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# The Urban Challenge in National Environmental Strategies

Janis Bernstein

April 1995



Environmentally Sustainable Development

The World Bank

ESD



**Land, Water, and Natural Habitats Division**

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**April 1995**

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# Preface

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Urban environmental problems impose high costs on health and productivity. The most critical of these problems in developing countries is urban pollution. In some countries, individual cities also may face other issues, such as the depletion of water and forest resources, a degradation of coastal and other fragile areas, and the occupation of hazard-prone land. Although city-specific solutions are needed to address the immediate problems of any one city, there is an important role for national governments. Based on a review of more than 30 national environmental action plans (NEAPs), numerous developing

countries and transitional economies are addressing urban environmental problems at the national level. This paper presents the results of this review and offers preliminary recommendations for addressing urban environmental problems in future national environmental strategies. The paper was initially prepared for the 1994 Environmentally Sustainable Development Seminar "The Human Face of the Urban Environment." Other Environment Department papers addressing national environmental strategies and plans are "National Environmental Strategies: Learning from Experience" and "Taking Stock of National Environmental Strategies."

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# Acronyms and Abbreviations

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BOD	Biological Oxygen Demand
COD	Carbon Oxygen Demand
CEE	Central and Eastern Europe
CESP	Country Environmental Strategy Paper
EU	European Union
EPB	Environmental Protection Bureau
GDP	Gross Domestic Product
GLD	Guided Land Development
IBRD	International Bank of Reconstruction and Development
IDA	International Development Association
MSWM	Municipal Solid Waste Management
NGO	Non-Governmental Organization
NEAP	National Environmental Action Plan
NCS	National Conservation Strategy
NO <sub>x</sub>	Nitrogen Oxide
NSDS	National Sustainable Development Strategy
SO <sub>2</sub>	Sulfuric Oxide
TFAP	Tropical Forest Action Plan
UNCED	United Nations Conference on Environment and Development

# Executive Summary

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Urban environmental problems can be critical impediments to sustainable development. The immediate and most critical of these problems facing developing countries are: lack of safe water and sanitation, inadequate management of solid and hazardous wastes; inadequate control of pollution from vehicles and industrial facilities; accidents linked to congestion and crowding; the occupation and degradation of environmentally sensitive lands; and a loss of cultural resources and open space. In some countries, the cost of pollution problems alone reaches the equivalent of five percent of national income. Although experience in both industrial and developing countries demonstrates that an effective approach to confronting urban environmental problems is to formulate a city-specific environmental strategy, there is an important role for national governments in addressing urban environmental problems through national environmental strategies and action plans.

Since the mid-1980s, the World Bank has been assisting its borrowers in preparing national environmental strategies. These strategies often are based on environmental profiles, national conservation strategies, and sectoral and economic analyses performed by the countries themselves or with the assistance of international and bilateral organizations. During the IDA-9 and IDA-10 replenishment negotiations, the donors urged that National Environmental Action Plans (NEAPs) should be completed for all countries receiving IDA credits. By the end of FY94, most active IDA-eligible countries and some higher income IBRD borrowers completed NEAPs or similar documents. Several are now entering their implementation phase.

A review of more than 30 NEAPs revealed that almost all addressed the urban environment or some aspect of the urban environment to some degree. The following are general conclusions regarding the manner in which the NEAPs' urban environmental problems are addressed:

- Most of the NEAPs reviewed indicate there is scope for more systematic analysis of urban environmental issues. Although many identify urban environmental problems as serious national environmental problems, there usually is no indication that the preparation of the NEAP involved an in-depth analysis of urbanization trends in the country or the nature, extent, causes, and national significance of urban environmental problems. Moreover, the NEAPs usually do not indicate priorities among the various urban environmental issues identified.
- The urban environmental problems identified most often are inadequate solid waste management and inadequate water supply and sanitation. A number of NEAPs also address air pollution from mobile and industrial sources. Indoor air pollution from the burning of coal is a severe problem in China and Central and Eastern European countries. Surface water pollution from both municipal and industrial sources is another problem identified in the majority of NEAPs. Poorly managed hazardous waste is identified as a problem primarily in the NEAPs prepared for Central and Eastern European countries. Other problems addressed are urban coastal resource degradation, occupation of hazard-prone or other sensitive areas, loss of cultural re-

sources and open space, and urban noise.

- The costs of urban environmental problems are key indicators of their importance to national economies. But only a few NEAPs provide estimates of these costs. For example: in Benin, the cost of urban and industrial pollution is between US\$27 million and US\$45 million per year; in Poland, the health costs of air pollution are estimated to be at least 1 to 1.5 percent of GDP; estimates presented in the Egypt NEAP show that the health costs (that is, medical expenses, lost working days, and premature mortality) associated with air pollution in the country's two major industrial areas in Cairo (Helwan and Shoubra El-Kheima) are about US\$40 million per year.
- The health effects of urban environmental problems further demonstrate the national significance of urban environmental problems. They are documented primarily in the NEAPs that identify one or more aspects of urban environmental degradation as a key problem. For example, the Pakistan NEAP reveals that 40 percent of urban deaths are caused by water-borne diseases. The Egypt NEAP reports that about 20 percent of the population in Shoubra El-Kheima suffer from lung diseases because of high exposure to SO<sub>2</sub> and smoke; in areas close to the cement industry in Helwan, 29 percent of school children suffer from lung diseases compared to 9 percent in rural areas.
- Although an important basis for identifying appropriate actions to address environmental problems is a clear understanding of their causes, most NEAPs do not provide an analysis of the causes of urban environmental degradation. Consequently, many of the NEAPs are not as clear as they might be in identifying policies and instruments as well as the criteria used in selecting them. Moreover, many NEAPs do not identify institutional arrangements and capacity

building needs for managing the urban environment, although ensuring adequate institutional capacity is a critical prerequisite to implementing environmental strategies.

Given the differences in country size, range of environmental problems, economic complexity, government capacity to respond, and phase of national environmental planning, there is no "ideal" national environmental strategy, nor is there an existing environmental strategy or action plan that exemplifies the best way urban environmental issues should be addressed. Best practice in identifying and responding to priority urban environmental problems in NEAPs is evolving. Based on an assessment of the first generation of NEAPs, however, it is evident that future national environmental strategies can be improved if they take into account the following:

- The screening of national environmental issues should include a comprehensive assessment of trends in urbanization; collection of data on the number, population, and rate of growth of cities within the country; and analyses of the economic importance of cities and the nature, magnitude, and costs of urban environmental problems. The countries that should pay particular attention to urban environmental problems are those experiencing rapid rates of urbanization and industrialization and those whose urban populations account for a large percentage of the total.
- Countries need to be more rigorous in setting priorities not only among national environmental issues, but among urban environmental problems. Although priority setting is frequently based largely on political considerations, more emphasis should be placed on informing the priority setting process. Carrying out economic analysis can help ensure that the policies followed first will achieve the greatest benefit relative to given objectives and available resources.

- In formulating a NEAP it is important to examine the causes of priority urban environmental problems to facilitate the identification of key actions, specifically those needed to remove pricing distortions, establish the necessary policy and legal frameworks, and establish critical financial, technical assistance, or other types of capacity building.
- In identifying priority actions to address urban environmental problems, the NEAP should specify the policies and instruments that should be adopted, the criteria used in their selection, and the specific institutional arrangements and timing for implementing them. The NEAP also should specify sector-specific goals, objectives, and targets for improvement, including indicators for monitoring progress.
- In choosing instruments identify “win-win” policies first. The scope for actions that promote income growth, poverty alleviation, and environmental improvement is very large. Examples include: (1) removing subsidies that encourage excessive use of natural resources, (2) clarifying land rights to promote better management of land and investments in or provision of environmental improvements, and (3) accelerating provision of clean water, sanitation, and drainage, improvements in public transport, and the introduction of energy efficient technology.
- Where win-win situations are not applicable or immediately obvious, the choice of instruments should take into account practical, economic, and political realities. Each country will need to establish criteria upon which to base its selection. The most important criteria are: cost-effectiveness; administrative and financial feasibility; equity; and political, social, and market feasibility. Other considerations include: transparency; flexibility; and consistency with other government policies and instruments.
- Cities with populations of over 500,000 should be encouraged to develop their own urban environmental strategies focusing on city-specific priorities. The urban environmental strategy prepared at the national level should include a strategic framework for smaller cities which do not have the necessary capacity to carry out their own planning. In some cases, urban environmental strategies and action plans can be inputs to the national environmental planning process.

The process of preparing national environmental strategies and action plans represents an opportunity for countries with increasingly scarce resources to identify priority environmental problems and formulate cost-effective solutions for reversing environmental degradation without slowing economic development. Given the importance of cities to economic development, the high costs of urban environmental degradation, and the large and ever-increasing numbers of people affected, confronting urban environmental problems should emerge as a priority in a greater number of countries. Notwithstanding the deficiencies of earlier NEAPs in addressing urban environmental problems, the experience gained in their preparation and implementation can provide important lessons for improving the next generation of national environmental strategies, refinements or updates of earlier NEAPs, and country economic strategies.



# 1. Introduction

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Urban environmental problems can be critical impediments to sustainable development. Faced with rapid urbanization and the often accompanying problems of uncontrolled waste and pollution, lack of safe water, land degradation, and congestion, many developing countries cite urban environmental degradation as a priority problem in their national environmental strategies and action plans. The purpose of this paper is to examine how urban environmental problems are addressed in a selected group of National Environmental Action Plans (NEAPs),<sup>1/</sup> to highlight best practices, and to provide additional guidance on how to tackle urban environmental problems in the next generation of national environmental strategies and action plans. The paper is directed primarily to environmental policy makers in developing countries.

## **Study Methodology and Structure of Paper**

This paper is based on an analysis of 38 NEAPs as well as interviews with the World Bank task managers involved. Although the process of preparing the NEAP is as important as the document itself, the analysis focused primarily on the substantive elements of the NEAPs so as not to duplicate the findings of other papers and publications that specifically address process issues.<sup>2/</sup> Moreover, the process of preparing a national environmental strategy and plan does not apply only to urban environmental issues and therefore extends beyond the scope of this paper.

The analysis of urban environmental issues in NEAPs is part of a larger study carried out by

the World Bank, "National Environmental Strategies: Learning from Experience." This larger study covers a wider range of issues focusing on methodologies used in establishing priorities; identifying the causes of priority problems; determining appropriate policies, instruments, and actions; and recommending measures for improved institutional performance. It is intended to identify lessons from the preparation of existing national environmental strategies and action plans and suggest methodologies that can be used to formulate more effective ones in the future. Many of the early findings of the larger NEAP study are relevant to the urban environment and are reflected in this paper.

Only eight of the NEAPs examined have entered the implementation phase at the time of this review. Consequently, the views presented in this paper are based primarily on the content of the documents themselves and discussions with task managers. Although a NEAP appears to be well-conceived in its approach to the urban environment, insufficient implementation experience precludes a more comprehensive assessment. In some cases, however, the failure of the country to properly implement a strategy or action plan reflects a lack of ownership and commitment often due to inadequate public participation during the NEAP preparation phase.

The paper is presented in four chapters. The remainder of chapter 1 discusses urban environmental problems and their importance to economic growth in developing countries. The chapter also presents a brief background on the origin, nature, and status of NEAPs as well as

some early lessons in preparing them. Chapter 2 provides a general overview of how, and the extent to which, urban environmental problems are addressed in NEAPs. Chapter 3 examines how some key urban environmental issues are addressed in a small sample of NEAPs. Chapter 4 presents conclusions and recommendations for policy makers when addressing the urban environment in future strategies and action plans.

### Urbanization and Environment

Developing country cities are growing at unprecedented rates. Since 1950 the urban population has increased from under 300 million to 1.3 billion people (World Bank 1991). By the year 2030, this population is expected to grow by 160 percent. Another striking trend is the steady increase in the number of large cities. Presently half of the urban population in developing countries is located in some 394 cities, each having populations of over half a million. By the year 2000, 21 cities in the world will have more than 10 million inhabitants; 17 of these cities will be in developing countries (World Bank 1992b).

Unrestrained rural-to-urban migration and natural increase have caused rapid urban growth throughout the developing world. Rural migration has resulted from both "push" and "pull" factors. In the countryside, increasing agricultural productivity has reduced the growth in demand for rural labor; urban areas, by contrast, offer better prospects for jobs and higher incomes. Migrants have tended to come from the bottom and top of the rural income distribution; the landless and rural poor often have no choice but to seek non-farm employment; successful farmers often use their surpluses to finance the move to nearby towns and later to large urban centers (World Bank 1991). Even where national policies have attempted to curtail the growth of cities, no country has been effective in containing rural-urban migration. Although rural migration is a major cause of urban population growth in many developing countries, in large cities, natural increase has

replaced migration as the principal source of growth in most continents except Sub-Saharan Africa.

