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**URBAN ENVIRONMENT MANAGEMENT  
IN DEVELOPING COUNTRIES**

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## INTRODUCTION

The purpose of this paper is to consider environmental challenges facing cities in developing nations, and to suggest practical approaches at the municipal level that can be used to meet the challenges.

The focus will be on the core municipal services of water supply, wastewater treatment, and solid waste disposal. Deficiencies in these services in many Third World cities have brought on a level of urban pollution that has reached crisis proportions. The paper will draw on municipal management practices developed in the United States that appear to offer some guidance toward solutions.

### I. OVERVIEW

Urbanization is an irreversible trend in the developing world. By the year 2000, two billion people are expected to be living in urban areas of developing countries--nearly twice as many as in the urban centers of industrialized nations. Twenty of the thirty largest cities in the world will be in Third World countries (RTI, 1989). By 2025, the urban areas of developing countries are projected to contain almost four times the population of urban areas of the now developed countries.

Cities in the developing world are expanding as more and more rural people stream into the cities in search of jobs and improved living conditions. Although urbanization is associated with declining birth rates, this is a long-term effect. In the short term, infant mortality rates decline due to improved health care and municipal services, but birth rates continue to be high for 10-15 years until the lifestyles of the rural migrants begin to change. The compounding effects of migration and improved child survival thus fuel the expansion of cities.

Cities and towns create conditions that stimulate greater economic growth and diversification. Unfortunately, rapid urbanization also brings in its train complex physical, economic, and social problems. Urban slums develop in inhospitable areas inside and around the peripheries of cities. These areas are often environmentally unsound. Families settle on contaminated industrial sites, in flood-prone areas, or on steep, hilly land vulnerable to landslides. Basic infrastructure is almost always lacking in such areas, and may be difficult to install.

Some studies have suggested that about one-tenth of each person's productive time is sacrificed to disease in Third World countries (Hardoy, Satterthwaite). According to the World Health Organization, in many illegal urban settlements a child is 40-50 times more likely to die before the age of five than an infant in

a western country. The poor health situation is to a large extent the result of deficiencies in water supply and sanitation.

The World Bank estimates that by the turn of the millenium, nearly 90% of the absolute poor in Latin America and the Caribbean will be living in cities. About 40% of the poorest in Africa and 45% of those in Asia will be poor urban dwellers.

In the United States, local governments have played a major role in ensuring that adequate environmental services are provided to their communities. Local government has prime responsibility for organizing the provision of safe drinking water, sewerage treatment, and the collection and disposal of solid waste. The Environmental Protection Agency (EPA) estimates that by the year 2000, local governments will bear 65% of public costs for environmental protection. Local governments also have responsibility to implement and enforce federal, state, and local environmental regulations.

The following sections provide examples of the environmental conditions found in Third World cities. The conditions are contrasted with the situation in the United States, and the ongoing challenges that even developing nations face in providing clean urban environments.

## II. ENVIRONMENTAL CHALLENGES IN THE CITIES

### **WATER SUPPLY**

Few Third World cities provide piped drinking water to their poorest neighborhoods. In Bangkok, one-third of the city's population has no access to public water. In Kinshasa, about half of the urban population (approximately 1.5 million) are without access to piped water. The situation is similar in many other Third World cities. Generally, the wealthy areas of the cities are served with water connections, whereas low income neighborhoods receive little or no public water service. The result is that people living in the poor neighborhoods often have to purchase water from private vendors at prices much higher than the public water delivered to wealthy areas.

Responsibility for urban water systems sometimes falls to the municipal government, but frequently in developing countries, it is in the hands of a national government agency, or national water authority.

In contrast, the residents of American cities take the unlimited abundance and convenience of tap water for granted. Drinking water is provided to 200 million Americans by 52,000 community water supply systems. The most severe and acute public health

effects from contaminated drinking water such as cholera and typhoid have been eliminated in America. However, some less acute and immediate hazards remain in the nation's tap water (these hazards are associated with specific contaminants such as lead, microbiological contaminants and agricultural chemicals; and leachate from solid and hazardous waste sites).

Water systems in the U.S., whether managed by a municipal government or by a private corporation, operate as utility companies. The revenues produced by the system must be sufficient to pay all capital expenditures, operation and maintenance costs, debt service, and administrative costs, as well as to create a reserve for emergencies. The prime source of income is from the sale of water. Funds for capital expenditures are usually raised by issuing bonds, often backed by future user charges to be paid by customers. Frequently, developers are asked to share in the costs of expanding the water services.

