Environmental Management of Small and Medium Sized Cities in Latin America and the Caribbean

Jaap de Vries (coordinator)
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Institute for Housing and Urban Development Studies (IHS)

Washington, D.C.
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Inter-American Development Bank

Sustainable Development Department

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Preface

With still growing numbers in urban population, the poor quality of the urban environment is a major concern to Latin America and the Caribbean. Problems with air pollution are becoming worse. The region faces degraded water quality, poor facilities for sewage treatment and solid waste disposal. Urban problems are made worse by inadequate housing and inefficient transportation systems.

In Latin America and the Caribbean, it is increasingly recognized that, in accordance with the subsidiarity principle, environmental issues with local externalities (in areas such as spatial planning, natural resource use, air and water pollution, solid waste management, sanitation and sewerage) are more effectively dealt with at the local level than at the national or provincial level. The subsidiarity principle states that the lowest level of government that can fully capture the costs and benefits should also provide the corresponding public goods and services.

While much attention has been devoted to these problems in large cities, much less is known about the large number of small and medium sized cities. Most of the 13,000 local governments in Latin America and the Caribbean are small and medium sized cities, although varying widely in size, geographical location and setting. In general, these cities are increasingly experiencing a whole set of environmental problems, be it due to urbanization, industrial development, land use change or other issues.

The Bank recognizes the importance of improving urban environmental conditions, including through urban land-use management policies. Better sanitation services are needed, also to bring serviced city dwellings within the reach of the poor. Also, more efficient and less polluting urban transit policies need to be developed with continued support for low-income housing improvement and land tenure programs.

This report has been commissioned by the Bank to provide a better understanding of the main issues, challenges and opportunities for improving environmental management in small and medium sized cities. The study has been carried out by the Institute for Housing and Urban Development Studies (IHS) in Rotterdam, The Netherlands, with funding from the Netherlands Environment Technical Cooperation Trust Fund administered by the Bank. The study was carried out from November 1999 to July 2000.

Walter Arensberg,
Chief, Environment Division
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EXECUTIVE SUMMARY

Introduction

One of the most important environmental issues in Latin America and the Caribbean is to improve the quality of the urban environment, as nearly 75% of the population is already urbanized, many living in mega-cities. In recent years, much attention has been devoted to the environmental problems of these large cities. Less is known about the large number of small and medium sized cities in the region. This report reflects the outcomes of a study conducted by the Institute for Housing and Urban Development Studies (IHS) on environmental problems and challenges in these small and medium-sized cities in Latin America and the Caribbean. For the purpose of this study, small cities have been defined to have less than 100,000 inhabitants, while medium sized cities have between 100,000 and 500,000 inhabitants.

As part of the study, a survey was carried out by means of a questionnaire sent to several experts in different countries in the region. Four in-depth case studies were executed by local consultants in Tehuacan Mexico (239,000 inhabitants), Formosa Argentina (216,000), Ilo- Peru (61,000) and in Sao Sebastiao (50,000) in Brazil. A number of good practice databases have been screened on relevant cases. Finally, several Internet sources have been consulted. This report analyzes the information from these different sources in an integrated way.

Decentralization and Environmental Management in Latin America and the Caribbean

During the last decade, local governments in Latin America and the Caribbean have seen several policy, legal and administrative changes that provide them a larger role in social and economic development. The interest in decentralization has come at a time when nations adopted more democratic forms of government, including a movement towards increased self-rule and self-determination of local affairs. The absence of comprehensive urban planning and the rapid decline in the quality of urban living has amplified the need for changes. Decentralization was also brought about by efficiency gains of local schemes that deliver tangible benefits to beneficiaries without unreasonable "administrative" costs. In many Latin American and Caribbean countries, effective environmental policy and pollution control instruments are relatively new and internalization of environmental issues in all sectors is only beginning. Fragmentation and duplication of responsibilities with inconsistent legislation still exists. In addition, budgetary restrictions and lack of technical training and qualified human resources make effective environmental management difficult. Within such an institutional framework, the role of local governments remains limited. Nevertheless, decentralization and participation of concerned citizens in addressing environmental issues are considered critical and a goal that many countries have adopted.

Small and Medium Sized Cities

Although the urbanization process in the region tends to concentrate people in the large urban centers, still about 47% of the urban population lives in small and medium sized cities of less than 500,000 inhabitants (35% of the total population of the region). At the same time there is a growing attention for the complex environmental problems faced by the large metropolitan areas, particularly the low environmental quality in the cities and the problems they cause for their hinterlands. Although many smaller cities seem to face less pressing environmental problems, the combined ecological footprint of small cities in a region may be bigger than a large city. Due attention for the environmental issues of smaller cities is also needed because they may constitute an alternative for the current trend of urbanization which concentrates people mostly in the large metropolitan areas. Urbanization itself has potential advantages for safeguarding the global environ-

ment and achieving a more sustainable development, but it is also clear that the very large cities face extremely difficult management challenges, due to their scale and complexity. If urbanization in smaller cities is to become an alternative for the megalopolis, these smaller cities must be managed in such a way that they can offer a sound living environment, attractive investment conditions and provide job opportunities.

A positive factor is that recent decentralization trends in Latin America and the Caribbean transfer responsibilities and gradually also more financial resources to the smaller cities. In addition, the awareness of the need for an integrated environmental management is increasing in these cities. On the other hand, management capacities in those cities are still very limited, as compared to the large cities. Increased capacity in smaller cities is therefore needed to prevent the occurrence of the complex problems of today's large cities. To cure them later will, of course, have a much higher environmental, social and economic cost.

Overview of Environmental Issues

The environmental problems in small and medium sized cities in the region are highly diverse. The type and magnitude of these problems, as well as their specific causes and consequences vary according to the cities' population size, growth rates, natural surroundings, economic functions, political and administrative context, culture etc. It is not possible to make a general priority list of environmental problems for these cities, as their importance depends on the viewpoint of the person making the assessment. What is an important problem from an expert's perspective can be irrelevant from the communities' point of view. From a local point of view, the problems of the "brown" agenda are given more importance than the problems of the "green" agenda.

The survey of this study shows that many specific environmental problems in the small and medium sized cities can be grouped in a few broader issues, roughly in order of importance: solid waste pollution; waste water, excreta and water pollution; bad quality and insufficient quantity of drinking water, risks from 'natural' disasters; bad housing conditions; air pollution and traffic congestion. These issues, and the many related specific environmental problems, have many interrelationships with each other, as well as with social and economic issues. It is also clear that urban and rural environmental problems are closely inter-linked. Before drawing conclusions about a specific city and developing solutions, these problems should therefore be analyzed in an integrated manner, within the specific local context. An environmental profile can be a useful tool for this.

Although the consequences of the different environmental problems differ from city to city, it is clear that almost everywhere it is the poor in the local society, and especially women and children that suffer most from these problems. Most of the environmental problems in the small and medium sized cities are not very different from the problems in the large cities (differences between the small and medium sized cities themselves are more important). Some of the most apparent differences are related to scale level, pace of change, rural-urban interactions, and a closer relationship with the environment, service levels and pollution levels.

Role of Decentralization

As reflected in recent legislation, the responsibilities of small and medium cities is growing in areas such as water supply, sewerage, sanitation, waste collection, roads, local markets, land development and building regulation. Other, less common, tasks relate to public health, education, housing, power supply, law and order, and economic development. Environmental monitoring, environmental data generation, environment impact assessment, conservation and environmental policy making and planning are items that appear rarely on the menu of municipal tasks.

In general terms, decentralization of environmental management responsibilities improves the provision of services with more attention for local environmental problems,

tailored to the specific local reality. Efficiency gains can be achieved, through local financing and linking resources from different local sources. Other advantages are the cooperation between local actors and better possibilities for community participation and more accountability of service providers, because of a closer relationship with the users and beneficiaries. Finally, decentralized environmental management can also provide for more local job opportunities. Among the most obvious disadvantages are: the risk of creating inequalities between local governments (rich versus poor municipalities) with respect to resources and service levels; loss of control by the central government with respect to monetary and fiscal matters, and risk of irresponsible fiscal practices; lack of local capacities to manage the new responsibilities; and finally a fragmentation of decision making about issues that need an integrated approach at higher levels or in other areas.

In order to make optimal use of the opportunities and avoid the potential disadvantages, there is a need for a gradual process of decentralization, with adequate implementation of mechanisms of control and communication and a high priority for capacity building at the local levels.

Local Capacities and Environmental Policy Instruments

In most countries environmental laws and codes have been enacted by the national or state governments (in case of federal nations) but often have not been regulated or implemented which complicates their implementation at the local level. Nevertheless, the surveyed cities still use predominantly legal instruments. These cities are applying pollution control command-and-control instruments with varying levels of success. Other instruments such as environmental planning, economic instruments, voluntary instruments (environmental agreements or covenants), direct investments or encouraging corporate environmental management are used less frequently. Examples from this study show that, even within an incomplete institutional and legal framework, municipalities manage to achieve positive results when they creatively use voluntary and other instruments, based on vision and leadership.

In several cases, the participation of the private sector has been an important factor. However, private sector involvement can also have mixed results. Larger companies can be very influential with considerable leverage in small cities. The role of NGOs and communities in environmental activism to counterbalance this interest is limited, but growing. It is also important to acknowledge the important role national and state governments still play in small cities. These governments, however, are often passive in respect of encouraging local environmental management and policies, and this can endanger the long-term implementation processes of actions. In addition, there are possible conflicts between national and local interests and policies. The national policies do not yet reflect sufficiently the interests of small cities and do not have the flexibility of approach required in such areas.

In areas with scarce financial and human resources, it may be preferable to focus on specific actions rather than develop ambitious large-scale and multi-year programs. In the case studies, the investment in certain specific policies had spin-off effects to other policies. The demonstration and agenda-building aspect is crucial in smaller and medium sized cities. In many cases, a specific environmental degradation or pollution problem in a city is the impulse to start working on environmental issues. These specific actions sometimes evolve into integrated plans, while in others, increased awareness spills over in environmental policies and projects in other areas. The Local Agenda 21 approach, which combines immediate short-term action with a more strategic planning framework, can be a workable approach and is indeed increasingly adopted by municipalities in the region.

A big challenge small and medium sized cities face is the implementation of future policies that will require structural changes, and additional technical capacity, to solve the remaining (and often substantial) environmental problems. This will need a broad multi-sectoral and multi-level commitment to implement and finance these policies.

Good Practices

The study has presented several good initiatives and experiences in urban environmental management. These experiences have a couple of aspects in common. As such, public demand, together with political commitment, resulted in the improvement of environmental conditions. A strong but open style of leadership is key for mobilizing human resources. The initial initiatives enabled the development of other environmental policies and actions based upon the participation of relevant stakeholders. A focus on locally perceived priorities is thereby critical to ownership and success. Decentralization of services from national to local governments, and sharing responsibilities from local government to neighborhood, proved instrumental in successful and sustainable improvements. Formalization of partnerships into an institutional arrangement secures success and continuity. The good practices also make clear that local environmental improvements are possible without having to wait for national legislation. In many cases, external assistance by international and national agencies and networks (like UMP-LAC, IIED-LAC, the Healthy Cities Programme (WHO), Forum Cities for Life Peru, IBAM, GTZ and others) had a leveraging function in creating change at local level. Also the support by national associations of local governments in this field is increasing. Finally, providing expertise to municipalities and training local staff in environmental management skills has been essential. Higher-level institutions (universities, specialist training institutes) have an important role to play in this.

Although there are a growing number of good practices, it is also clear that a strategic and integrated approach aiming at local sustainable development is still lacking in most small and medium sized cities. Yet, several cities are introducing new approaches to local environmental management.

Recommendations

This study reinforced the importance of the Bank's focus on the institutional and governance aspect of the decentralization process. Addressing the environmental issues of small and medium sized cities will require an integrated approach focussed on capacity building for local institutions.

- *Recommendation 1*: The Banks' financial support to municipalities should include possibilities for financial and technical assistance, that allow local parties to analyze environmental problems, to conduct studies, to hire expertise and to facilitate the process of problem resolution in a strategic and participatory manner, similar to the Local Agenda 21 approach.

While environmental policy instruments and a legal framework exist in most countries, unclear distribution of responsibilities, lack or conflict in competence and mismatch in human and financial resources still remain. These problems become particularly obvious when specific urban problems need to be addressed.

- *Recommendation 2*: To provide legal and institutional assistance to identify gaps in the legal and administrative framework that hampers municipalities in tackling important local environmental issues and to suggest and assist in developing environmental policy instruments at their level. It could be considered to integrate such activities with the Banks' strategy to improve framework conditions for eco-efficiency in the private sector, through its Multilateral Investment Fund (MIF).

In most countries, the knowledge infrastructure to support municipalities in addressing environmental issues is limited. Municipalities are not always aware of existing expertise or are financially unable to hire experts.

- *Recommendation 3*: To support and help building up national and regional knowledge infrastructure in municipalities addressing environmental issues by providing research funds, fellowships and technical assistance, and to strengthen training capacities in identified capacity building institutions.

The database on small and medium sized cities in the region is still very limited. This study encountered several limitations. Many interesting experiences with environmental management are taking place in the region, from which useful and replicable lessons can be learnt. But, still most municipalities are trying to re-invent the wheel.

- *Recommendation 4*: To expand the database on small and medium cities by commissioning more in-depth studies on environmental problems and management practices. To promote the access of small and medium sized cities to information about good practices in other places, as well as the exchange of experiences, providing financial and technical assistance to selected institutions and networks. As also the smaller cities become increasingly connected, Internet-based systems seem to be a viable alternative.

Well-documented good practices in urban environmental management can be stimulating for other cities in the region. These are however still very scarce.

