Of dreams and deeds: the role of local initiatives for community based environmental management in Lima, Peru

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Interest in urban environmental management issues has been growing rapidly over the last twenty years. It has been fuelled by a growing concern for the adverse environmental impacts of human activity in general, coupled with unprecedented growth rates for cities, especially in the South. This growth has led to an increase in the incidence of urban poverty as well as to an increase in the environmental problems caused by urban production and consumption. Despite this growing interest a coherent analytical framework for analysing urban environmental management issues still does not exist (Frijns & Mengers 1999). This holds true even more for the situation of cities in developing countries, where interest in urban environmental management issues is an even more recent phenomenon.

In this chapter we will first give an overview of some general concepts from the ‘sustainable development’ debate (section 1.1.1) and then discuss their implications for an urban context (section 1.2.1). Then we will focus on the environmental problems in cities in developing countries (section 1.2), and their underlying causes (1.3). After presenting a general overview on urban environmental management (1.4) we will review the literature on household and neighbourhood based environmental management efforts (section 1.5-1.7).

1.1 The transition to sustainability

1.1.1 Sustainable development

Since the publication of the Brundtlandt report ‘Our Common Future’ in 1987, ‘sustainable development’ has been widely embraced as a policy goal even though scholars and policymakers have been struggling to adequately define the concept since its inception. The most widely known definition is the one introduced by the Brundtland Commission: ‘sustainable development is a development that meets the needs of the present generation without compromising the ability of future generations to meet their needs’ (WCED 1987:43). This definition includes reference to the need for sustaining the natural system (not compromising the ability of future generations to meet their needs) as well as greater equity in economic, social and political development (meeting the needs of the present).

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1. The concept of sustainable development was introduced in the development discourse during the United Nations Conference on Environment in Stockholm 1972, but has been adopted as a policy goal since the publication of the report of the World Commission on Environment and Development (WCED), more widely known as the Brundtland report.
Many scientific disciplines offer their own interpretation of these different goals. Pezzoli (1997) even identifies ten different categories of literature that try to tackle the term, from what he labels ‘managerialism’ to ‘utopianism’, from environmental sciences to political ecology, from social sciences to environmental economics.

First of all, we have to acknowledge that there are inherent tensions or even conflicts between the three different goals – economic growth and efficiency, environmental protection and social and political justice – embedded in the concept of sustainable development. There is, for instance, an intense discussion of the question of whether the economic growth needed to conquer the current widespread poverty can be achieved without causing further deterioration of the global ecosystem. This has even led to the distinction between ‘strong’ and ‘weak’ sustainability. In the case of ‘strong’ sustainability, the ultimate goal is to preserve the current total stock of natural capital. This is not to say that each and every component of the current natural capital should be sustained. Some components of the natural capital can be used, as long as their use is compensated for or replaced by other components of natural capital. The basic idea is that the current stock of natural capital has to be preserved to ensure that future generations can make use of it for their sustenance. In the case of ‘weak’ sustainability the assumption is that other forms of capital can substitute natural capital, and processes are considered sustainable as long as the total capital is maintained. This form of sustainability is implicitly accepted in the Brundtland report (NAR 1993:53). This report is often criticised for the way it relies on technical innovations to reconcile the tension between economic growth and protection of the environment (Redclift 1992, de la Court 1988).

The tension between economic growth and environmental protection is not the only one. Campbell (1996) indicates three conflicts inherently embedded in the ‘sustainability triangle’. He labels the conflict between the goals of economic growth and environmental protection ‘the resource conflict’. Natural resources have both an economic value and utility, as well as an ecological utility in the natural environment. The question of which value should be given priority is often contested.

There also is a tension between the goal of economic growth and social justice. From an economic point of view it is rational to reduce wages or even replace human labour with machinery in order to maximise profit. The economy might flourish, but at the same time it also can lead to what the UNDP labelled ‘jobless, ruthless and voiceless growth’. The economy grows, but does not expand opportunities for employment, inequity increases and growth is not matched by democracy or individual empowerment (UNDP 1996). On the other hand it is in the economy’s own interest to provide at least subsistence existence for the workforce. Yet the social and political equity aspired to in the concept of sustainable development is on a different order of magnitude than what is needed to ensure the subsistence of the labour force.

The third conflict – Campbell labels it the ‘development conflict’ – is the most elusive, lying between the goals of social equity and environmental preservation. How can we simultaneously increase social equity and protect the environment?

2. Natural capital refers to a stock of natural assets that yields a flow of valuable goods and services into the future. Because the use we make of natural capital requires often that the resources function as intact self-producing systems, the integrity of such systems is an important attribute of natural capital (Rees1995:350).
How can those at the bottom of society find greater economic opportunity without further deteriorating the global ecosystem? It was in fact this debate that was at the heart of the UNCED conference (Rio de Janeiro 1992), and was never resolved. Technological innovations are not enough to relieve this tension, especially if one opts for 'strong sustainability'.

'Sustainable development' is thus a concept that comes with inherent conflictive goals. The term as such furthermore does not clarify what has to be sustained. Do we want to sustain the economy, the natural environment, or the current societal order, existing power relations? (Mitlin & Satterthwaite 1996, Batley 1997).

To bring some clarity into the discussion, Hardoy et al. (1992) proposed that the term 'sustainable' or 'sustainability' should be reserved for ecological sustainability, and that the social, political and economic needs be encompassed by the concept of 'development'. This suggestion is followed in this study. Striving for ecological sustainability implies that the use of non-renewable resources should be minimised, renewable resources should be used in a sustainable way (i.e. the regeneration of the resource should be ensured), and the capacity of local and global sinks should not be exceeded. 3

The above gives us a first set of criteria with which to assess whether human activities are sustainable in an ecological sense. This is the easiest one, as here at least we know 'what has to be sustained', that is, the ecosystem. Inherent in the 'development' part of the concept is that we are opting for a change which entails both greater social and political equity and economic growth. Before we turn to the component of 'development' we first want to discuss the tensions and conflicts in an urban context.

1.1.2 'Urban sustainable development'

The tension between goals of economic growth and environmental protection is intensified in an urban context, because in cities we find a concentration of production and consumption. In fact by far the largest share of production and consumption takes place in cities. Cities are on the one hand seen as engines of (economic) growth and the cradle of cultural, social and technical innovations. It is in fact the essence of the city that mankind emancipates himself from nature, and creates a surplus production that enables this cultural, social and technical development. Yet to do so, on the other hand, cities draw heavily on natural resources. Cities are consequently also seen as parasites, skimming off agricultural surpluses and natural resources from all over the world, often without full compensation for the natural and social damage inflicted 4 (Nas & Veenma 1998:3).

Insight into the scale and nature of this parasitic side of the city developed gradually. In 1965, Wolman introduced the concept of 'the metabolism of cities', an analogy

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3. Also with regard to the sinks a distinction can be made between 'renewable' and 'non-renewable'. The capacity to absorb those wastes that are biodegradable is renewable, while the absorption of non-biodegradable wastes such as plastics, persistent chemicals, long-lived nuclear wastes and many greenhouse gases is considered to be non-renewable (UNCHS 1996:399).

4. Labelling cities 'parasitic' tends to hide that the many problems are caused by specific businesses (production) or people (consumption). Although many or most of these businesses and people may be concentrated in cities, it is not accurate to ascribe these processes to 'cities' (Satterthwaite, personal communication).
between cities and living organisms that consume, transform and discharge energy and matter (Wolman 1965). Cities extract natural resources (input flows) and dispose solid and liquid wastes and pollution (output flows). This line of reasoning was inter alia applied to analyse the city of Hong Kong as an ecosystem, quantifying the amounts of water, food, fuel and oxygen the city needed as input, and the sewage, solid waste, air pollution and CO₂ it discharged on a daily basis (see Figure 1.1)

**Figure 1.1** Input-Output analysis for Hong Kong 1972 (5.5 million inhabitants)

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Tons/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>1,068,000</td>
</tr>
<tr>
<td>Food</td>
<td>6,320</td>
</tr>
<tr>
<td>Fuel</td>
<td>11,760</td>
</tr>
<tr>
<td>Oxygen</td>
<td>27,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Tons/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage</td>
<td>825,000</td>
</tr>
<tr>
<td>Solid waste</td>
<td>2,310</td>
</tr>
<tr>
<td>Air pollutants</td>
<td>645</td>
</tr>
<tr>
<td>CO₂</td>
<td>26,500</td>
</tr>
</tbody>
</table>

*Source: Leitmann (1999:36)*

Similarly, a working group of the Massachusetts Institute of Technology (M.I.T.) tried to develop a general model for analysing the city as an ecosystem (Montag 1974). Girardet (1993) took this concept a step further by suggesting that in the search for urban sustainable development, cities had to find ways to convert their 'linear metabolism' into 'circular metabolism'. This means that instead of resource flows passing through cities without any attention being paid to where they come from (resource extraction) or where they go (discharges), this metabolism has to be transformed into a system where 'every output of an organism is also an input which renews and sustains the whole living environment' (Girardet 1999:198). Rees (1992) developed the by now well-known concept of 'the ecological footprint'; an indicator that measures the total land area required to maintain the food, water, energy and waste-disposal demands per person, per product or per city. It is a summary indicator of the environmental impact of human activity (Bossel 1999:13). Calculating the ecological footprint of a city acknowledges its impacts outside the city's boundaries, which in a globalising age can affect distant ecosystems. Thus, even if we only look at ecological sustainability, we have to take a wider focus than of the city itself.