As cities grow, productive activities tend to concentrate in urban centers where 60 percent of gross domestic product (GDP) is generated (between now and the year 2000, about 80 percent of Third World GDP growth is expected to originate in cities and towns). Although cities are the main catalysts of economic growth, urbanization has not eliminated the massive problems of urban poverty and environmental degradation. Where effective management controls are not in place, rapid population growth and industrialization are accompanied by ever-increasing amounts of waste and pollution as well as the occupation of hazard-prone or environmentally sensitive land by low-income groups (including migrants), thus threatening health and seriously constraining urban productivity and economic development.

The immediate and most critical urban environmental problems facing developing countries encompass what are referred to as the "brown" problems, among them: lack of safe water and sanitation, inadequate management of municipal solid and hazardous wastes; pollution from vehicles and industrial facilities; accidents due to congestion and crowding; occupation of hazard-prone lands; degradation of environmentally sensitive lands; and the loss of cultural resources and open space. In contrast to the "green" environmental problems (that is, those having to do with the use of natural resources), the cost of the "brown" problems — in terms of poor health, lower productivity, and reduced income and quality of life — falls most heavily on current generations, particularly the poor. For many developing countries, these effects can impose high costs. According to the Hungary NEAP, for example, the estimated cost of pollution problems alone is as much as five percent of GDP. Other examples of the high costs of urban pollution are:

- in Bangkok, excessive exposure to lead causes 200,000 to 500,000 cases of hypertension

sion resulting in 400 deaths a year (World Bank 1992a and U.S. AID and U.S. Environmental Protection Agency 1991). In addition, the city currently loses about one-third of its potential gross city product due to congestion-induced travel delays—this could rise to 60 percent if no actions are taken (World Bank 1991 and Japan International Cooperation Agency 1990);

- in Mexico City, abnormally high levels of suspended particulates have caused an average of 2.4 lost work days per person and 6,400 deaths every year; lead exposure may contribute to as much as 20 percent of the incidence of hypertension in adults and 29 percent of all children have unhealthy lead levels in their blood; annual health costs from air pollution are estimated to exceed US \$1.5 billion (Eskeland 1992 and Margulis 1992);
- in Jakarta, the estimated cost of the health effects of pollution in 1990 was more than US\$500 million (World Bank 1994) with more than US\$50 million spent each year by households to boil impure water — the equivalent of one percent of the city's gross domestic product (World Bank 1992a); and
- in Lima, the cholera epidemic of 1991, which was due to inadequate sanitation, caused an estimated US\$1 billion in losses from reduced agricultural and fisheries exports and tourism in just the first ten weeks (World Bank 1992a).

In addition, growing congestion and pollution in their main urban centers make it increasingly difficult for some countries to compete for foreign investment, especially in the higher-technology industries needed to enhance the productivity of the labor force. In Jakarta, for example, where the urban population is expected to double over the next 25 years, with a potential for a ten-fold increase in industrial pollution in urban areas, growing community resistance to uncontrolled pollution will inevitably lead to pressure to slow the expansion of

industrial output in the areas where future growth is most likely to occur (World Bank 1994).

The challenge of rapid urbanization will be to sustain economic growth while solving the environmental problems accompanying that growth. In tackling these problems, however, there are no standard solutions. Experience in both industrial and developing countries demonstrates that an effective approach to confronting urban environmental problems is for each city to formulate its own environmental strategy and action plan that responds to the nature and severity of its problems. As discussed in Bartone et al. (1994), the factors that determine the nature and severity of environmental problems as well as the type of potential intervention strategies are: (1) the type of climate and regional ecosystem, (2) population size and rate of growth, (3) level of income and economic development, (4) the diverse spatial dimensions of urban environmental problems that determine who is affected and how, the severity of impact, and the appropriate level of responsibility and decision making needed to solve problems, and (5) the roles and interactions of numerous public, private, and household actors who have an important effect on environmental problems and their solutions.

Such a strategic approach also should address the factors that perpetuate urban environmental degradation (that is, institutional deficiencies, inadequate policies and actions by public and private actors, and insufficient knowledge and information) and emphasize five key areas of intervention: (1) mobilizing public support and participation, (2) choosing effective policy interventions, (3) building local capacity, (4) strengthening urban service delivery, and (5) increasing local knowledge about the urban environment.<sup>3/</sup> Notwithstanding the importance of city-specific strategies and plans in managing the urban environment, there is an important role for national governments in addressing urban environmental problems through national environmental strategies and action plans.

## National Environmental Action Plans

The concept of national environmental planning started to influence development activities formally more than ten years ago. In 1980, the World Conservation Strategy (WCS), conceived by the World Conservation Union (IUCN), United Nations Environment Program (UNEP), and the World Wildlife Federation (WWF), recommended that countries undertake national and sub-national conservation strategies (NCSs). Since then, hundreds of countries and communities have developed and implemented such strategies. Apart from the WCS, inspiration for these initiatives has come from a variety of sources, including: *Our Common Future*, the report of the World Commission for Environment and Development (the Brundtland Commission) in 1987; *Caring for the Earth*, a global strategy for sustainable living prepared by IUCN, UNEP, and WWF that builds on the World Conservation Strategy; and Agenda 21,<sup>4/</sup> the principal product emerging from the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 (Carew-Reid et al. 1994).

### *Origin and Status of NEAPs*

Since the mid-1980s, the World Bank, together with other donors and non-governmental organizations (NGOs), has been assisting countries in preparing national environmental strategies. These strategies often are based on environmental profiles, national conservation strategies, and sectoral and economic analyses performed by the countries themselves or with the assistance of international and bilateral organizations. During the IDA-9 and IDA-10 replenishment negotiations, the donors urged that all low-income countries receiving IDA credits complete NEAPs. The process by which the Bank supports action plan preparation was formalized in July 1992, in "Operational Directive 4.02, Environmental Action Plans" (currently O.P 4.02), which provides guidance to staff for assisting borrowers in preparing NEAPs.<sup>5/</sup>

It is generally accepted that NEAPs represent

both a "process," (that is, how it was prepared and who participated), and a "product" (that is, what was determined), intended to identify the major environmental concerns of a country and their principal causes, as well as to formulate policies and concrete actions to deal with them. The content and format of a NEAP are country-specific and vary according to the country's size, range of environmental problems, economic complexity, and government capability to respond to environmental issues.

Ideally NEAPs include at least four main interrelated elements to make them effective tools in helping to solve environmental problems: (1) screening of environmental problems and setting of priorities; (2) identifying causes of major environmental problems; (3) identifying priority interventions, particularly policies and instruments; and (4) determining institutional improvements and other factors to ensure implementation of NEAP recommendations and the sustainability of long-term national environmental planning. Many NEAPs culminate in a package of environmentally-related investment projects intended for donor assistance. As new information emerges and priorities change, NEAPs are expected to be continuously refined and updated.

Although the responsibility for NEAP preparation and implementation rests with the borrower, the Bank has provided various types of assistance: policy dialogue; sector work, including Bank-prepared country environmental strategy papers (CESPs), which frequently provide important analytical input for the NEAP; technical assistance; and project lending. Bank staff also have been involved in launching the NEAP process, monitoring progress, and providing inputs for portions of the NEAP document.

Except for new IDA members, most active IDA borrowers completed their plans or equivalent documents during FY93 and FY94. By the end of FY94, 47 IDA-eligible countries completed NEAPs or their equivalents. In addition, new IDA members are initiating NEAP processes

and IBRD borrowers continue to prepare and complete NEAPs as well.

### *Early Lessons*

The NEAP process has been particularly extensive in Africa which contains the majority of IDA-borrowers. The Bank's Regional Technical Department for Africa has been at the forefront of technical assistance and policy dialogue about national environmental planning.<sup>67</sup> Some of the early Africa NEAPs, however, have been criticized for being driven by external pressures to deliver projects to donor conferences. Although the prospect of multi-million dollar donor support is seen by some to have distorted the process, NEAPs generally have served a vital need by identifying major environmentally friendly investments. In addition, many NEAPs are largely country-driven and focus equally on establishing a national environmental planning process and identifying projects for financing. Although there is limited experience in the implementation of NEAPs to date, experience with NEAP preparation suggests that:

- Preparing a NEAP should be part of a continuing process of national-level problem identification, policy dialogue, and building support for environmental management.
- Internalizing the process of preparing and implementing NEAPs, and in particular, reaching agreement among concerned parties on the priority environmental issues and appropriate strategies to address them, are equally if not more important than the NEAP document itself. This, however, takes time. As illustrated in Box 1, the systematic, highly participatory process that has occurred in Uganda, took over three years by the time the NEAP report was completed in 1994.
- Ensuring a successful environmental strategy may require all key stakeholders to be included in and committed to the planning process, particularly those ministries responsible for economic as well as environ-

mental decisions. In Nicaragua, for example, the involvement of the Ministry of Economics as the lead coordinating agency with technical support from other line ministries has raised the political status of the document and thus increased its chance of effective implementation.

- Building capacity is commonly required to strengthen institutions and information systems to deal with complex, uncertain, and dynamically changing environmental problems; build mechanisms for cross-sectoral integration; and increase the use of concepts and tools for integrating economic, social, and environmental objectives.
- Defining priorities for action requires sound analysis and participation. The stronger the analytical and support bases of the plan's recommendations, the better the chances that the plan will be implemented successfully.
- Preparing a NEAP requires properly integrating environmental policies with broader policies for national economic development.

The process of preparing national environmental strategies and action plans is still evolving. Much remains to be learned about the most effective methodologies for preparing them; how to ensure country ownership, and commitment to implement them and continually refine them; how to best integrate sector-specific plans, and how to integrate NEAPs into national economic development planning. Based on experience with the initial set of NEAPs, it appears that many do not have the strategic, dynamic, and participatory content they were intended to have. Furthermore, because they are relatively new and the problems they address are so complex, results in terms of objectives achieved, and improvements in human health and environmental conditions are still uncertain. Nonetheless, some of the non-quantifiable benefits to date have included better organizations, legislation, and procedures, and increased

awareness. For example, Madagascar's NEAP (completed in 1989) led to the establishment of the Office National de l'Environnement, a coordinating body within the Ministry of Economy and Planning and the adoption of a comprehensive national policy on the environ-

ment. Ghana's NEAP (completed in 1991) led to an effort to strengthen the institutions responsible for implementation, including sectoral ministries, research institutes, and universities.

**Box 1**  
**Participation in Uganda's NEAP**

Prior to initiating Uganda's NEAP in late 1990, the country had no forum to deal with environmental issues. Although a Ministry of Education had been established in 1986 with several other government agencies responsible for particular environmental issues, each agency generally acted independently. There was no adequate mechanism for applying a consistent environmental framework to sectoral and economic policies. Institutions outside government, notably Makerere University, the Uganda Institute of Ecology, and the Uganda Museum and Wildlife Clubs of Uganda as well as numerous donors and international NGOs, also undertook environmental activities and studies, but these agencies rarely worked together. The Government decided that the formulation of its NEAP should be based on wide local participation involving the central government, local government, civic groups, research and academic institutions, NGOs, and private sector agents. It was to cover all of the country's principal environmental issues.

With IDA assistance, an organizational structure was established for NEAP preparation involving a Cabinet-level steering committee chaired by the Prime Minister and 12 Ministers having environmental responsibilities; a secretariat headed by the Secretary for Environmental Protection and advised by a committee of representatives of multilateral agencies and bilateral donors, international and local NGOs; and a series of task forces focusing on specific issues or groups of issues, each involving Government officials, academics, local NGOs, and the private sector.

Drawing on contacts with local resource users and others, eight task forces carried out the work of analyzing and presenting issues. Together they identified a list of 57 issues that could be grouped into 12 priority areas, including: (i) lack of a national land use policy or relevant land tenure policy; (ii) gaps in basic information on the environment; (iii) urban and industrial pollution; (iv) limited public awareness of environmental issues or public participation; (v) applied research needs, institutional issues, and coordination problems; and (vi) shared regional and international concerns, such as those concerning Lake Victoria, or biodiversity.

The consultation process was extensive, leading to task force field trips and a series of regional workshops in 1992 involving wide participation by local government, NGOs, and private citizens. The feedback they provided was used to revise task force issues papers for presentation to a national symposium on the environment in December 1992. Even before reaching the implementation stage, Uganda's NEAP process was producing results that may have been more important than the end product. It brought government, local and international organizations, private citizens, and donors into a common forum to discuss issues and agree on priorities. Middle and lower level management and technical staff of government, through participation in task forces and seminars, became aware of NEAP objectives and issues and have benefitted from the teamwork involved.

