-grants programme of the Thai government's Urban Community Development Office (supported by funding from DANCED) and the C3 Challenge Funds supported by the UK Department for International Development in Uganda and Zambia. UNDP has sought to support local environmental initiatives through its LIFE programme.

9.4. Participatory tools and methods

As external agencies (from NGOs and local governments to international agencies) have sought more participatory (or collaborative) ways of working with grassroots organisations, new tools and methods have been developed to facilitate this. These include more participatory methods for gathering information within low-income settlements and of analysing it and drawing from it in developing responses to problems. They include more scope for residents to define needs and priorities, and the most appropriate means of addressing them. More participatory methods have also been developed to evaluate projects (or other externally supported interventions) and to monitor progress. And more participatory methods of information-gathering, and the information gathered, can also become catalysts for a greater involvement by residents and their community organisations.

Chapter 10

10. Public-private partnerships and environmental services for the poor

This chapter examines the potential role of private enterprises in improving living environments in poor neighbourhoods. Environmental service delivery is critical to environmental health, and is often lacking in low-income areas. In many countries, the public sector has historically been responsible for providing environmental services. Increasingly, governments are attempting to work in partnership with the private sector in order to improve service delivery. This involves new roles and capacities for both the public and private partners, especially if the partnerships are to address the problems of low-income areas.

10.1. Public-private partnerships for environmental services

In pursuing the Brown Agenda, city governments are increasingly turning to the private sector to help provide water, sewerage and waste management. The hope is that the resulting public-private partnerships will not only improve economic and technical efficiency, but also improve access to environmental services even among low-income residents. Private-public partnerships in environmental service provision are also being promoted internationally, often by donors whose mandate is to reduce poverty. They are frequently portrayed as a means of combining the strengths of both public and private sectors, and thereby providing services both equitably and efficiently. In practice, the outcome clearly depends upon the qualities of both the partners and the partnership.

Private sector involvement in infrastructure provision has been increasing rapidly over the past decade, even in low-income countries. The fastest growth has been in the energy and telecommunications sectors but an increasing number of initiatives involve water, sanitation and waste management. Most of these have been in larger and more affluent cities, where there is more likely to be sufficient demand to attract private investment. Of the environmental services, water has received the most attention, and a small number of multinational companies (e.g. Vivendi, Suez Lyonnaise des Eaux, SAUR and Thames Water) have been involved in a number of concessions. Among the reasons typically given for cities turning to the private sector are:
- to restructure a failing public utility
- to attract capital investment
- to improve technical and managerial efficiency

10.2. The comparative advantages of public and private utilities

According to conventional wisdom, public utilities tend to be overstaffed and inefficient. Public sector utilities often have no competitors and little financial incentive to be efficient. With governments under severe financial constraints, and private investors reluctant to lend to public utilities, they also have difficulty obtaining the finance required for infrastructure investment. Also, public regulators typically control prices more vigorously than expansion targets. What can easily result is a financially insolvent public utility, providing

low-priced services to the more affluent, and leaving poor households to find more expensive or less desirable alternatives. In effect, poor households are often the worst affected by inadequate public sector provision. Historically, there have been many well-run public utilities but, especially when the public sector generally is under strain, they are the exception rather than the rule.

Even free-market advocates acknowledge that private provision has its own problems. Unregulated private companies are prone to:

- **Engage in monopolistic behaviour** – Urban infrastructure systems are natural monopolies, and monopolists can increase prices without losing a large share of their sales (unlike competitive firms, which must by-and-large accept the market price as given). This can lead to too little provision at too high a price.
- **Ignore public benefits consumers are unwilling to pay for** – The price individuals are willing to pay for private sanitation and solid waste removal is unlikely to reflect all of the benefits, since a large share of these benefits goes to others (just as many of the burdens a resident faces come from other people's bad sanitation and waste). Even a household water connection provides public health benefits above and beyond those received by the consuming household.
- **Ignore quality deficiencies consumers cannot perceive** – Unregulated private providers can increase profits by ignoring quality deficiencies, including even health-threatening pathogens and chemicals, so long as users cannot detect them.
- **Ignore the environmental costs of their own activities that they do not have to pay for** – Unregulated private providers can also increase profits by releasing the waste and sewage in an uncontrolled manner, and potentially depleting the water resources.

10.3. Tapping the strengths of both public and private sectors

Private-public partnerships attempt to gain the benefits of private provision without the disadvantages. Ideally, if prices are well regulated, private utilities will pursue efficiency as a means of maximising their profits, without engaging in monopolistic behaviour. Given appropriate quality control, health risks should be avoidable. Environmental costs can be taken into account in the agreement with the public sector. As long as low-income households are willing to pay the cost of water, private utilities will have the incentive to service them. Numerous studies have claimed to demonstrate that low-income urban households, currently not even offered water services, are willing to pay a price that ought to allow private firms to make normal profits. Good sanitation and waste removal may require subsidies or the enforcement of standards even at the household level. Working in partnership, however, the private and public sectors should in theory be able to design a system that provides services even to low-income households.

In practice, the existence of a public-private partnership is no guarantee that the advantages of both sectors will be realised, however. Without competitive

market price signals, many of the advantages of private provisioning are lost. Indeed, private-public partnership can create new opportunities for corruption and rent-seeking, bringing out the worst features of both sides. Private companies may find it more profitable to invest in influencing key individuals in the public sector rather than in improving services. Public officials may view monopoly profits as a source of finance to be tapped rather than a cost to be minimised. Also, while private sector involvement in water provision is often portrayed as a means to insulate the sector from short-term political intervention, if provision is already politicised, private-public partnerships may merely serve to bring private actors more directly into the political process. Moreover, even well-intentioned regulators may not have the capacity to regulate effectively, and even well-run private utilities may not have the incentive or capacity to comply with the regulations.

If public-private partnerships are to provide environmental benefits to the urban poor, care has to be taken in setting up and regulating these partnerships, so as to ensure that the services do indeed reach the poor.

10.4. Types of public-private agreements

Even ignoring informal agreements, there are many different types of public-private arrangements, ranging from service contracts wherein a public entity hires a private company to provide specific tasks, to complete divestiture wherein private companies own, operate and manage the entire system. Public-private partnership is sometimes taken to refer to arrangements involving joint financing, but often refers more broadly to any arrangement where both public and private sectors play an active role.

A selection of arrangements particularly relevant to water services is summarised in Table 10-1. As indicated, minor levels of private sector involvement typically cover aspects of operations and management, with increasing involvement progressively shifting the commercial risk, capital investment and asset ownership to the private enterprises. As indicated above, there is also a natural tendency for the initial involvement of large private enterprises to be in larger and more affluent cities.

Table 10-1: Allocation of responsibilities for private participation options

Option	Operations and maintenance	Commercial risk	Capital investment	Asset ownership	Contract duration
Service contract	Public & private	Public	Public	Public	1-2 years
Management contract	Private	Public	Public	Public	3-5 years
Lease	Private	Shared	Public	Public	8-15 years
Concession	Private	Private	Private	Public	25-30 years
BOT/BOO**	Private	Private	Private	Private & public	20-30 years
Divestiture	Private	Private	Private	Private or private & public	Indefinite

**BOT is short for Build, Operate and Transfer; BOO is short for Build Operate and Own.
SOURCE: Stottman, Walter (2000), "The role of the private sector in the provision of water and wastewater services in urban areas" in Juha I. Uitto and Asit K. Biswas, *Water for Urban Areas*, United Nations University Press, Tokyo.

10.5. Public-private partnerships in smaller towns

Most of the well-publicised attempts to increase private sector participation in municipal service delivery have been in large relatively affluent cities. This is in part because service delivery in smaller and poorer towns does not provide the same economic opportunities as larger cities. Also, in small towns there are less likely to be local firms capable of investing in and operating municipal services. But perhaps most important from a policy perspective, many small municipalities lack the capacity to negotiate and work effectively with private companies. Several examples are summarised in Box 10-1 below.