There are different views on how to handle this 'natural resource intensive' characteristic of urban development. These diverging views reflect a similar variety in (disciplinary) focus to that in the general literature on sustainable development. Haughton (1998) gives an overview of the different approaches towards urban development.

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5. Focusing on the city as an ecosystem and then labelling it 'parasitic' has the risk that problems that are caused by particular businesses (production) or people (consumption) are instead ascribed to 'the city'. That many of these businesses and people are concentrated in cities, but it is not accurate to ascribe these processes of production and consumption to 'whole cities' (Satterthwaite, personal communication).

6. The ecological footprint has been calculated for various cities. See Girardet (1999) for the ecological footprint of London and www.denhaag.nl for The Hague.
sustainable development that results from these different points of departure.

Those in favour of the free market propose what he labels 'the externally dependent city'. From an economic point of view the environmental problems experienced and caused in cities are basically a consequence of market and regulatory failures. The goals of environmental protection and social justice are considered subordinate to greater economic efficiency, and are supposed to be tackled through altering market mechanisms and redistributive policies or the famous trickling down mechanisms when economic growth is achieved. Within this view, trading with distant places is no problem if the major market externalities are addressed. There is little or no attention for the spatial dimension.

The opposite holds for the model of 'redesigning the city', in which greater resource efficiency is the major goal. Rooted in architecture and land use planning, its proponents advocate a fundamental redesign of the urban built form which increases urban densities, concentrates development around key transport routes and nodes, and favours mixed land uses and measures to increase energy efficiency. Whereas the externally dependent city is basically governed through market principles, 'redesigning the city' can only be achieved through state regulation. The compact city is an equivalent to this approach, but it is also a policy endorsed by the European Community in their Green Paper on the Urban Environment (CEC 1990). This approach is criticised for privileging physical components and urban form over social processes (Harvey cited in Haughton 1998).

A third model identified by Haughton is that of the 'self-reliant city'. In this approach the focus is on environmental protection, inspired by the deep green perspective of the ecocity literature. The major concern is to design cities in ways that best integrate with nature through limiting the flows of resource extraction and waste emissions to the bioregion limits. The emphasis tends to be on small-scale production systems for meeting local needs, and on limiting imports from or exports to other regions as much as possible. The self-reliant city functions best by self-regulation and decentralised control. This approach is most criticised for being irrelevant and unrealistic in our current globalising age, where the city's 'hinterland' inevitably entails the entire globe (Jobse & Musterd 1994).

Haughton terms the fourth and final model 'Fair Shares'. It is an approach that combines many elements of 'redesigning the city' and the 'self-reliant city', such as increased regional autarky and greater urban compactness but adding the concern for more equitable trading relationships with other areas. It differs from the self-reliant city in the fact that some trading of environmental assets is considered indispensable to improve global well being. This trading should neither undermine the global ecosystem integrity, nor widen the gap between rich and poor. Based on the work of White & Whitney (1992) it is assumed that cities can and should 'compensate' the distant regions from which resources are extracted and in which wastes are discharged. Unfortunately, there are few practical indications on how this can be achieved.

However, the city is a far more complex system, which none of the above descriptions fully touch. As the OECD defined it, 'The urban context is an interweaving mixture of natural environment and built form, organised through political,
economic, social and cultural relationships' (OECD 1990). Or as Campagni et al. (1995) phrased it:

‘In a city three environments coexist, the physical (natural and built) environment, the economic environment and the social environment. All three environments generate advantages and disadvantages for the city, i.e. use benefits and costs of a city. All three have to be considered together and represent at the same time goals, means and constraints to human action in the city. A sustainable city is first of all a city where the three environments interact in such a way that the sum of all positive externalities is greater than the sum of the negative external effects caused by the interaction.’ (Campagni et al. 1995:5-6)

This classification into three ‘environments’ not only holds true for cities, but also for the anthroposphere as such. Within the general framework on sustainable development (and the development of sustainability indicators) Bossel (1999) proposed analysing the anthroposphere in terms of three major systems and their subsystems. As major systems he distinguishes the human system, the support system and the natural system.

Bossel divides the human system into three sub-systems. The individual system encompasses elements as norms and values, autonomy and development aspiration and such characteristics as gender, class, health, education and material standard of living. A second system is the social system, in which we find characteristics such as income distribution and class structure, ethnic and social composition, demographic characteristics, as well as social groups and organisations. The third subsystem within the human system is the governance system. This includes government institutions and other public bodies, and also the legal and regulatory framework as well as the informal agreements on societal functioning, the systems of influence and decision-making structures.

Society has created two ‘support systems’ to provide the necessities for human sustenance: an economic system and an infrastructural system. The economic system comprises the modes of production and consumption, the functioning of the markets (including the labour market) and the economic and financial institutions. Many elements of the infrastructural system form part of what is usually labelled ‘the built environment’. But the infrastructural system goes beyond this, encompassing the social infrastructure (health and education) and the systems we have created to ensure the supply of water and energy, disposal of liquid and solid wastes and our need for transportation and communication (Bossel 1999)

The natural system includes all characteristics related to the natural resources and the ecosystem, such as the geophysical structure, climate, soil types, flora and fauna, vegetation, fresh water resources and aquifer systems, air, land and other natural resources (renewable and non-renewable).

If we adapt Bossel’s line of reasoning to an urban context, this gives the following schematic representation (see figure 1.2)

From the previous discussion it is evident that for a truly ‘sustainable development’ the interactions between all different subsystems have to be analysed in detail.
This goes far beyond the scope of this study. In this study we will only make use of Bossel’s classification to structure our findings.

Figure 1.2 The system of the city and its subsystems

Also in the discussion on ‘sustainable cities’ there is apparent confusion about whether we are dealing with only ecological sustainability, or include the other components of development in an urban context. There is a growing consensus that the discussion should not be about ‘the sustainable city’, because in the context of globalisation a self-reliant city is unlikely (Drakakis Smith 1996b:iii). Mitlin & Satterthwaite (1996) therefore proposed to speak not about sustainable cities, but about ‘sustainable development and cities’. ‘Sustainable cities’ implies that each city has to meet the resource needs of their population and economic activities from its immediate hinterland, whereas ‘sustainable development and cities’ should be understood as ‘meeting human needs within all cities (and rural areas) with a level of resource use and waste generation compatible with ecological sustainability goals (Mitlin & Satterthwaite 1996:35).

We have seen that the different approaches for what a sustainable city should look like either address only part of the ‘sustainable development’ challenge (the external dependent city, redesigning the city, the self-reliant city), or do not include practical proposals (the fair share city). Given the complexity of the conflicting goals of sustainable development, this is not surprising. And, given the current state of affairs – societal, politic, scientific, and technological – it is more realistic to talk about striving for a more sustainable way of urban life than to resolve these conflicts completely. O’Riordan (1998) labelled this process ‘the transition to sustainability’. O’Riordan does not define this ‘sustainability transition’ in exact words. He states:
'The sustainability transition is just what it suggests and more. It is not just a change from our present society to another form; it is the endless quest for a permanent and habitable planet on which life evolves with reliability and dignity. The grinding progress of transition is of itself a permanent one, precisely because sustainability can never actually be attained. (...) The sustainability transition, therefore, is the process of coming to terms with sustainability in all its deeply rich ecological, social, ethical and economic dimensions' (O'Riordan 1998:1).

There is, however, a basic premise when we talk about the transition to sustainability. The transition to sustainability requires, as Haughton phrased it:

'recognising and accepting our responsibilities not just for the places where we live, but more widely for the environment and society at a global scale' (Haughton 1999:65).

O'Riordan defines the different phases in the transition process from 'very weak sustainability' to 'very strong sustainability' from a political science perspective in terms of changes in environmental and economic policies, public awareness and discourse. In general terms, moving from one step to another involves more serious environmental commitments, closer alignment of economic policy to environmental goals and greater public awareness of environmental problems and possible solutions, more democratic decision making and a greater role for local government. Within the framework of this study it is interesting to note that in the phase of 'very strong sustainability' as presented by O'Riordan, 'community-led initiatives become the norm' (O'Riordan 1998:16). Realising completely ecologically sustainable and socially just development is still a utopian goal, given that so far not even the most basic infrastructural needs are being met in many low-income urban settlements in developing countries (WRI 1996; UNCHS 1996). There still is an 'unfinished agenda', which encompasses the lack of sufficient and safe drinking water, sanitary services or adequate waste management which characterises so many low-income neighbourhoods.

1.2 Urban environmental problems: two unfinished agendas

The more 'urban environmental problems' are discussed, the less clear it is which issues we actually are placing under this umbrella concept. The same tensions between 'ecological sustainability' and 'development goals' which were discussed for the sustainable development debate in general are apparent in the discussion on urban environmental problems. Initially, the term basically referred to effects of human activities on the natural system, such as disturbance of hydro-biological cycles, pollution of water resources and air, overexploitation of natural resources and the loss of biodiversity. Concepts as 'metabolism of cities' (Wolman 1965), 'circular metabolism' (Girardet 1993, 1999) and 'the ecological footprint' (Rees 1992) are examples of this approach.

