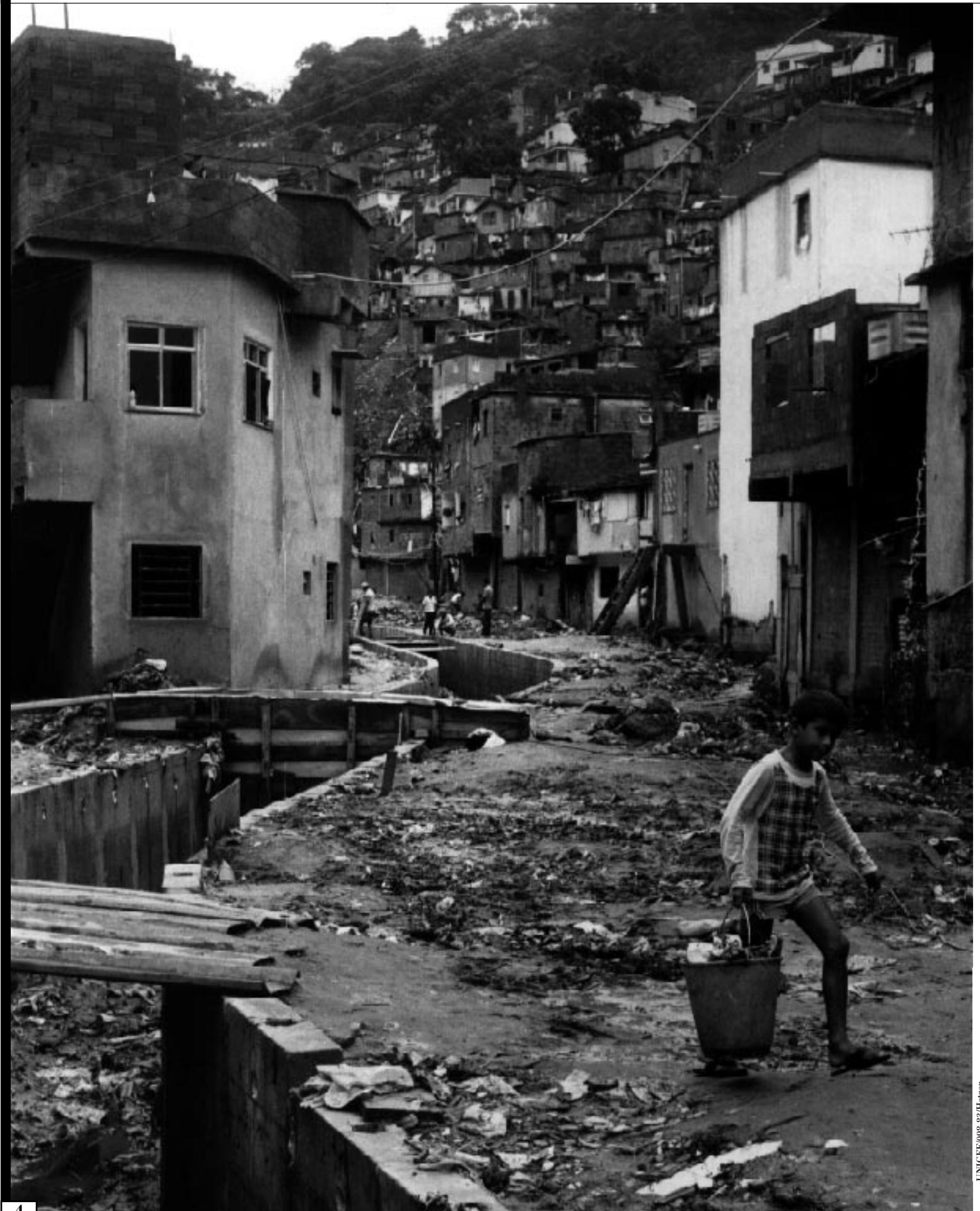


# WATER AND SANITATION COMMENTARY



# The sanitation gap: Development's deadly menace

Akhtar Hameed Khan

***Adequate sanitation is the foundation of development—but a decent toilet or latrine is an unknown luxury to half the people on earth. The percentage of those with access to hygienic sanitation facilities has declined slightly over the 1990s, as construction has fallen behind population growth. The main result can be summed up in one deadly word: diarrhoea. It kills 2.2 million children a year and consumes precious funds in health care costs, preventing families and nations from climbing the ladder of development.***