## 2. Urban Environmental Issues in NEAPS

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Among the NEAPS reviewed, almost all deal with the urban environment or some aspect of the urban environment to some degree. This is not surprising considering the high rates of urbanization in many of the countries involved and the large proportion of urban population within them. The purpose of this chapter is to provide an overview of how, and the extent to which, urban environmental problems are addressed in these NEAPs with respect to the manner in which they identified problems, including their impacts and causes, and recommended priority actions and instruments to address them.

### **Problem Identification**

In identifying national environmental problems, there are three basic ways in which urban environmental issues are addressed: (1) in a separate section devoted specifically to one or more urban environmental problems; (2) by integration, or inclusion of the urban dimension within a larger section, addressing a problem such as inadequate waste management, water pollution, or water resources management; and as (3) an occasional reference to a specific city or "hot spot" within a discussion of national waste and pollution problems. The latter was the case in most of the NEAPs prepared for the Central and Eastern European (CEE) countries.

Most of the NEAPs reviewed reveal that there is scope for more systematic analysis of urban environmental issues. Where urban environmental issues were identified as a national priority, they usually did not appear to be based on an in-depth analysis of urbanization trends in the country or the nature, extent, causes, and

significance of urban environmental problems. Even when the NEAP stresses the importance of conducting a careful assessment of the environmental situation in urban areas due to a rapidly growing urban population, the analysis presented in the document is not always complete. Moreover, where urban environmental degradation is identified as a serious problem, there usually is no indication of priorities among the issues.

The India NEAP, for example, provides a comprehensive list of urban environmental problems confronting the country and an examination of the key factors that cause and/or perpetuate these problems. The NEAP would have been more useful, however, if it also identified priorities among these problems and clear strategies for addressing them. Further, tackling urban environmental issues is only one of seven "top priority areas" identified in the NEAP. Consequently, it is unlikely that all of these problems can be adequately resolved. By contrast, the Egypt NEAP focuses on four types of environmental problems (pollution and degradation of natural resources, air pollution, solid waste management, cultural heritage), all of which relate to urban areas. For each issue, the NEAP examines the nature, extent, and causes of the problem; health and economic impacts; and legislative and institutional frameworks. Although the size and complexity of the two countries are not comparable, focusing on a limited number of national environmental priorities increases the chance of implementation given available resources and public commitment.

While the urban environmental problems

identified most often are inadequate solid waste management, water supply, and sanitation, several NEAPs also address air pollution from both point and non-point sources. Indoor air pollution from the burning of coal is a severe problem in China and Central and Eastern European countries. Surface water pollution from both municipal and industrial sources is another problem identified in the majority of NEAPs. Poorly managed hazardous waste is identified as a problem primarily in the NEAPs prepared for Central and Eastern European countries. In some cases, the NEAPs address urban coastal resource degradation (the Gambia, Pakistan, Yemen), occupation of hazard-prone or other sensitive areas (Ghana, Sao Tome and Principe, India, Nepal, Yemen, Dominican Republic), loss of cultural resources (Lesotho, Nepal, Egypt, Cyprus, Iran, Yemen, and Tunisia), and loss of open space (Tunisia).

Urban noise was identified as an issue in the NEAPs prepared for China, India, Cyprus, and Tunisia.

Urban environmental issues are identified as high priority problems in several NEAPs. For example, the Sierra Leone NEAP cites urban water contamination, inadequate supply of safe water in urban areas, and poor urban living conditions as high priority issues (Box 2). To address the high priority water supply, sanitation, and solid waste management problems, the NEAP highlights the need for investment and recommends the gathering of willingness-to-pay information to determine which investments should be marketed at full cost and where public funds should be used to extend services to low-income groups.

In stressing the importance of establishing

Box 2  
Setting Priorities in Sierra Leone

Priority problems were identified on the basis of an analytical approach using expert judgement to score environmental problems according to a three point scale (high, moderate, and low, with each assigned a significance index of 1, 2, or 3, respectively) for three factors: environmental significance, potential intervention benefits, and potential intervention costs. Using these measures, an overall priority was computed by multiplying the economic significance ranking by the net benefit (benefits minus costs) for each problem.

Environmental Problem	Environmental Significance	Intervention Benefits	Intervention Costs	Overall Priority
Water Contaminants urban rural	High High	High High	Moderate Moderate	High High
Water Availability urban rural	High High	High High	Low Low	High High
Living Conditions urban rural	High Moderate	High Moderate	Moderate Moderate	High Low
Land Degradation	High	High	Moderate	High
Deforestation	Moderate	High	Low	High
Forest Degradation	Moderate	Moderate	Low	Moderate
Biodiversity Loss	Low	High	Low	Moderate
Mangrove Loss	Low	High	Low	Moderate
Pollution from Mining	Low	Low	Low	Low
Land Degradation from Mining Activities	High	High	Moderate	High

priorities for national environmental management, the Poland NEAP outlines criteria for establishing the country's environmental priorities, each of which highlights the "brown" environmental problems. In order of importance, they include:

- *Elimination of Serious Public Health Hazards.* According to available data, the areas of ecological disaster and ecological concern are areas of health concern as well; these are mainly located in southern and southwestern Poland as well as in the vicinity of major cities in central and eastern Poland. The NEAP stresses that priority attention should be focussed on those areas and suggests that the order of priority might be defined by health status rather than by emissions and ambient concentrations of certain toxic agents.
- *Measurable Decrease in the Cost to the Economy.* The most important element accounting for about one half of the total cost of environmental degradation in the country is the loss of productivity and working time associated with the damage to human health caused by air pollution, particularly high ambient concentrations of suspended particulates resulting from the burning of coal for domestic heating in small boilers with minimal emission controls. The second major element is the damage and additional production costs caused by high level of water salinity and biological oxygen demand (BOD) in the country's main rivers as a result of discharges of saline water from mines and lack of adequate treatment facilities for municipal sewage.
- *Conservation of Living Natural Resources to Avoid Irreversible Damage.* Conservation of living natural resources requires the same kinds of measures as those called for to address the impact of environmental degradation on human health and on the economy; particularly reduced pollution

from energy-related and industrial activities.

The China NEAP explains that the country's priority environmental problems are (1) those that have wide ranges of impacts on and do great harm to economic and social development and human health; and (2) those that show a trend of being more serious over the long-term. Included in the seven priorities are water pollution (rivers and lakes within and near cities and the city section of large rivers); urban air pollution (with key pollutants of TSP and SO<sub>2</sub>); and industrial toxic and hazardous solid wastes and urban pollution. Unlike most of the other NEAPs, however, the China NEAP sets a general goal of urban environmental protection to be achieved by the end of the century and problem-specific targets.

The China NEAP further explains that due to its serious and complicated environmental problems, limited economic and technical power, and shortage of trained management personnel, the country has difficulty solving all of its environmental problems in a short period. It is therefore necessary to focus on the main aspects of environmental protection work and concentrate the limited financial and material resources and manpower on essential problems. Through its many years of experience, China has gradually formulated a set of environmental protection policies and determined that the country's two main points of environmental protection work at present and in the future are pollution prevention and control and natural resource conservation. In addressing pollution prevention and control, the NEAP points out that over 80 percent of pollutants are discharged by cities. Because there are 500 cities in China and limited available resources for national environmental management, the NEAP targets 52 cities for environmental work, chosen on the basis of their having the greatest impact on and importance to the national economy and people's livelihoods. The types of cities that fall within this group include: municipalities directly under the Central Government; provin-

cial cities; coastal cities; and cities that are of national scenic, historic, and cultural importance.

### ***Costs of Urban Environmental Problems***

The costs of urban environmental problems are key indicators of their importance to national economies. Among the NEAPs reviewed, however, very few estimate the costs of urban environmental problems. The Benin NEAP, for example, reports that the cost of urban and industrial pollution is between US\$27 million and US\$45 million per year. The Poland NEAP presents figures on the health costs of air pollution which are estimated to be at least 1 to 1.5 percent of GDP. In the Hungary NEAP, it is estimated that the health cost alone of air pollution during the period 1986 to 1988 was US\$750 million. Estimates presented in the Egypt NEAP show that the health costs (that is,

medical expenses, lost working days, and premature mortality) associated with air pollution in the country's two major industrial areas in Cairo (Helwan and El Kheima) total about US\$40 million per year. In addition, the Pakistan NEAP reports that pollution of the River Ravi, into which Lahore discharges its untreated wastewater, has resulted in 5,000 fewer tons of fish production per year.

### ***Health Effects***

The health effects of urban environmental problems are documented primarily in the NEAPs that identify urban environmental degradation as a key environmental problem. For example, the Pakistan NEAP reveals that 40 percent of urban deaths are caused by water-borne diseases. In addition, the NEAPs prepared for Egypt, Hungary, and Poland highlight the health costs of urban environmental degradation (Box 3).

#### **Box 3**

#### **Health Impacts of Urban Environmental Degradation**

**EGYPT:** The NEAP presents the following data on the health effects of air pollution from both vehicular and industrial sources: (1) about 20 percent of the population in Shoubra El-Kheima suffer from lung diseases because of high exposures to SO<sub>2</sub> and smoke (1980-84); (2) in areas close to the cement industry in Helwan, 29 percent of school children suffer from lung diseases compared to 9 percent in rural areas (1987); (3) a direct relationship between exposure to air pollution and a concentration of lead in blood has been found in Cairo traffic policemen and people living in urban residential areas. The levels are more than three times maximum safe levels established by WHO; and (4) the reported ozone concentrations in and around Cairo are expected to cause significant eye irritation, aggravation of respiratory diseases, and significant effects on plant growth (crop losses of 50 to 60 percent reported for clover in Shoubra El Kheima).

**HUNGARY:** The NEAP cites air pollution as one of the contributing factors leading to the poor health status of its population. For example, in Dorog, a mining town near Budapest, air pollution from coal mines, a power plant, and numerous chemical and pharmaceutical plants has contributed to an increased incidence of respiratory diseases in children; from 1976 to 1985, chronic respiratory diseases among children from under 1 year to 14 years increased from 5.8 percent to 10.7 percent.

**POLAND:** One aspect of the mortality pattern in Poland that suggests a link between life expectancy and environmental factors is the relationship between urban and rural mortality. In the West, life expectancy in urban areas is consistently higher than that in rural areas. In Poland, by contrast, age standardized life expectancy for both males and females is consistently lower in urban areas, where industry is concentrated, than in the rural areas. In Katowice, urban life expectancies for males and females lag behind the national average for urban areas by more than one year as a result of increased rates of cardiovascular diseases, cancers, and digestive track disease. The NEAP, therefore, stresses that there is a need to focus on comprehensive strategies to upgrade urban areas, where a large portion of the Polish population is affected.

## Priority Actions and Instruments

Once priority problems are identified, selecting the right policies and instruments is critical for achieving environmental improvement because each instrument, or group of instruments, will guide and motivate the behavior and investments of both public and private sector actors. An important basis for identifying appropriate policies and instruments is a clear understanding of the causes of the problems as well as the concerns of a wide range of actors. Unfortunately, the majority of NEAPs do not provide such a clear analysis of the causes of urban environmental degradation or the factors that perpetuate them. Consequently many of the NEAPs fall short in identifying policies and instruments as well as the criteria used for selecting them.<sup>71</sup>

For example, in recommending the formulation of pollution standards, most NEAPs do not indicate what type of standards should be adopted, how they should be determined (for example, developed within the country or adoption of EU standards), or how they should be phased in over time. Similarly, many NEAPs recommend the use of economic instruments, but do not indicate the specific instruments to be applied to particular urban environmental problems. By contrast, the Poland NEAP delineates specific policies and instruments for addressing key problems. In discussing standard setting to improve air quality, for example, the NEAP recommends that the Polish government should immediately abolish the existing set of standards and adopt EU standards, with the exception that the dates for complying with certain specific EU directives be extended. According to the NEAP, one of the principal benefits of the EU approach, which involves not only a set of specifications or ambient and emission limits, but targets that need to be converted to workable objectives to be implemented over specified periods, is the opportunity it provides to abolish the present unworkable ambient standards which may perpetuate a disregard for the law because they are mostly too strict and not enforceable. Additional

examples of how NEAPs address specific urban environmental problems are discussed in the next chapter.

## *Key Improvements in Institutional Structure and Capacity*

Ensuring adequate institutional capacity is a critical pre-requisite to implementing the strategies and priorities presented in the NEAP. Although many of the NEAPs demonstrate weak institutional analysis and fail to address capacity building needs, the NEAPs prepared for Sri Lanka, China, and Yemen are notable for their attention to institutional issues as they relate to managing the urban environment. For example, the Sri Lanka NEAP cites inadequate planning capacity in the Urban Development Authority (UDA) as a key factor perpetuating urban environmental problems. According to the NEAP, the plans produced by UDA emphasize infrastructure to support urban growth, but do not take into account the limits to growth (for example, industrial waste disposal capacity) or the elements of sustainable urban growth. The NEAP, therefore, highlights the need to familiarize urban planners with environmental planning and best practice in managing growth.