#### **WASTEWATER TREATMENT**

The lack of sanitary means of disposing of household and public waste is an equally acute problem for urban areas in the developing world. For example, Dakar and other Senegalese towns have no provision for the removal of household waste. The city of Jakarta has no waterborne sewage system; septic tanks serve about 25% of the city's population; others use pit latrines,

cesspools, and ditches along the roadside. In Bangkok, only two percent of the population is connected to a sewer system; human wastes are typically disposed of through septic tanks and cesspools with effluents as well as wastewater from sinks, laundries, baths, and kitchens discharged into stormwater drains or canals (Hardoy and Satterthwaite).

By contrast, in the United States about \$12 billion annually is spent to construct, operate, and maintain municipal wastewater treatment facilities. In 1986, approximately 16,000 wastewater treatment facilities served the public, removing over 85% of the pollutants from wastewater generated by 70% of the U.S. population and about 160,000 industries before discharging the treated wastewaters into waterways (EPA, 1988).

An estimated three percent of the revenues of U.S. cities are spent on wastewater treatment (U.S. Census Bureau, 1986). Virtually all city residents are served by municipal wastewater treatment plants.

Localities that provide adequate wastewater treatment capacity can attract development and economic growth. The major benefits of wastewater treatment are public health related (reduced waterborne diseases, reduced costs of treating municipal drinking water); economic development (availability of treatment capacity permits residential development and industrial location); natural

resource protection and aesthetic enhancement. These benefits are often used by American municipalities to justify sharing the cost of wastewater treatment services among users, local government, state governments, and the federal government.

### **SOLID WASTE MANAGEMENT**

Solid waste--garbage generated from households or industrial and commercial establishments--is a worldwide problem. Although the developing nations generate less solid waste per capita than the affluent nations (i.e., U.S., Japan, and West Germany), it is a serious problem. Left uncollected, garbage quickly becomes a breeding ground for disease-bearing rodents and insects that infect the people in the immediate neighborhood and beyond. In Bogota, about half of the 1.5 million tons of garbage generated every year is collected and disposed of by local authorities. Every day 2,500 tons are left uncollected. While some is partially recycled informally, the rest is simply left in containers to rot, or in canals, sewers, or in the streets. In Dar Es Salaam, only 24% of the daily refuse is collected. In Karachi, only one-third of the solid waste produced in the city is removed (Hardoy and Satterthwaite).

In the U.S., the EPA estimates that in 1986, municipalities managed approximately 160 million tons of solid waste, and this

is increasing at a rate of one percent per year. Local governments own 57% of the 6,000 landfills operating in the U.S. An estimated 73% of municipal solid waste is landfilled, 15% is incinerated, and 12% is recycled. Increased concern in the U.S. about the risks of groundwater contamination and airborne toxins from improper landfill and incineration have brought about strict new requirements for better solid waste management. Modern landfills used in the U.S. barely resemble the open dumps which predominated until the 1970s. They are now designed to minimize potential public health and environmental hazards. They typically have liners, groundwater monitoring systems, leachate collection and methane gas recovery systems, and effective capping procedures to close off access when capacity is reached.

Although solid waste in the past typically played a small part in municipal budgets, costs are increasing rapidly. As a result, municipal governments in the U.S. are focusing more attention on the costs of managing solid waste and seeking ways of improving management.

The average family spends less than one percent of its income for this service. In a survey conducted by the U.S. Office of Technology Assessment, about half of the communities paid for municipal solid waste management by charging fees directly related to trash disposal costs; the rest paid for disposal

services out of general revenues, bond funds, grants, or some combination of these.

#### **IN SUMMARY**

According to the World Health Organization, between one-quarter and one-half of the urban population of developing countries are without basic water and sewer services. Solid waste services are in even worse shape--very few cities in developing countries have any kind of citywide municipal solid waste management program (WASH, 1989).

Management practices that have been adopted by local governments in the U.S. and other industrialized countries over the years to deal with these issues may offer a number of approaches that could be helpful to developing countries. The next section will examine municipal management practices in the U.S. that appear to have the most relevance for Third World cities struggling with the problems.