**O**n the brink of the 21st century, half the world's people are enduring a medieval level of sanitation. Almost 3 billion individuals do not have access to a decent toilet, and many of them are forced to defecate on the bare ground or queue up to pay for the use of a filthy latrine. This unconscionable degradation continues despite a fundamental truth: Access to safe water and adequate sanitation is the foundation of

development. For when you have a medieval level of sanitation, you have a medieval level of disease, and no country can advance without a healthy population.

In many developing countries, the plagues of old are revisiting, taking their strength from teeming urban squatter settlements and shanty towns, from streets and waterways awash in excrement and garbage. The recent cholera epidemic in Peru and outbreaks of bubonic and pneumonic plague in India are but three examples.

Plagues make headlines, but in human terms, the price of neglecting sanitation is both more prosaic and more profound. It can be summed up in one word: diarrhoea. It thrives in the absence of hygienic conditions and is tied with pneumonia as the biggest child-killer on earth, taking the lives of 2.2 million children each year. Diarrhoeal episodes leave millions more children underweight, mentally and physically stunted, easy prey for deadly diseases and so drained of energy that they are ill equipped for the primary task of childhood: learning.

How can any nation hope to advance if its people—its main resource—are so diminished from the beginning of their lives? How can leaders ignore the fact that their citizens are diminished not by an implacable enemy or an incurable disease but by something as mundane and easily preventable as diarrhoea? And how can a civilized world tolerate the status quo when it could be fixed with an investment equal to 1 per cent of yearly world military expenditures?

To deny people basic sanitation is not just inhumane—it also kicks the first step out from a country's ladder of development. History has taught that a safe means to dispose of bodily wastes

is not a luxury that can wait for better economic times but a key element in creating them.

In the late 19th century, life expectancy in the industrial city of Liverpool (UK) was about 35, lower than in any developing country today. A key reason for the abbreviation of those lives was the lack of safe water and sanitation, and providing these services was a decisive turning point in reducing infant death rates. Epidemiologists studying historical records realize that there has been a tendency to underestimate the impact of water and sanitation on people's health.

Considering the state of the infrastructure in the developing world, it is no surprise that diarrhoea still holds sway in the 1990s. As population has increased, so too has the number of people lacking access to sanitation. Just since 1990, an additional 300 million individuals are making do without decent sanitation, an ominous indication that the world community is failing in its efforts to provide services where they are most needed.

Many large cities are still without central sewage systems for their millions of residents. In New Delhi, for example, less than 40 per cent of households are connected to sewers. In Ibadan (Nigeria), a city of more than 1 million people, less than 1 per

Akhtar Hameed Khan has been involved in development work for more than 40 years. Since 1980, he has been Director of the Orangi Pilot Project in Karachi (Pakistan), which has brought modern sanitation to a squatter community of 1 million people. Previously he organized farmers' cooperatives and rural training centres and served as an adviser to various development projects in Pakistan. He has been a research fellow and visiting professor at Michigan State University (US), Director of the Pakistan Academy of Rural Development and Principal of Victoria College (Bangladesh).

# WATER AND SANITATION

## COMMENTARY

cent of households have sewer connections.

Though latrines are available to some city dwellers in developing countries, more than a third lack adequate sanitation. In such conditions, many of these residents, particularly the very poor, are forced to defecate in open spaces or to dispose of their waste in nearby gullies and streams. Have we become so inured to the disparity between rich and poor that we fail to notice the dreadful irony of people defecating in vacant lots in the shadows of high-tech office buildings?

