

Capsule Report

Number 1, March 1996

Health & the Environment in Urban Poor Areas: Avoiding A Crisis through Prevention

The Emerging Health Crisis

An estimated 600 million people in urban areas of the developing world live in life- and health-threatening homes and neighborhoods. In poor urban areas—variously known as informal settlements, squatter settlements, slums, peri-urban areas, shantytowns, *barrios*, and *favelas*—health-threatening environmental conditions are the norm. These make-shift communities, many of which are not legally recognized by the government, are often built on land that no one else wants: flood plains or steep slopes, near dumps or noxious industrial activities. On these unsafe sites, the poor crowd into shacks made from cast-off materials.

Often there is no water supply, and people are obliged to purchase drinking water from vendors, with no guarantee that it is safe. Sewers are rare; storm drainage is virtually unknown. Greywater is thrown into the streets, adding to standing pools left after rain. Because there is no method for collection or disposal, garbage and trash are thrown into the nearest gully or streambed, endangering children and polluting water. Sanitation facilities are often lacking entirely, so these settlements are awash in human excrement. Vehicular and industrial emissions pollute the air in many urban centers. Unvented heating or cooking stoves using biomass fuels fill indoor air with smoke. All of these conditions—crowding, lack of water, filth, polluted air—threaten the health of millions, especially children. According to WHO, a third of the urban dwellers in developing countries (approximately 565 million persons) live in substandard housing or are homeless. Half of them are children. The table on page 5 gives some examples of environmental health conditions in specific cities.

The dramatic effects that these conditions have on health are only now beginning to be documented. Poverty remains the significant predictor of urban morbidity and mortality, and available studies lead to the recognition that in many countries, the urban poor have the worst health status—even worse than their rural poor counterparts. For example, recent studies have confirmed repeatedly that infant mortality rates are far higher in poorer sections of many cities than in better-off sections—not surprising, given that, according to WHO and UNICEF studies, worldwide, the urban high-income population has 95% coverage for water and sanitation, compared



Unless developing country governments and international donors wake up to it, the coming environmental health crisis of poor urban areas could easily overwhelm health care systems, compromise the health and welfare of an ever-growing number of people—already over a billion—and endanger the productivity and stability of many developing nations. The greatest risk is to children of poor urban families, whose vulnerability is reflected in rapidly rising mortality and morbidity rates from environment-related diseases.

EHP Capsule Report No. 1 looks at the factors responsible for this looming crisis and offers some broad-brush suggestions on the role prevention can play in forestalling it. Most of the ideas expressed here originated with the two main presenters at a seminar in January 1995 on urban environmental health, Margaret Catley-Carlson, president of the Population Council and chair of the Water and Sanitation Collaborative Council, and Dr. Diana Silimperi, specialist in integrated child health services and urban health delivery systems with the BASICS Project. The seminar was cosponsored by USAID's Office of Environment and Urban Programs and Office of Health and Nutrition (both in the Bureau for Global Programs, Field Support and Research). EHP coordinated the seminar. (Photo courtesy WHO, P. Almasy)

with 64% coverage for water and 45% for sanitation for the poor population. Although comparisons between the urban poor and the vast rural population suggest that urban health in the aggregate is better than rural health, these statistics are highly misleading, for the city numbers are skewed, both by the good health of the more affluent and the common omission of data on the poor. The two tables on this page summarize the findings of research comparing the health status of persons living in poor versus nonpoor areas of the same city.

Impact on Poor Women

As a group, urban poor women sustain unusually high risks for increased morbidity and mortality, the result not only of childbearing but also of adverse exposures through their responsibilities as food gatherers and providers, caretakers of children and the ill, and maintainers of the home shelter. Worst off are the growing numbers of single females heading households; according to U.N. reports, even in Africa, nearly 35% of urban households in poverty are headed by single women, and the proportion is significantly higher in Latin America. Children of single females heading urban households are often the poorest of the poor, with significant morbidity and mortality.