According to the China NEAP, urban environmental protection is based on "the Environmental Protection Law of the People's Republic of China," which assigns responsibility for urban environmental quality to the municipal government with the mayor being personally responsible. The municipal government will organize the relevant agencies at the municipal level to deal with environmental protection. The NEAP also recommends creating a powerful environmental administrative body to ensure that the various departments of the municipal government share responsibility for improving urban environmental quality as well as pollution prevention and treatment. In addition, the NEAP describes incentives for ensuring effective institutional performance in urban environmental management (Box 4).

The Yemen NEAP characterizes the nature,

**Box 4**

**Incentives for Effective Urban Environmental Management in China**

Every year environmental protection organs conduct inspections on the environmental quality of each urban district. The National Environmental Protection Agency (NEPA) is responsible for 37 major cities, other cities are examined by the provincial EPBs. The results of the quantitative NEPA examinations are compared between cities. The top ten cities, and bottom 10, are published in the newspaper. The mayors of the top ten cities each receive an award. The mayors of the environmentally worst ten cities will be criticized in newspapers. Progress towards environmental goals is monitored by the EPBs.

extent, and underlying causes of Yemen's most pressing environmental problems and presents options for addressing these problems, focusing primarily on establishing the necessary institutional framework for accomplishing environmental improvements. According to the NEAP, urban environmental degradation is a priority problem caused in large part by an ineffective and inefficient centralized institutional structure and insufficient capacity on the part of existing institutions to formulate and implement sound urban environmental policies and effectively manage urban services. To address urban environmental degradation, the NEAP maintains that achieving substantial improvements in urban environmental conditions will depend on clarifying the responsibilities of all levels of government in formulating and implementing urban environmental policies; upgrading their managerial, financial, and operational capacities; and expanding opportunities for public participation in urban environmental management (Box 5). The NEAP further delineates actions to be taken during the first and second phases of the continuing NEAP process.

***Urban Poverty***

As discussed earlier, the urban poor are hit the hardest by urban environmental degradation. Foremost among the environmental concerns of this group are the health problems resulting from substandard living conditions characterized by poorly managed waste, indoor air pollution, and/or natural hazards. Poverty also contributes to congestion and environmental degradation. For example, when the rural poor migrate to cities, they lack the financial resources to compete for serviced land and

adequate housing. Consequently, they often are forced to occupy illegal settlements on hazard-prone or other environmentally sensitive land, often resulting in substantial losses.

Among the NEAPs addressing urban poverty are those prepared for Mauritius, Sierra Leone, Yemen, India, Pakistan, Sri Lanka, and Dominican Republic. For example, in its strategy for improving urban settlements, the Pakistan NEAP recommends a policy to facilitate the provision of housing and urban services for the poor. Recommended measures to implement this policy include: providing legal tenure to those living in "katchi abadis," (urban settlements) with secure titles and basic services; encouraging planning, building, and health professionals to set up voluntary technical assistance groups in low-income neighborhoods; increasing the share of loans directed to lower-income and community groups with collateral criteria amended and outreach mandated to suit illiterate groups; and undertaking more research and dissemination of low-cost construction technologies. The Sierra Leone NEAP addresses the special needs of low-income groups in providing urban services.

**Implementation**

The Bank's early experience with NEAPs has been mixed. Whereas NEAP implementation in several countries has been undermined by inadequate ownership and financial resources, the NEAPs for other countries have been completed and are moving to implementation through new environmental investments financed by the Bank and other donors. Not-

## Box 5

**Institutional Improvements for Urban Environmental Management in Yemen**

Weak institutions and inadequate capacity are key factors accounting for urban environmental degradation in Yemen. With respect to the existing institutional structure for urban environmental management in Yemen, there is a duplication of functions among several government branches, absence of a clear urban environmental management strategy, and uncoordinated management activities leading to a chaotic development and inefficient resource allocation. In addition, excessive centralization of power and responsibilities for managing the urban environment has hampered most attempts at improving urban environmental conditions. Central institutions have been created with the mandate to provide modern infrastructure in all cities of the country. Nonetheless, the institutional capacity to address environmental issues associated with rapid urban growth is insufficient. Further, central ministries have been unable to establish priorities for urban investments partly because of the lack of funding and partly because of institutional deficiencies. In all matters, therefore, local administrations have been subject to the control of the central government and have not had the legal capacity to raise revenue and allocate expenditures. To address the underlying deficiencies in Yemen's institutional framework and available capacity for urban environmental management, the NEAP recommends the following priority actions:

**Define Institutional Responsibilities.** Clarifying the responsibilities of the central government and the local administrations in formulating and implementing the relevant laws, ordinances, and regulations as well as in delivering urban services will help to ensure transparency and efficiency in the planning and supervision of urban environmental programs and projects.

**Involve Public Participation.** The Government should involve both public and community participation in developing and implementing plans and policies for improving the urban environment. Encouraging and enabling the cooperation of the most vulnerable urban groups (particularly impoverished women, children, and the elderly) in planning and implementing environmental infrastructure and services as well as resource protection will be crucial to the success of urban environmental management.

**Develop Capacity Building Programs.** Carrying out environmental management policies and programs require competent institutions with the necessary skills and capabilities to develop, implement, and enforce effective environmental laws, regulations and standards; mobilize revenue; and develop and manage urban infrastructure and services that incorporate locally appropriate technologies and standards. Strengthening capacity, therefore, is a critical pre-requisite for improving urban environmental conditions. Capacity building programs should be extended to two groups of actors: (i) the public sector, which includes all relevant authorities at the national and local levels, and (ii) the private sector, which includes formal industries, informal enterprises and services, and local communities. The principal means by which these actors can build capacity include training, technical assistance, private sector participation, and public information and outreach programs.

**Expand Information.** To improve environmental policy making and the management of urban environmental services, the relevant authorities and private actors involved in environmental planning and management need informed analysis based on adequate data. The necessary data to support urban environmental planning and decision making in Yemen include characteristics of media-specific environmental problems, the magnitude and distribution of impacts, and the dynamics of urban degradation.

**Continue Public Awareness Programs.** Programs to bring information about risks and alternatives to those most affected by environmental problems can motivate affected groups to participate in the process of environmental management. The mechanisms for building awareness can be formal (for example, courses in the school curriculum) or informal (for example, media campaigns, brochures, targeted environmental education for community leaders, politicians, city officials).

In addition to these institutional strengthening and capacity building actions, the NEAP includes studies on such topics as the urban land market, hazardous waste management practices, and demand for urban infrastructure and services to expand the information on key issues in urban environmental management. The NEAP also recommends developing an urban environmental strategy consistent with the Environmental Protection Law to allow the government of Yemen to identify priority actions and investments to resolve the most critical urban environmental problems and developing, implementing, and enforcing locally appropriate laws, regulations, and standards.

withstanding the very limited implementation experience, there has been some follow-up on the urban environment recommendations in the NEAPs prepared to date. For example:

- In Benin, the Government has initiated with donor support a number of projects which fall within the NEAP and already contribute to its implementation. The Urban Rehabilitation and Management Project aims at improving the urban infrastructure of Cotonou and Porto Novo through labor intensive works and better planning and management of urban growth. More recently, the Government has proposed the Environmental Support Program which has been conceived as the follow-up of the NEAP preparation process and envisages implementation of a first phase of the priority program identified in the NEAP. One of the program's objectives is to improve the urban standard of living. Among other environmental improvements, the program is intended to support urban rehabilitation and management through the preparation and implementation of sanitation plans.
- As a follow-up to the Burkina Faso NEAP, which was completed in July 1991 and identifies urban environmental degradation

as a key issue, the World Bank is supporting the Third Urban Project (le Projet d'Amelioration des Conditions de Vie) which will address urban environmental problems.

- The Gambia NEAP (completed in July 1992), which resulted from a process that achieved broad government ownership and commitment, is now being implemented. As part of this process, the World Bank is providing support to an urban environmental project, the objectives of which are to consolidate Greater Banjul's urban form and improve living conditions through extension of infrastructure networks and improved sanitation, strengthen principal urban institutions and implement new enabling legislation and regulations to facilitate land administration and housing development, and strengthen key tourism institutions to enhance their operational and management efficiency in preserving areas of natural scenic beauty.
- The Sri Lanka NEAP (completed in 1991) has been followed up by two World Bank projects. The Colombo Environment Project addresses many of the urban environmental issues raised in the NEAP.

### 3. Addressing Key Urban Environmental Problems

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Although the specific environmental concerns of each urban area will differ according to such factors as economic status, prevalence of urban poverty, and relative access to urban services, some widely shared urban environmental problems are nationally significant and require priority attention. This chapter examines how individual NEAPs address five key urban environmental issues: inadequate water supply, sanitation, and drainage; inadequate municipal solid waste management (MSWM); air pollution; occupation of hazard-prone areas; and loss of cultural resources.

#### **Inadequate Water Supply, Sanitation, and Drainage**

In many cities unsafe water and sanitation is the most important cause of mortality and morbidity among urban residents. The World Health Organization reports that 3.2 million children under the age of five die each year from diarrheal diseases, largely as a result of poor sanitation, contaminated drinking water, and associated problems of food and hygiene. Inadequate drainage poses additional health risks and may cause property damage, road congestion, and disruption to other public services as well as water pollution. Among the NEAPs reviewed, about half address inadequate urban water supply and sanitation; half of those deal with drainage. The NEAPs prepared for China, Egypt, and Pakistan are illustrative.

#### *China*

In China inadequate water supply and sanitation is a major environmental problem. Accord-

ing to the NEAP, in the 1980s more than 300 cities were facing water shortages, with 100 suffering severe shortages. About 25.4 percent of the entire population's drinking water was unsanitary. To address this problem, the NEAP delineates targets for water supply and sewerage for the year 2000, strategic elements, priority programs, general arrangements for implementation and monitoring, and priority areas for investment (Box 6). Although the NEAP includes these elements, it provides little guidance as to what specific types of mechanisms can be used to recover costs and what types of institutional strengthening and other types of capacity building will be needed to meet the targets established for these services.

#### *Egypt*

In addressing urban water and sanitation, the Egypt NEAP indicates that municipal wastewater problems are linked to uncontrolled and unmetered water consumption, high groundwater infiltration, and the small number of functioning wastewater treatment plants. In addition, water distribution and sewerage systems suffer from serious leakages, which increase the demand on the treatment facilities. Drains are mainly used as receptacles for untreated, partially treated, and treated municipal and industrial wastewater, in addition to drainage water from agricultural areas. Containing high concentrations of contaminants (for example, BOD, COD, nutrients, fecal bacteria, heavy metals, pesticides), the wastewater is used for local irrigation and for blending with Nile River water for other purposes. People living along the banks of the drains are exposed to high concentrations of bacterial and chemical

**Box 6**  
**Improving Water Supply and Sanitation in China's Cities**

Within the context of improving the urban environment, key elements of China's NEAP address urban water supply, sanitation, and drainage. They include:

Target

By the year 2000, the quality of drinking water in all the cities should meet the national standards. The tap water coverage in Chinese cities should reach 95 percent with a daily water supply of 200 liters per capita, the recycling rate of industrial water should be 60 to 65 percent. The total discharge volume of urban sewage should be controlled below 40 billion tons a year, of which industrial wastewater must account for less than 24 billion tons; the central treatment ratio of urban sewage should reach about 20 percent; the displacement of COD in the urban sewage should be less than 10 million tons, of which COD from discharged industrial wastewater must be less than 6 million tons.

Strategy

Strengthen the construction of urban water supply facilities. Through technical renovation and increasing the water supply capacity, efficient water consumption and water saving measures will be strengthened. Accelerate the construction of the urban drainage and sewage treatment networks, and flood control facilities. By 1995, 7,000 kilometers of drainage pipes will be laid; a batch of wastewater treatment plants will be built; the daily treatment capacity will be raised to 5.5 million tons per day. In addition, efforts will be strengthened to conduct research on techniques of wastewater recovery and treatment (for example, discharge into rivers and seas); and develop pilot projects; and accelerate the construction of urban infrastructure and establish a pricing system for the use of public utilities. Because the present tariffs of public utilities and services are completely out of proportion with their costs, the principle of "using self-generated revenue to support their own development in water supply and road construction" will be applied.

Priority Programs

In the 1990s, the treatment capacity of polluted water in urban areas should increase by six to eight million tons per day, underground sewerage should be extended by 240,000 kilometers so that the annual discharge of organic pollutants will be reduced by 350,000 tons; and urban wastewater treatment plants with the daily capacity of 200,000 tons should be built in 13 cities.