Such de facto latrines become breeding grounds for bacteria, ripe to contaminate the children who play in these open spaces and the families who wash and fetch drinking water from streams near them. These sites also encourage the growth of virulent strains of typhoid, typhus and dysentery and infestation by disease-ridden carriers such as insects and vermin. The water that collects in urban detritus, such as discarded

---

*Since 1990, an additional 300 million people are making do without decent sanitation.*

---

vehicle tyres, nurtures mosquitoes, which spread deadly malaria, yellow fever and dengue fever—the latter a relatively modern disease. Rats, coexisting with people in this fragile environment, thrive on the mountains of waste that accumulate around squatter settlements and are the principal carriers of bubonic and pneumonic plague.

### **Declining access**

Even where sanitation facilities are available, they are often woefully inadequate. In Kampala in



*Disease carriers such as insects and vermin thrive on the mountains of waste surrounding squatter settlements. Nearby residents seek salvageable items in a garbage mound outside Guadalajara (Mexico).*

the 1980s, for example, as many as 40 people were using each city latrine. Given the volume of use, inevitably such public latrines are filthy, attracting swarms of disease-bearing insects and frequently overflowing, particularly during storms.

I try to take comfort from what good news there is, and the success in expanding access to safe water stands in stark contrast to the shameful failure in sanitation. By 1994, three quarters of the world's people had access to safe water, up from 61 per cent just four years earlier. This is crucial, as safe water is a key part of the sanitation equation. But during the same period, the proportion of people who had a sanitary means of excreta disposal declined from 36 to 34 per cent.

This decline should set off an alarm. It tells me that the world community is far off track and, just three years before the millennium, has no hope of achieving its goal of providing adequate sanitation to everyone on earth by the

year 2000. Access rates are low partly because some countries have tightened their definitions of what constitutes adequate sanitation. While it is good news that standards are being raised, the fact that the minimum standard is now a notch higher does not excuse governments for their failure to provide such a fundamental human necessity to all their people at the end of the 20th century.

Hopes for increasing access to sanitation began to erode in the 1980s, years that many have called the 'lost decade' of development, when many poor countries found their budgets stretched thin from making payments on enormous international loans.

In Africa, for example, 22 per cent of the total value of exports in 1990 went to debt repayment. In addition, many economies underwent the shock therapy of structural adjustment programmes called for by the Bretton Woods institutions and donor nations. Public expenditures, and often basic services, were cut.

The numbers show what happened. In Nairobi, capital expenditures for water and sewerage fell by a factor of 10, from \$27.78 per capita in 1981 to \$2.47 in 1987, and per capita maintenance expenditures declined by two thirds. In Zimbabwe, close to one quarter of village water pumps fell into disrepair when the Government slashed maintenance funds from \$12 per water site in 1988 to \$5.30 in 1990. The incidence of cholera and dysentery surged in Kinshasa for several months in 1995 when funds for water chlorination ran out.

### **Growing cities**

In terms of simple numbers, the need for sanitation is greatest in rural areas. United Nations statistics show that only 18 per cent of rural residents in developing countries have access, compared with 63 per cent in urban communities. However, the urban figures in some cases do not include squatter communities, home to 30 to 60

UNICEF/96-0437/Hernandez-Claire

per cent of a city's population in many developing countries.

Whatever the numbers, though, lack of sanitation is far more worrisome in urban areas than in rural regions, mainly because of population density. Simply put, the more people in a given space, the greater the potential for contact with human waste.

And the world is on a relentless path towards increasing urbanization. Almost half the people on earth will live in urban areas by the year 2000, growing to 61 per cent by 2025. The population of my country, Pakistan, is about 70 per cent rural now, but within 30 years that will shrink to less than 45 per cent.