The growing concern for the health risks for urban populations has put the lack of safe drinking water, inadequate sanitation and drainage, inadequate waste
Urban environmental management: city, neighbourhood and household issues

management and indoor air pollution on the urban environmental agenda. Nowadays, the term ‘urban environmental problems’ basically covers two different agendas: the agenda of ecological sustainability (the ‘green’ agenda) and the agenda of environmental health issues (the ‘brown’ agenda). Generalising, one can even say that the two agendas not only have different scopes, but also different objectives and different proponents. McGranahan and Satterthwaite have summarised this as follows:

‘The typical proponents of the ‘green agenda’ are the environmentalists, whose principal concern is ecosystem health, and who are concerned with the delayed effects of human activity at the regional and global scale and the impacts for future generations. The typical proponents of the ‘brown agenda’ are the urbanists and development workers, whose main concerns are human health and social justice, and who are more preoccupied with the immediate problems at the local level, especially those suffered by low-income groups. From a certain point of view, the green and the brown agendas can be seen as conflicting. Looking at immediate health risks, the urbanist’s emphasis is on ‘provide more’, the objective from an environmentalist point of view might be ‘use less’. The aim to ‘provide more water to the poor’ can conflict with the goal ‘use less water’ if distribution is not equalised (McGranahan & Satterthwaite 2000).

It is thus clear that environmental problems are not limited to the consequences of human activities on the natural environment alone, but also include problems generated in the other subsystems. Many of the environmental health issues are a consequence of a lack of access or inadequate provision of basic infrastructure. This access is determined not only by the infrastructural system (the availability of the service) but also by the governance system (the accessibility of the service).

Environmental problems in cities in developing countries can be listed as follows:

At the household level, the most important environmental problems are: lack of safe and sufficient water, lack of adequate (on-site) sanitation, inadequate waste management and indoor air pollution due to substandard housing and the use of low quality fuels.

At the neighbourhood level, inadequate and insufficient water supply is also a problem, as well as inadequate sewers, inadequate drainage and the resulting flooding, inadequate solid waste management (both domestic and industrial), ambient air pollution, ground and surface water pollution, noise pollution, inadequate roads, a

7. To our best knowledge, the label ‘brown agenda’ was introduced by the World Bank, who defined it as ‘... the immediate and most critical environmental problems which incur the heaviest costs on current generations, particularly the urban poor, in terms of poor health, low productivity and reduced income and quality of life: lack of safe drinking water, sanitation and drainage, inadequate solid and hazardous waste management, uncontrolled emissions from factories, cars and low grade domestic fuels, accidents linked to congestion and crowding, and the occupation of environmentally hazard-prone lands, as well as the interrelationships between these problems’ (Barton et al., 1994:5). Sometimes, issues related to industrial pollution are dealt with separately in ‘the grey agenda’.
lack of green areas and the urbanisation of inappropriate sites.

At the city level, characteristic problems are the disturbance and pollution of local water bodies, soil pollution, ambient air pollution, and the occupation of ecologically fragile land.

At the regional level, the major problems result from an accumulation of the problems of the lower levels of scale, the loss of ecological areas and agricultural land, the over-exploitation of the natural resources and disturbance of the ecosystem. Over-exploitation of the water resources disturbs the hydro-biological balance, resulting in decreasing groundwater levels, drying up and intrusion. A consequence of certain kinds of air pollution is acid rain.

The consequences of this accumulation are experienced at the global level as the loss of biodiversity, depletion of the stratospheric ozone layer and atmospheric warming from greenhouse gases (Hardoy et al., 1992).

For the purposes of this study, these environmental problems at the different geographical levels of scale are classified according to the two agendas to which they belong (see Table 1.1).

Nevertheless, this table shows (and this holds particularly for poor neighbourhoods and poor cities) that at the household and neighbourhood level environmental health issues (the brown agenda) predominate, whereas issues of ecological sustainability (the green agenda) are more important at the city and higher levels. It is obvious that for low-income neighbourhoods the brown agenda is vital. This has not only to do with human health, but also with equity concerns. Furthermore, low-income households consume very little in the way of natural resources. They thus have a minimal negative impact on the natural system when compared to their northern counterparts or the rich in the same cities.

1.3 Environmental transitions

There are two underlying causes for many human-induced environmental problems. First, we tend to look at only short-term and immediate effects (and therefore do not readily perceive the more subtle or long-term consequences of what we do), and second, we can shift the (environmental) consequences of our activities over time and scale. Or, as Haughton phrases it:

‘Fundamentally it is the ability to distance ourselves (socially, temporarily, economically, geographically and corporately) from the adverse environmental impacts of human activity which encourages us towards ‘unsustainable’ behaviour patterns. (...)There is a natural tendency for public officials and indeed the citizenry in general, to consider only the interest of their own locality or jurisdiction in making decisions (Haughton 1998:4-5).
Table 1.1 Urban environmental problems in third world cities

<table>
<thead>
<tr>
<th>Household level</th>
<th>Neighbourhood level</th>
<th>City level</th>
<th>Regional level</th>
<th>Global level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brown agenda</strong> (environmental health problems)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of and low quality potable water</td>
<td>Inadequate and insufficient water supply</td>
<td>Inadequate and insufficient water supply</td>
<td>Inadequate and insufficient water supply</td>
<td>Inadequate and insufficient water supply</td>
</tr>
<tr>
<td>Inadequate on-site sanitation sewerage</td>
<td>Inadequate sewerage</td>
<td>Inadequate sewerage</td>
<td>Inadequate sewerage</td>
<td>Inadequate sewerage</td>
</tr>
<tr>
<td>Inadequate housing drainage</td>
<td>Inadequate drainage</td>
<td>Inadequate drainage</td>
<td>Inadequate drainage</td>
<td>Inadequate drainage</td>
</tr>
<tr>
<td>Inadequate waste disposal roads</td>
<td>Inadequate roads</td>
<td>Inadequate roads</td>
<td>Inadequate roads</td>
<td>Inadequate roads</td>
</tr>
<tr>
<td>Use of low quality fuels waste collection</td>
<td>Inadequate waste collection</td>
<td>Inadequate waste collection</td>
<td>Inadequate waste collection</td>
<td>Inadequate waste collection</td>
</tr>
<tr>
<td>Urbanisation of inadequate sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Green agenda** (ecological sustainability) | | | | |
| Ground water pollution | Ground water pollution | Pollution of local water bodies | Loss of biodiversity |
| Surface water pollution | Surface water pollution | Overexploitation of local water bodies | Depletion of the stratospheric warming from greenhouse gases |
| Soil pollution | Soil pollution | Disturbance of the hydro biological cycle | |
| Air pollution | Lack of green areas | Air pollution (acid rain) | |
| Lack of green areas | Loss of ecological areas, agricultural land | Loss of ecological areas and agricultural land | |

As wealth increases, the environmental impacts created by the city's functioning tend to shift from direct health threats within the city to long-term impacts generated over a wider geographic region (McGranahan et al. 1996). In general:

4 The urban environmental impacts generated in poor cities are direct health-threatening problems that are local in nature (brown agenda). Poor households in poor cities contribute very little to either the processes of resource extraction or discharges of wastes, effluents or emissions.

5 The most extreme examples of city and regional-level environmental stresses are found in and around middle-income mega-cities and around the industrial cities of the formerly planned economies. This is due to intensive industrial processes, coupled with few environmental controls, which creates a situation in which there are high levels of polluting wastes and emissions, directly discharged into the city and the surrounding region.
6 The impacts created in the high-income cities in the North are characterised by being regional or global in nature, and health risks are indirect and a result of long-term cumulative exposure. The lifestyles of urban inhabitants demand high levels of resource extraction (including from long distances), and the emissions and effluents created cause the majority of the global environmental problems (McGranahan et al. 1996).

In other words:

‘with increasing affluence, environmental burdens tend to become spatially more diffuse, temporally more delayed and causally less directly threatening. Environmental degradation is relatively more likely to undermine the natural system and relatively less likely to threaten health directly’ (McGranahan et al. 1996:105).

1.3.1 Transfer of consequences
The main reason behind the changes in the ways the impacts of pollution and emissions are experienced, is the fact that with increased wealth, cities can more easily transfer such impacts, both temporally and spatially. The way environmental consequences are transferred depends, first of all, on the government system, but also on the support systems, as well as on individual choices. Or, as McGranahan et al. (1996) put it:

‘Many environmental services such as piped water, sewerage connections, electricity and door to door garbage collection not only export pollution (from the household to the city) but also shift both the intellectual and practical burdens of environmental management from the household to the government or utility. Wealthier households or wealthier cities can afford it to pass on the burden of dealing with the environmental consequences to governments or utilities’ (McGranahan et al. 1996).

In general, there are three basic dimensions over which the environmental impacts can be transferred:
1 to a higher geographical level of scale;
2 through time, drawing on the resources of future generations;
3 from the individual to the collective level of scale: the sum of all individual rational actions leads to collectively unacceptable consequences (NAR 1993).

The most visible and well known of these dimensions is the transfer of consequences to other spatial levels of scale. Transferring the consequences can almost become a policy, as was the case in developed countries, where smokestack heights were increased to ensure that the effects of the air pollution they created would be felt farther away. In a similar way, hazardous waste from developed countries is shipped and transported to the South. But it can also take place at the intimate level of the household and the neighbourhood: neighbours dumping their waste on the street, or organising clean-up campaigns where the waste collected is dumped in the neighbouring settlement.
Transfer through time occurs when consequences are transferred to future generations, the often-cited effect of 'compromising the needs of future generations'. Transfer over time is most often related to the over-exploitation of natural resources and exceeding of the absorption capacity of the sinks.

Examples of the transfer from the individual to the collective level, where the sum of all individual rational actions leads to collectively unacceptable consequences, are more difficult to identify. The discharge of a limited amount of waste water into a river by one private enterprise might be environmentally acceptable; the sum of all discharges of all industries using the same river exceeds the self-cleaning capacity of the stream and leads to a decrease in water quality.