Implementation and Monitoring

The NEAP explains that the municipal government is responsible for environmental quality in the city, in particular, the mayor is personally responsible. The municipal government will organize relevant agencies at the municipal level to deal with environmental protection issues. For example, the urban construction bureau is responsible for water supply, sewerage, and drainage.

Investments

Among other priority investments, the NEAP recommends construction of urban drainage and sewage treatment facilities. During the Eighth Five-Year Plan period, construction into separate rain and sewage drainage systems will be speeded up. More than 8-10 thousand kilometers of urban drainage pipes and a number of sewage treatment plants with daily capacity of 2.5-4.0 million tons) and oxidation ponds (with daily capacity of 2.0 million tons) will be constructed. A total of 12 billion yuan is required.

pollutants. With respect to sanitation coverage, 80 percent of the urban population is reported to have acceptable sanitation and 77 percent of the urban population is connected to public sewers. Nonetheless, the actual situation may be less satisfactory because in parts of the cities it is common to see open sewers clogged with waste and at night latrine pits are emptied in the street ditches.

To improve the management of urban water and sanitation, the NEAP reports that the Government intends to operate water supply and wastewater treatment plants on a commercial basis with the ability to raise revenues to gradually recover efficient operation and maintenance costs as well as units to help with leakage detection and correction.<sup>8/</sup> Increased metering and staff incentives for accurate

reading of water meters also would be elements of institutional strengthening. In addition, a study on alternatives to more conventional wastewater technologies would be carried out, focusing on the possible use of natural and climatological conditions in Egypt, such as infiltration, sub-surface infiltration to recycle wastewater for irrigation purposes, and evaporation ponds. The result of the study will be an important factor influencing decisions on future treatment technology with regard to efficiency and cost aspects. Although the NEAP includes an investment program covering two phases of investment in urban water supply and sanitation, it does not specify the types of policy instruments that would be used.

### **Pakistan**

Human excreta and household sullage generated in urban settlements are the main sources of water pollution in Pakistan and the cause of widespread water-borne diseases. Major cities dispose of their untreated sewage into irrigation systems, where the wastewater is reused, and into streams and rivers, without any consideration of the rivers' assimilative capacity. In its action agenda and implementation strategy, the NEAP's long-term goal is biological treatment of municipal effluent in all cities and towns with suitable conditions by 2030. By 2001, the expected outputs would be: four cities with Werribee type sewage farms;<sup>9/</sup> 13 towns with oxidation ponds, and about 40 percent of the urban population served by some form of sanitation. To meet these expectations, the NEAP recommends investing in the design, construction, and operation of sewage farms and oxidation ponds as well as improved handling of sewage at other locations. It also delineates the action period, identifies the lead agency and interacting players, and specifies that sewage treatment and re-use would affect all primary and secondary cities. Unlike most of the other NEAPs reviewed, the Pakistan NEAP also highlights a suggested technical approach to reusing wastewater.

### **Inadequate Municipal Solid Waste Management**

Inadequate collection and disposal of municipal household solid waste is another persistent problem in developing country cities. In most cases, uncollected wastes end up in neighborhood dumps, where disease-carrying insects and rodents proliferate, or in street drains where they cause flooding and subsequent road damage, traffic obstruction, and breeding of disease vectors. Even where solid wastes are collected, environmentally safe disposal facilities rarely exist. Wastes disposed of in open dumps are major sources of surface and groundwater contamination as well as air pollution. Moreover, in cities that have inadequate solid waste and water pollution control capacity, it is difficult to monitor industrial discharges and ensure that hazardous wastes do not end up in surface water used for drinking, municipal sewers, or landfills. Among the NEAPs reviewed that highlight urban environmental issues, the majority identify municipal solid waste management (MSWM) as a key problem.

### **China**

With respect to municipal solid waste, the China NEAP provides the same level of specificity in documenting the problem, establishing targets, and delineating strategic, programmatic and other elements as it does for water supply and sanitation. In the case of municipal solid waste management, however, the NEAP does not address all aspects of the problem adequately. For example, the NEAP points out that the generation of urban garbage increases by 10 percent per year. Due to the lack of collection and transportation facilities, 25 percent of the solid wastes in Chinese cities cannot be disposed of in a timely way. Ninety-seven percent of the household wastes and night soil are either piled up in residential areas, or improperly buried or simply discharged into rivers, lakes, and seas without treatment. Nonetheless, the NEAP does not provide targets for collection in Chinese cities nor does it provide a strategy for MSWM. Among the priority programs for improving the urban environment, the NEAP

focuses primarily on solid waste disposal and ignores the collection problem. With respect to investments, therefore, the NEAP mentions that only 23 billion yuan will be invested in the treatment of urban refuse; use, storage, and disposal of industrial wastes; and noise control. Although the NEAP clearly indicates that solid waste collection is a problem, there is no explanation as to why this aspect of MSWM is left out of the plan's recommendations.

### *Egypt*

The Egypt NEAP, by contrast, deals more comprehensively with solid waste conditions. Recognizing that migration to urban areas will increase, the NEAP emphasizes that the problem of managing solid waste calls for immediate attention. In recommending MSWM improvements, the NEAP focuses on five types of waste: municipal waste from urban, peri-urban, and rural areas; hazardous waste from hospitals; industrial non-hazardous waste; industrial hazardous waste; and agricultural waste. It covers sources of waste generation; health risks; environmental effects related to scattered disposal and dumping; the adequacy of existing legislation and institutional arrangements; and special management issues such as solid waste collection for the urban poor, fees and fee collection system, collection of pathogenic and infectious hospital wastes, reuse of municipal waste (soil conditioner, fertilizer, energy), and the need for information about industrial hazardous wastes and a comprehensive inventory and strategy to facilitate future MSWM decision making. In addressing these issues, the Egypt NEAP delineates clear recommendations for applying both regulatory and economic instruments to the appropriate aspects of solid waste management as well as institutional actions to increase the effectiveness and efficiency of solid waste management. The NEAP also includes a solid waste investment program in two five-year phases. The investments of the first five years will focus mainly on pre-investigations, pilot studies, and the development of solid waste management systems (Box 7).

### *Poland*

According to the Poland NEAP, the country has an immense solid waste problem with solid wastes ranging from hard coal mining wastes, tailings from coal preparation plants and copper and silver ore beneficiation, to municipal refuse and potentially hazardous wastes on abandoned soviet military bases. Further, there are 630 municipal refuse disposal sites scattered throughout the country, most of which are open dumps without site preparation or treatment of wastes prior to disposal. In many cases, the accumulating industrial and municipal waste contains toxic chemicals which could be affecting ground-water quality. Although about half of the yearly production of mining waste is used, the dumps continue to grow at a rate of 40 million cubic meters a year; the current inventory of active and abandoned dumps is about 1.5 billion tons. Further, space constraints both for industrial and municipal wastes have become overwhelming. Taking into account cross-media considerations, the Poland NEAP also notes that air and water pollution control measures will generate additional solid waste.

According to the Poland NEAP, the highest priority in tackling the solid waste issue should be to invest in additional compaction equipment to mitigate the space problem and to facilitate sound landfill practices. It further points out that the solution to the massive industrial solid waste problem will require further analysis, but any additional permits to enterprises should be made contingent on the preparation of detailed solid waste management plans. The NEAP also stresses the need for additional attention to integrated pollution control to find sound solutions to dealing with solid wastes generated from air and water pollution control and to make beneficial uses of them. Although the NEAP may not be conclusive in dealing with all aspects of this complex problem, it presents policy and technical options and identifies ongoing programs and planned investments that address key aspects of the country's solid waste problem.

**Box 7**  
**Managing Municipal Solid Wastes in Egypt**

In addressing municipal solid wastes, the Egypt NEAP recommends the following policy and institutional actions as well as investments:

Policy Actions

Introduce a fee covering full costs of managing municipal waste, including collection, transportation, and final environmentally sound treatment. The fee should be based on real cost, which will differ between the cities and municipalities, depending on chosen treatment technology. It will be collected together with the electricity bill and be proportional to energy consumption.

Introduce earmarked surcharges or taxes on hazardous products (for example, alkaline and Ni-Cd batteries, products containing cadmium, mercury, motor oils) which would be collected on a specific account and used exclusively for collection and treatment or destruction. This action will provide an incentive for the general population to switch to less harmful products and influence industry to provide substitutes. Reducing the use of hazardous products also will improve the quality of municipal wastes, allowing them to be more easily used as compost or soil conditioner and contribute to a reduction in waste volume.

Introduce full cost coverage for treatment of industrial hazardous waste and infectious hospital waste involving the use of available facilities for destruction and treatment.

Institutional Actions

Establish licensed companies for waste management so as to guarantee that all areas of waste management are covered.

Create guidelines and strategies for waste management to address the serious need for more planning to optimize management and create more facilities to treat and handle the waste generated. The strategies will depend on the capabilities of the environmental authorities to enforce regulations and guidelines as well as the existence of treatment facilities.

Investments

Develop management systems for urban, peri-urban, and rural areas.

Collect information on industrial hazardous waste and execute pilot tests.

Develop municipal solid waste management plans to ensure that waste from various areas can be collected and transported to acceptable disposal sites or treatment plants and identify necessary transfer stations, collection organization, necessity for further treatment facilities, as well as fees and a system to collect fees based on full coverage for services provided.

Establish collection systems based on the results of the previous action.

Provide the foundation for producing equipment to supply construction of composting plants.

Provide technical assistance to evaluate and test existing incinerators for infectious hospital waste, and based on the findings, provide funds for their operation as hospital waste incinerators. In a medium-term perspective, all existing small incinerators could be upgraded or modified to serve this purpose by the year 2002.

Introduce pilot scale combined decomposition of municipal and agricultural waste to obtain methane which can be used as a fuel for electricity generation. In the next step, after decomposition, the waste which has been converted to compost can be used as a fertilizing or soil conditioning agent.

### **India**

According to the India NEAP, environmental degradation in the metropolitan cities is partly a consequence of inadequate urban services such as wastewater collection and treatment, sanitation, transportation, and solid waste collection and disposal. With respect to the latter, the NEAP focuses on three major categories of solid waste: (1) domestic solid wastes from households, restaurants, etc.; (2) commercial and industrial solid wastes that are bulky but not hazardous; and (3) hazardous wastes from industries, hospitals, research laboratories that need special handling. In addressing these wastes, however, the NEAP highlights general strategies (Box 8), but does not recommend specific policy instruments, delineate specific investments or investment plan, or identify

priority urban areas for intervention. For such a large country as India, however, it may be more appropriate for the state level environmental action plans to delineate specific investment priorities.

### **Ambient Air Pollution**

Ambient (outdoor) air pollution is a growing problem in large cities that have poor natural ventilation and high rates of motorization, industrialization, or coal use. In many cities, conditions are worsening as emissions from fuel use and industry increase. In many developing countries, vehicle emissions are the largest and most rapidly growing source of urban air pollution with the greatest damage caused by the health effects of particulates and lead.

#### **Box 8 Managing Solid Wastes in India**

The India NEAP lists the following priority action programs that address municipal and industrial solid and hazardous wastes:

strategies for reducing solid waste generation in cities with a focus on those that are difficult to dispose of (for example, tube lights, used battery cells);

fiscal instruments for waste minimalization with respect to non-biodegradable and non-recyclable packaging material used for such things as packing food products, medicines, soft drinks, machine parts, oils, and breakables;

projects for developing biodegradable packaging materials through the Eco-Mark scheme and through fiscal incentives;

innovations for improving refuse vehicles;

plans for assessing space requirements for solid waste treatment;

rehabilitation of rag pickers;

modernization of cleaner production of leather, textiles, and paper and pulp industries;

techniques for quantifying pollutants from non-point sources such as waste disposal sites; and

projects for least-hazardous methods of mining, control of erosion in mining areas, proper storage of minerals, proper disposal of mineral wastes in mined areas, prevention and control of pollution from roads in mining areas, prevention and control of pollution in post-mining period, water diversion to prevent contamination of water, and rehabilitation of mined areas.

Additional actions that encompass municipal solid wastes include: formulating city level environmental management plans; organization strengthening for NGO participation in urban environment, and organization strengthening for human resource development and capacity building for pollution control, waste management, natural resource accounting, risk assessment, and environmental impact assessment in urban areas.

According to the World Bank (1992), between 300,000 and 700,000 premature deaths a year could be avoided if unhealthy levels of particulates were reduced to the levels considered safe by the World Health Organization. Uncontrolled discharges of air pollutants by industrial facilities are responsible for breathing difficulties, hampered lung function, cancer, and even death, particularly for the elderly and those with pre-existing lung or heart disease who are most vulnerable. Among the NEAPs reviewed, these problems were addressed primarily in those prepared for Asian countries, all of the Central and Eastern European countries, and countries in the Middle East and North Africa region.