Box 10-1: Examples of small municipalities encountering difficulties with public-private partnerships for environmental service delivery

Biratnagar, Nepal. In 1997, with little preparation and support and no tendering process, the Biratnagar Sub-Municipal Corporation entered into a 10-year contractual agreement with a U.S. based company for municipal solid waste management. The contract favoured the municipality, but the representative of the foreign company soon fled the country, and a local engineering consultancy had to be convinced to assume responsibility. The company is still operating, but has a large debt burden, and the sustainability of the current arrangement is doubtful.

Stutterheim, South Africa. In 1993, prior to democratic elections in South Africa, the Stutterheim Municipality contracted Aqua Gold (now WSSA, a joint venture between Northumbrian-Lyonnaise International and a local company) to manage, operate and maintain water and sanitation delivery for the municipality for a ten year period. There was widespread agreement that the original agreement was no longer suitable in the post-apartheid era, but the municipality did not feel it was in a strong enough position to negotiate effectively for a more appropriate agreement.

Gweru, Zimbabwe. Gweru municipality began working towards a public-private partnership for water and sanitation services in 1997. Although it adopted a 'textbook' approach, and identified a private sector partner in 1999, negotiations have been stalled, partly as a result of the macro-economic and political climate in Zimbabwe.

Córdoba, Argentina. In 1997, the Provincial Government of Córdoba signed a 30-year contract with Aguas Cordobesas, a private consortium, for the delivery of water in the Municipality of Córdoba. Although the municipality government is known for its pioneering efforts to bring local government closer to its citizens, the municipality was not formally involved in the contracting process, since it was the responsibility of the province. System efficiency has improved, but little progress has been achieved in expanding coverage to the 17% of the population that were not connected to the water system at the start of the contract.

Cartanega, Colombia. The Municipality of Cartagena signed a 26-year operation and maintenance contract with Aguas de Cartagena (a company formed with Aguas de Barcelona) in 1995, and followed up with a contract to manage a large investment programme three years later. Progress has been good on the technical side, but as in Córdoba it has been less satisfactory with respect to expanding coverage. There are concerns that the municipality lacks the capacity and inclination to negotiate effectively with the private partner, and the process has not been very open (e.g. the performance targets are not in the public domain), calling into question the long term potential of this public-private partnership.

Source: These examples are based on the first five case studies in a working paper series on Building Municipal Capacity for Private Sector Provision (see references - GHK Working Papers)

These examples should not be taken to imply that small municipalities cannot engage in effective public-private partnerships. In the United States, private service provision was far more common in small towns than in large cities, even when economic conditions were far less favourable than they are today. The examples do illustrate, however, some of the difficulties smaller cities and towns face in switching from public towards private service delivery, and indicate that there can be a need for increased capacity at the municipal level whether or not services are provided directly by the municipality.

There are also many less ambitious ways of forming public-private partnerships, and these partnerships do not need to involve large international companies. In some cases it may even involve partnerships with the informal sector enterprises, which already play an important role in many low-income neighbourhoods. For local authorities the challenge is to shift from the provider role to the enabler and regulator roles when this is advantageous, while retaining certain core business functions determined on the basis of comparative advantage.

10.6. Problems specific to low-income neighbourhoods

While providing better living environments for the poor has not been one of the principal objectives of most public-private partnerships, even in larger cities, all urban residents potentially benefit from more efficient service delivery. Realising this potential often requires special measures, however. This is due only in part to the economic difficulties poor households face in paying for such services, and the political difficulties they face in dealing with discriminatory practices. Depending on the city and neighbourhood, there may be difficulties with:

- **Insecure tenure** – whether due to illegal settlement or the threat of new development, insecure tenure is common in deprived neighbourhoods, and can discourage private investment in infrastructure, since residents may later be displaced and cease to be paying customers.
- **Physical obstacles** – low-income settlements are often located in areas that are difficult to service because of narrow roads, steep slopes or other obstacles.
- **Lack of household funds for down-payments** – poor households often have particular difficulties making the lump sum payments that may be required in order to connect to water or sewerage, and are generally more able to afford the equivalent in a series of small payments.
- **Low levels of trust and poor communication** – the relationship between poor households and service utilities is often characterised by mutual suspicion and difficulties on both sides in distinguishing genuine difficulties from deliberate misrepresentation.
- **Conflicts between formal and informal systems** – poor households would often benefit from hybrid systems, that build on or work with pre-existing infrastructure and institutional arrangements, while large utilities often have difficulty accommodating what they may view as substandard infrastructure and informal institutions (including those involving other private sector actors such as small scale waste pickers or water vendors).
- **Collective service use and special needs** – in order to save money, poor urban dwellers often share services (including public standpipes, toilets and

waste collection sites, but also extending to shared private facilities), which can in turn create different service needs and undermine progressive tariffs that apply low prices to small consumers.

Many of these difficulties apply whether a service utility is public, private or some hybrid. High levels of private participation do provide new challenges as well as new opportunities, however. Concessions, with their long time-horizons, create a special challenge, since decisions made early on in the process can have implications for several decades. But even short term service contracts can be difficult to manage for municipalities unfamiliar with working with the private sector.

10.7. Making public-private partnerships more responsive to the needs of the urban poor

Even when large contracts are being negotiated, the needs of the urban poor are often neglected. Indeed, for municipalities unused to working with the private sector, simply coming to an agreement that fulfils certain basic economic and technical criteria of acceptability can be a difficult task. More is often required, however, if the agreement is to serve the needs of low-income groups. Some relevant questions are:

Prior to agreement:
- Are residents of deprived areas directly represented in the process, along with other stakeholders?
- Are issues of particular concern to poor households being given due consideration?
- Does the tendering process require the private bidders to be explicit about how they will address the difficulties involved in providing services to deprived areas?
- Is the extent to which the bids address poverty-related issues given sufficient weight in the evaluation process?

On agreement:
- Is the public-private agreement supportive of a broader strategy to improve services in deprived areas?
- Are the efforts on the part of poor households to solve their own problems supported or undermined by the agreement?
- Have specific provisions and targets been included to help ensure that services will be provided to deprived areas?
- Has explicit mention been made of the need to offer options that are likely to address the particular difficulties poor urban dwellers face in both paying for and taking advantage of environmental services?

Post-agreement:
- Are the utility's failures to meet poverty-related targets vigorously pursued?
- Is the government fully supportive of the private partner's attempts to improve services in low-income areas?
- Are residents in deprived areas adequately aware of their rights, as well as their obligations?

Individual companies with responsibilities for environmental service delivery are bound to resist new impositions that entail uncompensated pro-poor measures. On the other hand, provided the terms and conditions are clear, and the overall agreement is sufficiently profitable, private companies should have no objection to engaging in pro-poor agreements. Indeed, all other things being equal, a reputation for serving low-income households is a potential asset for a private company, both in the public arena and in the search for international development funds (which remains an important source of finance for public-private partnerships).

Moreover, those companies with successful experiences serving deprived settlements are likely to actively support a pro-poor emphasis, as this will give them a competitive edge in winning new contracts. It is notable, for example, that Lyonnaise des Eaux has published a report on *Alternative solutions for water supply and sanitation in areas with limited financial resources* that includes a discussion of how technologies, institutional approaches and even contracts should become more pro-poor. It would be wrong to assume that private enterprises have a selfless interest in serving the urban poor, but equally wrong to ignore the potential for making it in their self-interest.

10.8. Conclusions

To date, public-private partnerships only account for a small share of environmental service provision in Southern cities. Ultimately, success with public-private partnerships depends not just on the willingness of private companies, but the capacity of local governments and regulatory bodies to negotiate effectively, encourage competition, engage with other stakeholders (including low-income residents) and form partnerships that serve the public interest. This capacity is closely linked to local governance. Indeed, given good local governance, decisions on both whether and how to engage the private sector are far more likely to be economically informed, environmentally sound, and equitable.