- *Recommendation 5*: To support demonstration or pilot projects in cities in which a basis for participatory approach already exists, for example in the case-cities from this study. Such a project could consist of three components: (i) a capacity building program in urban environmental management; (ii) a strategic planning process (LA21 or similar) with external facilitation, incorporating and extending any existing activities; (iii) a fund for the implementation of short-term small projects resulting from this process. Finally, in order to stimulate inter-municipal cooperation, parts of the project could be extended to include also neighboring municipalities.

INTRODUCTION

According to the recent Global Environment Outlook 2000 report (UNEP, 1999), the first most important environmental issue in Latin America and the Caribbean is to find solutions to the problems of the urban environment, as nearly three-quarters of the population are already urbanized, many in mega-cities. In past years there is much attention and an increasing knowledge and understanding of the environmental problems of these large cities in the region much less is known about the large number of small and medium sized cities in the region. This study aims at being a first approach to a better understanding of the different environmental issues and its management challenges in those smaller cities within the region.

Although the urbanization process in the region tends to concentrate people especially in large urban centers, still about 47% of the urban population lives in small and medium sized cities of less than 500,000 inhabitants (35% of the total population of the region). See also chapter 3. At the same time there is a growing attention for the complex environmental problems faced by the large metropolitan areas, particularly the low environmental quality in the cities and the problems they cause for their hinterlands. Although many smaller cities seem to face less pressing environmental problems, the combined ecological footprint of small cities in a region may be even bigger than a large city. Due attention for the environmental problems of smaller cities is also needed because they may constitute an alternative for the current trend of urbanization which concentrates people mostly in the large metropolitan areas. Urbanization itself potentially has important advantages for safeguarding our global environment and achieving a more sustainable development, but it is also clear that the very large cities are extremely difficult to manage, due to their scale and complexity. If urbanization in smaller cities is to become an alternative for the megalopolis, these smaller cities must be managed in such a way that they can offer a sound living environment, attractive investment conditions, job opportunities etc. A positive factor is that recent decentralization trends in Latin America and the Caribbean tend to give more responsibilities and gradually also more financial resources to the smaller cities, while at the same time the awareness of the need for an integrated environmental management is increasing in these cities. On the other hand, management capacities in those cities are still very limited, as compared to the large cities. Urgent action is therefore needed to increase capacities in smaller cities, in order to prevent the occurrence of the complex problems of today's large cities. To cure them later will, of course, have a much higher environmental, social and economic cost.

This report reflects the outcomes of a study conducted by the Institute for Housing and Urban Development Studies (IHS) for the Inter-American Development Bank (IDB) on environmental problems and challenges in small and medium-sized cities in Latin America and the Caribbean. For the purpose of this study, small cities have been defined to have less than 100,000 inhabitants, while medium sized cities have between 100,000 and 500,000 inhabitants. Metropolitan districts that are part of the urban agglomeration of a large city are not included in the analysis. Thus, we basically refer to cities within rural areas, although it is obvious that all of these cities are being influenced by other larger cities.

The final purpose of this study is to contribute to improve environmental management in small and medium sized cities through a better understanding of the main issues, challenges and opportunities for improving urban environmental management. The study was meant as a broad survey of these elements and not as an in-depth research.

The basic research questions were the following:

1 What are the main environmental issues facing different small and medium sized cities in Latin America and the Caribbean and to which extent are these different from the large cities?

2 What are the existing municipal capacities in small and medium sized cities to implement institutional arrangements and which policy instruments are being used to deal with specific environmental issues?

3 What are the possible positive and negative impacts of decentralization of environmental management responsibilities?

4 Which good practices can be identified in adopting successful policy approaches to improve environmental management in small and medium sized cities?

One of the limitations for the study was that only limited environmental information exists on the small and medium sized cities in the region. Also, very little detailed research has been performed in these cities, and, where it has been done, it is not easily accessible. Especially for the Caribbean region, very little relevant information could be found. As existing literature is scarce, other information has been gathered from different sources.

First, a survey was carried out by means of a questionnaire sent to many experts in different countries in the region. Second, four in-depth case studies were executed by local consultants in Tehuacan Mexico (239,000 inhabitants), Formosa Argentina (216,000), Ilo Peru (61,000) and in Sao Sebastiao (50,000) in Brazil. Third, a number of good practice databases have been screened on relevant cases. And finally, several Internet sources have been consulted.

This report intends to analyze the information from these different sources in an integrated way. The structure of the report is as follows.

Chapter 2 presents a short overview of decentralization process in the region, progress made, results and difficulties, as well as the consequences for small and medium sized cities. It also discusses general environmental policies and strategies at different levels.

Chapter 3 discusses the urbanization process in the region and the role and general characteristics of the small and medium sized cities.

Chapter 4 presents an overview and analysis of the most important environmental issues and problems in small and medium sized cities of the region, as compared to the large cities.

Chapter 5 presents first an overview and analysis of local initiatives for environmental management in small and medium sized cities, resources and instruments being used, as well as opportunities and constraints. Then it assesses the management challenges: difficulties vs. opportunities being encountered by local actors in addressing effectively their environmental issues, ways these could be overcome, as well as possible roles of national governments and international actors.

Chapter 6 draws some conclusions with respect to the formulated research questions, and finally comes up with some recommendations for local governments and other local actors, for national governments, for international assistance and for the Inter-American Development Bank.

DECENTRALIZATION AND ENVIRONMENTAL MANAGEMENT

During the last decade, local governments in Latin America and the Caribbean have seen several policy, legal and administrative changes that provide them with a larger role in social and economic development. The interest in decentralization has come at a time when nations adopted more democratic forms of government, with a movement towards increased self-rule and self-determination of local affairs. The absence of comprehensive urban planning and the rapid decline in the quality of urban living has amplified the need for changes. Decentralization was also brought about by the efficiency gains of setting up local schemes to deliver tangible benefits to beneficiaries without unreasonable administrative costs.

Decentralization in the region varies considerably. There are large differences between the federal countries (Brazil, Argentina, Venezuela and Mexico) and the rest of the countries in the region. In Argentina, the National Constitution of 1994, reaffirms the federal system of government. Based on traditional political practices, the authority to make environmental laws is shared concurrently among the different provinces and the federal government. Interprovincial and international trade in hazardous goods and wastes are generally the responsibility of the provinces, although in some cases they cede to federal laws. The Constitution also obliges the provinces to adopt an autonomous municipal regime. This means that local governments have the ability to adopt their own municipal charters, local constitutions and legislation concerning environmental and health issues (IDB, 1996).

In Mexico, the General Law of Ecological Balance and Environmental Protection (GLEBEP), of 1998, is the main force in the national environmental policy. The Political Constitution of Mexico provides the constitutional basis for the GLEBEP. The GLEBEP has a wide perspective on environmental protection and ecological balance and defines the criteria for decentralization by establishing a mechanism for the active involvement of the three levels of government (federal, state, and municipal) on environmental matters. It is an important legal basis for the national policy on the environment that provides guidance and authority to government structures for the planning, execution, and coordination of policy design and implementation in this matter. It promotes the decentralization of functions and resources for the management of the national environmental policy. It also endows states and municipalities with the authority to prevent and control environmental problems, water, noise, thermal energy, vibrations, odors, creation of ecological reserves, environmental impact assessments, as well as imposing fines and sanctions when local regulations are violated. By replacing the previous law, the GLEBEP represents a conceptual shift in environmental policy. It implies the substitution of highly centralized decision making and implementation by processes for decentralized mechanisms of cooperation among federal, state and municipal governments (Janetti-Díaz, Quezada and deWaard, 1995).

In Peru, actions taken by the central government in previous decades have shown a move toward a more decentralized regime. Such is the case of the Law of Municipalities (enacted in 1984), which defines responsibilities, competencies, rules, and procedures that municipalities have to follow. The National Constitution of 1993 defines the competencies of municipalities (Article 192). However, the Law of Municipalities is being revised and amended frequently.

An important element of decentralization of governance to lower levels of government is the constitutional establishment and strengthening of institutions that are closest to the citizens. It is expected that these institutions are in a better position to identify and articulate the local needs, to deliver basic services and to become instrumental in the

implementation of government program's and interventions. Local development can also be steered more effectively at this level in an integrated manner, as municipalities are better able to use the sectoral linkages.

National Constitutions have been amended and legislation issued to define local government responsibilities and specific tasks. Common tasks include water supply, sewerage, sanitation, waste collection, roads, local markets, land development and building regulation. Other tasks that are less common are public health, education, housing, power supply, law and order, and economic development.

The Constitution of Mexico establishes in its Article 115 that "the municipalities will have as their responsibilities the provision of the following services: drinking water and sewerage system, electricity, cleaning, local markets and supply markets, monuments, streets, green parks, public security and traffic, everything else decided by the local administration according to the socio-economic and geographical condition of the municipalities."

The Constitutions of Brazil (Article 30), Venezuela (Article 30), and Colombia (Article 311) make reference to the competencies of the municipalities. In other countries, such as Argentina, municipal responsibilities are defined under the laws of each province. For example, the Law N. 5.361 of the Province of Santiago Del Estero, in its Article 17, establishes that competencies of the municipalities will be divided into the following areas: real estate, security, public works and services, charity and culture, public health and hygiene, and these will be executed within the jurisdiction without detriment to the neighboring provinces, nation or other municipalities."

During the 1980s and 1990s, many Latin American and Caribbean countries created environmental institutions. Most countries have established a general environmental legal framework and have incorporated the principles the Rio Declaration on sustainable development. There is a large body of rules and regulations on specific environmental issues. Effective environmental policy and pollution control instruments are still relatively new and internalization of environmental considerations in all sectors is only just beginning with ongoing fragmentation and duplication of responsibilities. The "subsidiarity principle" by which decisions are taken at the lowest appropriate level of government has not been widely implemented. There is still confusion and dispute between different levels of government about their respective competencies, often leading to conflicts, duplication of activities and inefficient use of valuable resources. In addition, budgetary restrictions and lack of technical training and qualified human resources make effective environmental management difficult. Within such an institutional framework, the role of local governments remains limited. Nevertheless, decentralization and participation of concerned citizens in addressing environmental issues are considered critical and a goal that many countries have adopted (Rio Declaration on Environment and Development, Principle 10, 1993). Decentralization is clearly seen as a vehicle to promote and implement environmental management and planning.

In an increasing number of countries, local elected councils have been established. Representative democracy has been further strengthened by de-linking local government elections from national elections in several countries. However, councils are small in number and with a dominant (and at times autocratic) role of the elected mayor who faces limited opposition from other councilors. Moreover, the mayor often has considerable influence over the actions of municipal executives. This far-reaching influence results, in the event of a change of mayor, in drastic changes in policy directions and allocation of local government resources but also to administrative discontinuity. Senior executives are replaced with others who are supporting the newly elected mayor with a focus on quick yielding projects. Such processes often work against environmental sustainability that requires a long-term approach. A positive example is reported from Rancagua in Chile, where a mayor established a more participatory and consensus based decision-making model. (Valenzuela,

1996). Another such experience comes from Montevideo where decision-making and city management was decentralized through the establishment of 18 neighborhood offices or Centro Comunales Zonales. Further steps were taken to also deconcentrate the legislature to this level in 1993 and Neighborhood Councils (Consejos Vecinales) were established. Another example is the establishment of local administrative boards in Colombia at the sub-municipal level in 1986. However, these examples are mostly from the larger cities in the regions. In smaller and medium sized towns such experiences are scarce.

With regard to environmental management, public participation and representation is mostly restricted to a few areas, such as EIA procedures. Official public representation in national institutions or commission remains scarce. Positive examples come from Bolivia (Vigilant Committees) and Mexico (National and Regional Consultative Councils) and Chile. In Argentina, Brazil and Colombia public participation has been demanded through Supreme Court rulings.

Another aspect of decentralization to be considered is the ability of local institutions to obtain a degree of financial autonomy. In initial stages, when the resource base of local governments is still weak, a rational devolution of funds from the state or central government needs to be established, together with capacity building efforts, in order to gradually increase the ability to govern and generate local revenues.

In Latin America two models are used for the allocation of resources to local governments. The first model is the so-called *mandante-mandatario*, where transfers and subsidies impose a certain relationship between local government and the central one, the former being responsible to the latter. The second model is the so-called *opción fiscal local* (fiscal local options), where local jurisdictions finance there own expenses with local resources (taxes), having more freedom to define their objectives. However, in most countries, the first model is followed and the central government keeps a strong control in the decision-making process (Fernández, 1996). Transfers of resources from central to local government differ from country to country. In some countries, the central government devolved funds to local governments based on a number of indicators. An example is Bolivia. Observers comment that the allocation of funds is less based on the articulated or existing needs (allocation of funds based on submitted plans) but more on pro rate or equity principles.

In Colombia, a fiscal entity "Situado Fiscal" is in charge for allocating the transfers to local governments according to certain criteria. These criteria are based on percentages; the potential population that is able to cover health and educational areas; the own efforts made by the local entities to generate income; the administrative efficiency; and the total population of the municipality. This entity also puts some limitations on local governments with regard to the percentage that they are allowed to allocate for investments or for total expenditures.

In Brazil, on the contrary, the financial transfers are unconditional and the Constitution prohibits any type of condition. This means that municipalities have complete freedom to decide on the resources received. In Venezuela, the amount of resources that are transferred to decentralized authorities is the amount that central government allocates to the provision of services. In Chile, the provision of educational facilities is now a responsibility of the local governments. However, the Ministry of Education transfers to the municipalities the necessary resources to cover the salaries and the costs of education. In the same way, health centers are now a responsibility of the local government with financial resources given in advance by the central government, to be repaid by the municipality at a later stage.