### *Egypt*

In addressing urban air pollution, the Egypt NEAP identifies the main sources of urban air pollution as high sulfur fuel used in power generation and in some industrial processes, incomplete combustion and emissions of heavy metals such as lead from an inefficient transport sector, and specific industrial processes. In identifying the causes of air pollution in the country, the NEAP reveals that taxes on new car components and imports are a disincentive to replacing inefficient old automobiles, resulting in high fuel consumption and pollution from vehicular emissions. The large concentrations of polluting industries in and around the major urban centers of Cairo and Alexandria, especially the steel, cement, fertilizer, and chemical industries, contribute to high levels of dust and SO<sub>2</sub>. The use of high sulfur fuel oil in industry and for power generation has also added to high SO<sub>2</sub> levels in the atmosphere.

In addressing air pollution, the Egypt NEAP provides an excellent example of how air pollution can be addressed through a carefully selected mix of regulatory and economic instruments. Unlike many of the other NEAPs, which may discuss the advantages of economic instruments, the Egypt NEAP incorporates them into its plan of action. The document recommends a mix of regulatory and market-based instruments for controlling vehicular and

industrial air pollution that would be phased in taking into account factors such as market conditions and political feasibility (Box 9). Although the NEAP delineates the policy measures that would provide the necessary incentives to invest in cleaner and more efficient technologies as well as the investment costs needed to make the transition, it does not indicate the time period during which these instruments will be introduced.

### *Poland*

According to the Poland NEAP, measures to address pollution in general need to focus on comprehensive strategies to upgrade urban areas. In identifying short-to-medium term investment priorities, the report recommends focusing investment first on air quality improvements, especially as they apply to low stacks in urban areas (Box 10). Here the least cost solution would be to convert households and small-scale enterprises to natural gas, taking into consideration that Poland has relatively abundant supplies of natural gas and coal-bed methane. In the residential markets the savings in the costs of environmental damage as a result of switching to natural gas are sufficient to offset the higher cost of a gas distribution system to residential customers and justify high priority investments for distribution at the household level.

### **Occupation of Hazard-Prone Areas**

As cities grow and the demand for limited supplies of urban land rises, increasing numbers of low-income populations are forced to occupy land vulnerable to both natural and man-made hazards. Despite the prevalence and high costs associated with this problem, which in large part is caused by distorted land markets and poorly managed land use, very few NEAPs address the land management dimensions of this problem. The few exceptions include the NEAPs prepared for Yemen and Nepal.

### *Yemen*

In addressing urban environmental problems, the Yemen NEAP cites the occupation of areas

**Box 9**

**Instruments to Control Air Pollution In Egypt**

The Egypt NEAP recognizes that atmospheric pollution is the consequence of millions of people driving cars, and of electricity plants and industries. The use of a command and control approach may only have limited success affecting the actions of so many participants. So greater reliance should be put on market-related incentives to encourage people to use more environmentally-benign vehicles, and to persuade industrialists to use cleaner technologies and fuels.

To overcome the problem of urban air pollution caused by vehicles, the Egyptian NEAP's specific recommendations include: (1) phasing out of energy subsidies by 1995; (2) introducing a gasoline tax after 1995; (3) reducing lead in gasoline by making refineries produce gasoline with maximum lead concentrations, as well as unleaded gasoline; (4) establishing price differentials for unleaded and leaded gasoline among gasoline distributors in Cairo and Alexandria; (5) improving traffic management; (6) improving mass transit traffic in the long term; and (7) setting lower import duties on vehicles with low emissions, fuel efficient vehicles, and vehicles with catalytic converters.

To reduce air pollution from industrial sources, the Egypt NEAP recommends: (1) reducing the use of high sulphur fuel by requiring new plants in urban areas to use heavy fuel with sulphur content below one percent and by levying a tax on the amount of sulphur in fuel oil to encourage desulfurization of heavy fuels; (2) by developing air emission policies by refining and developing emission standards and means of enforcing them and improving zoning of pollution industries; and (3) developing public awareness of air pollution costs.

vulnerable to both natural and man-made hazards as a serious problem for Yemen's urban population, particularly the urban poor. In several cities (for example, Sana'a, Aden), unauthorized settlements are spreading rapidly on wadi beds and unstable slopes where periodic floods and landslides result in the loss of lives and extensive damage to buildings and urban infrastructure. The NEAP further describes the losses and costs associated with the flooding in key cities and the factors that perpetuate continued occupation of hazardous areas, which also include abandoned quarries and land surrounding municipal landfills. Because the Yemen NEAP represents an early stage of national environmental planning, the NEAP addresses this problem by focusing on necessary institutional reforms and capacity building for urban environmental management. Among other measures that will build capacity for managing hazard-prone land, the NEAP includes: preparing flexible land use and zoning schemes that incorporate environmental considerations; studies to determine appropriate land titling and land registration systems as well as to assess how existing land regulations affect

the land market and should be reformed; and developing a plan for upgrading basic infrastructure and services by assessing demand and identifying priority investments.

**Nepal**

The Nepal NEAP focuses on inappropriate siting of industrial operations that exposes populations in some urban areas to high levels of pollution. To respond, the NEAP examines how the nature of urban land use planning, land development, and urban land regulation contribute to the problem and recommends:

- Involving more direct input from local communities in the urban planning process.
- Delineating broad land use zones through consultation with existing and potential users of urban areas to mitigate the potentially harmful environmental impacts associated with multi-use sites in close proximity.
- Removing regulations that adversely affect

**Box 10**  
**Improving Air Quality In Poland**

The Poland NEAP recommends the following air quality improvements which focus primarily on conditions in urban areas.

**Coal Cleaning.** To address Poland's most serious air pollution problems, which are in such areas as the wojewodships of Katowice, Krakow, and Rybnik (where hundreds of small coal-fired industrial and building heating, traveling grates, or hand-fired boilers have very poor emission control systems and many chimneys show evidence of unburned carbon and coal pyrolysis fumes), some emissions can be mitigated by improving the quality of coal supplied to these users. The government, therefore, should meet its commitment to support a large coal cleaning program over the next ten or more years to reduce the ash and sulfur content of coal. Because a wider spread of coal prices will encourage mines to produce higher quality coal, progress on the coal cleaning program depends critically on completing the deregulation of the coal market. To reinforce the benefits of the program, additional pricing policies will be needed (for example, introduction of tax on coal, differentiated by quality of coal, which would be rebated to enterprises having pollution control equipment).

**Natural Gas.** For most existing small-to-medium sized energy users, where emissions are close to the ground and the costs of pollution control technology for coal are high, the lowest cost solution is to convert to natural gas, and in a few cases, to low-sulfur oil. While coal cleaning offers immediate relief at low cost to the smaller energy user, the extent of emission reduction by that means alone is limited. Achieving acceptable air quality standards in urban areas will require switching from coal to natural gas, of which recent reports confirm that Poland has relatively abundant resources of its own and access to gas imports.

**Least Cost Approaches.** Ambient air quality standards, emissions standards, and the monitoring network should be part of an integrated system to attain and ensure the compliance with realistic and enforceable ambient air quality standards. The German Luftreinhalteplan (Clean Air Plan) could serve as a model. This plan requires the regional administration of areas in which ambient air standards are exceeded to set up an action plan showing how, in which time frame, and at what cost the regional administration will ensure compliance with the ambient air quality standards. A major part of the plan consists of ambient air quality and emission inventories and corresponding air quality models. Standards should be designed flexibly and tightened progressively over a 10 to 15 year period.

**Particulate Reduction.** Due to economies of scale, large energy consumers can benefit from the lower price of coal relative to gas or fuel oil and install efficient emission control systems for coal burning. The priority (and least cost option) in the medium term should be to install and/or properly maintain and operate electrostatic precipitators (ESPs) to remove particulates. Most large boilers have ESPs; so do some medium size boilers, although they are more likely to have cyclones or some other less efficient form of particulate removal. Small boilers generally have no particulate controls. For district heating, there should be a shift to increased reliance on combined heat and power plants, together with the installation of pollution control equipment in medium to small plants.

**High Stacks.** Given the very high cost of flue gas desulfurization (FGD) and the somewhat lower priority of SO<sub>2</sub> in health terms relative to particulates, it is recommended that the technology be installed only in new power plants and in a very small number of existing power and heating plants at locations with the greatest impact on ambient air quality can be demonstrated by monitoring results and/or where FGD can be shown to be less expensive than other options because of economics of scale.

**Iron and Steel Industry.** After power or combined power/heat plants, steel works are the next worst polluters. The Polish Government, jointly with a Canadian Consortium, is carrying out a major year long study on the restructuring of the Polish iron and steel industry. In parallel, a French Consortium will assist the government in performing an environmental audit for the entire Katowice and Krakow areas, focussing specially on the iron and steel industry. For these industries, the environmental audits will provide detailed environmental recommendations to be included in the restructuring proposals.

**Transportation.** Although of minor importance compared to pollution from coal burning and industrial emissions, air pollution from vehicles contribute up to 40 percent of emissions of CO, HC, NO<sub>x</sub>, and lead, respectively. Over the next ten years, there is likely to be substantial growth in the number and use of vehicles, particularly private cars, which may be aggravated by the economic difficulties associated with operating the existing public transportation network with reduced government subsidies. Continued investments in public transportation is warranted both on economic and environmental grounds. It will be critical to establish clear priorities and least-cost strategies. The first priority should be to analyze public transport use characteristics and maintain services that are in high demand. Better operation and maintenance should help reduce emissions, but conversion to modern fleets will be very expensive and can probably only be planned over the longer term. Steps also should be taken to improve the availability and desirability of low-lead and unleaded petrol and low-sulfur fuel.

efficient land development by the private sector.

- Developing building regulations that specify basic parameters governing property construction in consultation with the private sector, and dramatically improving the capacity of municipalities to enforce such regulations.
- Developing further the use of Guided Land Development (GLD) to encourage more efficient siting of industries while protecting residential areas from undue exposure to pollution.
- Providing incentives to existing industries to relocate away from population centers (for example, cost-sharing between private and public sectors, subsidies, provision of infrastructure, threat of closure).

In its action plan section, the NEAP recommends that the government adopt a policy to transform the present informal system of urban land development into a more formal one. In addition to the actions discussed above, the NEAP recommends implementing this policy by reviewing the system of urban land regulations to remove constraints to efficient land development while formulating enforceable building standards. The action plan also identifies institutional responsibilities and time frames for carrying out the recommended measures. Although the Nepal NEAP presents a good assessment of the problem and appropriate recommendations for resolving them, it does not indicate what kind of institutional strengthening might be needed to deal with complex urban land issues or clearly indicate specific actions to be implemented, particularly in the case of industrial location. The NEAP also does not specify how the use of GLD should be further developed.

### **Loss of Cultural Resources**

An often overlooked issue in urban environmental management is the degradation of

cultural resources. Although the nature of these resources will differ according to local conditions, the cultural resources in a city or urban area serve a variety of public purposes and are important constituents of a city's environment as well as the national heritage. In some cases, they are important generators of tourism-related revenues. Among the NEAPs reviewed, five address the loss of cultural resources. Most of the documents, however, do not describe the economic importance of the cultural resources or highlight the critical role of urban land management in their protection. The NEAPs prepared for Nepal, Iran and Egypt illustrate how this problem is handled within the context of the urban environment.

### *Nepal*

According to the Nepal NEAP, one of the most serious threats to cultural heritage sites in urban areas is uncoordinated development that results in unsuitable buildings being erected close to temples, shrines, and other important monuments. In addition, sites are suffering from encroachment and deteriorating sanitary conditions. To address this problem, the NEAP stresses the need to adopt a holistic approach and develop plans, with the involvement of local people, that address the need for new construction while recognizing the importance of preserving the aesthetic qualities of historic sites. Accordingly, the NEAP recommends developing local institutions to support heritage sites that local populations value, and encouraging international institutions to support sites whose importance extends beyond national concerns and for which local resources may not be sufficient for adequate preservation. The NEAP also delineates means for raising revenue, institutional arrangements, and an action plan highlighting key policies and recommended actions specifying agency responsibilities and time frames. Although there is no indication in the NEAP that protecting cultural resources is a priority national environmental problem, the manner in which the issue is addressed indicates a good understanding of the issues and possible solutions. Nonetheless, the NEAP should have incorporated needed

improvements in urban land management.