Chapter 11

11. Industrial Pollution and Workers' Health

A first and often critical step in industrial pollution control is for the major polluters to take preventive measures – typically at the demand of the government. A second and more important step in the long run is for industry to adopt 'cleaner production': improve efficiency by reducing material intensity and waste and generally reduce ecological loads. Neither of these steps is likely to be taken by the private sector acting alone. Private enterprises can, given the right encouragement, become more willing partners in the pursuit of sustainability, with city authorities playing an important role. As in the previous Briefing Papers, good local governance is critical here.

11.1. The Problem

Most large urban areas in the developing world have serious signs of pollution from industry, be it smoke, dust, untreated wastewater, heaps of waste or even piles of chemicals or hazardous waste, that is gradually spreading into the surroundings. The picture is common and serious. A number of factors often complicate industrial pollution control in Southern cities:

- Industries tend to use 'old' technologies, competing on the basis of low labour costs rather than capital intensive, advanced technology;
- Low-income residents often live in marginal areas, including near industrial sites;
- Governments, including municipal governments, tend to prioritise economic growth, and are easily swayed by claims that environmental measures bear high economic costs;
- Even if local authorities recognise the industrial pollution problems, they often lack the administrative capacity and legal framework to act effectively (see below);
- Employment conditions in poor countries do not favour a strong focus on workers' health and safety;
- Inputs such as water and energy services are not always priced in a way that encourages industries to use such resources sustainably and adopt cleaner production measures.

11.2. Conflicting views of the private sector

Private enterprise as an environmental villain

Private enterprise, and industry in particular, has long been criticised for sacrificing the environment to the pursuit of profits. For many critics, the polluted industrial city symbolises this environmental disregard, with its factories consuming scarce natural resources, and then belching out smoke, pouring out liquid effluents, and dumping hazardous solid wastes. De-industrialisation and tighter environmental regulation in the North have greatly reduced these very visible symptoms of urban environmental degradation. In the South, however, there are many cities where uncontrolled industrialisation still causes severe air, water and land degradation. The resulting environmental damage is often blamed on the inherent greed of private enterprise.

Private enterprise as an environmental saviour

Defenders of private enterprise point out that the bulk of this industrial pollution comes from a comparatively small set of industries, and there is no evidence that these industries are less polluting when they are publicly owned. Moreover, given the right economic signals, the pursuit of profits can stimulate the search for cleaner technologies and production processes. A small but increasing number of private enterprises actually make their profits by helping others to improve their environmental performance. Even companies in polluting industries are beginning to try to change their image from environmental villains to partners in the search for environmental improvement. And there are business leaders who argue that well designed environmental standards can stimulate efficiency improvements and make firms more competitive. Indeed, pro-business publications often present the entrepreneurial drive of private enterprise as the key to environmental improvement.

Getting the best from the private sector

Both of the perspectives noted above have some truth. Ultimately, however, the private sector is neither the underlying reason for urban environmental burdens nor the solution. The key question is not whether but how the private sector can be made to contribute to urban environmental improvement. Chapter 10 examined the possible role of the private sector in addressing an important part of the Brown Agenda by providing better environmental services to low-income residents. This chapter calls for the municipalities and the public at large to support the private sector in reducing the material and energy intensity of goods and services, extending product durability, and generally developing less environmentally harmful production processes.

11.3. Getting started

In many cities, one of the first steps towards improving urban ambient environments is to target the major polluters and their most harmful pollutants. Improvements can generally be verified with relatively inexpensive 'end-of-pipe' monitoring and on-site inspections. A common second step is to require environmental impact assessments for potentially polluting industries. Both of these steps are more likely to be effective when accompanied by a more systematic monitoring of the urban environment, including concentrations of selected air and water pollutants at selected sites within the city. This can serve not only to inform government and industry, but can help to engage a wider public in discussions of pollution problems.

Addressing highly dispersed pollution, especially from non point sources, is generally more difficult. Pollutants often contribute to regional and even global problems. It can be extremely expensive to clean-up after the pollution has been released, and long-term effects are common. Moreover, the so-called end-of-pipe technologies favoured in the early stages of pollution control often change the form of the pollution rather than eliminate it. Thus, for example, tall stacks merely displace air pollution over greater areas, while scrubbers remove pollutants from the air, often leaving a highly toxic sludge. Both technologies

reduce the exposure levels for local residents, but neither provides a long-term solution.

A better solution is often the adoption of Cleaner Technology and Cleaner Production principles, possibly combined with environmental management systems within the industries. When looking at either of these options it should be remembered that the long term driving force for change within industries is either increasing revenues or reducing costs. In relation to the environment this means that either cleaner technology options should be able to pay for themselves through savings or improved sales, or that they should be the least costly means of responding to pressures from government regulations, consumer demands, or threats to a company's public image.

The first step is often just to introduce "good housekeeping" within an industry. This often pays for itself, since the investment is low. Economic incentives become more important as the investments become more significant. It becomes important that the cost of environmental damage is actually levied on those that do the damage, either directly or through taxes (subsidies) that internalise environmental costs (benefits). Also the existence of a market for by-products can be important.

In the affluent North, cleaner production is often promoted as a means of achieving environmental sustainability without undue sacrifices in consumption. In the South, where much of the population needs more rather than less consumption, cleaner production holds out the hope of achieving a shift towards greater economic efficiency, and higher production levels, while also keeping down environmental burdens.

11.4. What can local authorities do?

The scope for local authorities to reduce the environmental burdens of industry (including improvements to workers' health and safety) varies depending upon whether the industrial activities involve:
- Large (often multinational) complex industries, where most local authorities in developing countries have neither the mandate nor the capacity to regulate the production processes;
- Small and medium scale industries, where local authorities have at least a chance of achieving improvements through licensing, regulation or even through dialogue;
- Informal industries, where environmental regulation is often infeasible, and awareness raising and responding to local complaints may be more effective.

For the first category, depending on the legal framework, local authorities may or may not have a role in regulating the industries. Even if they have the responsibility, international experience (including that of high-income countries) indicates that it is very difficult to develop professional capacity at city level that can match the task of regulating complex industries. When this capacity is lacking, there is a distinct danger that measures taken by the local authority acting alone will either interfere unnecessarily with the productivity of

the industry or fail to enforce desirable reductions in environmental burdens, or both. Also, it is important for local officials to develop a professional relationship with industry, and their professionalism and accountability can be undermined by conferring responsibilities that are not backed up by the necessary skills and knowledge of the industry. In such circumstances, local authorities still have an important role to play (not least in representing the concerns of their residents), but cannot be expected to bear the full responsibility for enforcing, let alone designing, government policy in this area.

With regard to Small and Medium Industries (SMIs), there is more scope for local negotiation and for local authorities to apply both positive and negative incentives in the drive towards environmental improvements. The balance is a delicate one, however. On the one hand, regulatory tools need to be developed and applied. On the other hand an over-reliance on "command and control" approaches can block positive dialogue on, for example, the introduction of cleaner technologies.

Some of the tools available to the cities in their environmental management towards SMIs are:
- Environmental Impact Assessment during the negotiation of licences, based on operational guidelines for different kinds of industries. This can be extended to include negotiations with industries on their long-term development plans;
- Physical planning and zoning – the appropriate location of industries can reduce many environmental impacts;
- Financial instruments, such as water tariffs, subsidies and fines;
- Promotion of Cleaner Production methods, initially focussing on cost reduction, but also in order to both improve workers' health and reduce industrial pollution;
- Awareness raising both towards the industries and towards society in general;
- Combining environmental promotion with more general programmes of business management, realising that many efficiency promoting activities will also have a positive effect on the environment;
- Creation of circles of dialogue between authorities, industries and the public.