In Bolivia, the law of Popular Participation re-distributed the taxable resources between the Executive (central government), the Universities and the Local Governments. Tax resources, being a fixed percentage of the income of the Central Government, are transferred to local governments and the State

universities in order to execute their tasks defined under the law. Real estate taxes as well as the licenses and the taxes established by the Municipal Bylaw also augment the resources of local governments. Municipalities have the right to 20% of collected national income. This system of distribution contains no stimulus for good performance in the generation and collection of own revenues.

Autonomy is also curtailed by ex-ante and ex-post control of accounts. National controllers hold a crucial role in sanctioning local expenditures. Given the past experience with financial management of local governments this attitude may be understandable, but does not foster fiscal responsibility.

A last element is the existence of a competent administration. Local governments often lack human resources capacity. Environmental information is mainly centralized with the national government institutions, in the capital cities. It is not updated regularly and is not reliable. Frequently, central government ministries exclude local governments from decision-making, or are even unaware of municipal competencies as set by law. As a result, local governments do not have access to information regarding planned projects that might impact their local environment.

Municipal staff career opportunities are very limited. Appointments are not transparent and subjected to client-patron patterns. Upward mobility into higher levels of government is not very common. However, rationale and merit-based administration is on the increase. In Chile, for example the post of municipal administrator was introduced in 1992. While there is shortage of qualified staff at one level, there is overstaffing at others. Overstaffing is often the result of the same client-patron mechanism. As a result, the salary bill often weighs heavy on the local budget and sometimes absorbs 80 per cent. In some countries (Brazil and Chile) limits have been imposed on the percentage that salary bills may absorb. Capacity building and training of municipal staff is a recent phenomenon. In this respect, the role of the Associations of Local Governments in the countries, and especially the Latin American section of the International Union of Local Authorities, play a crucial role. Lots of activities, projects and capacity building for municipal staff is being conducted by these associations, with the main objective of strengthening the capacities of municipalities within the context of decentralization. Brazil, that has the longest experience with effective local government, has a specialized institution (since 1952) that caters for local government staff training (The Instituto Brasileiro de Administração Municipal, IBAM). International institutions like the World Bank, the Urban Management Programme (PGU-LAC), the International Council for Local Environmental Initiatives (ICLEI) and others are undertaking other capacity building activities.

Non-governmental organizations are also becoming more active and involved in municipal issues. An interesting example is the Foro Ciudades para la Vida (Forum Cities for Life) in Peru, a network of about 18 cities, municipalities, universities, community groups and NGOs created in 1996, which aims at improving local capacities for environmental management.

SMALL AND MEDIUM SIZED CITIES

Urbanization in Latin America and the Caribbean

In Latin America and the Caribbean the concentration of population in urban areas has intensified in recent decades. In 1995, 73.4% of the population, that is, approximately 355 million people, lived in urban areas. This degree of urbanization puts Latin America and the Caribbean on a par with Europe (74%) and not far behind he United States (76%) and Japan (78%). However, it should be noted that this tendency had slowed down due to the decrease in the average annual growth rate of urban population in the region from 3.7% to 2.3% during 1970 to 1995. (UNEP, 1999).

The highest percentage of urbanization is observed in South America (83%), followed by Central America (62%) and the Caribbean (56%) in 1995. In South America, all countries have more than 50% of population in urban areas.

In Central America and the Caribbean, although the simple average of urban population is more than 50%, the percentage of urban population is variable among countries. (UNEP, 1999). Most of the urban population lives in large cities such as Mexico City (16.5 million people), Sao Paulo (16 million) and Rio de Janeiro (10 million). Buenos Aires, with 12 million people and Santiago, with 5 million, house 34% of the population of Argentina and Chile (WRI 1996). Lima concentrates more then 30% of the total Peruvian population, and more then 40% of its urban population. While urbanization itself does not necessarily have negative socio-economic or environmental impacts, unplanned urban growth has led to the development of outer and inner city slums, many of which lack basic services (UNEP, 1996). It is estimated that by the year 2020, 81% of the total population in Latin America and the Caribbean will live in cities (CEPAL, 1999).

Figure 3.1: Distribution of urban population in LAC, according to city size (Mc. Donald et al, 1998)

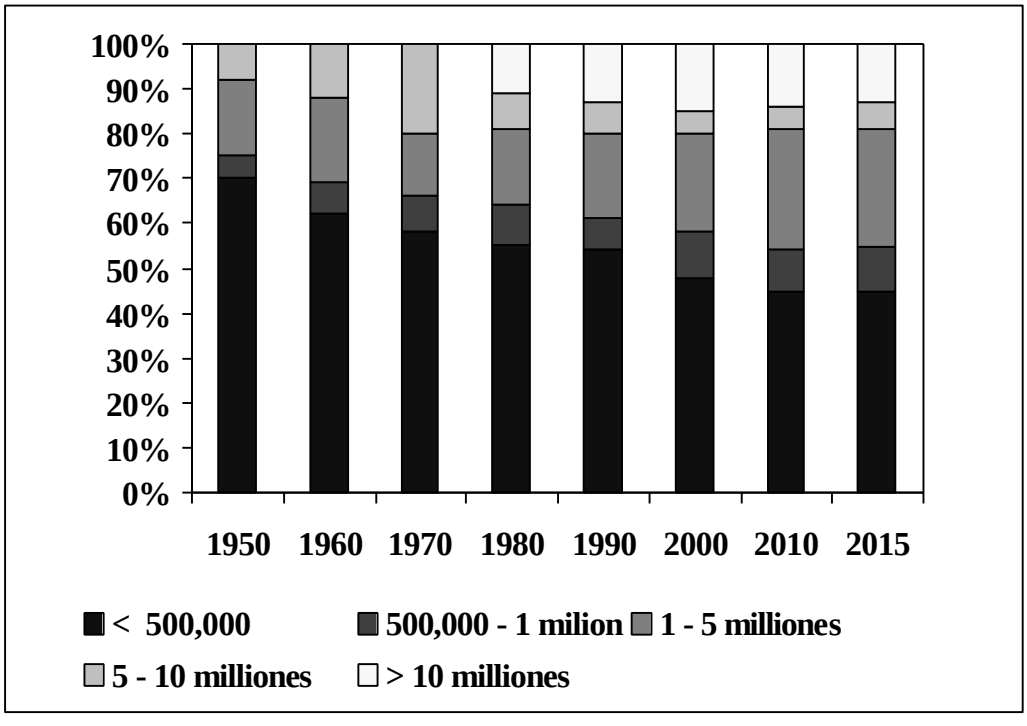


Table 3.1: Distribution of municipalities according to population size (adapted from CLAD, 1995)

Population size	Number of municipalities	% of total number
< 20,000	10,429	74.86
20 - 100,000	2,907	20.87
100 - 500,000	490	3.52
500,000 - 2.5 million	100	0.72
> 2.5 million	5	0.04
Total:	13,931	100

Small and Medium Sized Cities

It is worth noting the proportion of the total urban population that actually lives in small and medium sized cities. According to UNEP (UNEP, 1999) 73.4% of the total population of the region lives in urban areas. A study conducted by CEPAL (CEPAL, 1998) revealed that 47.3% of the urban population of the region lives in cities of less of 500.000 inhabitants. In conclusion, the populations of small and medium sized cities compose 34.7% of the total population of the region.

As the graph below shows, the proportion of people living in small and medium sized cities of less than 500.000 inhabitants has decreased over the past few decades. Since the eighties, it is especially the mega cities (over 10 million inhabitants) that came up fast, apparently at the expense of the cities between 5 and 10 million inhabitants. Also the share of cities between 1 and 5 million inhabitants increased. According to the estimates, this distribution of the urban population now shows a certain stabilization (Mc. Donald et al, 1998)

Another perspective is given when analyzing municipalities (which can include urban as well as rural areas). A study conducted by the Centro Latinoamericano de Administración para el Desarrollo (CLAD, 1995) on 19 countries in the region, including the largest in population, shows that the vast majority of municipalities has a population of less than 20,000 inhabitants (74% of the municipalities in the sample). In fact, only 105 municipalities (0.76%) have a population of over 500,000 inhabitants.

The Role of Small and Medium Size Cities

The above mentioned figures reflecting the large numerical share of small and medium sized cities require reflection on their importance and role in the socio-economic, political and urban developments in the region. Based on Hardoy and Satterthwaite (1986), the following five reasons can be given for focusing on small and medium urban centers that clearly define their role in the urbanization patterns and socio-economic and political development of the region:

The first is the fact that it is the small or intermediate urban centers with which most rural people and rural enterprises interact. Yet the role that such centers can play in supporting social and economic development within rural areas is rarely given sufficient attention.. They can provide rural populations access to schools and health care centers, and be the location for, for instance, agricultural extension services, irrigation offices and agro-industries linked to local products. Nor is sufficient attention given to the need for transport and communications infrastructures within and between small and intermediate urban centers and between these centers and rural areas.

A second reason relates to their political role. Sub-national and sub-regional levels of government administration are usually located in small and intermediate urban centers. It is

through such centers that the needs and priorities of sub-national and sub-regional populations should be channeled to influence policies and resource allocations at higher levels of government. If a government's power and resources are highly centralized, such centers are deprived of their political role as the places through which local demands are articulated. Over-centralization of government power and resources often ensures that central governments are over-burdened and deprives lower levels of government located in small and intermediate urban centers of the power and resources they need to address local problems and local development needs. Political centralization will tend to be reflected in urban centralization that is in a national urban system dominated by the national capital. In Peru, 30% of the population concentrates in the capital city, Lima, with a clear tendency to centralization.

In addition, governments can arrive at a better understanding of real development possibilities and constraints through a better understanding of existing circumstances and current trends in small and intermediate urban centers and their surrounding areas, and through an appreciation of the unique characteristics of each center and its links with its surrounds and the wider regional and national economy and urban system.

A third reason relates to the important role of small and medium sized cities in many national government priorities. Liberalization by governments based on privatization, structural adjustments to reduce fiscal deficits, and allowing markets a greater role in the economy, has meant not only less intervention by the State in rural matters, but also the dismantling of the institutions traditionally responsible for the sector, making rural development more difficult until these can be replaced with institutions devised mainly by civil society, especially at the local level. The reduction or withdrawal of public sector services has been particularly noticeable in some areas of rural life such as social spending (education, health), the financial system and infrastructure. Within these areas, the higher the demand for investment in the human capital, credit and communications needed to meet the challenge of improving rural competitiveness, the fewer the opportunities available to the rural poor to access these services (IDB, 1998). The role of certain small and intermediate urban centers, is now shifting to providing their surrounds (mostly poor rural areas) with education and health services, and on building the basic rural infrastructure to provide an incentive for private investment, while providing the rural poor access to the services and markets available to the urban population. Several projects that have been carried out in this respect (mainly by the Inter-American Development Bank and other lending institutions) are oriented toward the creation of rural nonagricultural or services sector employment (agri-businesses, tourism, cottage industries, fishing, and forestry).

A fourth reason, which applies to both developed and developing countries with a relatively low level of urbanization, is that long-term policies strengthening small and medium sized cities can lessen the tendency towards undesirable concentrations of industries, services and government in a few urban centers, and their resulting problems. Sectoral plans and government structures which inhibit such centers" development and do not serve social and economic development goals, can over time profoundly affect the spatial distribution of development within an evolving urban system.

A fifth reason, that applies to some countries, is related to the potential role of small and medium urban centers in managing urban expansion within large city regions. In such cases, an "urban growth management" policy for large cities or metropolitan centers could be useful where there is a good social and economic rationale for supporting productive investment in nearby small or intermediate urban centers.

Then there are other reasons for explicit policies for certain small and intermediate urban centers, such as addressing problems in areas subject to recurring natural disasters or in areas where there is rapid colonization of new land.

Though small and medium sized cities have an important role to play in the socio-economic, political, urban and sustainable development in Latin America and the Caribbean, they are given little consideration. In contrast to their vigorous growth, most small and medium sized cities suffer from severe deficiencies in terms of urban management, provision of infrastructure and housing, putting them in a situation that is generally more unfavorable than in large cities (Mc Donald et al, 1998).

Urgent attention for environmental problems of smaller cities is needed because they can constitute a potentially more sustainable alternative for the current pattern of urbanization, which concentrates people above all in the large metropolitan areas. As Hardoy and Satterthwaite (1986) state, the developmental roles of small and medium urban centers cannot be considered in isolation from those of larger urban centers or those of the rural economy. An understanding of trends in terms of changes in population or in socio-economic structure within small and intermediate urban centers can only be achieved through an understanding of the role of each particular center within the wider urban system.

Box 3.1: Strengthening intermediate cities in Ecuador

The National Development Plan 1980-1984 emphasizes the need to support the growth of 16 Intermediate Cities (with between 40,000 and 200,000 inhabitants in 1981) to strengthen their roles as centers or urban subsystems and alternatives for internal migration and neutralizing population flows towards the two largest cities (Guayaquil and Quito). There are also plans for smaller 'minor' cities (with between 10,000 and 40,000 inhabitants in 1981) to promote rural services and agro-industries and for rural centers. Government plans include improved coordination between central planning and municipal action; industrial location policy; programme of urban infrastructure; a cadastral and planning programme aiming at rationalizing municipal affairs and improving small and intermediate urban center's tax base.

Source: Hardoy and Satterthwaite, 1986.

OVERVIEW OF ENVIRONMENTAL ISSUES

Introduction

A distinction can be made between environmental issues and environmental problems. In this study environmental problems are being considered as problems related to the physical environment of society. These include problems of pollution, depletion and degradation. Environmental issues are broader, including the complex relationships between these problems and their social and economic causes and consequences, and thereby touching directly upon issues of sustainable development. Poverty for example, as such is not considered as an environmental problem, but it is an environmental issue, as poverty in many cases is an important cause as well as a consequence of environmental problems. Almost without exception environmental problems have a disproportionate impact on poor sectors of society, especially on women and children. In this overview issues are organized according to physical environmental problems, but in the discussion of each problem due attention is given to its social and economic context.