Public authorities are not helping to find homes for urban migrants, so they take matters into their own hands: After the rich build their homes and offices and shops, the enterprising poor improvise their own communities on what is left over—the most undesirable and marginal land, adjacent to garbage dumps, on hillsides, in gullies and ravines, on soil that is either too rocky or too sandy or lies in a flood plain.

These crowded 'informal' settlements remain largely unserved by public utilities, mostly because of governments' unwillingness to acknowledge that they even exist. It is no surprise, then, that these communities are places of poor hygiene and rampant disease. In some cases, the urban poor suffer infant death rates 1.5 to 3 times higher than people who are better off, partly due to lack of safe water and sanitation.

### The price of poverty

The poor also pay a high 'tax' for their poverty, and entrepreneurs always seem to find a creative way to extort it—such as by charging exorbitant prices for use of public latrines.

In Kumasi (Ghana), for example, where the poorest pay for each visit to the neighbourhood

latrine, they spend more on sanitation services each year than do residents with toilet facilities in their homes. Residents of some impoverished communities spend 20 per cent or more of their income for small quantities of water of questionable purity, while their neighbours in wealthier, established neighbourhoods receive government-subsidized piped water.

And then there is the health 'tax'. In a study in Karachi, we found that people living in areas without sanitation or hygiene education spend 6 times more on medical bills than do people in areas with sanitation and hygiene knowledge.

These are staggering, and unnecessary, expenses. Think what it would mean for a family if that money were available to spend on other essentials: healthier food and more of it, school books and pencils, investment in business.

But such outlays do reveal a

critical fact: Poor people are prepared to pay for access to safe water and hygienic sanitation. In one Brazilian city, residents were asked how much they were willing to pay for installation and maintenance of water and sewage services. The figures they cited were 4 times above the actual cost for water and more than 2 times for sewage.

Providing sanitation systems is a daunting and expensive task, but it is not impossible. It requires political will and a clear-headed understanding of the implications of failing to act. So far in this decade, governments in Africa, Asia and Latin America have invested roughly \$2.1 billion a year in water and sanitation services for rural and underserved urban areas—and still they fell behind. The cost of achieving universal coverage would be an additional \$4.7 billion a year (in 1994 dollars) for a decade, or a total of \$6.8 billion per year.

The figure also includes \$300 million a year for hygiene education programmes, which are just as important as latrines, given that they teach people the importance of such basic activities as washing their hands after defecating. Operating and maintaining sanitation systems would add another 5-20 per cent to the bill.

---

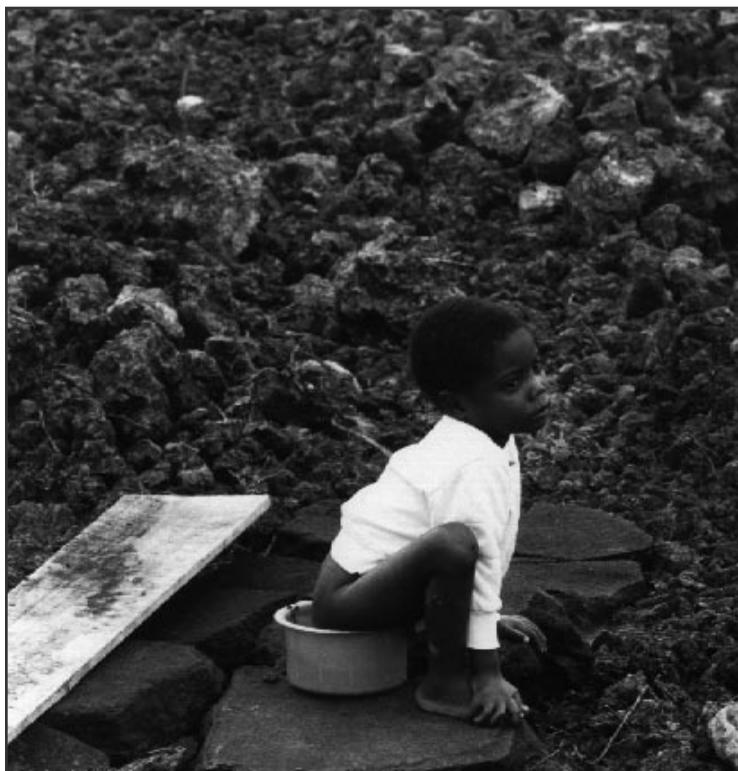
*Informal settlements remain largely unserved by public utilities, mainly because of governments' unwillingness to acknowledge their existence.*