Even for Small and Medium Industries, it is often difficult for local authorities to rely heavily on formal standards and regulations. International guidelines and national standards and regulations can be difficult to translate into locally enforceable tools. When it is too expensive for most industries to comply, a large gap is likely to persist between the formal standards and the actual conditions. It can then become more difficult for the local government to negotiate realistic improvements, as anything less than full compliance may be formally unacceptable. Adapting formal standards and regulations to the local situation has certain attractions, but these can be costly to develop and cumbersome to apply, and it is often difficult to determine when and how it is appropriate to deviate from international or national standards.

Also, while punitive measures may sometimes be appropriate, these are more likely to be effective when the overall relations between local government and industry are constructive and professional. This can be enhanced when, for example, local government officials:

- Attempt to create a positive dialogue on environmental matters, only adopting a confrontational approach as a last resort (information sharing is critical to effective regulation, and is often blocked by overly conflictual relations);
- Acknowledge and respect that profit-making is one of the goals of private enterprises (along with producing products);
- Convey and demonstrate that protecting the public interest is one of the goals of local authorities (along with implementing government policy);
- Search first for opportunities of mutual advantage ('win-win' measures) in order to create visible results and build trust;
- Ensure that factory inspectors have the environmental and health-related knowledge and skills commensurate with their responsibilities.

Box 11-1: The Case of Khon Kaen in Thailand

Khon Kaen is a rapidly expanding city in North East Thailand with approximately 200,000 inhabitants. Recently the municipality decided to introduce systematic pollution control through a process of data collection, problem analysis, interventions towards selected types of industries, monitoring and evaluation. (The project was supported by the Danish Cooperation for Environment and Development (Danced).)

Based on pollution surveys, the target industries selected were noodle factories (4 in total), restaurants (992 in total) and automobile garages/ workshops (328 in total). Pilot areas were selected and industry representatives were invited for seminars on pollution prevention issues. On site inspections and guidance were undertaken, and public awareness campaigns were conducted.

The results after approximately 12 months were that:

- 50 % of the industries in the pilot areas had participated in the activities and five out of ten garages included in the survey had actually improved their environmental behaviour
- Awareness of the problems and the solutions had increased
- Local staff had been trained, guidelines developed and co-ordination on pollution control had improved among the relevant agencies and organisations (both government and private sector)

Public awareness can help create the pressure to reduce pollution from all industrial categories, but is particularly relevant to the informal sector, where government-industry dialogue is impractical and a regulatory approach is likely to be particularly punitive. The people living in the areas are also the ones who

can change things, particularly if they are given the support of the local government when conflicts arise due to environmental abuses.

11.5. A long term vision - Moving towards sustainable industrial production

Environmentalists often advocate a holistic approach to environmental risk management that takes into account all of the environmental burdens associated with every phase in a product's life-cycle, and generally favours changes in the production process over end-of-pipe measures, containment, dispersal or remediation.

As indicated in Table 11.1, pollution control and increased efficiency are themselves only two steps on the way to sustainable industrial production, ambitiously defined. More radical visions foresee a time when firms will be engaged in life-cycle management, cities will promote eco-industrial estates, and nations will take an integrated approach to pollution control. Some even look forward to a time when emissions will be negligible and producers will be responsible for all of the environmental consequences of their actions.

Table 11-1: Four steps to sustainable industrial production in cities

	Firm	City	Nation
Step 1: Control	End-of-pipe technology	Relocation	End-of-pipe regulation
Step 2: Efficiency	Cleaner production	Collective environmental services	Environmental assessment
Step 3: Institutionalise	Life-cycle environmental management	Eco-industrial estates	Integrated pollution control
Step 4: Restructure	Zero emissions	Carrying capacity planning	Extended producer responsibility

Source: Robins, Nick and Rita Kumar (1999), "Producing, providing, trading: manufacturing industry and sustainable cities", *Environment and Urbanization*, Vol 11, No 2, pages 75-93.

From a cleaner technology perspective, once the simple measures to reduce the most hazardous pollutants have been taken, the next operational pathway to environmental improvement is efficiency improvement. Material and energy efficiency is generally associated with lower environmental impacts and can often yield cost savings. Often, higher efficiency brings greater productivity along with waste reduction. At least superficially, cleaner production would seem to hold out the hope of increasing the production of marketable goods, while reducing the creation of environmental bads.

In practice, ecological efficiency and economic efficiency are not identical goals. In most cases, some groups will lose out when more ecologically efficient production processes are forcefully introduced, though exactly how much cost and who will bear the burden is often very uncertain. In many cases ecological efficiency (or, for that matter, economic efficiency correctly defined) is not economically competitive in existing markets, and requires tighter regulation and stronger economic incentives, as well as a willingness on the part of private enterprises. In some cases, forcing industries to adopt ecologically efficient technologies can cause severe economic hardship. Good government regulation (both national and local), public-private partnerships and selective pressure from civil society are all needed to help ensure that the choices made reflect the public interest, and not merely the most vocal or powerful stakeholders. They are particularly important in poor cities, where the vulnerability to environmental hazards is high, but economic disruptions from heavy-handed regulation can also cause severe hardship.

Chapter 12

12. Strategies and tools for urban environmental improvement

This chapter examines how strategic planning can address urban environmental problems. Well-conceived strategies for urban environmental improvement should ideally be grounded in principles of good governance, work towards well-defined goals, and build on the comparative strengths of government, civil society and the private sector. In practice, these ideals are difficult to achieve, especially where local governments cannot cope with their day-to-day responsibilities, refuse to take environmental issues seriously, or are unresponsive to the needs of their more disadvantaged residents. In such situations those committed to environmental issues may find it more effective to design strategic projects or interventions than to aspire to a settlement-wide agenda. However, in recent years many urban centres in Latin America, Asia and Africa have developed integrated urban environmental strategies, often with encouraging results. Building on these experiences, it should be possible to develop a new generation of more effective and equitable urban environmental strategies in the coming decades.

12.1. The role of strategic environmental planning in urban centres

Substantial urban environmental improvements typically require the combined efforts of numerous actors whose priorities lie elsewhere. Municipal authorities find it difficult to prescribe or implement environmental improvement through top-down urban planning: they rarely have the knowledge, mandate or power to decide who should do what to improve the environment. Free markets also fail to provide sufficient incentive for environmental improvement: markets for environmental 'goods' and 'bads' rarely develop spontaneously. Nor can civil society organisations be expected to initiate environmental improvements, except in certain circumstances. In short, acting alone, neither the government, the private sector, nor civil society can be relied upon to address environmental concerns. And quite understandably, problems that have historically received little attention usually remain poorly understood.

Environmental improvement can, however, be pursued through a coherent combination of education, arbitration, regulation, market-based incentives, government-funded programmes and voluntary initiatives. Developing a fair and effective set of mechanisms requires both a sound understanding of the environmental issues, and an equitable process of engagement and negotiation involving a wide range of stakeholders. Since the urban poor are among those worst affected by environmental burdens, it is particularly important that their interests be represented.

This suggests the need for an evolving strategy that reflects the social, political and economic as well as environmental aspects of the city. Environmental strategies often attempt to draw inspiration from idealised visions of a future where everyone's environmental interests are accommodated. To be effective, however, strategic planning must also be grounded in current realities, and work towards achievable goals.

In some cities, current political realities are incompatible with environmental justice and no environmental strategy acceptable to the government is likely to serve the interests of the urban poor, rural dwellers affected by urban environmental impacts, or future generations. In such circumstances, it may be necessary to pursue environmental improvements through other means.

Generally, however, environmental agendas are less contentious than more overtly economic and political agendas. Thus, there is often more scope for applying democratic processes to environmental decision-making than to other issues.

The purpose of this chapter is to summarise some of the relevant tools and approaches, not to prescribe a particular approach to strategic urban environmental planning. Local Agenda 21, described briefly in Chapter 8, is a form of strategic urban environmental planning. Various other international programmes, including for example the UNCHS-UNEP Sustainable Cities Programme, have developed and promoted somewhat similar approaches to strategic urban environmental planning. Many city-specific attempts at strategic environmental planning have also been documented.