Another distinction has been made between environmental problems of the so-called "brown agenda" and problems of the "green agenda." Although there is no generally accepted definition, the brown agenda mostly refers to problems related to the environmental quality in the city itself. These problems are therefore also directly related to problems with human health. Examples are solid waste, bad quality of drinking water, waste water and local air pollution[1]. The green agenda refers to problems related to natural resources and biodiversity, and therefore deals very much with the functioning of the city within the wider environment.

Box 4.1: Diversity of Cities

Ilo is a city of about 61,000 inhabitants, located in the coastal desert of south Peru, where it almost never rains. Green space is very limited. Drinking water is very scarce. The city suffers much from air pollution (SO_2 and other pollutants) from heavy industry. Sao Sebastiao is a Brazilian city of 50,000 inhabitants, located also on the coast, but in the fringe of an important natural reserve with high biodiversity and abundant green areas. The city attracts many tourists, sometimes tripling its population in the weekends and holidays. At the same time it has the largest petrol transfer terminal of Brazil, which imposes high ecological as well as human health risks. La Oroya in Peru is located in the highlands of the Andes (3,726 m.) at a few hours from the capital Lima, in a very cold and difficult climate. Heavy metallurgic industries, have heavily polluted the city and its surrounding environment.

Source: Balvín et al, 1996; questionnaire and case studies

Maybe the most important characteristic is the great diversity that exists among the different cities in the region: population size and growth rates, natural surroundings, economic functions, political and administrative context, culture etc. Because of this diversity, a very broad survey would be needed to be able to present statistically relevant quantitative data. As this is beyond the scope of this study, the following overview is above all a qualitative discussion of environmental issues. At the same time environmental problems are subjective problems. Different groups experience certain problems in a different way. What the experts, might consider as a problem, might not be considered as such by the local community, or vice versa. Also, from a regional or global perspective, certain problems like global warming and ozone depletion can be of

[1] Sometimes a further distinction is being made between the 'brown' and the 'grey' agenda, where 'brown' refers to problems at household and neighborhood level, while 'grey' refers to problems at city wide level. In this study the two are combined.

high importance, but from a strictly local perspective they might not be considered as relevant. Another point is that most of the separate environmental issues treated in this chapter are strongly interrelated, which makes it difficult to prioritize.

For these reasons, the following overview should be considered as an indication, but general conclusions should be drawn with care. To get a good picture of a certain city, a specific assessment will always be needed. Making an environmental profile can be a useful tool for this purpose.

The "top 5" of "brown" problems includes solid waste pollution, water pollution, waste water and excreta, bad quality and insufficient quantity of drinking water. Considering all cities in the sample, these problems were mentioned in 50% or more of the 34 cases. These problems appear in both small and medium sized cities, although the priority order is slightly different. Where in medium sized cities the priority is in the indicated order, for small cities waste water and excreta problems and bad quality of drinking water come in the first place, followed by the other problems mentioned with equal priority. The differences however are very small.

The importance of these problems is also confirmed by the inventory of relevant cases from the best practices databases. Almost all cases refer to experiences related to solid waste, drinking water and sewerage. In general less importance is given to the "green" problems, as compared to the "brown" ones. This is not surprising, as the latter type of problem is often much more visible. On the other hand there are also "green" problems related to the direct resource base of the city, of which the consequences are more obvious, like river and coastal pollution, degradation of natural and agricultural areas and their ecosystems, water table depletion etc. This is also reflected in the answers. Looking at the whole sample, it appears that there are two problems that are far more important then the others: regional water pollution of rivers and coasts, and ecosystem degradation. In a second instance appears physical occupation of agricultural and natural lands and the (related) degradation of these. of less importance for our respondents seem to be regional and global air pollution, soil erosion, regional soil pollution, water table depletion and depletion of raw materials.

The following tables show the outcomes of the expert questionnaire. It gives a rough indication of the relative importance of the different environmental problems. As all these problems in fact are very much interrelated, the following section will discuss these problems in an integrated manner, referring to the most important broader issues

Table 4.1: Overview of 'brown' environmental problems mentioned in questionnaires

'Brown' environmental problems	**Small cities (14)**		**Medium cities (20)**		**Total (34)**	
	No	%	No	%	No	%
Solid waste problems	8	57	16	80	24	71
Water pollution	8	57	14	70	22	65
Waste water and excreta problems	10	71	11	55	21	62
Bad quality of drinking water	9	64	10	50	19	56
Insufficient quantity of drinking water	8	57	9	45	17	50
Risk from 'natural' disasters	5	36	7	35	12	35
Soil pollution	6	43	5	25	11	32
Presence of disease vectors	6	43	5	25	11	32
Bad housing conditions	5	36	6	30	11	32
Flooding	5	36	6	30	11	32
Air pollution	3	21	7	35	10	29
Noise pollution	3	21	4	20	7	21
Lack of green areas	2	14	5	25	7	21
Traffic congestion	1	7	4	20	5	15
Food contamination	1	7	2	10	3	9
Traffic accidents	1	7	2	10	3	9
Indoor air pollution	2	14	1	5	3	9
Other ('Visual pollution')	0	-	1	5	1	3

'Green' environmental problems	**Small cities (14)**		**Medium cities (20)**		**Total (34)**	
	No	%	No	%	No	%
Regional water pollution (river, coast ..)	5	36	12	60	17	50
Regional soil pollution (eg. by waste dumps	3	21	1	5	4	12
Water table depletion	2	14	1	5	3	9
Physical occupation of agric. / natural land	5	36	4	20	9	26
Degradation of agricultural / natural land	6	43	3	15	9	26
Soil erosion	2	14	3	15	5	15
Ecosystem degradation	6	43	10	50	16	47
Depletion of raw materials for industry	1	7	0	0	1	3
Other ...	0	-	0	-	0	-

Note: " No" : number of times a specific problems was mentioned, " %" : percentage of mentions as part of total number of cities indicated between brackets in the table heading.

Solid Waste

When asking people in the streets of the smaller cities in Latin America about the most important problems of the city, there is a fair chance that they mention "la basura" (solid waste) as the most important problem. The outcomes of the expert questionnaire used in this study confirm this. In 71% of the cities this was mentioned as an important problem, the highest score of all problems.

In part, this has to do with the fact that it is a very visible problem. In many cities waste is scattered in streets, squares, parks, water flows etc., because collection systems are absent or inappropriate. Also, the relationship with health problems is clear, because of the obvious presence of disease vectors like flies, rats, dogs and others that feed and breed in the waste heaps.

Awareness campaigns that have been conducted in most of the cities by local governments or NGO's have increased people's concerns about these problems, but as there is no adequate collection system, for many people burning is the only feasible solution for eliminating their waste, which again contributes to air pollution and associated diseases. The fraction of waste that is collected by municipal or private trucks is dumped at legal and illegal dumpsites. These are mostly open dumps, without any treatment, where sometimes dozens of people earn a living as a scavenger or waste picker. These people live around or even on top of the dumpsite in shacks built of waste materials. Only in a few cities there is an adequate sanitary landfill, where the waste is covered with soil and where precautions have been taken to avoid leakage of liquids to the groundwater and to evacuate gases.

The production of solid waste (kg/cap as well as its composition) in smaller cities is not very different from the large cities. Differences between cities are probably more important, depending on the income level of the city and its main productive activities. However, there are many small cities that suffer large temporal variations in their population, because of seasonal migration (farmers that work only part of the year in cities) or even more because of tourism in weekends or holidays. In the case of Sao Sebastiao, the production of waste varies from 40 tonnes/day on normal days, to 150 tonnes/day during the holiday season.

This wide variation requires a flexible form of waste management. In most Caribbean countries, increased population and per capita incomes, altered patterns of consumption, and the rapid development of tourism and industrial sectors have led to fast rates of growth in waste generation. In 1994, the volume of waste disposed of at the major landfills in Trinidad and Tobago was 44% more than in 1979, whereas population increases over the same period was only 30%. The quality and composition of the waste has also altered significantly, becoming much less biodegradable. Increasing amounts of plastics, aluminum, paper and cardboard packing cases are being used and disposed of by households and businesses (UNEP, 1999).

With respect to waste management, the lower densities and smaller distances in smaller cities offer important advantages over the big cities: better storage facilities at household level, shorter collection routes and especially shorter distances for transport to final disposal sites. This makes expensive transfer stations, in most cases, unnecessary. Despite of these advantages, the problem remains, because of lack of skilled human resources and lack of political priority to provide the necessary financial means. It is typical that the issue of solid waste is in many cases number one on the agenda of potential candidates in municipal election campaigns. During elections many cleaning campaigns are being organized by political parties, but after the elections the situation remains mostly unchanged.

As compared to the big cities, the stronger urban-rural relationships of the small and medium sized cities have a clear influence on the problem of solid waste. Many people, especially in the smaller cities are direct migrants from rural areas, who need time to adapt to urban living conditions. As they are used to

throw away, burn or bury their waste individually when they lived in the countryside, they continue to do so in the city, where other forms of waste disposal are required. On the other hand, the close relationships between smaller cities and the surrounding rural areas, offer good possibilities for efficient recycling and marketing of organic waste. In fact, a large part of this is being done already by the households themselves, which in many smaller cities have relatively large plots, where they keep animals like chickens, rabbits and pigs, which are fed by organic waste. For other components like plastics, glass and metals this is more difficult, as recycling companies are not yet widespread in the smaller cities. Distances for transporting these materials to larger cities are in many cases too large to make it cost effective. This restriction applies even more to the increasing amount of chemical waste from households, factories, hospitals etc. However, in most cities, there is an important informal recycling circuit. Scavengers select useful materials for very low pay. Intermediaries transport these materials to recycling plants, sometimes over large distances to larger cities. In most cases this is a very informal process, where the scavengers are heavily exploited and some businessmen earn a great deal of money. Politicians are often involved and therefore interested in maintaining the status quo, instead of promoting an efficient and equitable solution to the solid waste problem.

As with many environmental problems in the cities, it are especially poor groups, women and children who are most adversely affected. Collection of waste in poor areas has almost always lower priority then in the high and middle income areas. Accessibility of low-income neighborhoods can also be a problem. The amounts of domestic waste water and excreta produced depend basically on the number of inhabitants in the city. For the cities, which often suffer temporary increases of their population, this production can however vary strongly over time. The production of industrial waste water is dependent on the types of industrial activities in the city. The coverage of the sewer systems is much lower than that of the drinking water distribution systems. Women and children are more exposed to waste born disease vectors, because they are present in the neighborhood for more time then most men, who are at work in the central or industrial areas of the city during the day. Most of the scavengers that work on the open dumpsites are also women and children. Especially for pregnant women and small children the health risks are high. Because of lack of basic sanitation in poor neighborhoods, waste is often mixed with excreta, which contributes even more to these risks.

Waste Water, Excreta and Water Pollution

A second important problem is water pollution caused by domestic and industrial waste water and other sources, like the excessive use of pesticides and fertilizers in agriculture. In the questionnaire, water pollution was mentioned in 65% of all cities as an important problem, while for waste water and excreta problems this was 62%. In the small cities, these problems were even considered slightly more important than solid waste.

Except for cases of severe water pollution (especially with solid and chemical wastes, mining waste and crude oil) the immediate effects of water pollution are generally less visible than in the case of solid waste pollution. However, many rivers, lakes and coastal areas in the region are heavily polluted by chemical and organic matter, threatening ecosystems, natural resources and the drinking water sources of cities. The associated health risks, especially via the consumption of contaminated drinking water (see also next paragraph), are probably higher than in the case of solid waste.

Large amounts of waste water are therefore being discharged by open drains and gullies. People use improvised pit latrines or defecate behind a bush or a fence. Although this is, in the first place, due to a lack of a suitable alternative, recent migrants, not accustomed to other arrangements, also contribute to the problem, just as in the case of solid waste. In almost all small and medium sized cities, combined waste water is discharged without

any form of treatment into streams, rivers, lakes or the sea, creating high levels of water pollution. This at its turn affects ecosystems and communities downstream or in the vicinity, who rely on this water source for their drinking water production or food source. Polluted water is also used for irrigation of agricultural land, where it often leads to food contamination. Waste water treatment plants are only available in a small number of cities, and they treat only part of the total volume of waste water.

Box 4.2: Coastal pollution in Ilo, Peru

The city of Ilo (61,000 inhabitants) is located between two sources of pollution by heavy metals. Until 1995 an average of 119,000 tonnes/day of mining slurry were released into the Pacific Ocean, 40 km south of the city in the bay of Ite. The smelting factory of Ilo disposed about 2000 tonnes/day of slag on the beach in front of the factory. The effects are a reduction of the yield and extent of fishing grounds, the disappearance of the traditional fishing-based communities, and permanent health risk by consuming contaminated food and the loss of scenic beauty in these areas.

Source: Case study Ilo.

Poor Quality and Insufficient Quality of Drinking Water

According to projections of the World Meteorological Organization (WMO) for the year 2025, Latin America and the Caribbean will only face low water stress[2], and are therefore better off than other regions, especially North Africa, the Middle-East and West Asia. Exceptions are Mexico and Haiti that will face a medium-high water stress. This assessment however is an average applying to the region as a whole. For individual urban centers, due to the high concentration of the water demand, in many cases the situation is much worse. In most nations, smaller urban centers are likely to have a much lower proportion of their populations served by piped water systems and by sewage systems than larger cities.

For instance in Argentina, the smaller the urban center, the higher the proportion of households lacking piped water and connections to sewers. The average for urban centers with between 200,000 and 500,000 inhabitants is around 18% lacking piped water and 60% lacking connection to sewers. The average for urban centers with between 5000 and 10,000 inhabitants is over 40% of households lacking piped water and more than 90% lacking connection to sewers. For instance, in Noetinger, a small agricultural town in the Pampas, there is no piped water system and no sewer system. The inhabitants get their water from tanks and individual wells from which water is pumped and many draw water from the first level (shallowest) aquifer from which there is a growing risk of contamination from excreta, much of which is disposed of through simple septic tanks or pit latrines. (Hardoy et al, 1992).