---

A bill of \$68 billion over 10 years may sound high. But it is only about 1 per cent of what the world will spend on military expenditures in this decade. Given the cost to human health of failing to provide sanitation, it is hard to understand how a humane society can say no. Given the payback in terms of development, I cannot think of a more lucrative investment.

The cost would be less if governments mounted an attack on waste within existing water and sanitation systems. High costs, low efficiency and unreliability—these are the characteristics of many public utilities in developing countries. Maintenance does not make for good photo opportunities.

Water systems are notoriously leaky in developing countries, where 30 to 60 per cent of the water treated and pumped never makes it to the consumer at the end of the pipe because of leaks and illegal tapping. Such losses cost Latin Americans between \$1 billion and \$1.5 billion each



*Children's health suffers in the absence of hygienic sanitation. The problem is exaggerated in refugee camps, such as this one near Goma (Democratic Republic of Congo), during the Rwanda emergency.*

UNICEF/94-0676/Murray-Lee

# WATER AND SANITATION

## COMMENTARY

year—the amount needed annually to provide water and sanitation services to all the region's currently unserved citizens by the year 2000.

---

### *Most government sanitation funds subsidize services to the middle class and the rich.*

---

Using the right technology for the job is another affordable way to provide modern sanitation—and I am not suggesting second-rate systems for the poor. Designers and engineers, wedded to traditional construction methods and often caught in a tangle of questionable bidding practices, insist on using large-width piping and installing it deep in the ground. These are costly procedures appropriate for intensively developed areas with heavy vehicular traffic. But in communities where structures are small and most traffic is on foot, narrow pipes laid just under the surface of lots, fields and footpaths usually suffice, at a small fraction of the price.

With a very small customer base, most sanitation utilities remain largely unaccountable to the community at large, and often they make little effort to go after customers who fail to pay their bills. Most government sanitation funds end up subsidizing services to the middle class and the rich in established neighbourhoods, ignoring those who can least afford it. This is unjust and, given the price it extracts from the country's development, foolish.

But I do not expect any sudden shifts in public policy. One thing I have learned during many years of working both inside and outside government is that the authorities do not act until forced by the people.

Marginalized communities are invisible to bureaucrats, who often do not view the poor as part of their constituency. Unrepresented communities must organize themselves to demand the attention they deserve. And they will organize, once they understand what is needed and how to go about it. But they will need help.