The possible transfers that can take place from the household and neighbourhood level in low-income areas in developing countries to higher levels of scale are summarised in Figure 1.3. This figure shows that the contributions to regional and the global environmental problems by households in low-income urban areas are limited, but not absent. And although poor households cannot be held responsible for (for instance) faulty sewerage systems, the pollution resulting from leaks and flooding of the system can be serious. The same holds for the consequences of faulty waste management.

To summarise, we can state that urban environmental management can only be effective when it reverses the transfer mechanisms underlying many of the so-called 'solutions' (higher smokestacks, longer pipelines that simply dump untreated wastewater further offshore in the ocean or sanitary landfills where waste is dumped outside city boundaries). Even at the household and the neighbourhood levels it is relevant to analyse whether a problem is really being solved or only transferred.

Figure 1.3 Transfer mechanisms over different geographic scales


1.3.2 Horizons of responsibility

As discussed in the previous section, the fact that we can transfer the environmental consequences of our production and consumption over the dimensions of time and
space underlies the emergence of many environmental problems. The fact that human agency has a limited time and space perspective was given attention as early as 1972 in the first report of the Club of Rome. This perspective is influenced by one’s culture, past experience and the urgency of the problems one has to face, but in general it can be said that the greater the distance in time and space, the less responsibility people feel (Meadows et al, 1972).

Bossel (1999) refined this view by identifying different horizons people have in life. The closest and most intimate horizon is ‘the horizon of responsibility’. This horizon covers the direct needs of the individual, the family and perhaps part of his or her community. It is the boundary within which the actor actually is willing to invest resources (in time or money) in meeting these needs.

A wider horizon is ‘the horizon of attention’. This horizon comprises all levels whose behaviour or development is of some interest to the actor, and whose fate is given some attention. The actor’s awareness and curiosity define this horizon, but it does not imply any commitment on his/her part. One can be interested in what happens in one’s city without taking an active role in the process.

The widest horizon is ‘the horizon of influence’. This horizon stretches over the axes of space and time. Studies such as those that calculate ecological footprints indicate that our present-day production and consumption patterns can have their impact on a global level, and even an impact on the development possibilities of future generations. This horizon therefore could be more adequately labelled the ‘horizon of impact’.

In an ideal situation, the three horizons would coincide. The reality is that the horizon of responsibility in general is the most intimate one. People are less willing to invest in the solution of, for instance, city-wide problems, especially if there are unsolved problems in their home and neighbourhood. The more someone has to concentrate on direct survival, as is the case with many inhabitants of the low-income neighbourhoods in developing countries, the more limited their perspective may be. The demarcations of the different horizons, Bossel indicates, are somewhat arbitrary (see Figure 1.4). These demarcations are influenced by culture, past experiences and current problems. Someone’s ‘horizon of responsibility’ may not always extend to the level of the community, but can also be concentrated on the level of the family. However, the general tendency as indicated by Bossel – more people concentrating on the immediate environment and fewer people caring for wider scales in time and space – does hold. Efforts to manage the urban environment have to take into account the transfer mechanisms and the different horizons of the actors.

This study does not attempt to solve the conflicts inherent in the concept of ‘sustainable development’. We have already argued that it is more realistic to strive for what O’Riordian labelled ‘the sustainability transition’. In this study we will single out two elements of this transition, namely those elements that are related to the underlying causes of ‘unsustainable behaviour’. We will single out the transfer of consequences and the limited scope over space and time of the human agency. The sustainability transition as presented by O’Riordian also includes the development aspects of sustainable development. Although these dimensions are extremely important, they are not taken up in this study since it is confined to urban environmental management issues.
1.4 Urban governance and urban environmental management

There is now a generally accepted distinction between the concepts of ‘governance’ and ‘government’. ‘Governance’ involves the whole range of relationships between civil society and the state, whereas ‘government’ is concerned primarily with the state (Devas 1999:1).

The process of urban governance in the developing world has over the last two decades been shaped by three major trends: a degree of decentralisation of responsibilities from central to the local level, privatisation of state assets and public utilities, and an attempt to increase participation by sharing the planning process (Devas 1999, Baud & Hordijk 2000). These global trends are no longer managed mainly by the state, but to an increasing extent by a multiplicity of actors. The transnational activities of the private sector, for example, are a major force for the loosening of state control. A stronger private sector, as well as a stronger non-profit sector has also emerged in many cities (OECD cited in Mwangi 1999:4). The trend towards decentralisation has also contributed to this process of loosening control of the national government (UNCHS 1999).

With the process of decentralisation, planning efforts are more and more concentrated at the level of the city. There are many studies indicating that in most countries the transfer of responsibilities to the local level is not accompanied by a transfer of competencies or financial resources (UNCHS 1996).

Privatisation processes are fuelled by attempts to make the public sector more effective and efficient. Over the last decade, governments – some straining under the yoke of structural adjustment programs – have reduced social sector expenditures and turned the role of the state from that of a ‘provider’ to an ‘enabler’. This ‘enabling role’ can also disguise a de facto withdrawal by the state. One very good
example of this is the massive shedding by many governments of public utilities such as water and electricity companies, communications companies, solid waste management and the construction of public works.

The increasing involvement of many different actors in the urban planning process has been enhanced by new approaches such as ‘action planning’ (Barros 1991) and ‘strategic planning’, now done using city-wide consultations (UMP 1999). A relatively new planning tool is the ‘Local Agenda 21’. In the aftermath of the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, which endorsed the global action plan ‘Agenda 21’, local authorities were called upon to develop their local contribution in the form of a Local Agenda 21. A ‘Local Agenda 21’ is basically an integrated urban development or local action plan that combines the different economic, social and environmental goals as defined by the discussion on sustainable development. The call for developing Local Agendas 21 has led to processes of participatory planning in a wide variety of cities, both in the developed and the developing world (UNCHS 1999; ICLEI 1999; Environment & Urbanisation 1998, 1999).

It is within this setting that municipal governments have to come to terms with the challenges of urban governance. ‘Municipal government’ is considered to be the governing and administering of an urban area by a body which is most often elected by the citizens of that urban area. Actual practice normally differs from this general conception. Devas (1999) notes five different reasons why the actual practice is often quite different.

First of all, municipal authorities may have little control over urban development activities or the services provided within their jurisdiction. The services can be provided by state enterprises, by private companies, by local offices of central ministries, or by development co-operations established for a specific purpose. Second, the boundaries of municipal government jurisdictions may not cover the entire urban area. This can happen when the city has grown beyond its administrative boundaries, or when the city has been divided into separate district municipalities. Both cases can hinder effective service delivery. Third, there is the question to what extent municipal authorities are free to make decisions. Many local government systems in the South involve high degrees of central control. Fourth, there may be a lack of clarity about authority in local areas. It is not uncommon that, besides local government, there is a parallel power structure with central government representatives in the area, such as governors, a prefect or a district commissioner. And last but not least, it is important how municipal governments view the different parts of their own jurisdiction, in particular how they view the low-income areas and the informal settlements (Devas 1999:5-6).

These constraints also affect urban environmental management efforts. Urban environmental management can be understood as being part of the overall urban management framework. It involves the planning, design, operation and develop-

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8. Whether this body is elected wholly or in part, and through which mechanisms of course differs highly from country to country.
ment of related urban environmental policies, procedures and technologies to address urban environmental problems (Mwangi 1999:19). In the previous sections we indicated that the urban environmental problems can be understood as encompassing two distinct agendas: the green and the brown agenda. Adequate urban environmental management should thus address both agendas. This makes it even more difficult to adequately define what urban environmental management actually is. It cannot be confined to the ‘green agenda issues’ of preserving natural resources (striving for sustainability in an ecological sense), but has to include development objectives such as adequate access to environmental services (brown agenda issues). Thus: urban environmental management is more than natural resource management in an urban context. Bringing all the objectives entailed in the ideal of urban sustainable development under the heading of urban environmental management, however, does not help. This is a weakness of the definition of urban environmental management as formulated by Bartone:

‘Urban environmental planning and management aims to identify urban environmental issues, to agree on strategies and actions, to resolve these issues among all those whose co-operation is required and to implement these strategies through co-ordinated public and private actions. Over time, the process should improve health and productivity in cities, reduce environmental hazards and protect natural resources so as to sustain economic and social development’ (Bartone 1994:5).

In this definition we do not only find the green and brown agenda objectives, but also the objectives of economic growth and social development. We propose to limit the objectives of urban environmental management to a process that addresses green and brown agenda issues simultaneously and aims to reconcile the possible tensions between these two. This means that urban environmental management has to deal with both the goal of ecological sustainability as well as with one of the development goals of sustainable development, that of access to basic services.

From the above discussion it can be drawn that municipal governments can not manage the environment on their own, but have to work together with other actors in the city. In the next section we will describe the roles normally assigned to the different actors in the process of urban environmental management.

1.4.1 Actors
The actors normally identified as being decisive for urban environmental management can be classified as:
1 National government entities
2 Regional, provincial and metropolitan government entities
3 The local government
4 Public utilities

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9. This definition also is an other example of the confusion about the term sustain. Formulated in the way Bartone does suggest that current social and economic development patterns should be 'sustained', whereas striving to achieve the goals of greater equity implies a change.
Chapter 1

5 The private sector
6 Non-governmental organisations (NGOs)
7 Community-based organisations (CBOs)

One actor that is surprisingly lacking in most of the analyses and the policy recommendations is the household. This level will be included in this study.