Any city attempting to develop a strategy for urban environmental improvement would do well to review the experiences of other, preferably similar, cities. It is worth keeping in mind, however, that many of the most successful examples have involved significant local innovation: simply following a set of rules or copying what other cities have done is unlikely to succeed. Moreover, it usually makes more sense to build on local institutions and initiatives than to attempt to develop an environmental strategy from scratch.

12.2. Why local strategic planning is particularly well-suited to environmental problems

Strategic planning does not aspire to create a comprehensive plan. Rather than 'study, plan, execute', the model is one of 'engage, strategize, act'. This allows for more flexibility, as well as a much greater role for non-governmental actors. Strategic planning can accommodate markets, as well as a range of other non-bureaucratic institutions. It is not a privilege of government. Indeed, strategic planning can help provide the basis for cross-sectoral partnerships and participatory democracy.

With the continuing demise of central planning, strategic planning has gained considerable popularity. It is particularly suitable to environmental issues, however. As indicated above, neither government bureaucracies nor markets are well suited to addressing most environmental problems. More specifically, a strategic approach is often needed because:

Environmental problems do not respect administrative or property boundaries

While urban governance is generally built around administrative boundaries, and markets are built around property boundaries, environmental problems typically cross both administrative and property boundaries. Moreover, solving

problems in one locality may create new problems in another, as for example when liquid waste is evacuated into a nearby river, polluting the water for downstream users. Therefore, solutions may call for approaches to planning and management built, for example, around water-basins or air basins, rather than conventional political districts or property systems. In most cases, there is also a need to link urban environmental strategies to national and even international environmental policies and concerns.

Environmental problems range from the immediate to the very long term
While most planning conforms to a short-term political cycle, some environmental burdens extend far into the future. Thus, solutions may require a far more forward-looking approach than is typical of urban planning. On the other hand, other environmental burdens may be temporary, and require immediate resolution. Unfortunately, in some cases reducing the most pressing environmental problems creates more long-term problems, as when for example a lack of water is addressed by tapping and eventually depleting ground water aquifers. Thus urban environmental planning must be able to work with a number of different and at times competing time frames.

Environmental problems are inherently cross-sectoral
While most planning involves activities and outcomes within fairly well defined sectors (i.e. industry, transport, agriculture, housing, etc.), environmental problems often involve the impacts of activities in one sector on outcomes in another sector. Thus solutions are likely to require a high degree of inter-sectoral collaboration. Cross-sectoral approaches are usually easier to implement within municipal governments than at the national level, and are easiest to implement at the community level, where conventional sectoral divisions are often irrelevant (except to the extent that they are imposed from above).

12.3. Environmental Strategies in Low-Income Settings

Many of the generalisations above apply to a wide range of cities, both poor and affluent. As described in previous chapters, however, the environmental problems in low-income cities tend to differ from those in more affluent cities. In low-income cities it is particularly important that urban environmental strategy be:

Driven by local concerns
The urban environmental burdens in poor settings tend to be more immediate and localised than in more affluent cities. As a result, the residents' own local concerns provide a far better basis for driving environmental agendas in poor cities than in wealthy cities, where contributions to long term and global burdens tend to be much greater. In any case, a city with a sound strategy for addressing its local environmental concerns is likely to be a far better partner in efforts to address the broader and longer-term environmental burdens.

Responsive to the needs and concerns of the more deprived urban dwellers.

Deprived and vulnerable groups are particularly likely to suffer the consequences of local environmental mismanagement in low-income cities. Unless there are procedures through which low-income groups can make their concerns felt, the strategy is unlikely to serve their interests effectively. Similarly, unless environmental monitoring systems reflect the differential impact of environmental burdens, it is difficult to verify that the strategy is yielding equitable improvements.

12.4. Tools and methods for strategic urban environmental planning

Most approaches to urban strategic planning emphasise partnerships and the need to involve a wide range of stakeholders in both developing and implementing the strategy. Many conventional planning tools can be adapted for use in a more participatory and strategic planning process. The following list emphasises those developed more recently within the context of strategic environmental planning, and especially tools and methods for addressing environmental problems in low-income settings.

The list is not intended to be comprehensive, and more detailed accounts of these and other techniques can be found in the references at the end of the report. On the other hand, a small urban centre is unlikely to apply more than a selection of these techniques, some of which overlap. Also, as with any such tools and methods, how they are applied and used matters at least as much as their formal characteristics.

The list is divided into two sections, the first focussing on tools and methods for gaining a better understanding of the problems and what can be done and the second on tools and methods for addressing these problems.

For understanding the problems and designing responses:

Household surveys: While surveys are usually associated with conventional planning exercises, they can also provide a basis for strategic planning. Questionnaire surveys can provide a useful source of information, especially on environmental problems in and around the home, such as those relating to the delivery and quality of environmental services (water, sanitation and waste). Representative household surveys of urban centres can provide a profile of local environmental conditions for different socio-economic groups within the city. More targeted surveys can be used to assess environmental conditions before and after improvement initiatives, or for a variety of other strategic purposes.

Participatory Assessment: Community and neighbourhood level assessments of environmental conditions can be carried out by local residents or community-based organisations, and there are various techniques available to help facilitate such assessments. Participatory assessments tend to be less comparable across locations and over time than conventional household surveys, but are more able to build on local knowledge and establish the basis for active resident participation in improvement efforts.

Evaluation of Willingness to Pay: Surveys of residents' willingness to pay for environmental improvement (often termed contingent valuation studies) grew out of attempts to value environmental improvements. They have also been used to ascertain willingness to pay for environmental services, thereby helping utilities and local governments to design strategies for service provision.

Documentation of Health Differentials: In the absence of detailed health surveys (which tend to be expensive), assessments based on secondary data can be used to help understand the severity of local environmental health burdens, and identify priorities on the basis of human health needs. Techniques have also been developed for creating an index of socio-environmental deprivations, enabling vulnerable groups to be identified.

Environmental Impact Assessments: Typically these are independently conducted studies commissioned to examine the likely impacts of a proposed project. They seek to identify the key environmental conditions of a site (covering the natural environment, built environment and human impacts) to assess the key aspects of damage likely to arise from the proposed development, including assessing alternative ways to diminish adverse impacts. Some consider the likely distributional impacts of costs and benefits; many also provide an assessment of how the proposed project links to existing land use and environmental regulatory systems.

Health Impact Assessments: Health impact assessment can be seen as a component of Environmental Impact Assessment, but routine procedures for health impact assessment are less well established in most countries. They can be particularly appropriate in cities undergoing rapid industrial expansion in the vicinity of residential areas.

Strategic environmental impact procedures: These developed as the limits of the site-based environmental impact assessments were recognised. They generally consider the likely environmental impacts of a range of projects or a policy or plan and consider the additive effects that these might have. These could also be extended to include health impacts more systematically.

Environmental audit procedures: Now increasingly used by large organisations (including businesses, universities and local governments), these assess an organisation's internal procedures, including purchasing policies, to see the potential for changes to improve environmental performance - for instance improving energy efficiency, minimising waste and increasing recycling. These can be applied more broadly to whole corporations or to all the operations of a local government or more specifically to a particular building (including

residential dwellings). They have been adapted to Local Agenda 21s in the form of 'service system auditing'.

City Environmental Profiles: City governments often develop environmental profiles (or State of the Environment Reports) as the first stage in developing an urban environmental strategy, and city environmental profiles are often the starting point for Sustainable Cities exercises. They synthesise existing knowledge and data, often relating environmental issues to the interests and roles of different stakeholders. Such profiles or reports can then be used to set meaningful targets for improvement, assess priorities and allocate lead roles for bringing about change. They may also seek to clarify the links between the city and the wider regional or global environment - and incorporate concepts such as ecological footprint analysis.