Disease Impacts

Poor environmental conditions give rise to high rates of diarrheal diseases (including cholera), acute respiratory infections (ARI), and vector-borne diseases. In one year alone, over 2 million urban children under the age of five died as a consequence of diarrheal dehydration. Cholera is sweeping Latin America. In the last decade, urban epidemics have erupted as a number of traditionally rural parasitic diseases emerged in cities, due to a combination of rural migration and the proliferation of breeding sites. Malaria and Chagas's disease, both typically rural, are increasingly being seen in urban settings. Dengue is at epidemic levels and spreading in urban centers. In 1995, a state of emergency was declared in Guatemala and El Salvador because of the dengue epidemic.

**Urban Health in Poor and Nonpoor Areas
of the Same City:
Infant Mortality Rates**
(per 1,000)

City	Poor	Nonpoor
Porto Alegre, Brazil	43	18
Karachi, Pakistan	152	32
Aggregate urban		
Guatemala	113	33
Manila, Philippines	210	76
Sao Paulo, Brazil	175	42
Delhi, India	180	18

Source: Diana Silimperi, based on *Report of the Panel on Urbanization, 1992* and *World Development Report, 1993*.

**Urban Health in Poor and Nonpoor Areas
in the Same City:
Infectious Disease Morbidity and
Mortality Differentials**

City	Disease	Difference in Poor vs. Nonpoor
Manila, Philippines	Tuberculosis	9x
	Diarrhea	2x
	Typhoid	4x
Porto Allegre, Brazil	Pneumonia/influenza mortality	6x
	Septicemia mortality	8x
Sao Paulo, Brazil	Enteritis, diarrhea, pneumonia mortality in infants	2x

Source: Diana Silimperi, based on *Report of the Panel on Urbanization, 1992*.

Respiratory diseases are more likely to be prevalent in urban than in rural areas because crowding promotes the transmission of infectious organisms. According to a study published in *World Health Statistics* (I. Romieu, "Urban Air Pollution in Latin America and the Caribbean," Vol. 23, No. 2, 1990), over 2 million city children in Latin America suffer from chronic coughs, and 65 million person-days of workers' time have been lost as a result of urban air pollution.

The toll of morbidity and mortality from accidents and injuries is increasing in urban areas. Motor vehicle accidents lead the list, but fires and home accidents—especially in slums—hit the under-five age group hard. In addition, the makeshift nature of urban slums makes them more susceptible to natural disasters.

In developing countries that have made the transition to industrialization, residents of urban slums are threatened not only by the diseases and hazards associated with devel-

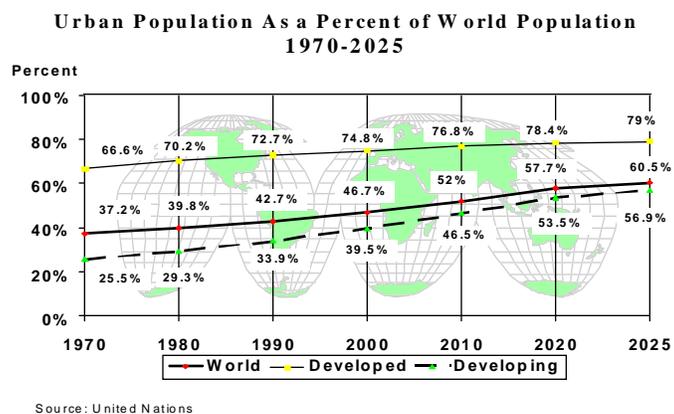
opment, but also by those more typical of developed countries—cancer, stroke, heart disease, chronic lung disease, accidents, and so on—many of which are also environmentally related.

The Myths: Denial and Defeatism

Only relatively recently have some external support agencies begun to address urban environmental health needs. A rural focus was established in an earlier period as a valid response to urgent rural needs. This rural bias makes less sense today given the substantial demographic shift from rural to urban centers. In addition, in the view of development practitioners with experience in peri-urban areas, three widely accepted myths have blinded health experts to the need for action and to opportunities for effective interventions.