National governments play a key role in linking local and global ecological sustainability. Internationally, they have the responsibility for reaching agreements to limit each nation’s claim on the world’s environmental assets. Nationally, they are responsible for providing the framework to ensure that local actions can meet development goals without compromising local and global sustainability. It is also the task of national governments to consider the social and environmental impacts of their macro-economic and sectoral policies (UNCHS 1996:432). The national government is responsible for setting the overall framework, which consists of the organisational structure of the national administration. It includes an institutional, legislative and financial framework that provides the guidelines and instruments for the other actors to adopt the responsibilities assigned to them. At the national level, these tasks cross-cut many sectoral ministries. The role that regional, metropolitan or provincial governing bodies can play varies highly per country and (planning) powers assigned to them.

It is by now widely recognised that the local government should be the key actor in urban environmental management. Or, as it was stated at the Earth Summit:

‘Because so many problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and co-operation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee the planning process, establish local environmental policies and regulations and assist in implementing national and subnational environmental policies. As the level of government closest to the people, they play a vital role in educating, mobilising and responding to the public to promote sustainable development (UN 1992:20).

As can be seen from Table 1.2, there are many environmental themes that can fall under the responsibility of local government, ranging from protection of natural resources and infrastructure management to public awareness raising and education. The way in which responsibilities are assigned to local governments, the financial structures available to facilitate compliance with these tasks, and the political and administrative relations with higher government levels vary from country to country.
Table 1.2  Possible municipal responsibilities in urban environmental management

1. Land use planning and public space management
2. Protection of water resources, provision of related infrastructure
3. Protection of flora and fauna
4. Management of physical resources
5. Solid waste management
6. Control of air contamination
7. Control of noise contamination
8. Food quality control and prevention of contamination
9. Disaster prevention and management
10. Environmental education
11. Environmental monitoring
12. Citizen participation in urban environmental management

Source: Latorre Estrada (1994)

Although providing basic infrastructure is quite often a municipal responsibility, infrastructure elements such as water and sewerage, solid waste management and electricity provision are often run by public utilities.

These traditionally public-owned institutions are becoming increasingly privatised in many countries, or the tasks are being subcontracted to private companies, and municipalities now have to form partnerships with these new companies. Privatisation does not necessarily mean that local government is exempted from its duty to guarantee adequate service provision.

The role of non-governmental organisations (NGOs) in the development process in general has been heavily debated over the last twenty years (see for instance Korten 1987, Biekar 1999; Edwards & Hulme 1996). From this general debate, it can be inferred that NGOs are understood as being formal organisations, independent from government, self-governing with an independent decision-making body, non-profit-making, and involved in public interest issues (Arossi et al. 1995:39). The most important feature that distinguishes NGOs from CBOs is that NGOs are meant to serve persons who are not members of their organisations (Uphoff 1996:20), whereas CBOs are meant to serve their members.

With regard to cities, four roles have been identified for NGOs (Mitlin & Satterthwaite 1994:67). NGOs are:
1. Enablers alongside community-based organisations;
2. Mediators between people and the authorities which control access to resources or goods and services (this can be local governments, national governments or private national or international donors);
3. Advisors to state institutions on policy changes;
4. Advocates who can put community concerns onto the national or international policy agenda.

As Mitlin & Satterthwaite (1994) note, most private enterprises have some long-term interest in environmental sustainability, as resource depletion is likely to raise production costs and increase risks. But the main sphere of action for private enter-
prises is in reducing adverse environmental and health impacts within their own facilities and the immediate surroundings (Mitlin & Satterthwaite 1994:70). The tools for improved private sector performance (environmental care systems, eco-audits, ISO 14000 certification) are increasing but the contribution of private enterprises is generally influenced by the governance system (regulatory framework, incentives, and the capacities of enforcement). Private sector participation is often weak or missing in city-wide consultations, urban environmental action plans and the development of Local Agenda 21 initiatives (Miranda & Hordijk 1998).

The situation is even more difficult for small and micro-enterprises. There are examples of the emergence of small and micro-enterprises that provide environmental services, such as micro-enterprises building latrines (Melendez 1996), or active in waste collection and recycling (Zela 1996), but for the sector as a whole, the investments needed to improve environmental performance are lacking.

The role of CBOs is often defined as 'being strongest in advocating the needs of the residents' or 'voicing the needs of the poor'. (Diaz Palacios 2000: UNCHS 1990, WBRD 1992, GTZ 1996). Mitlin and Satterthwaite (1994) also draw attention to the management role of CBOs:

'The capacity of citizen groups to identify local problems and their causes, to organise and manage community-based initiatives and to monitor the effectiveness of external agencies working in their locality represents one of the most valuable resources available to city and municipal authorities' (Mitlin & Satterthwaite 1994:66).

But the scope of what CBOs can realise also depends on alliances with the other actors. Although there are many actions that households and CBOs can undertake, there is a limit to what can be achieved through 'self help' or 'community based' schemes, both those based on individual action (such as home improvement) or collective action (providing and improving infrastructure and environmental services) (Lee 1994). The effectiveness of community-based schemes can be greatly enhanced if communities gain access to outside support in the form of finance, skills or support in their demands. Access to these resources requires alliances with other actors. There are general changes taking place in governance processes that will influence the way in which the different actors in the urban arena relate, and will also influence the establishment of alliances between the different actors, including the alliances CBOs can establish.

10. ISO 14000 is one of the voluntary standards companies can comply with. Within the ISO 14000 framework a Life Cycle Assessment (LCA) is applied to the product. The LCA examines every stage of the life cycle of a certain product, service or activity 'from cradle to grave'. For each stage of the life cycle – from the extraction of raw materials, through manufacture, distribution, use or possible re-use/recycling and final disposal – the inputs (in terms of energy and raw materials) and outputs (in terms of emissions to air, water and as solid wastes) are calculated. Complying with 14000 standards includes a commitment to continuous improvement in environmental performance.
1.4.2 Alliances

The three trends shaping current municipal government—decentralisation, privatisation and increased sharing in the planning process—have led to a wide variety of possible public and private partnerships, also in the realm of urban environmental management. Decentralisation has given municipal governments more room to manoeuvre and plan. Increased sharing of the planning process has led to the inclusion of more stakeholders in local planning. And privatisation has led to an increased number of stakeholders in urban environmental management. Many of the issues that are normally dealt with under urban environmental management in cities in developing countries—such as basic services (water and sanitation), solid waste management, waste water treatment, transportation, pollution control (with regard to soil, air and water and management of ecological fragile areas)—require partnerships between different actors to be dealt with effectively.

Partnerships involve co-operation among individuals and organisations in the public and the private sectors for mutual benefit. Public–private partnerships are often government–business partnerships, but other possible partners from the 'private sphere' include NGOs, schools, universities, churches, CBOs, professional associations, families and individuals (Mwangi 1999:29). Partnerships or alliances can take many forms and can be used for many purposes. They involve complex legal, political, organisational and financial interrelationships among partners. The arrangements can be formal or informal, and regulated by written or unwritten rules. In this study we take partnerships or alliances as those forms of co-operation that:

- involve two or more actors;
- represent a more or less enduring relationship between the actors (based on a written or verbal agreement, informal or formal in nature);
- are mutually beneficial (without assuming equality between actors);
- find their expression in concrete (physical) activities (Baud et al. 2000).

This study takes the household and neighbourhood level as its point of departure. Actors that do not have their base at the level of the neighbourhood—such as local government, public utilities, regional or national government, NGOs, other civil society organisations such as the church and also relevant private enterprises or international donors that can be approached by the CBOs to acquire support for environmental improvement—are considered 'external actors'. They are external from the point of view of the neighbourhood.

1.5 Low-income households and urban environmental management

The household is the smallest social system. 'The household is the key unit of production, reproduction and consumption, and the unit where decisions on pooling and allocating labour and resources—both financially and other resources—are made' (Douglass 1994).

Whether rich or poor, all households manage a set of assets to ensure their sustenance and seek improvement of their situation. The way they do this has been
studied extensively – both in urban as in rural contexts – under the headings of ‘survival strategies’, ‘livelihood strategies’ and more recently ‘sustainable livelihoods’. Studying livelihood strategies is studying ‘the way in which people make themselves a living using their capabilities and their tangible and intangible assets’ (Chambers cited in de Haan 2000:13). The livelihood is considered sustainable if it is ‘adequate for the satisfaction of self-defined basic needs and proof against shocks and stresses’ (de Haan 2000:13).

The assets of poor households in low-income urban areas include the well-known assets of labour and human capital. Housing is often seen as a basic need, but it is also an important productive asset. Housing provides the opportunity for home-based enterprises and/or renting out space to improve household income. The set of household assets furthermore includes the largely intangible assets such as household relations (the mechanisms of pooling income and sharing resources) and social capital (reciprocity within communities and between households based on trust deriving from social ties) (Moser 1998:1). To this has to be added the asset of linkages to actors external to the community, such as power/political networks. Other researchers have classified the different types of assets or resources of households – rich or poor – in terms of different kinds of capital. We can then classify them as:

1. Human capital (labour, skills, experience, knowledge, creativity and inventiveness)
2. Natural capital (land, water, energy)
3. Physical capital (housing, tools and machinery)
4. Financial capital (money, loans or credits)
5. Social capital (de Haan 2000:15)

Households in cities are connected to the other systems of the city. They allocate the different assets or kinds of capital to the different realms of urban life. Douglass (1998) distinguished the four major realms as:

1. Work and livelihood
2. Personal health and well being
3. Habitat and environment
4. Social networks and (political) power

Each of these realms covers a continuum of different themes. Work and livelihood strategies can range from self provisioning through work in the family micro-enterprise, subcontracted piecework or disguised wage work to wage employment. Personal health and well being covers issues of education, health, safety and personal/family services (Douglass: 1998:122) The habitat/environment realm includes land, land tenure and housing (which in turn encompasses obtaining water and fuel, solid waste collection and disposal, community basic infrastructure and communal spaces). The social networks range from the informal social networks of reciprocal assistance and neighbourliness, through community based organisations and extra community linkages with (for instance) NGOs, to involvement in social projects.