[2] Defined as water withdrawal as percentage of total available

Extraction of ground- and surface water for production of drinking water, especially in the more arid areas, often leads to lowering of groundwater tables, which in turn can contribute to degradation of ecosystems, desiccation of natural and agricultural soils and erosion, salinization in coastal areas and of course to an even higher water shortage in the future.

Box 4.3: Water pollution in Tehuacan, Mexico

Tehuacan (239,000 inhabitants) has about 1,250 small and medium sized factories of all kinds. About 263 of these are textile factories producing jeans for the US. In the production process these jeans are stone-washed in large washing installations. These produce large amounts of blue waste water that is discharged into small canals. This water pollutes the Tehuacan river and is being used for irrigating agricultural land. Another important source of pollution are the large number of pig and chicken farms that produce a lot of organic waste water. This waste water is discharged into the same canals. Several factories and farms have small private treatment plants, but anecdotal evidence suggests that many are only operated when inspections take place. The municipality of Tehuacan is currently planning a municipal sewage treatment plant.

Source: Case study Tehuacan

An important problem in many cities is the loss of valuable drinking water through leakage from badly maintained piper systems. Distribution of drinking water is almost everywhere very inequitable. Where rich neighborhoods, hotels and industries waste large amounts of good quality drinking water, in many poor neighborhoods, people only receive water for a few hours a day, or depend on individual wells, informal water vendors etc. In many cases they pay much more, for water of lower quality.

In most large cities, it is the insufficient quantity of drinking water available per capita, that leads to serious health risks. In smaller cities, the total water demand is less of a problem when compared to the available water sources. In these cities, the quality of water is probably a more important issue because of insufficient treatment facilities. Of course, these are general conclusions and the problems encountered are very much dependent on the local situation.

Box 4.4: Drinking Water in Chimbote, Peru

Only 65% of the population of Chimbote is served with piped water. The other people are served by informal systems like water trucks, “aguateros” (donkeys with water cans), community water taps and self-made wells without any sanitary control. On average the houses with domestic water connections receive water 6 to 7 hours per day. In the poorer neighborhoods the situation is worse, as the water does often not reach them, because of low pressure. In 1991, because of the contaminated drinking water, a large cholera outbreak started in Chimbote, expanding later to the rest of Peru and neighboring countries.

Source: Forum Cities for Life, Peru

Except for many small cities located in relatively undisturbed ecosystems, water sources are often polluted by faecal matter, chemicals etc. (see also previous paragraph). Most purification plants in the smaller cities are simple installations, at most consisting of a filter for suspended waste, a sedimentation trap and some chlorinating. Especially in the more remote cities, chlorine supply can be a problem. In Iquitos, deep in the Amazon jungle of Peru, chlorinating is often interrupted, without duly informing the public. At other times, concentrations are far too high, which also can lead to serious health risks. Organic matter concentrations are so high, that the water from the tap is often green, and sometimes contains small animals. In general, in most small cities, people have been alerted of the risks of drinking polluted water, and the need to take precautionary measures, like filtering or boiling their water before consumption. However, many (especially poor) people do not do this, because of its cost (basically of energy for boiling), or because they lack the facilities. Also, these measures are only useful against organic pollution, but are of no use against chemical pollution. Purification plants are also not equipped to deal with this type of pollution.

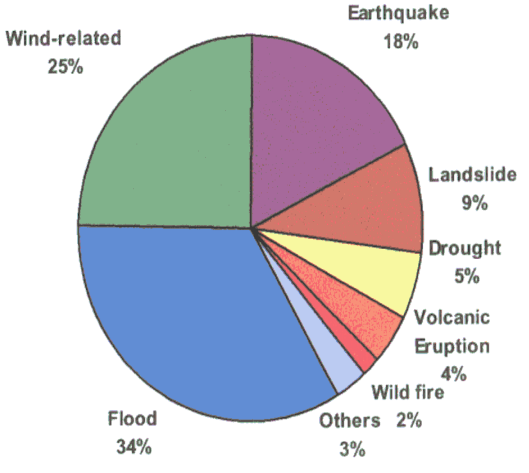
The consequences of the lack of adequate water supply are known: bad health and high mortality rates due to diarrhea, cholera, typhoid and other diseases, especially among vulnerable groups like women and children. According to the questionnaire, the infant mortality rate[3] among the selected cities is 35.4 per thousand, which is still low as compared to the regional average of 47 (figure of 1992: UNCHS, 1996).

It will be clear that the different water related problems addressed in this section and that above are very much inter-related, and should be considered within an assessment of the water cycle as a whole. The IDB also gives high importance to this issue, and recently developed a strategy for integrated water resource management (IDB, 1998).

Risk from Disasters

Large parts of Latin America and the Caribbean are prone to so-called "natural disasters." They occur sometimes on a very large scale. Hurricane Mitch in 1998 struck Honduras and Nicaragua, killed tens of thousands of people and made many more homeless. It set back the Honduras' economic development by more than ten years. In 1970 an earthquake caused an enormous landslide on the Huascaran mountain in Peru, which, in a few minutes, covered the small city of Yungay, killing about 20,000 people in one stroke. In other cases, they occur on a lesser scale, as in case of river floods, which sometimes affect entire neighborhoods, or in case of landslides in mountainous areas, which affect individual, or groups of, houses.

Figure 4.1: Causes of disasters in LAC (IDB, 2000)



[3] Number of children per 1000 births that die within the first year.

Some of these problems are natural phenomena, like earthquakes, volcanic eruptions and hurricanes[4]. An important phenomenon is "El Niño", a periodic temperature rise of the Southern Pacific Ocean, which causes climate anomalies in large parts of the world, especially in South America. The last El Niño occurred in 1998, causing severe draughts in some areas and flooding in other, especially in the north coast of Peru. Others disasters are to a large extent induced by human activities like flooding of rivers and landslides. Bad man agreement of watersheds, agricultural land and forests; inadequate planning of human settlements in risk areas; and too much paved surface area (limiting natural infiltration capacity) and inadequate storm water drainage, often lead to disasters that could have been avoided.

For the same reasons, the consequences in terms of social, environmental and economic damage of disasters are generally more severe than if the necessary precautions and adequate management had been in place. Risk assessment and corresponding risk management plans, including emergency plans, are scarce.

In its recent action plan on natural disasters in the region (IDB,2000), the IDB states that "the frequency of natural disasters and their associated losses are increasing while steps to reduce the risks posed by these events have not sufficiently been forthcoming. Historically, natural disasters have resulted in a recurring cycle of destruction-reconstruction-destruction, with much of the infrastructure and services being financed over and over again." The action plan calls for a more pro-active and strategic approach.

Box 4.5 Flooding in Formosa, Argentina

Formosa (216,000 inhabitants) is a medium sized city located on the bank of the Paraguay River in one of the poorest parts of Argentina, on the border with Paraguay. The periodic high water levels of this river, together with those at the smaller rivers the Formosa and El Pucú, and a large number of small streams and rivulets, cause flooding in the city. Major flooding occurred in 1979, 1983, 1988, 1992 and 1999, affecting many houses and obstructing traffic flows. The frequent heavy rains (100 days per year), combined with the location of the city in a flat area and the clayey soil, which obstructs infiltration, make it difficult to solve the problem. Drainage systems are expensive because of the low densities (65 people/ha) and cost recovery would be difficult because of the low average income of the inhabitants, especially in the peripheral areas (about 70% of the people of Formosa belong to the low and medium-low income categories). A large dyke has been constructed around part of the city, creating a kind of polder, from with the water is evacuated by a pump installation when needed. This system is however not sufficient to cover the whole city.

Source: Case study Formosa

[4] There is increasing evidence that the severity of hurricanes is increasing because of climate change caused by global warming, which is induced by large scale burning of fossil fuels.

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Another category consists of accidents, like explosions, oil spills, gas leaks etc. The recent oil spillage by the Brazilian Oil Company Petrobras in the Iguazu River, put at risk the drinking water of hundreds of thousands of people in small cities and villages along the river. Such accidents take place frequently at a smaller scale all over the region. With respect to the potential consequences and their management, a similar conclusion can be drawn as in case of the "natural" disasters. Because of poor planning and control, factories, oil transfer plants and other activities are located in or close to urban centers. Regional highways, transporting explosives and other chemical substances, go straight through the central areas of small and medium sized cities. Again, risk assessments and initiation of preventive measures against potential accidents are very scarce.

Bad Housing Conditions

Most small and medium sized cities grow at a fast rate. In the cities analyzed in our questionnaire, the average annual growth is 3.5%. In the small cities this is slightly higher (4.0%) than the growth of the medium sized cities (3.2%). This corresponds with a general trend, because of the scale factor[5]. The differences in annual growth in the case of small cities are also higher (between 0.5% and 18.0%) than in the case of the medium sized cities (between 0.0% and 7.5%). In small cities, migration flows have a higher influence on city growth, as well as population fluctuations. This is especially in the case of violence- and rural poverty induced migration in Fredonia, Colombia (18% annual growth) or seasonal and weekend migration flows like in Luján, Argentina and Sao Sebastiao, Brazil, where the tourist population in certain periods outnumbers the local population several times. The fast and fluctuating urban growth makes urban planning and service and housing provision not an easy task. Where governmental housing programs exist, they only provide for a small part of the total demand. Individual families build by far the majority of houses with help from relatives and friends. Housing conditions vary widely from city to city. However it is again in the poor neighborhoods where quantity as well as quality of housing is far from sufficient. This is the case in almost all cities. A distinction can be made between the city centers and the peripheral neighborhoods. In the central areas, old buildings are often overcrowded and are badly maintained. In Cusco, Peru where an instance was found where about 40 families lived together in one historical building, sharing only one badly functioning water closet. As many of the buildings are built with adobe, the risk of them collapsing is high. This became clear in the earthquake of 1986 that killed several people. Ventilation and light is often insufficient, which also contributes to bad health. In many other city centers, the situation is similar.

In the peripheral areas of the cities most of the low-income settlements are located. Houses in poor neighborhoods are mainly self-built and structure, spaces, ventilation and light are often not well designed, leading to many health problems, exacerbated by lack of piped water and sewerage systems, and unpaved roads that turn into inaccessible mud-pools during the rainy season.

All kinds of (informal) productive activities take place in the low-income settlements (like car repair, painting, tanning and even fireworks). Workers are exposed to high concentrations of fumes, solvents, heavy metals, aggressive chemicals, mercury (in case of gold production) and explosives. These pollutants are emitted into the air, water and soil, contributing to the pollution of the neighborhood and wider environment. Since the beginning of the new gold boom in Latin America at the end of the 1970s, around 5,000 tones of mercury may have been discharged into the forests and urban environment (UNEP, 1999).

In these peripheral areas the densities are in general lower. Especially in cities with agricultural hinterlands, plots are generally large and only partly built-up, while the rest of the plot is being used for domestic agriculture and

[5] When a city grows larger, its percentage of annual growth becomes lower when the absolute growth (in numbers of people) remains the same.

animal breeding. One disadvantage of this fast low-density form of growth is that infrastructure becomes expensive, and that valuable agricultural and natural lands are being lost.

Urban agriculture contributes significantly to the food provision of the city and to its ecological diversity and stability. A good balance between the need for green space and a compact urban development is needed. Many urban development plans and city expansion plans have been developed, but are often not effectively implemented. The plans are theoretical master plans, made by "experts" in their offices, without participation of important stakeholders and without the budgets attached needed for their implementation. An important problem is land speculation, which local authorities find difficult to control, not least because of corruption problems.

Although in the more humid climates, the outskirts of the cities look rather green, there is generally not much open public green space that can be used for recreational purposes. Urbanization pressure results in these areas being progressively occupied and converted into private plots. Sometimes migrants from rural areas do not see the need for green space in the city. In an urbanization project in Cajamarca, Peru where the municipality wanted to include a certain percentage of green areas in a new expansion area, the future inhabitants wanted to reduce this because their idea was that of a real city with "buildings and paved roads." In the more arid zones however, like many coastal cities in Peru or Chile where neighborhoods are being built in the desert, green space is very much valued. The lack of green areas not only limits possibilities for recreation, but also affects health in an indirect manner, as plants and trees have an important function for oxygenation, absorption of gases and dust, temperature regulation and retaining water. Sorensen (1997) gives a good overview of the different benefits of urban greening, including challenges and basic requirements for greening programs.

Finally it is important to recognize the environmental impacts of building activities. This constitutes a large share of the total environmental pressure. Building materials (cement, sand, gravel, clay, wood etc.) are often extracted from the rural hinterlands, where they cause degradation of land and ecosystems. The production of cement, lime, bricks etc. that often takes place in or close to the city, produces air pollution and dust and consumes a large amount of energy. A problem is that traditional rural construction methods, which are often more environmentally friendly, are mostly abandoned in the cities, because of a false idea of "modernity." Typical is the expression "material noble" (noble material), which is being used in Peru for stone, bricks and concrete. Potentially more environmentally friendly materials, like adobe and wood, are considered as the 'poor mans materials'. The concept of sustainable buildings, currently being developed in the industrialized countries, is not yet very popular in the region.

Air Pollution and Traffic Congestion

While the metropolitan cities in the region, like Mexico, Sao Paulo and Santiago are well known because of their high levels of air pollution, in the small and medium sized cities this problem seems to be of less importance.