### **III. URBAN MANAGEMENT APPROACHES**

#### **1. Environment and Economic Development**

Historically, cities have acted as turbines of a nation's economic activity, generating and supporting investment, output, and income. But if economic growth is to continue over the long

haul, cities have to pay attention to environmental issues, and protect the natural resources on which urban economies depend.

The state of many of Poland's cities today demonstrates how industrial development in some countries has traditionally been carried out at the expense of environmental protection. In 1985, the Polish Parliament recognized four areas of the country, including Gdansk Bay, as "ecological disaster areas." By Poland's own environmental standards, the regions are so contaminated with industrial and municipal pollution that the people there should be evacuated. Evacuation is not an option, however, for these places are home to 11 million people, or 30% of Poland's population. Moreover, although Poland has an annual fishing quota of 200,000 tons, in 1984 Polish fishermen caught only 50,000 tons. In 1986, the catch declined to less than 28,000 tons. The last eels that were caught there were corroded by toxic chemicals. A resident of Sopot remarked, "They looked like they were already cooked" (Rosenblatt, 11/88).

Poland's situation is not unique. Stories abound describing the untimely demise of one country's nascent tourism industry or another country's once robust fishing industry.

With the very rapid urban growth projected for many developing countries, pollution problems that the U.S. and Europe have been gradually confronting over the past 40 years must be addressed by

these countries in half that time (RTI, 1989). In the U.S., municipal governments have taken a strong lead role in providing basic environmental protection services. If developing countries are to meet the challenge, municipal governments will have to do more.

The private sector also has a significant role to play in environmental protection. The private sector has a big stake, since continuing environmental degradation will cripple the economic growth of a city.

## 2. Privatization

Traditionally, privatization has been equated with the divestiture or transfer of ownership of public property to the private sector. But in the U.S., non-ownership forms of privatization have been growing in importance. As local governments have become increasingly responsible for providing infrastructure to protect the environment, they have begun to look to the private sector to test how municipalities might benefit from the economic efficiencies, technological know-how, and financing capabilities of private sector partners. In the U.S., approximately 56% of all water utilities are now investor-owned (Berg, 1989), and private solid waste management companies serve 60% of all households (NSWMA). However, almost all

municipal wastewater treatment plants in the U.S. are still publicly owned.

Several privatization approaches may be of value to local governments in developing countries, for example: contracting out; "turnkey," franchising, and "concessions."

### **Contracting Out**

Contracting out is a major form of private provision of services in the U.S. at the municipal level. In the U.S., 59% of all cities and counties contract out their refuse collection and solid waste disposal (ICMA/Touche Ross, Privatization in America, 1987). Through contracting out, management of government owned assets is privatized without transferring ownership. This can mean simply a management contract, or the contract can include incentives that link the contractor's rewards to performance. Capital inputs by the management group are sometimes a part of the arrangement making the partnership similar to a joint venture.

Local governments in the U.S. identify cost reduction as the principal reason for contracting out most services. For example, Newark, New Jersey, uses both municipal crews and private contractors for refuse collection. Savings using private contractors during the first three years were estimated at

between 14 and 25% of the former cost of municipal collection. In addition, evaluation of contractor activities helped the city focus on management, manpower, equipment, vehicle maintenance, and routing issues, and the result was that city crews increased their own productivity so the price gap between the city crews and the contractor has narrowed (ICMA Special Report, 1989).

### **Turnkey Projects**

In turnkey projects, a private partner designs, constructs, and operates an environmental facility that is owned by the public sector. Financial risks are commonly borne by the public partner with bond repayments secured by user fees. The private partner assumes performance risks, and offers guarantees of a minimum level of service.

This approach is common in the U.S. for large capital-intensive projects such as solid waste resource recovery and wastewater treatment facilities. One example is the construction of a wastewater treatment plant in Mt. Vernon, Illinois. The municipality entered into an agreement with a private firm to upgrade and expand a wastewater treatment plant which it owned. To finance the upgrading of the facility, Mt. Vernon issued 20 year tax-exempt general obligation bonds. The city used a one-half cent sales tax increase to provide revenues to back the bonds. (The city could not utilize user charges to back the bonds

because they had been pledged through 1994 to pay off the existing plant.) The private firm completed the project in record time and saved the city approximately \$3 million (32%) compared to the city's initial pay-as-you-go plan (EPA, 1989).