11. It should be noted that the term ‘sustainable’ in this interpretation of the concept of ‘sustainable livelihood’ is used to indicate a household’s capacity to ensure sustenance of the household, and does not refer to the ecological meaning of sustainability.
movements and political mobilisation (Douglass & Zoghlin 1994:177).

The relative importance given to each of the four realms can change over time, and changes when the situation of the household changes. The allocation of the different household assets or capitals is first of all an outcome of intra-household negotiations over the allocation of these resources. This process can be conflictive, since interests of the different members may differ considerably. The gender division of labour, gender roles and the division of tasks and responsibilities as assigned to the different generations within a household do highly influence the outcome of this process of allocating resources. Furthermore, this process is influenced by the social, economic, cultural and political context, a context that poses many constraints, especially for poor urban households (van Lindert 1991).

Households thus have a series of assets or capitals that, through a process of household decision making, are allocated to different realms of urban life, including to environmental management efforts. Urban environmental management efforts can be defined as efforts to cope with or improve the environmental conditions of the direct living environment. There are various reasons to allocate resources to the realm of habitat and environment. The adverse living conditions can threaten people’s health and their potential to generate income. An improved environment can increase the opportunity for home-based enterprises. Research results from Asia indicate that clean and improved environments can enhance neighbourhood-based economic development (Ard-am cited in Douglass 1998). Here, it has to be taken into account that the house is often a very important, if not the only, investment possibility for poor households. It functions furthermore as their savings account and safety net (Van der Linden 1987, van Lindert 1991, Moser 1998). Douglass (1998) argues against the conventional wisdom that environmental improvements follow rather than lead economic growth, or that the poor ‘are simply to busy being poor’ to bother about environmental issues.

As long as such basic environmental tasks as water management and cleaning remain arduous and time-consuming they limit improvement opportunities in other realms. Clean environments can also generate income earning opportunities by enhancing the health of household members and enabling each to be more productive. Improving the provision of, for instance, drinking water can bring release of substantial amounts of time for women and children for other activities such as education and income earning (Douglass 1998).

Allocating assets or capitals to improve the environmental conditions in the direct living environment, or even giving it priority over other issues can be thus understood as completely rational, knowing the spin-off effect of improved personal and family well being and improved income earning opportunities. But all inhabitants in the city, including the poor, also have what Meertens (2000) labelled ‘a life project’:

‘The concept “life project” refers to more than the immediate material aspects of survival. It also includes dimensions of life experience, identity and perceptions, it opens perspectives upon the future in terms of the articulation of proposals and hopes, both on the individual and collective level. It implies at least a certain vision of the type of activities and social relationships that may bring the desired future closer to reality’ (Meertens 2000:1).
Urban environmental management can also be interpreted as being part of people's 'life project'. If we do, we understand it as not only being part of 'livelihood strategies', where the reasons to spend time and efforts on improving and managing the neighbourhood environment can be understood as a rational choice. We can also understand it as a means to a dignified and less vulnerable way of life, in which within the context of many constraints some development aspirations can be realised.

Whether households actually undertake urban environmental management activities depends on various factors. First of all, the very perception of the environmental problems and the related health risks is a determining factor in taking action (Arddam 1994). Households in low-income urban areas literally live in the direct consequences of environmental problems. Since environmental conditions and their related health risks have a direct impact on the daily life and well being of the family, they will fall in its horizon of responsibility. The environmental problems that put people at risk are related to water, sanitation, hygiene, siltage, drainage, pests, inadequate housing, indoor and outdoor air pollution and solid waste.

Women are the first to perceive such environmental problems. They are the ones primarily responsible for the household's health and well being. They have to fetch water, collect fuel, and deal with the lack of adequate sanitation services. It is considered their responsibility to ensure a clean and safe home for their family, as well as to maintain the communal spaces. Women are responsible for day-to-day child rearing, and have to care for sick children. As a consequence of their triple role (Moser 1987) of being responsible for production and reproduction in the household, as well as managing the communal environment, women also bear an inordinate share of the labour burden of household environmental management (Songsore et al 1998:1, Douglass 1998:126). Most of the environmental factors that pose health risks are to be found close to the home, such as indoor air pollution, damp and overcrowded living conditions, unsafe water or faeces near the door. (Songsore 1996:1). Those who stay at home, i.e. women, children, the elderly and the sick or disabled, bear an unequal share of the health risks.

The gap between perception and action can be wide, but the closer the issue is to the household and the community, the more likely a household is to feel responsible for it and to contribute to its management. In other words: the closer the issue is to the household or community, the more an issue falls within the horizon of responsibility. The ability to identify the source of the problem and/or a possible ameliorating action is thereby important. The way residents interpret the perceived efficacy of a certain action will affect their motivation for individual or collective action (Chan et al. 1994).

A second factor influencing the undertaking of urban environmental management activities is the tenure situation of the household. The more secure the tenure, the more households are willing to invest in environmental improvement (Van der Linden 1987; Douglass 1994a; Lee 1994).

A third factor of importance is the composition of the household. The composition and internal make-up of the household is crucial to its capacity to manage its members' portfolio of assets and dedicate time to environmental management. The
more diversified the household, the more likely it is that urban environmental management activities will be undertaken (Douglass 1994b; Chan et al. 1994). It is well known that the situation of female-headed households is the most difficult when they have to deal with poverty and adverse living conditions: one adult member often has to accomplish all tasks. In two-parent households, allocation of labour is more flexible, with some members specialising in one task such as income earning or childcare, and others adjusting more flexibly to changing circumstances. In general, it can be said that the more adult members a household has, the more flexible they are in assigning the different tasks.

The stability of the community and the length of stay are possible factors influencing the undertaking of urban environmental management activities (Ard-Am 1994). The assumption is that the longer residents have lived in a community, the more they are willing to invest in the improvement of their environment.

Finally, the economic position of the household can be of influence: richer households are better able and more willing to pay for environmental improvement (Lee 1994). It was argued earlier that households pay to pass over the burden of environmental management to others if they can afford it.

The household is not a closed, autonomous unit or private sphere. Households employ their social capital, i.e. their networks of solidarity and other social and economic exchanges. Households members maintain such networks and exchanges with extended family members, neighbours, community residents, and various community and state institutions (McGranahan 1998: 397). Many issues can be dealt with more effectively in a collective manner. Thus, households not only manage environmental resources on their own, but are also actively engaged with other households and in community-based organisations to address common environmental management problems (Lee 1994). Issues of access and management therefore also appear at a second level: that of inter-household relations at the level of the street or housing-block, the neighbourhood and the wider community. These relationships are functionally and spatially defined by interpersonal and inter-household patterns of reciprocal assistance, and by the social system.

1.6 Community-based organisations and urban environmental management

1.6.1 Collective action

According to Yap, 'a community is a group of people with face-to-face contacts, a sense of belonging together, shared interests and similar values. In the context of urban low-income settlements, it refers to people who reside in a geographically defined area, identify with that area and share an interest in the betterment of that area' (Yap cited in Lee 1994:3). At this level, 'urban environmental management' can simply be defined as 'the organised efforts to cope with and reverse deteriorating living environmental conditions. This is not confined to households, but extends to household co-operation at the neighbourhood and community levels' (Lee 1994:161-162). In other words, it includes all activities that households can undertake individually or at the household level, such as separating waste, improving the dwelling and sanitary conditions, cleaning and maintaining community spaces, as well as the
activities that are undertaken collectively. Collective activities include joint efforts to improve water and sanitation provision, roads and sidewalks, the communal spaces and joint cleanup campaigns.12

The origin of these mobilisations is simple. As Desai (1995) puts it:

‘Groups with a consciousness of common purpose are likely to form organisations. Through their group membership, individuals could become more active, counterbalancing and shifting power in their favour’ (Desai 1995:56).

There is a wide variety of literature on the emergence, nature and meaning of what generally is labelled ‘collective action’. According to Della Porta & Diani (1999) these studies can be classified into four different approaches: collective behaviour; resource mobilisation, political process and new social movements (Della Porta & Diani 1999:3). The collective behaviour perspective analyses collective action as an activity concerned with new values and meaning and the construction of identity. From the resource mobilisation perspective, the collective movements constitute an extension of the conventional forms of political action. The actors engage in this act in a rational way, following their interests. This approach can be traced back to Olson’s (1965) theory of collective action from a utilitarian perspective (Salman 1993:48, Gilhuis & Volbeda 1992:36). The same rational view on collective action is also found in the ‘political process approach’, yet this approach pays more systematic attention to the political and institutional environment in which collective movements operate (Della Porta & Diani 1999). What these perspectives have in common is that the wide share of literature is focussed on protest movements or movements such as youth movements, the women’s movement, homosexuals, or minority ethnic groups, in its majority in the context of the developed countries. This is different in the new social movements (NSMs) approach. The new social movements approach includes many studies and scholars from the developing world, in particular from Latin America. The forms of collective action studied under this approach vary from ‘squatter movements to ecologists, from popular kitchens to socialist feminist groups, from human rights and defence of life mobilisations to gay and lesbian coalitions.’ (Escobar & Alvarez 1992:2). Besides the ongoing debate on how the social movements should be defined, and whether they are ‘new’ or not, a central topic is the question of whether these movements form a potential power to transform their societies or not (Escobar & Alvarez 1992, Assies et. al 1990, Salman 1993, Schuurman & van Naerssen 1988). It may be as Elizabeth Jelin stated:

‘...it is the researcher who proposes the reading of a set of practices as a social movement. (...) Social movements are objects constructed by the researcher, which do not necessarily coincide with the empirical form of collective action.’ (cited in Escobar & Alvarez 1992:6).