Myth #1: The growth of cities can be slowed.

Cities are here to stay, and their growth is inexorable. A tidal wave of new inhabitants will inundate the world's cities in the next 30 years, mostly in developing countries. The flood is rising fastest in the poorest countries. In 1950, there were only 285 million urban inhabitants in Third World cities; by 1990, there were 1.5 billion, and by 2025 there will be 4 billion, according to *U.N. World Urbanization Prospects*. Latin America will be the most urbanized region, with almost 85% of its population in urban areas (the same level as the U.S.), compared with 74% at present. In Asia and Africa, the proportion will have jumped 20 percentage points, from around 34% to near 55%. As the graph on the right shows, a majority of people worldwide will live in urban areas.



Nothing can stop this growth. Efforts to slow city growth by cutting rural-to-urban migration have rarely worked, in part because cities exert a magnetic pull, offering opportunities for jobs, education, and health care. But it is due even more to the fact that 60% of urban growth reflects natural increase, or babies born to people who already live there.

The poor are the victims. Pollution, crime, illness, and crowding tend to affect the urban poor far more severely than the well-off. And it is the poor urban populations that seem to be growing the fastest. For example, in Peru, the overall rate of growth in cities is 3.8%, whereas the growth rate of informal urban settlements is around 6%. Worldwide, the urban population is expected to double in 10 years, while the number of urban poor is expected to double in 5 years. Because the poor are so hard to count, these numbers may be in dispute. But policymakers should recognize that urbanization is proceeding twice as fast as overall population growth; by the turn of the century one out of every two people will live in a city; by 2010, one out of every ten people will live in an urban megalopolis.

Myth #2: Investments in medical interventions are sufficient to address health problems in developing country cities.

This premise underlies the majority of developing country health investments. But the proposition that investments in curative and preventive medical interventions can address the health problems of the urban poor is flawed: the truth is that urban health problems are already far beyond the ability of the medical establishment to control, and as they continue to erupt, hospitals and clinics will be overwhelmed.

Resource allocations follow the myth in developing countries. Most countries overtly favor curative health investments. National health budgets are allocated mostly to city hospitals; a smaller percentage of resources has gone to establishing municipal networks of commu-

nity-based health centers and health posts that provide primary health care. The small number of clinics and hospitals that serve the poor are often overcrowded, understaffed, poorly equipped, and in some cases even culturally inappropriate for their patients.

Redirecting resources to community-based primary health services, including preventive services. A patient-centered medical approach to the advancing health crisis in developing world cities is no longer enough. An approach that focuses instead on community- and family-level preventive activities will begin to root out the causes of

illness, in particular the child health risk factors, shown in the table above. Such an approach includes protection of water sources; construction of excreta sanitation facilities and safe water supplies; collection and proper disposal of solid wastes; introduction of improved cooking stoves; reducing vector-breeding sites; and promotion of handwashing, safe food handling, and other health-promoting practices. Over the long term these activities are cost-effective. Continuing to count on health-center focused commodity-based programs to withstand the onslaught of growing urban health problems is like depending on the proverbial finger in the dike.

Myth #3: The urban poor are marginal; they cannot help themselves.

The urban poor live on the geographic margin of the city as well as on the economic margin, perpetually in danger of losing their livelihoods, their health, their homes. Yet most of the poor are hard-working individuals who often exhibit considerable entrepreneurial skills. They scrape out an existence in low-paying, unhealthy jobs such as ragpicking, textile piece-work, bicycle rickshaw driving, cooking, or vending and hawking.

The myth that the urban poor cannot help themselves disregards the fact that many of these hard-pressed individuals have both contributed to, and worked in, pilot efforts to improve the environmental conditions in which they live. Successful models are grounded in the opportunities that already exist in urban poor areas, and reach out to include national and local leadership and the private and public sectors in new combinations that bolster local efforts. Above all, the common theme of these urban examples is sustainability. Substituting realism for wishful thinking and optimism for defeatism, these models suggest that practical, pragmatic solutions do exist and that they can help make cities more habitable and healthful.