### **Franchising**

A franchise agreement is an arrangement by which a local government grants a private firm authority to provide a particular service within a geographical area. The government awards either an exclusive or nonexclusive franchise. Under a franchise agreement, the user/consumer directly pays the private firm for the services. Franchising, although used infrequently in the U.S., is used most often in the area of solid waste management. An ICMA survey of 15,000 municipalities indicates that 13% are using franchise agreements to provide residential solid waste collection (ICMA, Special Report, Service Delivery in the 90s). Price regulation is an important aspect of the franchise contract because the local government is limiting the number of competing service providers by awarding the contract. There is some franchising of refuse collection in Nigeria (Stren, 1988).

## **"Concessions"**

With this approach, the public agency contracts with a private firm to operate and maintain a service, and to bear the financial risks of doing so. The firm agrees to finance investment costs of the system as well as working capital. At the end of the contract term, fixed assets usually revert to the public authority. In France, private water companies under these kinds of arrangements serve two-thirds of the population; in the United Kingdom, the share is 25%, though the government plans to privatize the rest (Berg, 1989).

In 1983, Chandler, Arizona, contracted with a private firm for the nation's first privately financed, owned, and operated wastewater treatment plant. The city's population was growing rapidly and needed to expand its service, but was low on the federal government's priority list for funding of wastewater treatment plants. Chandler anticipates that the facility and its management will save the city \$1.1 million a year over the 25 year life of the contract (Fitzgerald, When Government Goes Private, New York: Universe Books, 1988).

## **Spontaneous Services**

Inadequate public services in urban areas of developing countries sometimes lead to the emergence of spontaneous private sources of supply, usually from the informal sector. An example of this is water vending. Water vending is a profitable, labor intensive, low capital service, which is a practical substitute for public water. In Nigeria, in the city of Onitsha, vendors provide 95% of the water market through the use of water trucks and tube wells, serving both residential and commercial customers. The revenue earned would cover twice the annual costs for operation and maintenance of a public system (Whittington, Laura and Mu, 1988).

To date, the role of the private sector in providing water supply services to urban areas of developing countries has been largely limited to water vending. The private sector could play a much broader role such as manager of public standpipes, managers and contractors of piped water systems, and maintenance contractors. These services are not capital intensive and can be regulated to protect the public. The use of management contracts, as in the Cote d'Ivoire (World Bank, 1981), resulted in improved administration, training, maintenance, and collection methods. The private sector could improve the reliability and efficiency of water and sewer services in other Third World countries as well (Berg, 1989).

### 3. Effective Cost Recovery Mechanisms

Cost recovery mechanisms are needed to pay for operating and maintaining existing infrastructure, as well as for the expansion of infrastructure. In many developing countries, the power to raise revenues is confined principally to the central government. But disbursements of funds from the central government to local governments are generally inadequate to support construction and maintenance of needed environmental infrastructure.

Municipalities in developing countries need more reliable revenue sources. For the most part, they have only limited experience with potential sources of revenue that are used widely in the U.S., such as user charges, impact fees, and special assessments.

#### **User Charges**

American taxpayers have reacted strongly against the increase of property taxes in recent years (e.g., Proposition 13 in California). This, together with the retrenchment of federal funding for construction of environmental infrastructure, has resulted in a significant increase in user-fee financing.

In its annual survey of American public attitudes toward government, the U.S. Advisory Commission on Intergovernmental

Relations found significant public support for increased use of service charges rather than increased taxes. When asked how local governments should raise additional revenue, 55% of the respondents chose user charges, followed by 21% who recommended increasing the sales tax.

In 1986, an ICMA study revealed that the ratio of user charges to tax revenues was 123.6% for cities under 50,000 population, declining to 49.5% for cities over one million. "This indicates that larger cities with more diversified economic bases as well as more people are able to produce relatively greater revenues from taxes and miscellaneous sources of income than are the less populated cities" (Bland/ICMA, 1989).

In the U.S., most revenue from user charges comes from utility services such as water and electricity. Sewerage services also provide a significant amount of revenue. Roughly 40% of direct costs for sanitation (which includes solid waste collection, landfilling, and street cleaning) is recovered through user charges; 71.7% of the cost for sewerage; and 86.5% of the cost of water (Bureau of the Census, Government Finances in 1985-86).

In most states, local governments may earn a reasonable return on their investment (profit) for enterprise services such as water, sewer, and electric services.