12. Since the word ‘community’ has multiple interpretations and often suggests more homogeneity than there actually is, we will further use the words ‘neighbourhood’ or ‘settlement’.
The subject of this study only touches upon a few of the movements analysed within the framework of these ongoing debates. It focuses on what Walton (1998) labelled 'collective consumption action': the mobilisation by consumers of urban services, action focussed on the availability of collective or public goods and urban services, and expressed in actions such as land invasions, squatter protests and street demonstrations (Walton 1998:463). Walton distinguishes this form of collective action from labor action, the mobilisation arising in the sphere of income and employment and the political and human rights action that evolves around the non-material issues of justice, representation, security, freedom from repression and democratisation (Walton 1998:462-463).

At the household level we differentiated between the perspectives of 'survival' or 'livelihood' strategies which assume a rationality in the decision making process of pooling household resources over the different realms of urban life, and the wider concept of 'life-project' that also includes hopes and aspirations as motives for action. A similar distinction was found in the collective action literature in general (i.e. the resource mobilisation approach versus the collective behaviour approach). The same distinction can be found in the reasoning about the collective consumption action by the urban poor in Latin America. Already in the early 1970s, Portes argued that activities of Peruvian and Chilean slum-dwellers:

'can be best understood as fundamentally rational in so far as it involves a calculated sequence of actions aimed at the attainment of realistic ends (....) Participation or non-participation is a function of rational-utilitarian considerations. Taking part in meetings and social activities consumes time and effort; its utility, hence, must be evaluated against economic or psychological profits derived from other activities. Individuals in the slum, like inhabitants of better parts of the city, can rationally allocate time and effort in accordance with expected returns. There are problems and aspirations that do require collective action. Utilitarian considerations dictate that when problems that require communal action become relevant, participation in voluntary communal associations increases. On the other hand, solution of problems, fulfilment of aspirations, and absence in general of socially relevant issues results in decreasing participation. Organisations at such time lie dormant. They remain, however, latent as potential instruments to be employed in future confrontations. From the point of view of slum inhabitants, the communal association is not an artificial group to be maintained for its own sake, but an instrumental tool to be employed when necessary' (Portes 1972:270-271).

But people can also find non-material benefits. As Gilhuis & Volbeda argue:

'People do, for instance, derive satisfaction from the process of participation itself. As any group process, it offers the opportunity to exchange information, to extend one's personal relations network, to experience group solidarity, to build and share a common identity, increase one's self-awareness and so on' (Gilhuis & Volbeda 1992:36).
1.6.2 Community-based organisations

The necessity for collective action to improve the conditions at the neighbourhood level often leads to the formation of neighbourhood based organisations. Many names and definitions exist of organisations at the community or the neighbourhood level. They are often referred to as grassroots organisations or, in the Latin-American context, organizaciones de base (grassroots organisations), self-help groups or people’s organisations. What these organisations have in common is that a self-help organisation is a membership organisation, which implies that its risk, costs and benefits are shared among its members on an equitable basis and that its leadership and/or manager are liable to be called to account by membership for their deeds’ (Verhagen 1987). In this study, we prefer to use the term community-based organisations (CBOs), defined as ‘any type of organisation, formal or informal, which is based on a group of people living or working together and who associate to pursue common interests. They are characterised by being local in focus, and being directly accountable to their constituents’ (Davidson & Peltenburg, 1993:13). Most informal and social organisations are formed around concrete and direct needs, and the activities undertaken are aiming at direct and concrete results (Salman 1993).

Community-based organisations are a well-established feature of low-income settlements (Desai 1995, Peattie 1990). Many settlements have a kind of neighborhood organisation whose organisational principle is the locational one. This is only one of the possible forms CBOs can take. The form that neighbourhood organisations take varies considerably around the world. One characteristic that most of them share is that they comply with the requisites of being a membership organisation, with some kind of internal hierarchical structure, having some kind of management committee or neighbourhood council with a president, vice-president, a secretary and a treasurer, and voting rights of the members during general assemblies.

A second form of CBO formation is organised around sectoral or thematic issues. Here they are organised around group characteristics such as the organisations of micro-entrepreneurs, associations of rag pickers or street vendors, or the wide variety of women’s organisations organised around issues of nutrition, health or gender issues.

The first step in managing collective initiatives is to mobilise participants. Leadership and informal networks are important resources in the mobilisation for collective action.

1.6.3 Neighbourhood leaders

Collective action requires leaders. As Bader puts it: ‘Collective action without leadership is historically unknown and theoretically not to be expected’ (Bader 1991:219).

What do we know about the leaders of these organisations? Leaders are, generally speaking, better educated, better employed, more prosperous and more highly motivated than the community they represent (Desai 1995; De Wit 1993). Residents seek a strong figure with leadership qualities, who can bargain with officials and politicians, and has the right contacts with influential people. The leader should be well educated and presentable. A general image of the community leader is that he (and it should be noted that these leaders are very often men) works hard, sacrificing
his time, energy, and quite often even some of his own money. In return, he has some power to make decisions. Leaders are chosen for their qualities, but in the evolution of their leadership, they acquire further authority, information and power (Burgwal 1995:19). In the process of settlement development, leaders can turn into a constraining factor, deliberately monopolising their contacts and information and even forming an outright hindrance to settlement development if the development poses a threat to their vested leadership. In a study on neighbourhood leadership in Quito (Ecuador), Burgwal comes to the conclusion that, in the long run, horizontal organisation leads to internal vertical relationships within the organisation, as well as dependency on external agents.

Community organisations may hinder their constituents in getting effectively organised, or not allow residents access to the authorities other than through the mediation of the leaders. The leaders, in addition to the positive image of the hardworking sacrificing man as a motivation, also assume office because of the opportunities for personal gain. They use their position to seek social status, to gain financial benefits and, at times, realise political ambitions (Desai 1996). These tendencies are not only found in the neighbourhood organisations, but also in the women’s organisations (Burgwal 1995). One cannot even state that there are ‘good’ leaders (hard working, trying to represent the interest of the members) and ‘bad’ leaders (corrupt, seeking personal benefit). Each leader can have a Janus face, alternating ‘good’ activities with ‘bad’ ones (de Wit 1993:285).

1.6.4 Informal social networks
It has been extensively proven that the informal social networks in low-income urban areas form a safety net for the inhabitants (Plantenga 1987; Ypeij 2000; De Wit 1993; Espling 1999; Moser 1998). The formation of informal social networks is one of the strategies for stabilising daily life in often unstable living conditions. People derive both material and emotional support from these informal social networks. This can range from pooling childcare, helping with domestic work or home construction, or exchange of services and information, to mediation in domestic conflicts or conflicts between neighbours, pooling financial resources and setting up informal credit schemes (Espling 1999; Ypeij 2000; Plantenga 1987).

Within each culture, there are explicit or implicit rules on desired behaviour to sustain the networks. One of the principal elements is reciprocity (Plantenga 1987, de Wit 1993). People provide help with the expectation that it will be returned later. Providing assistance in any form is also understood as building up a kind of ‘social credit’ one can draw on in the future (Ypeij 2000). Individuals or families who for a longer period of time are not able to respond to demands, for instance because of personal problems, are gradually excluded from the networks (Plantenga 1987). People showing consistently ‘bad behaviour’ according to the standing norms can also be excluded. What actually is considered ‘bad behaviour’ depends on local culture, but also varies over time. In Lima, for example, for years becoming a single mother was considered immoral behaviour, but nowadays it is widely accepted (Ypeij 2000).

On the other hand, it has been noted that in urban areas the traditional communal systems of exchange that are created on principles of reciprocity and redistribution and not on market relations are considerably weakened when neighbourhood conti-
nuity is degraded, land or other resources are difficult to secure, social stratification is high, or constant involvement in the search for paid work destroys reciprocal and distributive relations. Society and social relations have been transformed in the city to the extent that we need to be sceptical of an a priori assumption that collective action will be taken up spontaneously (Lee 1994:4).

Although both women and men participate in informal social networks, this space is also linked to gender. Whereas, generally speaking, men concentrate more on networks that have to do with employment or employment opportunities, with politics or the 'public side' of neighbourhood affairs, women participate more in the informal social networks at the neighbourhood level.

1.6.5 Neighbourhood based environmental management: possibilities and constraints

Studies have shown that under supportive conditions, communities can manage roads, waterways, sanitation facilities, waste collection and disposal systems, can maintain green areas and public spaces, construct basic physical and social infrastructure, and are capable of developing and enforcing access rules and reciprocal obligations among community members. Many communities have institutionalised environmental management by, for example, organising waste collection and periodic neighbourhood wide clean-up campaigns. They manage credit schemes, participate in construction of drinking water and sanitation facilities, and level roads (Lee 1994). In summary, communities can and do address those environmental problems that are identified as (health-) threatening. These improvements realised at the neighbourhood level form part of the consolidation process.