### **When the people lead**

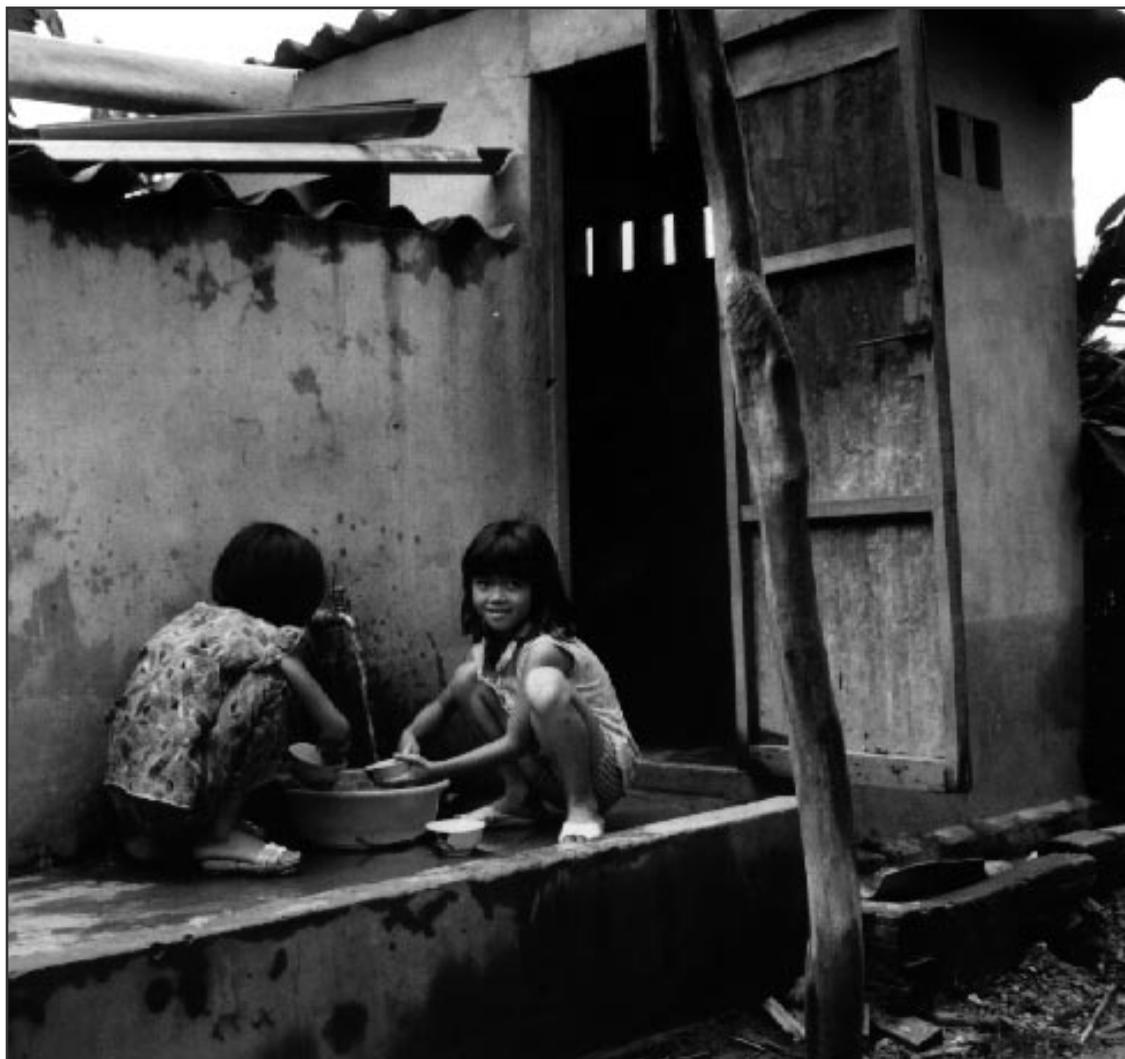
Experience shows how much change can be generated by a little help. In the Dharavi slum of Bombay, pavement dwellers were forced to use wretched public toilets, each of which served as many as 800 people. Working with local and international NGOs, female construction work-

ers living in the slum were taught how to build latrines. The project had a dual benefit: They learned skills that more than doubled their income, and they got modern latrines. Construction costs were only 40 per cent of those charged by private contractors. The pavement dwellers each pay 2 to 5 rupees (less than 15 cents) per month for cleaning and maintaining the new facilities. The Bombay Municipal Corporation recently pledged to support construction of 2,000 latrine blocks, each with five latrines.