Indicators of sustainable development: At their best they involve the use of readily measurable indicators of local environmental conditions which also embrace issues of social welfare and health. They should be reported on regularly and also involve considerable discussion and education. At their worst they include long lists of indicators for which data are difficult or expensive and only readily appreciated by experts.

Rapid Urban Environmental Assessment: While not so much a tool as a process, rapid urban environmental assessment is an approach deliberately designed to support urban environmental strategies. It typically involves three stages: information collection; creation of an urban environmental profile; and a stakeholder workshop to verify and build upon the profile.

For taking action:

Partnerships for environmental improvement: Partnerships feature prominently in most recent attempts to develop urban environmental strategies. Indeed a partnership group – otherwise referred to as a co-ordination group or stakeholder group – is often formed to guide the overall strategic planning process. Partnerships, with clearly assigned roles and responsibilities, can also form the basis for designing action plans, implementing projects, and monitoring progress. Some partnerships are relatively informal, while others, such as most private-public partnerships for environmental service provision, involve contractual agreements.

Support for community action to improve local environment: Well-managed support for community action can be used to stimulate low-cost ways to reduce environmental hazards and improve environmental quality in informal settlements. This can also be an effective means of deriving other poverty-reducing benefits, such as employment creation. Strategies for urban environmental improvement can build on existing structures for supporting community action or create independent funds for financing community initiatives.

Working with users to improve environmental service provision: Through more active engagement on the demand-side, water, sanitation, waste and even

electric provision can be made more equitable and less damaging of environmental resources. For many years, the conventional approach to environmental service provision has been to project demand and then attempt to develop supplies to meet that demand. This so-called supply-side approach has been criticised both for failing to meet the needs of the urban poor, and missing demand-side opportunities to conserve resources and reduce waste. More demand-responsive approaches can be used to improve service provision, especially in low-income areas. Demand-side management can be used to promote resource-conserving practices, especially in more affluent areas. Public-private partnerships or public-private-community partnerships can help promote demand-side improvements.

Neighbourhood (environmental) upgrading: Upgrading - or slum improvement as it is also called – refers to a package of basic services designed to improve the wellbeing of low income communities. Clean water supply and adequate sewage disposal and other environmental services are usually central, but upgrading also often involves legalising or 'regularising' land and house tenure. Upgrading customarily provides a package of improvements in streets, footpaths and drainage as well. Urban environmental strategies can employ upgrading to help achieve environmental goals.

Environmental guidelines and standards: Some environmental indicators, such as concentrations of hazardous air pollutants in the ambient air, can be employed in conjunction with quality standards and used to trigger policy interventions (e.g. limiting traffic or shutting down certain industrial facilities during pollution episodes). Environmental guidelines and standards are only as effective as the responses that arise when the guideline values or standards are exceeded. In many countries there are national standards that municipalities are expected to adopt.

Economic Tools and Regulatory Systems: Market-based instruments can be used to encourage consumers, firms and governments to reduce pollution or waste. These include:

- Charging polluters, with government agencies levying charges according to the scale, nature and intensity of pollution. (This can extend to the use of permits that allow firms to trade pollution rights.) This needs an effective regulatory system;
- Full-cost pricing to recover hidden costs and/or promote conservation - for instance car taxes, which cover all the indirect costs that car use brings (pollution, accidents, etc.); deposit charges repaid when wastes are returned for re-use or recycling (e.g. on bottles, batteries, tyres, used oil, etc.); and prices charged for water, sewers and garbage collection which reflect the full cost of providing these within good environmental management.

Care is needed to avoid making market, subsidy and taxation reforms socially regressive.

Land use and strategic urban planning: A range of tools can be applied to limit urban sprawl (with its many costs, including loss of agricultural land, increasing infrastructure costs, contribution to automobile-dependent cities), promote mixed land uses (i.e. within each locality a mix of residential,

employment, leisure, health care and education) and ensure land availability for low-income households. These tools include mixed-use zoning and transport planning (with appropriate provision for pedestrians and cyclists whose role increases within mixed-use communities where low density sprawl is prevented). These can also be used to help preserve a city's cultural heritage and ensure sufficient provision for green space (including provision for urban agriculture) and trees (with their multiple environmental benefits such as noise-barriers, windbreaks and capacity to lower temperatures).

Transport planning and management: This can involve city-wide measures to control pollution and integrate land use controls and provision for public transport. In more wealthy cities, road-pricing and petrol taxes can also be used in conjunction with land use and transport planning. Within each locality, measures can be taken to control car use, including speed restrictions, pedestrianisation, and improvements for bicycle users and pedestrians.

Site planning and building design: Encouraging environmental considerations in site and building design can bring various advantages - for instance building designs that minimise the need for heating and/or cooling and site designs which meet needs for open space and allow water infiltration, limiting need for expensive drainage. There is often a need to change environmental and building controls that establish unrealistically high or inappropriate standards.

Waste management: There is often considerable potential to promote waste reduction or its re-use or recycling. Waste management frameworks should also encourage enterprises to consider the potential cost-savings from low or no waste production systems. They should also support waste reclamation, including community-based schemes.

Statutory plan consultation: One important part of any good statutory plan-making process is public consultation at various stages of design, from initial principles and broad concepts to final suggestions. The statutory system can be adapted to make it more transparent and open and to bring the process closer to communities and businesses - for instance through the use of visioning workshops and open meetings.

12.5. Integrated Urban Environmental Strategies

Many groups within a city pursue their own individual strategies with respect to the environment. There are clear advantages in having an overarching strategy that builds on local interests, accommodates extra-local concerns, and helps to ensure that environmental trade-offs and conflicts are resolved as efficiently and equitably as possible. Politically, such strategies can be difficult to operationalise. In many cities, and especially in smaller urban centres, it is more 'strategic' to adopt a less ambitious approach. In recent decades, however, there have been a number of relatively successful attempts to develop urban environmental strategies, often under the name of Local Agenda 21. Moreover, there have been numerous attempts to synthesise a generic approach to developing urban environmental strategies, often under the label of Environmental Action Planning.

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Reports providing guidance for developing environmental strategies for cities have been published by numerous agencies and programmes, including ICLEI, the Urban Management Programme, UNCHS, and the German Aid Agency – GTZ (see references). These accounts, mostly published in the mid 1990s, all describe:

- procedures for gathering, synthesising and sharing information, emphasising low-cost techniques and accessibility;
- a process of informed consultation to reach consensus, commit stakeholders and create partnerships;
- an action agenda that clearly defines responsibilities and resource allocations among key actors for implementing the strategies.

Despite the wide variety of urban environmental strategies developed in different cities, most have adhered at least roughly to this approach.

At least two international programmes have actively supported the use of this type of approach to urban environmental improvement in low-income countries: the Local Agenda 21 initiative co-ordinated by the International Council for Local Environmental Initiatives (ICLEI) and the Sustainable Cities Programme of the United Nations Centre for Human Settlements (UNCHS) and the United Nations Environment Programme (UNEP).

Local Agenda 21 (LA 21)

LA21 was adopted in 1992 at the Earth Summit in Rio de Janeiro as the mechanism through which local authorities would implement the action plan that emerged from the summit - Agenda 21. First proposed by the International Council for Local Environmental Initiatives, LA21 represents an important milestone in strategic urban environmental management. Most LA21s involve a written document – the Local Agenda 21 – but the characteristic feature is its inclusive consultation process, which seeks to draw in all key interests. ICLEI's LA21 initiative supports this approach through research collaboration between municipalities, training of municipal officials, networking and the dissemination of information and research. LA21 initiatives are especially active in Europe, but extend to all other continents. As indicated in Chapter 8, not all urban areas engaged in Local Agenda 21 are part of the ICLEI initiative.