As within the household, many fundamental contradictions also exist at the neighbourhood level, that limit or hinder effective organisation and collective action. These contradictions have to be taken into account. First, there is often a serious contradiction between the degree of community homogeneity required to develop effective local organisation and the actual social, economic and political heterogeneity that often exists at the neighbourhood level. Secondly, there is a contradiction between the collective solidarity necessary for neighbourhood organisation, and the individualism generated by the survival strategies of low-income households. Thirdly, there is a contradiction between the assumed homogeneity of family structure and the stereotypical sexual division of labour, and the reality that many households are de facto headed by women. Although women actually have a triple burden – their reproductive, productive and community management tasks – the important role they play in community participation is usually not recognised (Lee 1994:168).

Whether a CBO is effective in achieving its objectives partly depends on the possibilities for overcoming these internal constraints. A second factor of importance is to what extent the CBOs are able to establish linkages with actors external to the community, such as local government, public utilities or NGOs.

1.6.6 Alliances

Collective action often requires an alliance with an external actor to achieve concrete results. The changes in the institutional context which were highlighted in this chapter – decentralisation, privatisation and increased share of different actors in the planning process – also affect the setting in which CBOs search for partnerships. As a
consequence of decentralisation, municipal governments have become increasingly important in helping CBOs make their demands. As a consequence of privatisation, the range of actors that can provide the basic urban services has increased. CBOs have to deal with more private-sector actors than previously. Several authors have indicated that private sector’s characteristic striving for profit maximisation can make them less interested in providing basic services for the poor (Devas 1999, Mwangi 1999, Batley 1997). A (more) participatory planning process can lead to a situation where there is at least an institutional space for various CBO leaders to express the needs of those they represent. Whether this means that they also can influence the agenda setting differs highly from locality to locality.

It should be born in mind that the necessity and/or importance of the alliances with external actors varies greatly with respect to the environmental issue to be dealt with. Issues at the household level such as combating indoor air pollution, improving on-site sanitation or improving shelter are much more a private matter, which can even be dealt with without inter-household co-operation. Issues of clean-up campaigns and the maintenance of public space can be dealt with by the community organisation without external support. However, larger issues such as piping in drinking water or installing a sewerage system generally require substantial support from external actors, due to the high investment required. The relative importance of the links with outside actors for each of the subjects to be dealt with at the household or community level is summarised in Figure 1.5.

For those issues where the alliance with external actors is very important, CBOs basically place demands on the state or public utilities for the redistribution of the means of collective consumption. If they are successful in this respect, it will influence the process of neighbourhood consolidation.

**Figure 1.5** Importance of alliances with external actors in improving the environmental conditions at household and neighbourhood level

<table>
<thead>
<tr>
<th>Household level</th>
<th>Neighbourhood level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>More</strong></td>
<td>Piped water supply</td>
</tr>
<tr>
<td></td>
<td>Sewerage</td>
</tr>
<tr>
<td></td>
<td>Drainage</td>
</tr>
<tr>
<td></td>
<td>Electricity</td>
</tr>
<tr>
<td></td>
<td>Solid waste disposal</td>
</tr>
<tr>
<td></td>
<td>Fire safety</td>
</tr>
<tr>
<td><strong>Less</strong></td>
<td>Open space</td>
</tr>
</tbody>
</table>

- Indoor air pollution
- On-site sanitation
- Housing
- Fuel use
- Walkways
- Solid waste collection
- Disease control
- Animal waste
- Noise

*Source: Lee (1995: 7)*
1.6.7 Neighbourhood Consolidation

Most of the settlements that originate from invasions or subdivisions are to be found in peripheral areas, or at sites unsuitable for urbanisation (swamps, former garbage dumps, sites close to industries and the like). Although a certain percentage of informal settlements are relocated, most of them survive. Then, an often lengthy process of neighbourhood consolidation starts. This incremental development process covers four different basic areas:

- a rise of the de facto tenure security;
- an increasing level of services and infrastructure, and improvement of the housing stock;
- improving economic conditions; and
- arising of social networks and organisations (Baken et al. 1991) and the formation of leadership.

Security of tenure is a prerequisite for neighbourhood development. It has repeatedly been shown that there is a strong correlation between de facto security of tenure and neighbourhood consolidation (Douglas 1998). Even if official land titles are not issued, but the government responds to the demand for urban services by installing them, people know that they can stay.

The large body of literature on the physical consolidation process of informal urban settlements consistently attests to the struggle for the same elements: schools and primary health care centres, electricity, road infrastructure and transportation, water and sanitation, drainage, solid waste management and communal space. 13

Most of the economic activities that develop in these settlements are informal in nature. In the course of the consolidation process this can mature into neighbourhood-based economic development (Baken et al. 1991). What starts as a very small home-based activity can gradually grow into a shop for the neighbourhood, or even supply clients from outside the neighbourhood.

In the realm of the social system there are different networks of social relations that arise. These include the previously discussed different types of CBOs (the territorially oriented neighbourhood organisations and the sectoral or thematic organisations). In most of the informal settlements some kind of neighbourhood organisation or council is formed, which strives for settlement improvement Their characteristics are related to the characteristics of the settlement, as well as the attitude of the authorities. (Desai 1995). The second form of social organisations are the informal social networks between households.

Neighbourhood development or consolidation is a process in which the legal, physical, economic and social aspects are strongly interrelated. The 'de facto' acceptance of an informal settlement by government officials ensures tenure, and decreases the investment risks. It opens up the possibility for the installation of basic services, which in turn can stimulate economic development, since workshops and manufac-

turing strongly depend on the availability of water and electricity. The formation of informal social networks can open up access to resources such as job opportunities and credit. The formation of the neighbourhood organisations can strengthen the demand-making power towards external actors, such as the municipality, politicians and public utilities (Baken et al. 1991). Over time, the consolidation process often brings two other transformations: an increase in density within the settlement, and a change in its relative location. With consolidation come better roads and better transport connections, which decrease the relative distance to the ‘formal’ city and the job opportunities outside the neighbourhood.

1.7 In conclusion

In this chapter we presented an overview of the current debate on ‘sustainable development and cities’ to set the framework for this study. We will take up several elements from the general debate that are of particular importance to understand urban environmental management efforts of households and CBOs in low income neighbourhoods in developing countries.

We understand the city as a system comprising mutually influential subsystems. We will use the classification into different subsystems to unravel the different layers of analysis in this study undertaken at the neighbourhood level. We will thus take the neighbourhood as an elementary building block of the city in which we find a reflection of these subsystems.

The system of the city consists of the natural system, the support system and the human system. The urban environmental issues at the different geographical levels of scale are a result of the dynamics between the different systems, and are a result of transfer mechanisms that allow the transfer of consequences over time (to future generations) and physical scale (from the home and the neighbourhood and the city to the region and the globe). The human agent has a limited view of the impacts over time and scale, a limited scope of action and a limited sense of responsibility, but will act on the problems in his or her immediate vicinity which have an impact on his daily life. Urban environmental problems fit this pattern, especially those in low-income areas in developing countries.

The urban environmental problems have been classified into two different agendas, the ‘green’ and the ‘brown’. The green agenda includes those issues related to the ecosystem (typically further away on the time and space dimensions and outside of what was defined as the horizon of responsibility) and the brown agenda issues those environmental issues that affect human health directly. It was concluded that households in low-income urban areas in developing countries give more attention to the brown agenda issues. Households in low-income urban areas directly experience the consequences of adverse environmental conditions and have few opportunities to transfer effects to other levels.

The green agenda is the agenda clearly linked to ecological sustainability. The brown agenda however encompasses also development goals. If we consider urban environmental management as a process that has to address both agendas simulta-
neously, and if we want to discuss the possible contribution of households and CBOs to this process, we thus have to consider the impact of neighbourhood urban environmental management on both the green and brown agenda issues.

The health threats faced by the inhabitants are considered to give rise to local initiatives to improve the environmental conditions. It can be expected, therefore, that households and CBOs act more on issues that are nearby and well known than on issues at a higher level of scale or only having an impact in the long run. The issues that are dealt with at the neighbourhood level can be seen as an integrated part of the process of neighbourhood consolidation, in which the different systems that were identified at the city level are repeated on a lower level of scale.

The analysis of the literature on household- and neighbourhood-based urban environmental practices indicated that households and CBOs do undertake initiatives to improve the environmental conditions in their neighbourhoods. There is evidence that, under certain conditions, initiatives can be undertaken to improve the conditions of water supply, sanitation and drainage, to manage and improve communal space, to deal with problems of inadequate waste management and to combat household environmental problems.

The literature suggests that the extent to which households undertake these activities or participate in activities of CBOs is influenced by a certain set of household characteristics. Among these are the composition and size of the household, the tenure situation, income and education levels and the time the household has spent in the neighbourhood. Also, the functioning of the CBOs seems to depend on a certain set of conditions, such as the age of the settlement and the tenure situation. What has not been analysed in the literature so far, but is included in this study, is the relationship between the consolidation level reached in a certain neighbourhood and the activities of the neighbourhood organisation.

Some issues at the neighbourhood level have been singled out: the role of the leaders in the process of collective action, the role of the informal social networks, and the differences between the different kind of CBOs.

A last factor of importance for the effectiveness of the initiatives undertaken is the alliances or ‘partnerships’ that CBOs manage to establish with external actors. The importance and possible content of these alliances differs per environmental issue. It has been concluded that these alliances are more important for neighbourhood environmental management efforts than for household efforts, and become more important when the improvement of an environmental condition is more capital intensive.

The framework for the research is now set. The way in which we tried to make these theoretical concepts presented here operational in the field will be discussed in the following chapter.