Managing accounts receivable for service charges creates opportunities and problems similar to those encountered by private firms. In the U.S., local governments strive to achieve a 95% collection rate on current accounts.

Services backed by local government user fees are typically priced to recover the full cost of providing the service. Some examples include connections, lateral permits, septic tank dumping, wholesale services to other governments, and landfill tipping fees.

### **Impact Fees**

Traditionally in the U.S., the cost of adding facilities has been borne by all users through increased charges and taxes. However, local governments with high population migration have adopted impact fees to partially shift the burden for growth to new residents. Impact fees are charged to developers for the cost of improvements such as water and sewer lines that must be provided to serve the new development.

Advocates claim that impact fees reduce the financial burden on current residents who would otherwise share the cost of additional facilities through higher taxes and service charges. In the U.S., impact fees on new developments are politically popular.

However, impact fees do subject buyers of new homes or commercial space to double payment for public improvements--once through the impact fees for new facilities and again through taxes and service charges used to retire the debt that financed existing infrastructure.

For cities and counties experiencing fast-paced growth, impact fees often do provide a politically acceptable means of financing the needed new environmental infrastructure.

#### **Special Assessments**

Special assessments, another form of benefits-based financing of public facilities, capture the increase in property values that result from public improvements. Levies are charged to property owners for the increased property values created by the enhancement of public facilities. By shifting part of the cost of public improvements to property owners who benefit from increased property values, special assessments attempt to promote equity.

#### **4. Appropriate Technologies**

The protection of urban environments in developing countries will require the use of affordable technologies. The infrastructure

must be affordable and must be able to be operated and maintained with the skills available in developing countries.

### **Wastewater**

There have been many alternative approaches to wastewater treatment tried in the U.S. Some of the low-cost solutions being used in smaller municipalities demonstrate that wise technology choices can help reduce capital costs and also operation and maintenance costs. A number of these may be transferable to the urban areas of developing countries; for example, variable grade effluent sewers developed twenty years ago in Australia and used extensively in the U.S. These sewers carry septic tank effluent from individual homes to a common treatment site. These systems are low cost, easy to maintain, and relatively simple to install. Simple clean-out devices take the place of costly manholes. An entire sewer system of this type costs roughly half as much as a conventional system would (Shanaghan and Flowers, 1986).

### **Solid Waste Management**

Open dumping accompanied by burning is the prevalent form of waste disposal in developing countries. Of the various environmentally sound processes available for waste treatment and disposal, sanitary landfill and composting are generally the most economically feasible. The high organic component of developing

country refuse (as much as 2/3 of total weight) makes composting an especially feasible option.

In Cairo, Egypt, for over 70 years the Zabaleen have collected refuse from certain parts of the city, using animal-drawn carts for transport. The income generated by these activities and the nominal fee charged to the residents served have demonstrated the economic viability of private sector collection of waste.

#### 5. Citizen Awareness

Environmental management problems can be highly charged politically. The visible support of local elected officials is helpful in communicating the importance of environmental programs to the public as well as to the local government staff. Public information is the key to the involvement of citizens, especially those who will be asked to pay for improvements for new urban environmental services. Without public acceptance of the need for specific investments, well-conceived projects may be rejected. At the very least, the ability to recover costs will be reduced.

A campaign to develop approval for a municipal bond sale illustrates the importance of voter support and understanding. Citizen participation, effective publicity, and public outreach are time-consuming activities, and yet crucial factors to the

success of new bond issues. A campaign must communicate to citizens not only the importance of undertaking the project, but also its cost. Glendale, Arizona (population 330,000) recently won approval from voters for the largest bond issue in the city's history. The city attributed its success to the outreach program conducted by its mayor and city manager. The city used television programming and "call-in talk shows" to enable citizens to ask questions about the bond issue.

#### **6. Intergovernmental Cooperation**

In recent years, local governments in the United States have begun to look for regional solutions to environmental problems. Environmental problems frequently cross municipal boundaries. Misuse of a water source in one community affects other communities that rely on that water. Local governments have come together in many different ways to tackle environmental problems more efficiently. Some of the techniques used include service contracts between municipalities, special districts, and regional authorities.