Sustainable Cities Programme

The Sustainable Cities Programme was launched by UNCHS in 1990 and was joined by UNEP in 1995. The Programme operates on four levels. On the city level it acts as a technical co-operation programme, working to strengthen the capacities and abilities of municipal authorities and their partners in the public, private and voluntary sector in the field of environmental planning and management. City demonstrations adapt and apply the concepts and approaches of the programme, and are intended to lead to their institutionalisation at the municipal level, and their subsequent replication regionally. Most Sustainable Cities initiatives are in Africa and Asia. As with LA21, not all Sustainable Cities are part of the UNCHS-UNEP programme.

Box 12-1: Trying to Create More Sustainable Cities in Tanzania: The Experience of Mwanza City Council

Based on a contribution by Joseph K.M. Kitundu, Mwanza City Council

Mwanza, the second largest city in Tanzania after Dar-Es Salaam, has 0.5 million inhabitants and is growing at a rate of 11% per annum. Its economy is dependent on agricultural and industrial activities, with a large share of the more than 100 industrial establishments in the food and beverage sector. Almost three-quarters of the population live in unplanned settlements, with little infrastructure, poor sanitation, and few economic resources.

The Sustainable Cities Programme (SCP) started activities in Tanzania in 1992/93 with the Sustainable Dar-es-Salaam Project. The Ministry of Regional Administration and Local Government is the parent Ministry. In 1997 the programme was extended to nine additional municipalities. The Urban Authorities Support Unit was established as the National Secretariat of the SCP, and to provide technical support to all of the SCP municipalities.

Danida first started to support urban environmental projects in Tanzania (under what is now known as the Environment, Peace and Stability Facility) in March 1998, with the project on Capacity Building to Environmental Management in Mwanza Municipality (now Mwanza City Council).

The environmental planning and management approach in Mwanza

An environmental profile of Mwanza was prepared, and key environmental issues were identified and prioritised in 1997. Multi-stakeholder working groups were formed on: i) Unplanned Settlements; ii) Urban Agriculture and Recreational Areas; iii) Solid Waste Management; (iv) Liquid Waste Management; v) Transport and Transportation; vi) Petty Trade. These working groups developed multi-point strategies, including action plans detailing the actions to be undertaken by Government, NGOs and other stakeholders.

Examples of environmental initiatives undertaken through the Sustainable Cities Programme

- An environmental curriculum was piloted in local schools, covering such topics as improved land use, better agriculture, tree planting, waste disposal, water resources, water-related diseases, treatment of drinking water, waste water disposal and toilet construction.
- A monthly newsletter on environmental issues, *Mwanza Mazingira*, is produced in both English and Kiswahili by the Mwanza Press Club, and has a circulation of 2000.
- Some 30 demonstration projects have been implemented with the support of Environmental Development Fund (EDF). Community based organisations are typically involved in their implementation, and over two thirds of the contributions to the projects come from the communities themselves.
- Local government staff and other stakeholders have been trained in environmental law, communications skills, project formulation and management and computer skills, and local government staff have been trained in and developed an Environmental Information System (EIS).

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- Several recycling projects have been undertaken, including a water hyacinth project (producing household items), a training project on composting, and a functioning biogas digester.
- A gender profile analysis was finalised in 2000, and women's income generating activities are being supported through a Women Development Fund of the City Council.

Institutionalisation

The long-term plan is to integrate the local SCP into the existing structure of Mwanza City Council, and the existing structure is only short term. The current committees at the project level include;

(i)   **Project Steering Committee (PSC)**
       Members of this committee are Project Management Team Members, Political representatives (Councillors), and stakeholders' representatives. The committee is responsible for providing policy direction to the project; it oversees project progress and serves as an advisory body to the project.

(ii)   **The Project Management Team members:**
       Members of the team are the City Director, City Economic Planning Officer, Technical Advisors and the Project Coordinator. The team is responsible for day-to-day management.

(i)   **City Management Team**
       The City Management Team is made up of all Heads of Departments. It is responsible for facilitation of and support to the established working groups and co-ordinating the project activities.

(v)   **Working Groups**
       Comprised of representatives from all local stakeholders relevant to the groups' environmental concerns, they are responsible for preparation of Action Plans. A Coordinating Working Group was also formed.

Opportunities and Challenges

It must be recognised that many of the environmental problems that residents of Mwanza face are the result of poverty, unplanned settlements and extremely rapid growth. The environmental planning and management process has proved to be very relevant to Mwanza's needs, and has been accepted by a range of stakeholders. Working Groups have played an important role in developing the strategy, planning the actions and monitoring their implementation. Environmental improvements supported by the project are driven by demands from a range of stakeholders, and there is increasing priority being given to environmental issues at the grassroots level.

While the project has already made major efforts at raising stakeholder awareness of the environmental planning and management (EPM) concept, changing of attitudes and behaviour is a step-by-step process involving training and retraining, combined with learning by doing. Many stakeholders have had difficulty deriving an operational definition of urban environmental improvement. While the working groups have successfully developed action plans, their implementation has been slow, due to a combination of management, resource and co-ordination problems.

Strengths and Weaknesses:
In the right circumstances, an urban environmental strategy can clearly have an important and positive influence. The potential strengths of broad-based urban environmental strategies are:

- Consultation, participation and accountability become institutionalised
- Co-ordination and co-operation between different government agencies is improved
- Environmental priorities and responsibilities are clarified
- Expert and lay knowledge of environmental issues are combined
- Comparative strengths of public, private and voluntary sectors are exploited
- Environmental actions support publicly agreed goals
- Resources are made available to priority actions
- Awareness of environmental issues is raised

The reasons why the potential of broad-based urban environmental strategies may not be realised include:

- Consultation and participation may become time consuming but ineffectual
- Local stakeholders may ignore extra-urban environmental burdens
- Search for consensus may divert attention from the most controversial and critical issues
- Lack of clear political status may undermine political effectiveness
- Action plans may not be matched by resource commitments
- One or more key stakeholders (or stakeholder groups) may prefer to undermine rather than join the process

As yet, it is too soon to judge the significance of urban environmental strategies. Thousands of urban centres may report that they have developed a Local Agenda 21 or have a Sustainable City initiative. Many have undoubtedly had an important positive influence, but others have been neither participatory nor effective. Some are no more than a document setting out the goals or plans of some government agency which was developed with little consultation with citizens and for which there is little interest or capacity to implement. Some may simply be conventional development plans renamed. Others may be the result of one or two workshops, which also result in little action. Still others may include admirable consultative processes and well-developed goals, yet founder on the very limited capacity of the city authorities to work in partnership with other groups and to plan, invest and co-ordinate the investments and activities of other agencies (including those of higher levels of government).

Also, LA21s and Sustainable Cities initiatives have generally avoided financially and politically contentious issues, such as those relating to the construction and maintenance of urban water and sanitation infrastructure. This is understandable, especially in cities where any significant level of public consultation and participation is seen as a potential threat to existing authorities. Yet water and sanitation infrastructure was **the** major response to the urban environmental crisis of most Northern cities in the 19th century. Many of the environmental health problems documented in earlier chapters are

still heavily dependent on the quality and distribution of urban infrastructure, including water, sanitation, drainage, roads and electricity. Until urban environmental agendas come to terms with these issues, it will be difficult to judge how effective and equitable they can become.

International support can build on the strengths and attempt to overcome the obstacles to effective and equitable urban environmental strategies. Just as urban centres need to take a strategic approach to urban environmental improvement, so development assistance agencies need to take a strategic approach to providing support. Not all urban centres are equally committed to environmental improvement. Not all environmental improvements contribute to poverty reduction. In most low-income cities, however, there are at least some aspects of the urban environment that are a serious threat to the health and well being of the more vulnerable groups, and about which they are highly concerned. Moreover, in the long run, urban centres that have developed equitable and efficient means to deal with their local environmental problems are likely to be the best partners in addressing regional and global environmental issues.