The residents of Lemba, a poor neighbourhood of Kinshasa, endured huge mounds of rotting garbage that blocked sewage canals and drew armies of rats—

until they had the idea to hold a cleanliness contest. Now they cart the waste to a central dump where it is separated. Glass, plastic and paper are sold; organic waste is composted, to be sold later as fertilizer. Revenue from the operation supports community improvement efforts.

The city I know best is Karachi. Like many cities in developing countries, about 40 per cent of Karachi's population lives in squatter communities, called *katchi abadis*. These are not decaying slums in the urban centre but dynamic new neighbourhoods developed on the edge of the city over the past 25 years by enterprising migrants from rural areas. For rich people living in estab-



*A water tap, a sanitary latrine and children who understand the importance of hygiene: This home in Viet Nam has all the basics of sanitation.*

UNICEF/93-1298/Fregier

lished neighbourhoods, Karachi has modern sanitation, with flush latrines in the homes and underground sewers. But most of the poor living in the *katchi abadis* had only bucket latrines and open sewers.

---

*Virtually every home in Orangi has a toilet connected to an underground sewage line, all paid for by the residents.*

---

In the 1970s, the municipal government made a major shift in policy: The authorities accepted the fact that the *katchi abadis* were here to stay. This was a key step, because it enabled people to buy title to their homesites, giving them a sense of permanency and the incentive to invest in improvements. The city dug water lines to the *katchi abadis*, but they still lacked sewage service. The streets were filled with excrement and other waste. People, especially children, paid with their health. This in turn meant that families were spending an enormous percentage of their income on medical bills.

In 1980, we formed an organization called Orangi Pilot Project to work with one of these communities. Orangi is home to about 1 million working-class people—skilled labourers, clerks, shopkeepers—with family incomes averaging about 1,000 rupees (\$30) per month. The residents had formed numerous community associations that relentlessly pressed their demands with the authorities, but they were getting nowhere. Sanitation was their most urgent need, above health care, schools and jobs. They wanted the government to install

a modern sewage system. This seemed unlikely to happen. Orangi Pilot Project set about helping them to develop it on their own.

Seventeen years later, virtually every home in Orangi has a pour-flush toilet connected to an underground sewage line, all paid for by the residents. Orangi Pilot Project provided technical advice and plans for a simplified design, which reduced the cost by almost a factor of 10, but the organization did not contribute one rupee for construction. Each family invested about a month's income to buy materials and hire labour. We avoided government contractors, who often pad costs and include kickbacks for officials.

The city has plans to build a treatment plant, but for now, as in the rest of Karachi, Orangi's sewage lines empty into creeks.

From an initial desire for better sanitation, these stalwart people have gone on to develop a whole series of services to improve their lives and futures. They have organized mothers' classes on disease prevention and hygiene—for which the women pay—as well as group discussions about family planning. Now, more than half of Orangi women plan the births of their children, compared to 7 per cent in other communities.

The children fill the rooms of over 500 private schools. Parents are willing to pay the extra fees for the private schools because they are better than the government schools. There is also a revolving loan fund for small businesses, which are thriving in every lane of Orangi. It is a community transformed. The people have been strengthened by their role in solving their most fundamental problem, and their pride is visible.

The Orangi experience reinforces an essential lesson: Adequate sanitation is fundamental to improving living standards. In its absence, diarrhoea and other illnesses prevail, leading to high death rates and forcing families to



*When local residents participate in the solutions to their water and sanitation problems, bureaucratic roadblocks can be overcome and living standards improved. Young women fetch water from a handpump in their village near Peshawar (Pakistan).*

spend their scarce savings on medical care. No matter how hard they work, the poor are then left with little hope of accumulating the means to start up the ladder of development. But when this fundamental problem is solved, especially when the people play a leading role in solving it, they are strengthened, and the stage is set for advance.