### **V. CONCLUSIONS AND RECOMMENDATIONS**

With a renewed interest in global environmental issues, Congress has directed A.I.D. to address issues such as global warming and preservation of species in developing countries. The increasing

attention to worldwide environmental issues has not yet focused on urban environmental problems, even though it is typically the urban areas that first confront the harsh realities of environmental degradation.

A lack of safe public water supplies, inadequate and poorly maintained sewage treatment systems, and the absence of solid waste collection and disposal have contributed significantly to the critical conditions in and around Third World cities. These are among the most important causes of global environmental degradation, and seriously affect the quality of urban life, in terms of health, child survival, labor productivity, and sustainable development.

Cities and towns create conditions that stimulate economic growth and diversification of industry. Yet, in the absence of a strong environmental ethic, serious adverse environmental conditions resulting from rapid urbanization are threatening sustainable development. One of A.I.D.'s challenges for the 1990s will be to provide effective assistance to help Third World cities invest wisely in the protection of their environments.

**RECOMMENDATIONS:**

1. Municipal governments need to take a stronger role in dealing with their environmental problems. As shown by the U.S.

experience, local governments can play a major role in creating healthful environments in urban areas. Environmental services have become a basic function of U.S. municipalities. Citizens expect their city and county governments to provide needed water and sewer services, to collect the garbage, to clean the streets, to use their zoning powers to keep polluting sources out of residential areas, and to otherwise maintain a clean environment in the locality. Moreover, citizens expect to pay for such services, through direct fees or through property taxes.

As urban populations grow larger in the developing countries, the costs of needed urban infrastructure and services are too massive to be met principally by the national government or by international donor agencies. The bulk of the funding for urban infrastructure and environmental services will have to be provided locally. Municipal governments will need the necessary authority to raise revenues from taxes, user fees, bonds, and other sources so that they can realistically meet the needs.

2. Drinking water should pay for itself. Public water systems in developing countries tend to be heavily subsidized. The result is they cannot meet their costs, and do not have funds to expand services into poorer neighborhoods. The ironic outcome in many cities is that the wealthier

neighborhoods receive public tap water at subsidized rates, while the poor have to purchase their water from private vendors at costs geometrically higher.

Water systems would function far more equitably, and reach many more people in the Third World cities, if they were run like electric utilities. Electric companies expect to be paid for the full cost of their service, and to make a profit; they have an incentive to expand their services to as many customers as possible, poor neighborhoods as well as rich. Water companies in the U.S. and many other developed nations, are run in essentially the same manner as electric companies.

A.I.D. should do all possible to promote a "utility" model for water systems. Over the long range, this will tend to make water cheaper for the poor, and preserve scarce public funds for other types of urban infrastructure that are not so easily self-financed.

3. A.I.D. should encourage national and municipal governments to explore the private provision of public services as a means to arrive at the most efficient service delivery systems. In addition to water systems, another prime area for privatization appears to be solid waste collection and disposal. There are many successful examples upon which to

on. Solid waste collection appears to be a particularly good area for development of enterprises that involve the informal sector.

4. In the interests of equity, not every urban environmental service should press for full cost recovery from the users. For services like solid waste disposal and sewers, attempting to recover full costs through fees charged to the users might make it impossible for low income people to use the service. Other cost recovery mechanisms then need to be used, including a portion of the cost being covered by general municipal tax revenues.
5. Citizen awareness is a key factor in building the political will to address overwhelming environmental problems. A.I.D. should build into its program information and training activities for opinion leaders in Third World cities, including local elected officials. Environmental degradation competes with a lot of other very pressing problems, and will not be dealt with properly unless public opinion is mobilized.
6. Appropriate technology approaches need to be introduced and disseminated widely in Third World cities. The costs for basic environmental infrastructure, using traditional technologies, are so formidable for many of these cities

that there is sometimes a tendency to take a position of total neglect.

In order realistically to meet the costs of needed infrastructure, it will be necessary in many developing countries to adapt and change infrastructure technologies and standards which have frequently been copied verbatim from industrialized nations. A.I.D. and other international donor agencies should encourage a re-examination of standards, and adoption of appropriate technologies.

7. The investments required to improve the environmental infrastructure of cities are not esoteric. They are well understood. A.I.D.'s Office of Housing and Urban Programs has accumulated experience in providing urban environmental infrastructure, and has access to experts who know how to put together systems that work. The key problem is financing. The challenge for A.I.D. is to find ways to mobilize financial resources for urban environmental services right within the municipalities where they are needed.

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