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http://www.citiesalliance.org/citiesalliance/citiesalliancehomepage.nsf/

Cities Feeding People (IDRC)
http://www.idrc.ca/cfp/

Human Settlements Programme (IIED):
http://www.iied.org/human/

The International Council for Local Environmental Initiatives
http://www.iclei.org

Managing the Environment Locally in Sub-Saharan Africa (Melissa)
http://www.melissa.org/english/frameset.htm

Shaping the Urban Environment in the 21st Century (OECD-DAC)
http://www.oecd.org/dac/urbenv/

Sustainable Cities Programme (UNCHS-UNEP):
http://www.unchs.org/scp/

Urban Management Programme (UNCHS-UNDP-World Bank)
http://www.unchs.org/unchs/english/ump/

Urban and Regional Database (Urbanet)
http://www.gtz.de/urbanet/

Urban Development (The World Bank)
http://www.worldbank.org/html/fpd/urban/

Virtual Library on Urban Environmental Management (Global Development
Research Centre)
http://www.gdrc.org/uem/

Annex 1

Agenda:
Workshop on
Improving the Urban Environment and Reducing Poverty
Eigtveds Pakhus, 5 December, 2000

08:30-09:00 Registration and Coffee
09:00-09:15 Welcome Address – Anders Serup Rasmussen, Head of TSA, Danida
09:15-09:45 The World Bank's Approach to Urban Environmental Issues, (Presenter - Carl Bartone, the World Bank)
09:45-10:15 *Defining the terrain: urban environmental improvement and poverty alleviation* (Presenter - Gordon McGranahan, IIED).
10:15-10:30 Break
10:30-11:30 Group Work
    5 groups on one topic:
Urban environmental improvement in low-income settings: From definition to action
11:30-12:00 Presentation of findings and brief plenary discussion
12:00-13:00 Lunch
    Morning session facilitator: Lars Mikkel Johannessen, Danida

13:00-13:30 *Trying to create more sustainable cities in Tanzania: What have we learned?* (Presenter – Joseph Kitundu, Sustainable Mwanza Programme, Tanzania)
13:30-14:00 *Civil society and improving urban environments – an NGO perspective* (Presenter – Liliana Miranda, Cities for Life, Peru)
14:00-14:30 *Urban environmental improvement: Critical issues and ways forward* (Presenter - David Satterthwaite, IIED)
14:30-15:45 Group Work:
1. How can better governance contribute to improving urban environments? (Facilitator – David Satterthwaite, IIED, London, Rapporteur – Jacob Ulrich, COWI)
2. What can cities do about industrial pollution and occupational health? (Facilitator – Lars Mikkel Johannessen. Rapporteur – Morten Riemer, PEMConsult)
3. Why do rural-urban links matter for urban environmental management? (Facilitator – Cecilia Tacoli, IIED, London, Rapporteur – Kate Gough, Copenhagen University)
4. Urban environmental improvement and poverty reduction: Is there a common agenda? (Facilitator – Gordon McGranahan, IIED, London, Rapporteur – Per Kirkemann Hansen, Nordic Consulting Group)
5. How can public-private partnerships improve the urban environment? (Facilitator - Carl Bartone, World Bank, Washington, Rapporteur – Ole W. Christiansen, Dan Waste)
15:45-16:55 Presentations of findings and plenary discussion
16:55-17:00 Closing of meeting – Jens Lorentzen, Danida
    Afternoon session facilitator: Jens Lorentzen, Danida

Annex 2

List of Workshop Participants
Improving the Urban Environment and Reducing Poverty
Eigtveds Pakhus, 5 December, 2000

Danish Experts
Flemming **Aalund**, Tegnestuen Raadvad
Elna **Bering**, T & B Consult Ltd.
Jannik **Boesen**, Center for Udviklingsforskning
Torben **Bruun** Hansen, COWI consult
Erik **Bryld**, Danish University Consortium on Sustainable Land Use and Natural Jens
Dorthe von **Bülow**, Dansk center for Byøkologi
Jørgen **Carlé**, NIRAS A/S
Peter **Christensen**, DANCED
Ole W. **Christiansen**, Danwaste
Jørgen **Eskemose**, Kunstakademiet Arkitektskolen
Gerald **Geernaet** , DMU(Danmarks Miljøundersøgelser)
Hans **Genefke**, T & B Consult Ltd.
Kate **Gough**, Københavns Universitet, Geografisk Institut
Kim **Harboe**, Kampsax
Per Kirkemann **Hansen**, Nordic Consulting Group/NCG
Freddy **Hofman**, HAP Consultants
Kim **Hermind**, Kommunernes Landsforening
Einar **Jensen**, DANCED
Paul H.E. van der **Kam**, Carl Bro International A/S
Elisabeth **Kiørboe**, MK Associates
Thomas O'Brien **Kirk**, PEM Consult
Marianne Kruse **Kristiansen**, Interplan
Paulius **Kulikauskas**, Byfornyelsesselskabet Danmark
Kurt **Lange**, Kampsax
Marchen-Lise **Madsen**, Carl Bro International A/S
Catherine **Micaleff**, Byfornyelsesselskabet Danmark
Henrik **Mouritzen**, Kampsax
Jan **Møller**, Møller & Rødland (Architects)
Dolf **Noppen**, Nordic Consulting Group/NCG
Bjarke **Rambøll**, Dansk International Bosætningsservice (DIB)
Morten **Riemer**, PEMConsult
John **Rockhold**, Carl Bro International A/S
Ninna Nyberg **Sørensen**, Center for Udviklingsforskning
Finn **Tobiesen**, The Danish Organisation for Renewable Energy Resource Management
Jacob **Ulrich**, COWI consult
Jacob **Vimpel**, Hou & Partnere (Architects)
Malene **Wiienblad**, Miljø- & Energiministeriet, Landsplanafdelingen
Kirsten **Worm** , Dangroup International A/S
Vibeke **Vinten**, Kommunernes Landsforening
Jean-Pierre **Zafiryadis**, Rambøll

Ministry of Foreign Affairs, Denmark
Mogens **Blom**, TSA 5
Lars **Bredal**, S 4
Mogens Laumand **Christensen**, S 6
Janie **Eriksen**, Miljøsekretariatet
Morten Skovgaard **Hansen**, S 7
Hans **Hessel-Andersen**, TSA 6
Lars Mikkel **Johannessen**, TSA 6
Tomas **Königsfeldt**, S 7
Jens **Lorentzen**, TSA 6
Anja Riber **Skydt**, S 1
Anne Marie **Tyndeskov**, S 4
Pia **Rockhold**, TSA 3
Peter **Strømgaard**, TSA 6

Foreign Experts
Carl **Bartone**, World Bank
Joseph **Kitundu**, Sustainable Mwanza Programme, Tanzania
Gordon **McGranahan**, IIED
Liliana **Miranda**, Cities for Life, Peru
David **Satterthwaite**, IIED
Cecelia **Tacoli**, IIED

This report provides an overview of urban environmental planning and management issues in low-income settings. It starts by defining a field of action for development assistance, and ends with a review of urban environmental strategies. In between, it examines a range of policy relevant issues, from how environmental improvements can improve poverty, to how local governments can work with private enterprises and civil society groups to address environmental problems.

In less than a generation, more than half of the population of the developing world will be urban. A large share of these urban dwellers will almost certainly be poor. Already, environmental problems are contributing to urban poverty, and causing a large share of ill-health, injury and premature death. Urban environmental burdens are also spilling over to the surrounding regions, and even contributing to global problems, such as climate change.

There is widespread agreement that these urban environmental issues must be addressed if sustainable development is to be achieved. There is still considerable debate, however, over what the most critical urban environmental problems really are, and how best to assist cities in addressing them. In December 2000, Danida and IIED convened a workshop in Copenhagen to discuss these issues with the Danish resource base. This report is based on briefing papers prepared by IIED for the workshop, modified to reflect the workshop discussions.