Child Health Risk Factors in Urban Slums

Risk Factor	Diseases			Death
	ARI	Diarrhea	Malaria	
poor water quality		X		
poor sanitation		X		
insufficient garbage collection/disposal		X		
poor drainage/free-standing water			X	
crowding	X			
air pollution (indoor and outdoor)	X			
poor/under nutrition	X	X		X
poverty	X	X	X	X
low maternal education				X
lack of nearby primary health care facilities				X

Source: Diana Silimperi.

The Opportunities: A Realistic Reassessment of Possibilities

The picture is not totally bleak. Despite the different circumstances in which they live, the urban poor share certain characteristics—not shared by their country cousins—that should enable them to operate as effective partners in affordable solutions to the environmental and health problems in their neighborhoods.

City residents are more tuned-in. City residents are tuned in to modern media and communications, making it easy to reach them with broadcast messages on health and environ-

mental issues. Also, the population density makes it relatively simple to mobilize large groups of poor urban dwellers. The urban poor can join their voices in protest about their environment, and they can combine their energies to develop ways to improve their surroundings. Even in the poorest urban neighborhoods, opportunities exist to address urban health problems in constructive ways. Traditional health and family planning services are not enough. Programs in health and in water and sanitation are necessary if child mortality is to be reduced. Intransigent pockets of urban poverty offer opportunities for innovative integrated attacks—in which population, health, and environmental programs join forces—on the complex of problems that affect the urban poor.

The urban poor live in a cash economy. Cities are the “economic engines” of developing countries. They produce the bulk of GNP. Countries higher on the GNP scale all have higher rates of urbanization than countries lower on the scale. Even the poorest city dwellers can latch onto the commercialism that stimulates urban economic life. These sources of income may not be secure or high paying, but they make it possible for the urban poor to pay for low-cost medical services and environmental improvements such as water supply and sanitation. The urban poor are often quite willing to pay for infrastructure that they see as improving their quality of life.

Cities have more potential woman power. Poor urban women represent a great untapped resource. As guardians of family health and caretakers of children, women have the most at stake in changing hazardous health conditions. And the community has much at stake in enabling women to play such a role. Urban poor women worldwide constitute an immense reservoir of underutilized ability; their capacities must be strengthened and energies mobilized if urban and environmental health objectives are to be attained.

Examples of Urban Environmental Health Conditions

City	Urban Pop.	Water	Sanitation	IMR
Jakarta	13.7 million	< 1/3 pop. have direct connections to piped water 30% use vendors @ 50x the piped price/liter 1/3 use contaminated water sources	< 50% have no indoor plumbing 17% have toilets or latrines that openly drain into ditches 6% use public toilets 9% have no formal toilets	IMR 4-5x higher in poor areas of city
Manila	11.8 million	1.8 million lack adequate water services	Only 15% are served with sewer or septic tanks	IMR 210/1000 in squatter area vs. 76/1000 in non-squatter areas
Karachi	11.7 million	38% have piped water a few hrs/day 46% use standpipes 16% use vendors	At start of Orangi Project: 700,000 used bucket latrines In 8 yrs: households built 69,000 pour-flush latrines, 4,459 sewer lines, and 345 secondary drains	IMR 95-152/1000 in low-income vs. 32/1000 in middle-income areas

Source: J.E. Hardy, D. Mitlin, D. Satterthwaite. *Environmental Problems in Third World Cities*. Earthscan: London, 1992.

The Solutions

A Workable Paradigm for Prevention

The Network on Services for the Urban Poor of the Water and Sanitation Collaborative Council has developed a program for successful water and sanitation provision in urban poor areas: recognition of *de facto* land holding, user-pay cost-recovery systems, appropriate technology, consumer involvement, and institutional reform. This program can be adopted for broader environmental health efforts in urban poor areas through the addition of four more elements: risk assessment, private sector involvement, intersectoral planning, and integration of service delivery.