In the questionnaire, air pollution was mentioned for 35% of the medium sized cities as an important problem, and for 21% of the small cities. This probably relates to the smaller volumes of motorized traffic in the smaller cities, and especially the lower congestion levels in the city centers. Indeed, traffic congestion was mentioned in 7% of the small cities and in 20% of the medium sized cities as an important problem. Of course it depends on the local setting as to whether congestion and consequent air pollution will convert into a problematic situation. In Tehuacan, Mexico, with a relatively young stock of vehicles and wider streets, it does not cause severe problems. In Cusco, Peru however, where old buses and trucks force themselves through the narrow streets of the historical center, and where combustion is not complete because of the high altitude (3,400 m), breathing becomes sometimes difficult. The informal street vendors and their children (who are at the height of the exhaust pipes)

suffer the most from particulate air pollution, high carbon monoxide and lead concentrations.

Box 4.6: Industrial Air Pollution In Ilo, Peru

Ilo is often cited as an example of very poor environmental conditions. "Ilo is a city to work in, not to live in" is a common saying among its inhabitants. The mining company, Southern Peru Copper Corporation (SPCC) is the city's main polluter. Some idea of the scale of pollution is given by the 1,920 tonnes of sulfur dioxide that the SPCC emits into the air each day, making it one of the world's top five producers of sulfur dioxide. It generally means that visitors to the city suffer from sore throats and irritated eyes within a few hours. If the wind blows from the wrong direction, dark toxic clouds drift into town and drivers have to switch on their lights and residents stuff rags under their doors to try and stop the fumes from seeping into their homes.

Source: Balvín et al, 1996.

Air pollution is causing respiratory problems, like high rates of pneumonia and other respiratory diseases, among urban residents in the region. Treatment costs are high as are productivity losses due to absenteeism. High lead concentrations in the air can cause serious brain damage, especially to children. Although in different countries, like Brazil, Costa Rica, Guatemala and Mexico, lead-free gasoline has been introduced in the smaller cities although it's more expensive and had limited distribution. Much depends on the capacity of the local government to regulate (public and private) transport. Enforcement of environmental regulations (noise and emission standards, technical check-ups) remains a challenge, also because of lack of skilled professionals and a strong lobby in local politics from the transport sector.

In general, a municipality defines the routes while private companies make bids to provide services. When competition is strong, a "chase for passengers," occurs, a recipe for traffic accidents. Finally, although most people in Latin American cities seem to be used to noise, it is evident that high noise levels (including frequent use of claxons) increase stress levels and may result in bad health.

Transport is not the only source of air pollution. Industry may be, for the smaller cities, an even more important factor, although this varies much from city to city. In industrial or mining cities, air pollution levels often exceed the WHO-standards.

Although indoor air pollution in the questionnaire scored a low priority, it should not be underestimated. Because of the widespread use of petrol lamps, kerosene stoves and firewood, in combination with lack of ventilation, the indoor air quality, especially in the poor neighborhoods, is often very unhealthy. Again, this affects above all women and children.

In the case of large international companies, there is an increasing pressure to adopt environmental management systems (such as ISO14000). However, in most of the small and medium sized local or national industries, production processes remain inefficient, wasting valuable natural resources and polluting the environment.

Land and Ecosystem Degradation

In the previous paragraphs several references have been made to the impact of urbanization on land and ecosystems. Physical occupation of agricultural and natural landscapes takes place at a high speed, because of the low densities in the peripheral areas of the many small and medium sized cities in the region. Additional land is lost to roads, waste dumpsites, recreation space etc. Forests, wetlands and other valuable ecosystems are affected by water extraction, air, water and soil pollution, and by physical disturbance due to the increasing tourism activity. Agriculture, needed to feed the urban populations, is also an important cause of soil erosion and ecosystem degradation, by clearing forests, extraction of water and by the excessive use of fertilizers and pesticides (thereby finally undermining its own ecological basis). Although at first sight,

many of these problems do not seem to be urban problems, the "inefficient engine of the cities" creates most of this damage.

Conclusions

The environmental problems in small and medium sized cities in the region are highly diverse. The type and magnitude of these problems, as well as their specific causes and consequences vary according to the cities' population size, growth rates, natural surroundings, economic functions, political and administrative context, culture etc.

It is not possible to make a unique priority list of environmental problems for these cities, as their importance depends on the viewpoint of the person making the assessment. What is an important problem from an experts' perspective, can be irrelevant from the communities' point of view. The many specific environmental problems in the small and medium sized cities can be grouped in a few broader issues, roughly in order of importance: solid waste pollution; waste water, excreta and water pollution; bad quality and insufficient quantity of drinking water, risks from "natural" disasters; bad housing conditions; air pollution and traffic congestion. These issues, and the many related specific environmental problems, have many interrelationships with each other, as well as with social and economic issues. It is also clear that urban and rural environmental problems are closely interlinked. Before drawing conclusions about a specific city and developing solutions, these problems should therefore be analyzed in an integrated manner, within the specific local context. An environmental profile can be a useful tool for this.

Although the consequences of the different environmental problems differ from city to city, it is clear that almost everywhere it is the poor in the local society, and especially women and children that suffer most from these problems. Most of the environmental problems in the small and medium sized cities are not very different from the problems in the large cities (differences between the small and medium sized cities themselves are more important). Some of the most apparent differences are the following:

- Scale: The smaller scale and complexity of the problems in the smaller cities, makes their management less difficult. Distances are smaller and thus the need for motorized transport, generating less congestion (on the other hand streets are often narrow, which can produce traffic congestion in the future, unless managed well), less air pollution by traffic, lower cost for solid waste transport to disposal sites etc. Demand on water bodies is less concentrated than in the big cities etc. This has to be contrasted however with the lack of human and financial resources in these cities, which constrains the capacity to address these problems. In addition, dependence on higher levels of government constrains the flexibility of approach to problems, which differ strongly from city to city.

- Change: Although in the big cities the absolute growth in terms of increase of the number of inhabitants per year is much higher, in the smaller cities the relative growth (% per year) is much faster. This means that the pace of change is very high. Also the influence of seasonal migration, especially in the case of small tourist cities close to a big city, can sometimes be very large, generating highly fluctuating demands. This requires high flexibility in the provision of housing, road infrastructure and environmental services.

- Rural influence: Many rural-urban migrants move to smaller cities first, before moving to the big cities. The relatively high proportion of direct rural migrants means that a high proportion of the new city dwellers have practices that are not always suitable for urban conditions. This can sometimes be a problem, like in the case of the treatment of waste and excreta. On the other hand, the experience of former farmers can also be used positively, for instance in urban agriculture.

- Closer relationships with the environment: Where in the big cities many people become alienated from nature, in the smaller cities this is less of a problem, as the linkages between city and nature are much more visible. The fact that most city dwellers maintain many relationships with the surrounding areas, means they are more interested in its conservation. This applies especially to cities that depend to on their surrounding areas for economic activities such as tourism.

- Service levels: Quantity and quality of piped water and sewer connections waste collection and other services are generally lower than in the large cities. People not served by collective services are forced to find individual solutions, which leads often to bad health conditions and environmental damage.

- Pollution levels: Although pollution levels vary widely from city to city, the smaller cities usually have less effective pollution control than the large cities Serious air or water problems can be caused by just one or two agricultural processing factories, cement plants, or chemical, pulp and paper or beverage factories.

Of course there are also differences in the way these problems are addressed, the local institutional setting etc. These aspects will be discussed in the next chapter.

OVERVIEW OF ENVIRONMENTAL MANAGEMENT CHALLENGES

Introduction

In the early nineties, simultaneously with the national and state's growing concern for environmental protection, many smaller cities started environmental management actions to tackle the problems in their own jurisdiction. Problems related to urban expansion and industrial growths, illustrated in the previous chapter, were imposing increasing pressure on the local environment and needed adequate management.

The level of environmental policy implementation in small cities in Latin America varies. Some smaller cities have already developed a comprehensive environmental policy plan integrating many different sectors and topics, while other cities are only developing specific actions. It is impossible to conclude if certain regions in Latin America, or cities of certain size, are more likely to have environmental policies than others. In many cases, however, a specific degradation or pollution problem in a city is the impulse to start working on environmental issues. These specific actions sometimes evolve into integrated plans, while in others, the raised awareness and the specific action result in the adoption of environmental policies and projects in other areas.

Not surprisingly, in these cities, political commitment and leadership are the most decisive factors for the success of environmental policies and their effective implementation. Politicians with vision and commitment to the environmental issues, almost without exception, govern these smaller cities that have effective policies.

In many smaller cities environmental agencies or departments have been created, which are responsible for defining environmental actions or policies, and for coordinating their implementation. These agencies often have limited jurisdictional power, resources, and capacity to effectively implement and enforce policies and actions, and are not very effective. The agencies are sometimes independent, sometimes part of the municipal apparatus, and sometimes multi-sectoral. In Sao Sebastiao, a multi-sectoral agency was established, with equal governmental and civil society representation. Likewise, an Environmental Management and Policy Office (EMPO) was established in Formosa to guide municipal environmental policies and coordinate the efforts of different organizations in the field of environmental policies. This office, however, does not have the required resources and financial support.

A common problem in Latin America remains corruption. In a number of small cities, corruption is seen as a major cause for the lack of compliance with, and enforcement of, environmental regulations and norms. The lack of control, capacity and resources of the enforcing agencies enhance the problem with corruption. In addition, a limited number of actors is involved in the decision making process. The role of the mayor and his office plays an even more pronounced role in smaller cities than in larger ones. Frequently, a couple of families have ruled cities and municipalities for decades. Their personal and political interests are institutionalized as are corrupt practices serving these interests. Problems are often discussed directly with the involved institutions/actors, and transparent procedures and policies do not exist. Finally, the low payment of municipal workers and absence of resources to carry out assigned tasks, increases the potential for corruption in smaller cities. The magnitude of effects of corruption on the implementation of environmental policies in small cities has not been analyzed in detail, but most probably it hampers the successful implementation of well-designed policies.

Current Local Environmental Policies and Actions

Drinking Water, Sewerage, and Solid Waste Management

In the Peruvian City of Ilo, situated in the Atacama Desert, the problems of water availability are part of the daily reality of the city. In the early eighties, the problems with the lack of drinking water were so serious that the population organized itself to protest the lack of governmental action. The slogan "*Water Yes, Smoke No*" also referring to air pollution problems became the platform for public organization and demand for improvements. This public demand, together with the commitment of the local council, resulted in the mprovement of the provision of drinking water and was later followed by other environmental policies based upon the participation of relevant stakeholders.

Water and sewerage treatment is often poor in smaller cities, and water pollution by sewerage and direct industrial discharges is very common. When the local municipality is responsible for water quality in its jurisdiction but does not have authority over sewerage, conflicts may arise. In Formosa, the municipality, together with the provincial Ministry of Human Development, started a pilot project with bio-filters to reduce the contamination of surface water. The project is co-financed by the Argentina Ministry of Health and UNICEF and implemented by the municipality. Local residents are involved in the maintenance of these filters. The successful project could be replicated in other areas, and help solve similar problems using its appropriate and low-cost technologies.

Box 5.1: Solid Waste Management in Sao Sebastiao, Brazil

In the late 1980's the Environmental Preservation Movement of Sao Sebastiao (MOPRESS) formulated a project of selective waste collection to minimize the volume of detritus destined to the only municipal waste disposal (in the neighborhood Sertao da Baleia). Adopted and implemented by the local government, the program gained strong support from the local community. An integrated municipal plan was developed, the Selective Solid Waste Collection, to organize low-income families into recycling cooperatives with technical support of regional government agencies. Units to receive organic wastes to be recycled were installed in 13 neighborhoods. Twelve compacting trucks are used for alternate collection and a special truck 'Cata-Sucata' is used to collect large refuse such as old freezers and furniture. In addition, the local government has promoted domestic composting and standardized the containers for waste recycling. A mechanic-biologic treatment (TMB) co-financed by the Municipality of Sao Sebastiao and GTZ complement the waste recycling process. Independently to the social and environmental advantages of recycling solid waste, the program has demonstrated to be economically feasible, generating a profit of US$2,260 for the co-operatives and US$3,041 (1999 figures) when combined with the TMB.

Source: Case study Sao Sebastiao

Natural Resource Management, Urban Greening and Land use Planning

In Sao Sebastiao, natural resource policies are the result of the interests of the local tourism industry. It is an important sector that depends largely on protected natural areas. Although tourism can be very important for protecting certain environmental areas of interest, eco-tourism is different from natural resource management. While certain areas will be protected, special care should be taken with less "attractive areas," were pollution problems might increase due to growing tourism activities, waste and traffic.

Normally, the national government is responsible for nature conservation, and national funds are available to implement local protection policies. This means that for small cities with limited (environmental) budgets, the conservation of natural areas and reforestation policies can generate important extra financial resources, and therefore develop the interest for local conservation.

Several cities have established programs to increase green space in and around the city. In Tehuacan, more than 40 thousand trees were planted, and the population learned the importance of green space for quality of life. The reforestation program also aimed at improving the air quality in the city. The urban reforestation was part of a national effort and counted on active participation of the municipality and several decentralized organizations. Several different types of plants were cultivated in a nursery, entirely financed by the municipality, and planted in the municipality or donated to other neighboring municipalities. Special emphasis is given to the cultivation of local native species that might be important for the development of the eco-tourism industry. A side benefit of the reforestation program is that it also provides jobs to the unemployed in the city. The replication of the experience to other neighboring municipalities through an inter-municipal agreement is currently being studied. Several good practices in urban greening, and management challenges can be found in Sorensen (1997).

In Formosa, planted trees are maintained by the neighborhoods while the city is responsible for the cultivation and the provincial government provides the transportation and fuel. Public woods are considered municipal patrimony, and the destruction of trees is penalized. The Northeast National University and municipal technicians are studying the creation of a reserve in a natural area near Formosa.