### *Egypt*

Similarly, the Egypt NEAP does not give sufficient attention to urban land management practices that affect cultural resources, although urban expansion is taking a severe toll on cultural property, particularly in Cairo and its environs (Giza, Saqqara), Luxor, Abydos, Dendera, and Edfu. According to the NEAP, the concentration of SO<sub>2</sub> in urban areas is well above acceptable safety thresholds and is damaging historic limestone structures. In addition, the rise of the water table due to inadequate sewerage and drainage in new

urban settlements near monuments is accelerating their deterioration. And Islamic Cairo, listed by Unesco as a World Heritage Site, has been recognized by the international community to be under threat for more than two decades. To respond, the NEAP recommends such measures as inventorying sites, training staff in site management, and developing ties with NGOs and the private sector to support cultural resource protection. Although the NEAP refers to improve land use planning, reduce urban pollution, and strengthen institutional efficiency — all of which are addressed elsewhere in the NEAP — the document does not specify land management recommendations relating specifically to cultural resources.



## 4. Conclusions and Recommendations

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Due to the variability of country size, range of environmental problems, economic complexity, government capacity to respond, and phase of national environmental planning, there is no "ideal" national environmental strategy, nor is there an existing environmental strategy or action plan that exemplifies the best way urban environmental issues should be addressed. Best practice in identifying and responding to priority urban environmental problems in NEAPs is still evolving. Based on an assessment of the first generation of NEAPs, however, it is evident that future national environmental strategies can be improved if they (1) incorporate a more rigorous analysis of urban environmental problems, (2) identify the most serious urban environmental problems where urban environmental degradation is considered a priority national environmental problem, (3) specify policies and instruments for achieving environmental objectives, including the criteria applied in choosing them, and (4) ascertain the necessary capacity building in urban environmental management that would be needed to implement them. In preparing future national environmental strategies or revisions to earlier NEAPs, therefore, the following recommendations should be taken into account when addressing urban environmental issues:<sup>10/</sup>

- **Improve Environmental Screening.** To help identify priority problems in the NEAP, the screening of national environmental issues should include a comprehensive assessment of urban environmental conditions in the country. The screening should cover such issues as: trends in urbanization (that is, number, population, and rate of growth of large, medium-size and small cities); the economic importance of cities; and the nature, magnitude, and costs of urban environmental problems; and the inter-relationships between urban poverty and environmental degradation, and between urban environmental problems and other resource management issues (for example, marine resources, energy conservation). The countries that should pay particular attention to urban environmental problems are those experiencing rapid rates of urbanization and industrialization and those whose urban populations account for a large percentage of the total (annex 3). The countries experiencing rapid urbanization are those likely to be confronting primarily the traditional problems of inadequate solid waste management and lack of safe water supply and sanitation. The more highly urbanized countries with slower rates of urban growth usually are faced with more complex environmental problems (for example, vehicular air pollution, managing hazardous wastes).
- **Set Priorities.** Countries need to be more rigorous in setting priorities among urban environmental problems. Urban environmental degradation is not a single problem. Among the various inter-related environmental issues confronting cities, those involved in the NEAP process should identify the one or more problems that should receive priority attention. Criteria to be considered in priority setting include: (1) magnitude of health impacts associated with the problem, (2) economic losses caused by the problem, (3) number of people and income groups affected by the

problem, (4) degree to which unsustainable use of resources causes the problem, and (5) whether the problem leads to irreversible outcomes. Although most priority setting is based on political considerations, more emphasis should be placed on informing the priority setting process. Carrying out economic analysis can help ensure that the policies followed first will achieve the greatest benefit relative to given objectives and available resources.

- **Identify Causes.** Reversing urban environmental degradation requires a good understanding of the factors that perpetuate it. In formulating a national environmental strategy, it will be necessary to examine the causes of priority urban environmental problems to facilitate the identification of key actions, specifically those that may be needed to remove pricing distortions, establish the necessary policy and legal frameworks, and establish critical financial, technical assistance, or other types of capacity building programs.
- **Pick the Right Instruments.** The NEAP should specify the particular policies and instruments that should be adopted to resolve urban environmental problems and indicate the criteria used for selecting these instruments as well as the specific institutional arrangements for implementing and enforcing them. No single instrument will be effective in achieving all urban environmental management objectives; there is a need to select an appropriate mix of instruments matched to the special characteristics of each problem and locality, the specific actor whose behavior needs changing, and the desired response. In addition, the NEAP should specify sector-specific goals, objectives, and targets for improvement, including indicators for monitoring progress.
- **Identify "Win-Win" Policies.** In selecting the most appropriate instruments for addressing urban environmental problems,

try to identify the "win-win" policies first. The scope for actions that promote income growth, poverty alleviation, and environmental improvement is very large. Examples include: (1) removing subsidies that encourage excessive use of nature resources, (2) clarifying land rights to promote better management of land and investments in or provision of environmental improvements, and (3) accelerating provision of clean water, sanitation, and drainage, improvements in public transport, and/or the introduction of energy efficient technology.

- **Define Criteria for Choosing Instruments.** Where "win-win" situations are not applicable or immediately obvious, the choice of instruments should take into account practical, economic, and political realities. Each country will need to establish its own criteria upon which to base its selection. Nonetheless, the following criteria cover what should be most important considerations:

cost-effectiveness - the policies and instruments selected should be those that achieve the desired outcome at the least possible cost and with a total cost that does not exceed the expected benefits. The instrument also should be tailored to local ambient conditions and the size of affected populations;<sup>11/</sup>

administrative feasibility - the policies and instruments that are selected should be consistent with existing capacity to implement them. This covers legal authorities, institutional capacities, available information, and ease of monitoring and enforcement. Instruments that require strong enforcement capacity or a high rate of voluntary compliance are difficult to implement;

equity - this requires appropriate burden-sharing in the costs and benefits of environmental protection with particular attention to the poor. In some cases, however, an

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instrument may be equitable, but result in increased levels of pollution. In Mexico, for example, a special tax applied only to new automobiles has encouraged the purchase or continued use of old polluting automobiles. In this instance, the policy favors lower income groups who cannot afford to purchase new automobiles, but perpetuates pollution from old vehicles;

political/social/market feasibility - no system of pollution charges or other economic instruments can change the political climate. If a government assigns priority to maintaining production and employment, any environmental policy that threatens these goals will be ignored. Adopting policies that are not enforced will only undermine the credibility of environmental authorities and the government in general. Similarly, the instrument(s) selected should conform to the social and cultural values of the affected population as well as prevailing market conditions; and

other criteria - other factors that should be taken into account include: (1) the transparency of the process of adopting and implementing standards, which influences the willingness and ability of enterprises to adapt to the changing regulatory conditions; (2) consistency of the instrument with other policies and instruments within or external to the sector, as well as other relevant international agreements, treaties, principles, and that the application of the instrument does not lead to cross-media pollution; and (3) the adaptability of the instrument to changing environmental conditions (for example, factories can be closed under a smog alert, standards can be made less stringent in times of economic crises).

- **Clarify Institutional Responsibilities and Capacity Building Needs.** As the level of attention and involvement in urban environmental management intensifies, the possibility for duplication of effort and

inefficient resource utilization increases. The NEAP, therefore, should clearly delineate the institutional structure and responsibilities for implementing the recommended actions to improve urban environmental conditions as well as for guiding and coordinating the actions of the various government agencies, municipalities, NGOs, private sector, and donors. Similarly, urban environmental management requires substantial capacity building at the national as well as local level (or metropolitan) levels. The NEAP, therefore, should specify the capacity building needs of key actors to implement its recommendations. For example, in addressing urban environmental problems, national governments will need to build capacity in:

selecting appropriate policy instruments to meet pollution control, waste management, and urban land management objectives;

establishing environmental standards and effective monitoring and enforcement programs;

establishing and administering programs of technical and financial assistance to support environmental agencies at lower levels of government;

empowering local governments to carry out local environmental management, establish standards for local performance, and adopt measures to ensure accountability; and

revising or developing new legislation that promotes investments in urban environmental improvement, permits the use of low-cost technologies, and encourages private sector participation in urban service delivery and other aspects of urban environmental management.

- **Promote City-Specific Environmental Strategies and Action Plans.** The NEAP should stress the need for city-specific urban environmental strategies. Cities with

populations over 500,000 should be encouraged to develop their own urban environmental strategies that focus on city-specific priorities. The urban environmental strategy prepared at the national level should include a strategic framework for smaller cities which do not have the necessary capacity to carry out their own planning. In some cases, urban environmental strategies and action plans can be inputs to the national environmental planning process.

Preparing national environmental strategies and action plans represents an opportunity for countries with increasingly scarce resources to identify priority environmental problems and

formulate solutions for reversing environmental degradation without slowing economic development. Given the importance of cities to economic development, the high costs of urban environmental degradation, the large and ever-increasing numbers of people affected, confronting urban environmental problems should emerge as a priority in a greater number of countries. Notwithstanding the deficiencies of earlier NEAPs in addressing urban environmental problems, the experience gained in their preparation and implementation can provide important lessons for improving the next generation of national environmental strategies, refinements or updates of earlier NEAPs, and country economic strategies.

# REFERENCES

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Bartone, Carl, Janis Bernstein, Josef Leitmann, Jochen Eigen, 1994. Toward Environmental Strategies for Cities: Policy Considerations for Urban Environmental Management in Developing Countries. Urban Management Programme Policy Paper Number 18. Washington, D.C.: The World Bank.

Carew-Reid, Jeremy, Robert Prescott Allen, Stephen Bass, Barry Dalal Clayton, 1994. Strategies for National Sustainable Development: A Handbook for Their Planning and Implementation. Sponsored by International Institute for Environment and Development (IIED) and the World Conservation Union (IUCN).

Eskeland, Gunnar S. 1992. "The Objective: Reduce Pollution at Low Cost." Outreach #2. World Bank Country Economics Department.

Falloux, Francois and Lee Talbot, 1993. Crisis and Opportunity: Environment and Development in Africa. London: Earthscan Publications Ltd.

Government of Switzerland, Commission of the European Communities, Organization for Economic Cooperation and Development, World Bank, 1994. Environmental Action Programme for Central and Eastern Europe.

Japan International Cooperation Agency, 1990. "Seminar on Medium to Long-Term Improvement/Management Plan of Road and Road Transport in Bangkok."

Margulis, Sergio, 1992. "Back of the Envelope Estimates of Environmental Damage Costs in

Mexico." World Bank Policy Research Working Paper 824, Washington, D.C.

Margulis, Sergio and Janis Bernstein, 1995. "National Environmental Strategies: Learning from Experience." Washington, D.C.: The World Bank.

U.S. Agency for International Development and U.S. Environmental Protection Agency, 1990. "Ranking Environmental Health Risks in Bangkok, Thailand."

World Bank, 1992. "Hungary Environmental Strategy Study."

World Bank, 1994. Indonesia Environment and Development: Challenges for the Future.

World Bank, 1992a. Mexico Transport Air Quality Management in the Mexico City Metropolitan Area Sector Study.

World Bank, 1992b. World Development Report 1992: Development and Environment. New York: Oxford University Press.

World Bank, 1994. World Development Report 1994: Infrastructure for Development. New York: Oxford University Press.

World Bank, 1993. World Development Report 1993: Investing in Health. New York: Oxford University Press.

World Bank. 1991. "Urban Policy and Economic Development: An Agenda for the 1990s." Washington, D.C.: The World Bank.

## Endnotes

1. Throughout this paper, the term "NEAP" refers to a specific document that fulfills IDA requirements. In some cases, the NEAP is a document prepared by the country to formally fulfill its IDA obligation. In other cases, the term "NEAP" refers to an equivalent document such as a country environmental strategy paper (CESP) prepared by the World Bank to help a country integrate environmental concerns into government activities, a National Conservation Strategy, or national reports prepared for the United Nations Conference on Environment and Development (annex 2).

2. See IUCN and IIED (1994), Falloux and Talbot (1993), and Margulis and Bernstein (1995 draft).

3. See Bartone et al. (1994), "Toward Environmental Strategies for Cities: Policy Considerations for Urban Environmental Management in Developing Countries" (UNDP/UNCHS/World Bank Urban Management Programme Policy Paper, Number 18), for a discussion of the urban environmental problems confronting most developing countries, including their effects, contributing causes, relevant interventions, and the process of formulating city-specific environmental strategies and action plans.

4. Agenda 21 is an action plan calling for states to adopt "country driven" sustainable development strategies that: identify priority environmental problems and their direct and underlying causes; determine investment needs, including the need for external financing; and outline appropriate policy and capacity building interventions. These strategies are intended to be national focal points for integrating environment and development in decision-making and for defining and implementing sustainable development priorities. Although Agenda 21 is not legally binding, all countries have committed themselves to preparing a sustainable development report and plan involving key sectors and actors within their jurisdiction. International organizations, including U.N.

agencies and the World Bank, also committed themselves to the principles of Agenda 21.

5. Although it provides general guidance for preparing NEAPs, it does not address sector specific issues. In some cases, urban issues are mentioned only to the extent that they illustrate issues that should be addressed in key sections of the NEAP. For example, in the section on preparing and releasing the action plan, the directive states that the country's NEAP should be prepared by a multi-disciplinary team comprising specialists in a wide range of areas, including urban management. With respect to the range of topics that should be included in the NEAP, urban issues appear in several suggested areas.