The “Official City” and the “Unofficial City”

The urban poor live in the shadow of the city. Often the slums and shantytowns are physically dominated by the prestigious tower blocks of the city’s central commercial areas. This ‘official’ city is the one known to business people and tourists. The residents of the slums and shantytowns are also in the shadow of the rest of the city in terms of quality of life and services.

—Trudy Harpham, Tim Lusty, and Patrick Vaughan, eds., *In the Shadow of the City* (Oxford: Oxford University Press, 1988), 1.

urban communities. Without the security legal recognition provides, the inhabitants themselves are unwilling to make permanent investments in water, sanitation, housing, and so on.

- **Cost recovery.** Through user fees and credit, the poor can and should help shoulder the costs. Full cost recovery promotes conservation and makes it possible to extend service to the unserved. This approach would be welcomed by the poor people without piped water in or near their homes who often pay vendors far more for water than if they were connected to a municipal system. Some are currently paying as much as 10 times more for a cubic meter of water than residents of New York or Washington.
- **Appropriate technology.** Technologies that work in formal urban areas often fail to work in peri-urban areas because they are not appropriate to the socioeconomic, cultural, and physical setting. Increasingly, technologies such as small-bore condominium sewers are being successfully used in informal settlements.

Local Capacity Building

There is an alternative urban future, within each city, where government policies become rooted in making the best use of local skills, knowledge, culture, and resources. This requires that governments turn to the capacities of the people who are already the most active city builders—individual citizens and the community organizations they form. The failure of government to support and help coordinate the actions of these people represents an enormous loss in what both government and these people can achieve.

—Jorge E. Hardoy, Sandy Cairncross, and David Satterthwaite, *The Poor Die Young: Housing and Health in Third World Cities* (London: Earthscan Publications Limited, 1990), 236.

■ **Involving consumers.** The poor should be involved in diagnosing and resolving their local environmental health problems. Consumers should be educated to demand quality services and to pressure municipal leaders and the services they control to respond to community demands.

■ **Institutional reform.** Capacity building, or strengthening the institutions responsible for health, population, and the environment, coupled with development of human resources, is essential if the health problems of the urban poor are to be solved. Institutional reform must take place at all levels.

□ National, provincial, and municipal agencies should all share the burden of health, population, and environmental services. This includes making resources available. Unless a clear, definitive division of authority, responsibility, and resource allocation is made, problems will be deferred and sustainable solutions will not be implemented.

□ Municipal governmental services should be run more efficiently. At present even fairly large municipalities seldom have adequate health staff, and smaller towns and midsize municipalities may have no trained health professionals except those providing clinical services at provincial or district levels. Local governments should organize public and environmental health departments and hire staff to collect and use available data on health, population, and the environment to advise municipal decision makers. In turn, municipal authorities should be trained in the use of innovative planning and management methods that can be used in complex urban environments.

□ Urban public health and environmental managers and providers should acquire new skills in communications and marketing. This kind of skill-building is necessary to expand the role of prevention and integrate it whenever possible with essential health services, especially in models which focus on activities outside of clinics and hospitals. Social marketing, including new principles of market segmentation, has particular relevance for heterogeneous urban settings and can be used to tailor messages to specific subpopulations. Ethnographic studies can help determine barriers to utilization of services or objections to preventive measures. Public health and environmental managers should also be able to perform and/or understand health care interventions, as well as financial administration and quality assurance monitoring. Although the field of public health will continue to include the control of infectious diseases, professionals must be equipped to deal with emerging chronic diseases and environmental, mental, and lifestyle disorders, including sociological ills such as the current epidemic of violence.

■ **Risk assessment and communication.** Plans and choices about urban health should be made on the basis of solid information and on an analysis and prioritization of the environmental health risks a community faces. Critical policymakers—both national and local—must be fully informed regarding urban health and environmental issues. They need urban and intraurban data to make responsible decisions about resource allocations. Many leaders are unaware of the vast differentials in health status, population rates, and environmental conditions among urban groups.