Pollution Management

Smaller cities have implemented traditional command-and-control instruments to manage pollution from industries with different levels of success. Environmental laws and codes have been enacted. These standards are often set by the national government. The list of environmental instruments implemented in the surveyed smaller cities shows that legal instruments are still far the most popular, however, not always the most successful. There are a couple of successful experiences in cities where the enforcement has been working relatively well. Such is the case in Ilo and Sao Sebastiao, where the municipality closed a tourist complex, because the owners would not comply with the standards for waste water pollution. Interesting recent developments have been the application of participatory approaches in the enforcement of pollution norms

Table 5.1:Use of environmental instruments in selected cities, as identified from the questionnaire results (source: questionnaire)

		Legal instruments	Economic instruments	Voluntary instruments	Assessment/ investigation	Capacity Building	Environmental education	Direct Investments	Planning
Argentina	Bahía Blanca		x	x	x		x		x
	Campana	x	x	x	x		x		x
	Comodoro Rivadavia	x							
	Formosa	x	x		x		x	x	
	Luján	x	x		x	x	x	x	
	Mendoza	x							
	San Fernando	x					x		
	Trenque Lanquen			x					
Colombia	Marinilla	x							
	Montería	x							x
	Neiva	x		x	x		x	x	x
Ecuador	Ambato						x		
	Cuenca	x	x	x		x	x	x	x
	Francisco de Orellana						x		
	Lago Agrio						x		
	Machala						x		
	Sto. Domingo de Los						x		
	Tehuacan	x			x		x		x
Peru	Chimbote	x	x			x	x		x
	Chulucanas								x
	Cusco								x
	Ilo	x	x	x	x	x	x		x
	Paita	x	x						x
	San Marcos							x	x
	Tarapoto					x			x
Total:		14	8	6	7	5	15	5	13

Legal instruments include norms, standards, and acts (national as well as local)

Financial instruments include taxes, subsidies, and other economic incentives or disincentives

Voluntary instruments include agreements, negotiation and covenants between different actors

Assessment/investigation includes monitoring, environmental impact assessment and quality control

Capacity building includes specific training programs to improve skills of professionals/politicians

Environmental education includes awareness raising programs and dissemination of information

Direct investments include the investment in improved infrastructure or cleaner technologies

Planning includes strategic plans, spatial planning, Local Agenda 21 and master plans with environmental components and a medium- to long-term vision.

Cities also are gradually starting to work more closely with the private sector on mutual agreements. Citizens can play an important role, when well informed, in the enforcement and control of these industries. In Formosa, the weekly environmental inspections by the municipality of one of the major local industries is done at the industry's own expenses. Formosa received a grant from the Basque Government to construct a municipal laboratory for water quality control, and to train two municipal technicians in Spain to operate the laboratory.

A growing number of smaller municipalities are also starting to install air quality monitoring networks to control air pollution. Often local educational institutes and foreign investors are involved. In Ilo, a program co-managed by the Peruvian Ministry of Health and the University of San Agustin in Arequipa, with technical assistance of the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS), the Peruvian NGO Labor, and the University of Wageningen (the Netherlands) developed a monitoring network. The final goal of this project is to help reduce the health impacts of air pollution in Ilo. The two years of monitoring have already shown the urgent need to improve copper processing technologies, to implement air pollution control, and to implement protection measures for the public.

In Formosa, emissions from buses have been reduced through negotiations with the companies to streamline the number of buses on a couple of major avenues. The change of routes has successfully reduced the noise levels in the city center, and have partially reduced air pollution levels (air quality is monitored by the local university, although it is unclear how this works in practice).

Challenges in Environmental Management

The smaller cities are facing various challenges in the implementation and consolidation of local environmental policies. These have been categorized and will be discussed in the following headings: political commitment and vision; participation; institutional framework, environmental instruments; financial resources; and capacity building and awareness raising.

Political Commitment and Vision

In smaller cities, the decision-making process is often influenced by a small number of people, groups, or interests. The political parties in power, and especially the Mayor and his advisors, normally have much more power than in larger cities. Their agenda influences greatly what happens or does not happen when they are in office.

The discontinuity in politics and policies in Latin America is enhanced in smaller cities, were mayors are much more strongly related to certain policies. Their leadership is absolutely crucial for the success (or failure) of environmental policies in cities.

In the case of Ilo, were the success of local environmental policies can be attributed to the stable and reliable leadership over six consecutive terms. The city of Ilo has been very effective in disseminating information on issues and achievements which shows that even smaller municipalities that have a commitment and long-term vision regarding environmental and social improvements can implement policies and attract funding from the private sector and international organizations.

Local leadership is an essential factor to raise interest and develop environmental policies and to organize stakeholders around environmental topics and issues. The long-term sustainability of environmental policies, however, can only be guaranteed if these policies are truly shared and endorsed by all different parties, and institutionalized in a formal rather than political framework.

Participation

A major challenge smaller Latin American cities face is creating sustainable partnerships. Participation is fundamental for the long-term success of environmental policies. Efforts in developing local environmental policy plans should ensure that many

stakeholders are involved. Different sectors of the population need to be involved in carrying forward the programs and policies, and in detaching them from particular political preferences so they are more difficult to discontinue.

In small cities the (potential) decision-making platform is more limited and less diversified than in a metropolis. Despite several interesting experiences, in most of the smaller cities the decision-making process is still very centralized and ad-hoc. In practice this means that certain local interest groups greatly influence the local decision making, and the environmental priority areas within the municipality. In large urban agglomerations, there is enough diversity and (potentially) more people or interests to provide a restraining influence on local politics. This can result in more balanced outcomes.

In the case of Ilo, the institutionalized participatory planning, implementation and co-management of pilot projects, has enabled a process of constant and gradual environmental improvements involving the different levels of governments, private sector and citizens. As a result, local population can exercise pressure on polluting industries. The experiences with SPCC in Ilo and the public complaints to control industrial pollution in Formosa show how this mechanism can be important for the enforcement of norms.

Shared responsibility over environmental programs can improve efficiency of economic processes and bring social and economic benefits to the cities. For example, micro-enterprises benefit from selling segregated waste, or from planting trees. Often, a market exists for these enterprises, but the right incentives and political framework is lacking. Therefore, an important aspect in poorer cities is to reconcile environmental and economic development policies. In Ilo, co-management systems and participatory processes have been institutionalized and constantly improved. For example, the local management committees or participants of the Municipal Housing Program (PROMUVI) are aware and follow the established municipal rules and mechanisms, and, as a consequence, not only contribute to the construction and maintenance of basic infrastructure, but also improve their living standards and become proud "owners" of their city.

The real challenge for the small cities is to develop an effective participatory process in a truly democratic framework, where the results create better environmental policies and more sustainable outcomes because the decision-making is shared by different interest groups. Discussions and implementation of projects and programs have to go through a process whereby different groups advocate their interests and the outcome is the result of agreement among diverse interests: private companies, governments, NGOs, citizens, educational and research institutes, etc.

The Local Agenda 21 approach can be a useful instrument for this. The LA21-focus on local sustainable development, combining environmental with economic and social aspects, favors a more integrated approach to environmental issues, including all relevant stakeholders. The fact that it combines a long-term strategic vision with immediate short-term action, including concrete budgetary proposals, makes it more attractive for those who are skeptical about the usefulness of planning and for politicians who wish to see short term results. In Latin America, an increasing number of cities are adopting this approach, like in Brazil, Bolivia, Chile, Colombia, Ecuador and Peru. Especially in Peru many municipalities started a LA21 process, encouraged and supported by a national network of "Cities for Life".

Institutional Framework

Decentralization is characterized in most countries in Latin America by an institutional process that delegates decision-making and resources from national governmental bodies to local municipalities. One of the major constraints to the decentralization process, that needs to be overcome, is the lack of experience and resistance from government apparatus both at local and national levels. Lack of inter-institutional coordination between local, regional and national bodies has often paralyzed implementation of policies. Sometimes environmental regulations are not

enacted on a regional level, leaving local authorities without any basis to enforce environmental compliance, as is the case in Formosa. Too many activities are only undertaken due to informal coordination at the level of professionals, who tend to know each other from professional organizations, the club etc..

Governments acknowledge the need for better integration and formalization of responsibilities. Reacting to national attempts to institutionalize planning and management mechanisms, many small and medium sized cities have formalized environmental management mechanisms under the umbrella of municipal master plans. Most master plans, however, have failed to promote real actions to strengthen appropriate environmental management. Weak institutional capacities, lack of resources and rigid frameworks have undermined the ability of master plans to adjust to change in complex governmental settings and to support and guide entrepreneurial practices of different actors. An in-depth analysis of urban planning practices in the medium sized city of Cusco in Peru is given in De Vries (1991).

Environmental Policy Instruments

The effective enforcement of environmental regulations is one of the biggest challenges in small and medium cities, and often exacerbated by land issues. The predominance of irregular land development, and, consequently, low environmental standards are most of the time products of the incapability of governments to incorporate the interests of the different actors, in particular, those of low-income groups. Inflexible and contextually inappropriate policies have paved the route for unplanned urban growth, land ownership conflicts, lack of social and physical infrastructure, and, ultimately, environmental hazards.

Despite many problems, important steps forward have been achieved and should be used as examples for approaches in other cities. Under certain circumstances, economic instruments and voluntary agreements can constitute effective mechanisms, which can be replicated. (IDB, 1996; World Bank, 1999). Policy instruments should be designed that are achievable, affordable, implementable and controllable, and preferably based upon local expertise and resources. The national and state government and the public should play an active role in guiding and advising the administration of smaller cities to find new approaches to problems in their cities. They should also help to overcome the lack of financial resources, by identifying policies that achieve "win-win" situations and to ensure long-term sustainability of the activities to improve environmental outcomes.

Financial Resources

The decentralization process in Latin America has resulted in the allocation of more national resources to local governments; however, it did not ensure an equitable distribution among local authorities. The metropolitan areas and economic centers absorb most of the financial resources, and have indeed profited from the decentralization process. The most notable exception to this rule is Peru, where a few years ago a new distribution of the funds from the Fondo de Compensación Municipal[6] was introduced. Small (district) municipalities received considerably more, while the larger (provincial) municipalities saw their contribution reduced, sometimes by 40% and even 60% (in the case of Lima). As the new rule was introduced abruptly, the large cities encountered financial problems, while the very small local governments did not have the absorptive capacity to spend the money effectively.

Despite decentralization of responsibilities and resources, national funds are still one of the most if not most important income sources in smaller cities. Local financial resources for environmental projects are limited, and often need to be complemented with state, federal and/or international and private resources. Some countries explicitly require (some) local recovery of costs locally. In Argentina, for example, a Federal Law requires local governments to recover

[6] Municipal Compensation Fund. Transfers national V.A.T. revenues to municipalities.

the costs from subsidized projects. The non-recovered costs are deduced from future Federal subsidies given to local governments. This law has been an important incentive mechanism for local governments to actively pursue cost-recovery for environmental projects within their jurisdiction. However, in general many fees and local taxes are not collected.

The major challenge in these cities will be to create more flexible and effective measures, together with policies that ensure local fund raising. A possibility is to assess the creation of inter-municipal coordination for the delivery of basic services and other environmental services like pollution control. It is often unfeasible to have environmental offices covering the full range of capabilities required for comprehensive environmental management within one small city. Shared institutions could lead to important economies of scale. Next, the enforcement of norms, and application of effective policy instruments, could raise local revenue to implement additional environmental and social policies. This will largely depend on the capacity and political willingness of local governments to propose innovative actions. Simple solutions like the bio-filters in Formosa, and the environmental improvements through citizen's pressure in Ilo are more effective than expensive cleaning operations and formal regulations.

Capacity Building and Awareness Raising

In most small- and medium-sized cities, there is a lack of good understanding of the complexity of the environmental problems and related effect. It is encouraging to see that small and medium-sized cities are increasingly involved in assessment and investigation activities to understand better the local environmental problems and engage in more effective policies to tackle them. The Rapid Urban Environmental Assessment Environmental Profile approach (Leitmann, 1994) is often used for this purpose.

Higher-educated people leave smaller cities to find suitable jobs and educational opportunities in bigger cities. Environmental professionals and other specialists normally will not find a job in smaller cities. Further, wages and career opportunities in these small cities are low and limited.

Awareness building is also an important ally for effective implementation of environmental policies at the local level. Communities are directly affected by decisions and can continuously monitor progress and effectiveness of solutions. It is important to build strategies that respect local culture, capacity, and knowledge. Further, communities in Latin America are increasingly aware of environmental problems, and, therefore, can be more easily involved in developing new strategies and actions. A key factor in program design is not to underestimate local knowledge but to build upon the richness of it. The lack of experience and low level of an environmental culture in the institutions and the community, however, is still a problem for the integration of priorities and the successful implementation of environmental projects and programs.

Technical teams with good expertise are often essential for continuity of the process and the achievement of the objectives of environmental policies as illustrated in Formosa. An important advantage of these teams is the relationship that they have with involved local actors and the in-depth knowledge of the reality in Formosa. Actually, the close and long-term interaction of technical groups with the local population is crucial in cities of this size, and provides a continuous feedback of the problems and the quality of solutions implemented. On the other hand, when problems occur these can become much more difficult to overcome due to the strong personal relationships.

Clearly, associations and non-governmental organizations should be closely involved in education and awareness building campaigns. In some cases the church can play an important role in organizing people and built awareness. There is clearly a need for more local capacity to deal with the increasing environmental problems, but one should not forget that much of the capacity already exists, and should be identified.

Conclusion

The above experiences show that relatively simple problems can be solved with uncomplicated approaches, and sometimes less actors means less potential for conflict. Strong leadership and willingness to develop local actions and to build links with private sector companies and other governmental levels are important success factors for decentralized environmental policies. Decentralization should actually not be seen as a simple transfer of responsibilities from a higher to a lower level government or decision-making; but rather a process that enables the development and implementation of actions and policies by affected parties or actors and legitimized by formal mechanisms and instruments on all governmental levels.