6. See Francois Falloux and Lee M. Talbot, Crisis and Opportunity: Environment and Development in Africa (London: Earthscan Publications Limited, 1993) for a discussion of the early NEAPs in Africa.

7. This shortcoming applied not only to urban environmental problems but to other environmental issues as well.

8. Currently all 33 existing sewage treatment plants for urban sewage water need improvements; 16 plants are not even in operation. It has been shown that the plants receive disproportionately large amounts of wastewater due to both heavy household consumption and leakage from the water distribution systems. The leakage in Cairo is estimated to be as high as 70 percent.

9. The Werribee farm handles 70 percent of the sewage from Melbourne, Australia using untreated municipal sewage to irrigate grass that supports 22,000 head of cattle and 100,000 sheep.

10. Further guidance for setting priorities and preparing key elements of national environmen-

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tal strategies and action plans is provided in: "National Environmental Strategies: Learning from Experience."

11. For example, in Poland, a study of instruments to control air pollution was carried out in preparing the action program. The study involved comparing the costs of relying on alternative instruments to meet emission reduction targets for particulate, sulfur dioxide and nitrogen oxides. According to the findings of this study, relying on pollution charges rather than command and control instruments would reduce the present value of control costs by 54 percent over a period of 24 years. The approximate cost savings during this period would be

in the order of US\$7 billion (Government of Switzerland, Commission of the European Union, World Bank, 1994); and by comparing the cost per kilogram of toxicity-weighted emissions eliminated through options ranging from vapor recovery to fuel improvements, Bank researchers were able to rank the cost-effectiveness of several alternative measures for managing air quality in Mexico City where the economic damages due to the health effects of air pollution are estimated to be US\$1.5 billion a year. They subsequently found that substantial reductions in transport-related emissions are possible at moderate cost by using a combination of regulations, incentives, and fuel taxes (World Bank 1992).



## ANNEX 1

# List of Documents Reviewed

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- Albania, National Environmental Action Plan, July 1993
- Arab Republic of Egypt, Environmental Action Plan, May 1992
- Benin, Plan D'Action Environnemental, May 1993
- Bhutan, Seventh Five Year Plan (1992-1997) Vol. I Main Plan Document
- Bolivia, NEAP Planificacion y Gestion del Medio Ambiente, 1993
- Botswana, National Conservation Strategy, December 1990
- Bulgaria, Environmental Strategy Study, 1992
- Burkina Faso, National Environmental Action Plan, August 1991
- China, Environmental Action Plan of China 1991-2000, August 1993
- Cyprus, Environmental Review and Action Plan, March, 1993
- Czech and Slovak Federal Republic, Joint Environmental Study, January 1992
- Dominican Republic, Environmental Issues Paper, July 1993
- Fiji, The National State of the Environment Report, 1992
- Ghana, National Environmental Action Plan, Vol. I, 1992
- Guinea-Bissau, Towards a Strategic Agenda for Environmental Management, 1993
- Honduras, Plan de Accion Ambiente y Desarrollo, 1993
- Hungary, Environmental Strategy Study, 1992
- India, Environmental Action Programme, 1993
- Lesotho, National Environmental Action Plan, June 1989
- Madagascar, Plan D'Action Environnemental, July 1988
- Maldives, UNCED and 1989 EAP
- Mauritius, Economic Development with Environmental Management Strategies for Mauritius, November 1988
- Nepal, Environmental Policy and Action Plan, June 1993
- Nicaragua, Plan de Accion Ambiental, June 1993
- Nigeria, Towards the Development of an EAP for Nigeria, December 1990
- Pakistan, The Pakistan National Conservation Strategy with attachments, July 1993
- Philippines, Philippine Strategy for Sustainable Development: A Conceptual Framework, January 1990
- Poland, Environmental Strategy, 1992
- Romania, Environmental Strategy Paper, 1992
- Rwanda, Strategie Nationale de L'Environnement au Rwanda, October 1991
- Sao Tome and Principe, Country Economic Memorandum and Key Elements of an Environmental Strategy, June 1993
- Seychelles, Environmental Management Plan of the Seychelles, 1990-2000, Vols. I and II

Sierra Leone, Initial Assessment of Environmental Problems, February 1994

Sri Lanka, National Environmental Action Plan (1992-1996), October 1991

The Gambia, The Gambia Environmental Action Plan 1992-2001, May 1992

Tunisia, Country Environmental Study and National Action Plan, 1989

Yemen, Toward a National Environmental Action Plan: Strategy Paper, 1994

## Annex 2

# National Strategic Planning Approaches

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In addition to NEAPs, numerous strategic approaches have been advocated by governments and international agencies. While some focus mainly on environmental concerns and their integration into the development process, others deal with social and economic issues. These national strategies fall into two categories: multi-sectoral and sectoral or thematic.

### COMPREHENSIVE NATIONAL STRATEGIES

#### **Conventional National Development Plans.**

These plans are produced by national governments (often by the central Ministry of Finance and/or Development Planning). They are usually time-bound (for example, rolling 5-year plans) and focus on such issues as fiscal targets and major infrastructure development.

#### **National Conservation Strategies (NCSs).**

Promoted by IUCN, NCSs are intended to provide a comprehensive, cross-sectoral analysis of conservation and resource management issues to help integrate environmental concerns into the development process. They are intended to identify a country's most urgent environmental problems, stimulate national debate, and raise public consciousness; assist decision makers in setting priorities and allocating human and financial resources; and build institutional capacity to handle complex environmental issues. NCSs have been strongly process-oriented in that information has been obtained and analyzed by cross-sectoral groups. NCSs also seek to develop political consensus through group interaction.

**Green Plans.** These plans, produced to date by Canada and the Netherlands, consist of an evolving process of comprehensive national programs for environmental improvement and resource stewardship, with government-wide objectives and commitments.

#### **National Environmental Management Plans.**

These are currently being developed by many island countries of the South Pacific, coordinated by the South Pacific Regional Environment Programme (SPREP) with support from the Asian Development Bank, UNDP, and IUCN. The planning process involves round table discussions and consultations with key decision makers and organizations, leading to a definition of a policy framework and a portfolio of programs and projects for donor support.

#### **National Sustainable Development Strategies (NSDS).**

Called for by Agenda 21, NSDS is a generic name for a participatory and cyclical process to achieve economic, ecological, and social objectives in a balanced and integrated manner. The process encompasses the definition of policies and action plans, their implementation, monitoring, and regular review. NSDSs may take many forms, and incorporate or build on many of the approaches discussed above.

#### **Provincial Conservation and Sustainable**

**Development Strategies.** In federal countries, provincial (or State) strategies are the equivalent of NCSs and NSDSs in countries with unitary systems. Federal governments may also undertake national strategies as well.

### SECTORAL AND THEMATIC STRATEGIES

**Conventional Sectoral Master Plans.** These plans are often prepared as part of the Five Year Development Plan and as a means to coordinate donor involvement in a sector. They have been widely prepared in Asia, sponsored by the Asian Development Bank, for such sectors as forestry, agriculture, and tourism. Although not normally involving a participatory process, sector plans have resulted from massive research and policy development efforts over many years, and attempt to address inter-sectoral issues. Although the plans are a source

of comprehensive information, some bear little relation to the institutional capacity of the sector to implement them.

**National Tropical Forestry Action Plans.**

Sponsored by FAO and promoted under the Tropical Forestry Action Programme (TFAP), national TFAP exercises start with a multi-sectoral review of forest-related issues that leads to policy and strategy plans which are then followed by an implementation phase. The plan seeks to produce informed decisions and action programs with explicit national targets on policies and practices related to afforestation and forest management, forest conservation and restoration, and integration with other sectors. Round tables involving governmental bodies, NGOs, donor agencies, and international organizations are held at different stages of planning and implementation.

**National Plans to Combat Desertification.**

Sponsored by the Permanent Committee for Drought Control in the Sahel (CILSS), these plans analyze the socioeconomic and ecological situation, review current activities, and discuss policies and actions required to combat drought. They represent national anti-desertification plans for a number of Sahelian countries.

In addition, national plans are emerging from the International Climate Change Convention, Biodiversity Convention, and poverty assess-

ments planned by the World Bank.

**DOCUMENTS CONTRIBUTING TO STRATEGY PROCESS**

Various Country Environmental Profiles and State of the Environment Reports are prepared by governments, bilateral aid donors, and NGOs. Generally they present information on conditions and trends; identify and analyze causes, linkages, and constraints; and indicate emerging issues.

UNCED National Reports (1991-92) are descriptive and analytical documents prepared by national governments, sometimes with NGO involvement. Although in practice they varied enormously, UNCED Secretariat guidelines proposed that each report should address: development trends, environmental impacts, and responses to environment and development issues such as principles and goals, policies, legislation, institutions, programs, and projects as well as international cooperation. Many countries consulted local, regional, and international NGOs, and industry. The reports identify how national economic and other activities can be consistent with the need to conserve resources. Some consider issues of equity and justice; others are intended as the basis for future NSDSs.

Source: Carew-Reid et al. (1994)

## Annex 3

## Urban Growth Rates and Population

COUNTRY <sup>a/</sup>	URBAN GROWTH RATE (%) (1980-1992)	URBAN POP. AS % OF TOTAL (1992)
<b>AFRICA</b>		
Benin	5.2	40
Botswana	10.0	29
Burkina Faso	8.7	17
Burundi	5.1	6
Cameroon	5.4	42
Central African Rep.	4.7	48
Chad	6.8	34
Congo	4.5	42
Cote d'Ivoire	4.7	42
Ethiopia	4.8	13
Gabon	5.8	47
Ghana	4.3	35
Guinea	5.8	27
Guinea-Bissau	3.8	21
Kenya	7.7	25
Lesotho	6.7	21
Madagascar	5.7	25
Malawi	6.1	12
Mali	5.2	25
Mauritania	7.2	50
Mauritius	.6	41
Mozambique	9.9	28

<b>COUNTRY<sup>a/</sup></b>	<b>URBAN GROWTH RATE (%) (1980-1992)</b>	<b>URBAN POP. AS % OF TOTAL (1992)</b>
Namibia	5.1	29
Niger	7.3	21
Nigeria	5.7	37
Rwanda	3.8	6
Senegal	4.0	41
<i>Seychelles</i>	1.3	62
Sierra Leone	5.2	34
Sudan	4.1	23
Tanzania	6.6	22
Togo	5.5	29
Uganda	5.0	12
Zambia	3.8	42
Zimbabwe	5.9	30
<b>ASIA</b>		
Bangladesh	6.2	18
Bhutan	5.4	6
China	4.3	27
India	3.1	26
Indonesia	5.1	32
Lao PDR	6.1	20
Malaysia	4.8	44
Nepal	7.9	12
Pakistan	4.5	33

<b>COUNTRY<sup>a/</sup></b>	<b>URBAN GROWTH RATE (%) (1980-1992)</b>	<b>URBAN POP. AS % OF TOTAL (1992)</b>
<i>Papua New Guinea</i>	4.3	16
Philippines	3.8	44
Sri Lanka	1.5	22
Thailand	4.5	23
<b>EUROPE &amp; CENTRAL ASIA</b>		
Albania	2.6	36
<i>Azerbaijan</i>		54
Bulgaria	.7	69
<i>Georgia</i>		56
Hungary	.9	66
<i>Kazakhstan</i>		57
<i>Kyrgyz Republic</i>		38
<i>Moldova</i>		47
Poland	1.3	63
Romania	1.2	55
<i>Russian Federation</i>		74
<i>Ukraine</i>		67
<i>Uzbekistan</i>		41
<b>MIDDLE EAST AND NORTH AFRICA</b>		
Algeria	4.9	54
Egypt	2.5	44
Jordan	6.0	69
Oman	8.2	12

<b>COUNTRY<sup>a/</sup></b>	<b>URBAN GROWTH RATE (%) (1980-1992)</b>	<b>URBAN POP. AS % OF TOTAL (1992)</b>
Saudi Arabia	6.5	78
Tunisia	3.4	57
Turkey	5.6	64
Yemen	7.3	31
<b>LAC</b>		
Argentina	1.7	87
Bolivia	4.0	52
Brazil	3.3	77
Chile	2.1	85
Colombia	2.9	71
Costa Rica	3.8	48
Dominican Republic	3.9	62
Guatemala	3.5	40
Honduras	5.3	45
Jamaica	2.1	54
Mexico	2.9	74
Paraguay	4.4	49

a/ NEAPs for many of these countries are already completed or underway.  
 Source: World Development Report (1994, 1993, 1992); figures for countries  
 in italics are for years other than those specified.

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