■ **Private sector involvement.** New relationships should be formed between the public and private sectors. The role of national and municipal governments is to pro-

Creative Methods for Collecting and Presenting Data

Many tools for data collection, decision making, and planning can be found in user-friendly computer software programs. Interesting and easily understandable data presentations can also be produced using inexpensive software, or by following published guidelines for effective communications. Mapping and the use of geographic information systems can simplify and improve health services planning and disease control. Visualization techniques and participatory methods of information collection help build community capacity and responsibility for health and the environment.

The Intersectoral Nature of Environment-Related Diseases

Nine environmental determinants are associated with ingested health problems:

- domestic water supply
- sanitation (excreta disposal)
- hygienic facilities (soap, privacy, etc.)
- food storage and handling
- markets
- slaughterhouses
- cooking facilities
- fuel
- industrial pollutants

mote policies that encourage the private sector to participate in efforts to alleviate the environmental health problems of the urban poor. It is important, however, that private sector participants be involved in ways that use their strengths. For example, private non-profit organizations may be extremely successful at community organization and promoting household preventive behaviors, while for-profit enterprises may be most efficient at developing products or providing large-scale facility services.

How Many Urban Poor?

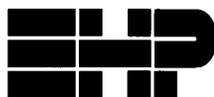
By the year 2000, 1 billion people will live in urban poverty: 56% in Asia, 24% in Latin America, and 20% in Africa. Assuming that 20% are children under five, an estimated 200 million children will be living in urban poverty.

—World Population Prospects, 1992: WHO Commission on Health and Environment, 1992.

- **Intersectoral planning.** Because many health problems are rooted in environmental conditions, different agencies will need to collaborate to successfully address them. Until recently, the norm has been to deliver selected primary health care interventions vertically, that is, through programs (such as diarrhea control, immunization, family planning, health education, income generation, etc.) that are planned and implemented separately. These programs often compete for resources. Urban settings are an ideal testing ground for new, multipronged strategies that can simultaneously attack the various environmental causes of ill health.
- **Integration of service delivery.** Municipal and local authorities should seriously consider integrating services that provide primary health care and primary environmental care, especially at the community and household levels. Both types of services promote basic preventive behaviors that have a synergistic effect on individual health and the environment.
- **Shift to community-based care.** To improve environment-related health conditions for the increasing number of people living in urban poverty, public health must be reinvented, beginning with the development of new institutional roles and responsibilities. Urban demographics and transitional epidemiology require a shift of emphasis from hospital-based care to less expensive community-based care that stresses prevention and health promotion. Without this shift, no city will be able to bear the costs of developing equitable health delivery systems.

A Sense of Urgency

The time has come to pay heed to warnings from the 1990 UNICEF Summit for Children and the June 1992 United Nations Conference on the Environment and Development in Rio de Janeiro, which placed environmental health interventions among the highest priorities for improving the health of the poor in developing countries. Plans for Habitat II: The Second United Nations Conference for Human Settlements (1996) similarly call on the nations of the world “to confront the emerging urban crisis and initiate urgent worldwide action to improve shelter and living environments.” The challenge is to convey a sense of urgency to national and municipal governments, to let them see that their national well-being depends on improving their urban environments.



Environmental Health Project
1611 North Kent Street, Suite 300
Arlington, Virginia 22209-2111
Phone: (703) 247-8730; Fax: (703) 243-9004;
Internet: EHP@ACCESS.DIGEX.COM



EHP is sponsored by the Environmental Health Division, Office of Health and Nutrition, Center for Population, Health and Nutrition, Bureau for Global Programs, Field Support and Research, U.S. Agency for International Development.

EHP is implemented by a consortium of firms and research institutions headed by Camp Dresser & McKee International Inc., Cambridge, Massachusetts.