It is also important to acknowledge the important role national governments still play in small cities. The national government, however, is often passive regarding local environmental management and policies, and this can endanger the long-term implementation process of actions. Next, there are conflicts between national and local interests and policies. Actually, the national policies do mostly not reflect interests of small cities, but are more influenced by the concerns in metropolitan areas.

Broad participation is important for the success of policies; however, this activity should be carefully assessed to avoid specific interest groups dominating the decision-making process. A municipality should not act alone but with other actors (local, national and even international) in the enforcement of regulations. The experiences with public pressure in a couple of small cities show the importance of participatory control mechanisms. Voluntary agreements can bring important improvement. The private sector is willing to reduce emissions while increasing efficiency.

Another problem is that incongruent policies and uncoordinated decision making have lead to the abandonment of a number of viable environmental projects. This is compounded by the regular shifts of political parties governing the city, which increases the importance of short-term political objectives and project results. In turn, these shifts affect the continuity of projects and programs.

In areas with scarce financial and human resources, sometimes it is preferable to engage in specific actions than develop generalized, comprehensive programs. Many actions might result in many half-accomplishments, while prioritization and concentration on certain policies or actions, might achieve the objectives of these policies albeit with reduced scope. Investment in certain specific policies and actions had positive spin-off effects to other policy areas in a couple of cities studied. First, this was because the environmental policies also included poverty and economic development objectives, important to political support, and secondly, because successful completion of certain projects improved the city image and had an indirect positive impact on new policies.

A big challenge small- and medium sized cities face is the implementation of future policies that will require structural changes and additional technical capacity. These are needed to solve the remaining often-biggest environmental problems. This will in turn require a broad multi-sectoral and multi-level commitment to implement and finance these policies. The reality still is that financial support to these cities for implementing environmental policies is often catalyzed and augmented by international organizations, because there is a lack of national resources for investment as a result of economic adjustments. Such assistance should, in the future, foster the search for, and institutionalization of, local and national resources to become truly sustainable.

CONCLUSION AND RECOMMENDATIONS

In past years there is ample attention and an increasing knowledge and understanding of the environmental problems of the larger cities in Latin America and the Caribbean. Much less is known about the large number of small and medium sized cities in the region. This study aimed to present an overview of the different environmental issues and the management challenges in small and medium sized cities of Latin America and the Caribbean.

The study has drawn on available, though limited, literature and documents pertaining to the above subject. In addition, structured information was collected on 34 small and medium sized cities from experts in 5 countries, while 4 in-depth studies were conducted in Tehuacan-Mexico (239,000 inhabitants), Formosa- Argentina (216,000), Ilo- Peru, (61,000) and in Sao Sebastiao (50,000) in Brazil, involving local consultants.

The sections below present the main findings and conclusions of the study, according to the formulated research questions, and list the recommendations that are relevant for IDB's operations in the region.

Main Findings and Conclusions

Environmental Issues

Of the urban population in Latin America and the Caribbean, 47% is living in cities of less than 500,000 inhabitants. Are their environmental issues and problems different from those citizens living in larger cities? The great diversity that exists among the different cities in the region: population size, growth rates, natural surroundings, economic functions, political and administrative context, culture etc., does not easily allow general observations and conclusions. However, in this section we try to formulate a number of common issues found by the study.

The survey among 34 small and medium cities revealed that environmental problems with regard to solid waste management and pollution of water bodies were considered a higher priority in medium sized cities, while waste water and excreta, and poor quality of drinking water are higher priority problems in small cities. Typical large city problems such as traffic and air pollution rank much lower. Global warming and ozone depletion from a strictly local perspective are not considered of great importance. The "brown" agenda stands high and "green" agenda low.

The smaller scale and complexity of the problems in the smaller cities, makes their management less difficult. This has to be contrasted however with the lack of human and financial resources in these cities, which constrains the capacity to address these problems. In addition, dependence on higher levels of government constrains the flexibility of approach to problems, which differ strongly from city to city.

The service levels, such as the quantity and quality of piped water and sewer connections, waste collection and other services are generally lower than in the large cities. People not served by collective services are forced to find individual solutions, which leads often to bad health conditions and environmental damage. A few illustrations follow.

Solid waste certainly has a high profile among politicians and each of the surveyed towns can report occasional activities to clean up the city. The composition and per capita production of waste is not so much different from large cities but a number of cities receive large quantities of waste due to local industries, processing of agricultural produce or temporary increases in waste due to seasonal production or tourism. The resources required to transfer and dispose of these amounts of waste are often beyond the

capacity of the municipality. Recycling in the formal sense is not established in most small and medium towns but recycling by the informal sector is prevalent.

Waste water, excreta and chemical/organic pollution of water bodies is considered as another important problem. With many rivers, lakes and coastal areas in the region heavily polluted by chemical and organic matter, threatening ecosystems, natural resources and the drinking water sources of cities. In contrast to larger cities, the number and location of polluters in the hydrological cycle is easier to detect. An example is the pollution caused by mining activities, such as mercury pollution, as an effect of gold mining in the region.

As far as drinking water is concerned, in most large cities, it is the insufficient quantity of drinking water available per capita that leads to serious health risks. In smaller cities, due to the lower numbers of inhabitants as compared to the available water sources, the quality of the water is probably a more important issue because of insufficient treatment facilities. Limited use of advanced technologies for purifying water increase the risk of chemical (and to some extent biological) pollutants reaching the consumers.

Many small and medium sized towns are also prone to natural and man-made disasters and their preparedness is very limited. In the peripheral areas of the small and medium sized cities, the densities are much lower. The disadvantage of this form of growth is that the city expands very fast at low densities, making the provision of infrastructure expensive and consuming valuable agricultural and natural lands. On the other hand, urban agriculture can contribute significantly to the food provision of the city and to its ecological diversity and stability. It is a matter of finding a good balance, requiring appropriate city planning. This however, is missing in almost all cities. Traffic related air pollution is generally ranked much lower as a problem in small and medium sized towns. However, a small number of towns suffer from high rates of air pollution due to poor traffic regulation and geographical disadvantages such as in Cusco, Peru. Also air pollution from industries is a less common perceived problem, but the few cases that were reported suffer from severe air pollution problems, e.g. in Ilo, Peru due to metallurgic and fishery industries. Outdated machinery and lack of treatment facilities aggravate the situation.

It is clear that, as compared to the large cities, there is a general lack of reliable data about the environmental problems in small and medium sized cities, as a consequence of the limited monitoring and research capacity in these cities and the low political priority that is being given to these cities within the national contexts.

Role of Decentralization

As reflected in recent legislation, the responsibilities of small and medium cities is growing in areas such as water supply, sewerage, sanitation, waste collection, roads, local markets, land development and building regulation. Other, less common, tasks relate to public health, education, housing, power supply, law and order, and economic development. Environmental monitoring, environmental data generation, environment impact assessment, conservation and environmental policy making and planning are items that appear rarely on the menu of municipal tasks.

In general terms, decentralization of environmental management responsibilities improves the provision of services with more attention for local environmental problems, tailored to the specific local reality. Efficiency gains can be achieved, through local financing and linking resources from different local sources. Other advantages are the cooperation between local actors and better possibilities for community participation and more accountability of service providers, because of a closer relationship with the users and beneficiaries. Finally, decentralized environmental management can also provide for more local job opportunities. Among the most obvious disadvantages are: the risk of creating inequalities between local governments (rich versus poor municipalities) with respect to resources and service levels; loss of control by the central government with

respect to monetary and fiscal matters, and risk of irresponsible fiscal practices; lack of local capacities to manage the new responsibilities; and finally a fragmentation of decision making about issues that need an integrated approach at higher levels or in other areas.

In order to make optimal use of the opportunities and avoid the potential disadvantages, there is a need for a gradual process of decentralization, with adequate implementation of mechanisms of control and communication and a high priority for capacity building at the local levels.

Local Capacities and Environmental Policy Instruments

In most countries environmental laws and codes have been enacted by the national or state governments (in case of federal nations) but often have not been regulated or implemented which complicates their implementation at the local level. Nevertheless, the surveyed cities still use predominantly legal instruments. These cities are applying pollution control command-and-control instruments with varying levels of success. Other instruments such as environmental planning, economic instruments, voluntary instruments (environmental agreements or covenants), direct investments or encouraging corporate environmental management are used less frequently. Examples from this study show that, even within an incomplete institutional and legal framework, municipalities manage to achieve positive results when they creatively use voluntary and other instruments, based on vision and leadership.

In several cases, the participation of the private sector has been an important factor. However, private sector involvement can also have mixed results. Larger companies can be very influential with considerable leverage in small cities. The role of NGOs and communities in environmental activism to counterbalance this interest is limited, but growing. It is also important to acknowledge the important role national and state governments still play in small cities. These governments, however, are often passive in respect of encouraging local environmental management and policies, and this can endanger the long-term implementation processes of actions. In addition, there are possible conflicts between national and local interests and policies. The national policies do not yet reflect sufficiently the interests of small cities and do not have the flexibility of approach required in such areas.

In areas with scarce financial and human resources, it may be preferable to focus on specific actions rather than develop ambitious large-scale and multi-year programs. In the case studies, the investment in certain specific policies had spin-off effects to other policies. The demonstration and agenda-building aspect is crucial in smaller and medium sized cities. In many cases, a specific environmental degradation or pollution problem in a city is the impulse to start working on environmental issues. These specific actions sometimes evolve into integrated plans, while in others, increased awareness spills over in environmental policies and projects in other areas. The Local Agenda 21 approach, which combines immediate short-term action with a more strategic planning framework, can be a workable approach and is indeed increasingly adopted by municipalities in the region.

A big challenge small and medium sized cities face is the implementation of future policies that will require structural changes, and additional technical capacity, to solve the remaining (and often substantial) environmental problems. This will need a broad multi-sectoral and multi-level commitment to implement and finance these policies.

Good Practices

The study has presented several good initiatives and experiences in urban environmental management. These experiences have a couple of aspects in common. As such, public demand, together with political commitment, resulted in the improvement of environmental conditions. A strong but open style of leadership is key for mobilizing human resources. The initial initiatives enabled the development of other environmental policies and actions based upon the participation of relevant stakeholders. A focus on locally

perceived priorities is thereby critical to ownership and success. Decentralization of services from national to local governments, and sharing responsibilities from local government to neighborhood, proved instrumental in successful and sustainable improvements. Formalization of partnerships into an institutional arrangement secures success and continuity. The good practices also make clear that local environmental improvements are possible without having to wait for national legislation. In many cases, external assistance by international and national agencies and networks (like UMP-LAC, IIED-LAC, the Healthy Cities Programme (WHO), Forum Cities for Life Peru, IBAM, GTZ and others) had a leveraging function in creating change at local level. Also the support by national associations of local governments in this field is increasing. Finally, providing expertise to municipalities and training local staff in environmental management skills has been essential. Higher-level institutions (universities, specialist training institutes) have an important role to play in this.

Although there are a growing number of good practices, it is also clear that a strategic and integrated approach aiming at local sustainable development is still lacking in most small and medium sized cities. Yet, several cities are introducing new approaches to local environmental management.

Five Recommendations

This study reinforced the importance of the Bank's focus on the institutional and governance aspect of the decentralization process. Addressing the environmental issues of small and medium sized cities will require an integrated approach focussed on capacity building for local institutions.

- *Recommendation 1*: The Banks' financial support to municipalities should include possibilities for financial and technical assistance, that allow local parties to analyze environmental problems, to conduct studies, to hire expertise and to facilitate the process of problem resolution in a strategic and participatory manner, similar to the Local Agenda 21 approach.

While environmental policy instruments and a legal framework exist in most countries, unclear distribution of responsibilities, lack or conflict in competence and mismatch in human and financial resources still remain. These problems become particularly obvious when specific urban problems need to be addressed.

- *Recommendation 2*: To provide legal and institutional assistance to identify gaps in the legal and administrative framework that hampers municipalities in tackling important local environmental issues and to suggest and assist in developing environmental policy instruments at their level. It could be considered to integrate such activities with the Banks' strategy to improve framework conditions for eco-efficiency in the private sector, through its Multilateral Investment Fund (MIF).

In most countries, the knowledge infrastructure to support municipalities in addressing environmental issues is limited. Municipalities are not always aware of existing expertise or are financially unable to hire experts.

- *Recommendation 3*: To support and help building up national and regional knowledge infrastructure in municipalities addressing environmental issues by providing research funds, fellowships and technical assistance, and to strengthen training capacities in identified capacity building institutions.

The database on small and medium sized cities in the region is still very limited. This study encountered several limitations. Many interesting experiences with environmental management are taking place in the region, from which useful and replicable lessons can be learnt. But, still most municipalities are trying to re-invent the wheel.

- *Recommendation 4*: To expand the database on small and medium cities by commissioning more in-depth studies on environmental problems and management practices. To promote the access of small and medium sized cities to information about good practices in other places, as well as the exchange of experiences, providing financial and technical assistance to selected institutions and networks. As also the smaller cities become increasingly connected, Internet-based systems seem to be a viable alternative.

Well-documented good practices in urban environmental management can be stimulating for other cities in the region. These are however still very scarce.

- *Recommendation 5*: To support demonstration or pilot projects in cities in which a basis for participatory approach already exists, for example in the case-cities from this study. Such a project could consist of three components: (i) a capacity building program in urban environmental management; (ii) a strategic planning process (LA21 or similar) with external facilitation, incorporating and extending any existing activities; (iii) a fund for the implementation of short-term small projects resulting from this process. Finally, in order to stimulate inter-municipal cooperation, parts of the project could be extended to include also neighboring municipalities.

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