The experience teaches another lesson as well. Through their massive collective effort, the people of Orangi pushed aside the

roadblocks the bureaucrats had erected in their path. However, the roadblocks should not be there in the first place. It is inhumane to expect the many to endure medieval sanitation while the few enjoy modern facilities. As government policy—or lack of policy—it is economically suicidal. With enough pressure from their citizens as well as the international community, governments will learn that they cannot remain indifferent to the most fundamental of human needs. ■

## ACCESS TO SANITATION

**S**anitation is fundamental to development. Public health officials have long known that epidemics of communicable diseases cannot be stopped without safe water and sanitation and widespread public health measures. But the percentage of people with access to sanitation has actually fallen in the developing world since 1990, as funding has declined and population has increased.

### Sanitation access: Data dilemmas

What type of facility is sanitary? What is 'convenient access'? Each country has its own definition, or more than one—often different for urban and rural areas.

The sanitation league table does not provide exact rates of access to sanitation, nor does it rank countries on this basis. Rather, the table groups countries in broad categories by percentage of people with access to sanitation according to the national definition. These definitions vary both in type of toilet facility and in its distance from the home. Because of these differences in definitions and also in data reporting methods and the quality of data, direct comparisons of countries' achievements are difficult.

Definitions may reflect countries' level of economic development, urbanization and resources available for sanitation. Rapid urbanization increases population densities and puts greater demands on sanitation facilities.

Some countries count ordinary pit latrines as adequate sanitation, while others count only ventilated improved pit (VIP) latrines and/or flush toilets connected to a septic tank or a sewerage system. In Uganda, for example, pit latrines are counted as sanitary, and the latest Demographic and Health Survey (DHS) shows 80% of households with access. But if pit latrines are not counted, the level of access shrinks to a mere 3%. Because of this discrepancy, the table uses data from Uganda's sanitation surveillance system, which reported access of 57%.

Differences behind the data must be explained to understand why, for example, Tanzania, one of the least developed countries, has a rate of access to adequate sanitation above 75%, while Brazil, far wealthier and more developed, has an access rate below 50%.

Pit latrines may be adequate for rural com-

munities but may not be appropriate for urban areas. Therefore, more urbanized countries, such as Argentina and Brazil, record only flush toilets as adequate and report lower rates of access than poorer countries, such as Kenya and Tanzania.

Discrepancies can also arise depending on whether data are gathered by routine government reporting or by surveys—both of which were used in preparing the table. The rate of access to adequate sanitation is usually determined by dividing the number of sanitation facilities in a community by the number of inhabitants. Routine reporting may, however, rely on outdated census data or fail to take into account squatter communities or public sanitation facilities that fall into disrepair. It may also not include privately built latrines.

Household surveys, on the other hand, can provide data on actual availability of sanitation facilities—rather than simply on what facilities have been provided—and have the advantage of providing direct, timely information from the field. Surveys can therefore point to problems in data obtained from routine reporting. They are, however, much more expensive than routine government reporting, may use different definitions and are subject to sampling errors and distortions.

The WHO/UNICEF Joint Monitoring Programme was established in 1990 to help countries strengthen water and sanitation data collection and evaluation. Generally, countries' definitions have since become more restrictive and realistic, resulting in reports of lower rates of access. Just as many countries need to step up efforts to improve access to sanitation, greater standardization of definitions is needed to allow for more accurate global comparisons of progress.



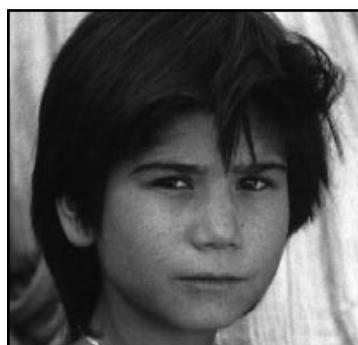
SUB-SAHARAN AFRICA

|                      | LEVEL OF ACCESS |
|----------------------|-----------------|
| Kenya                | 1               |
| Mauritius            | 1               |
| Tanzania             | 1               |
| Botswana             | 2               |
| Burundi              | 2               |
| Cameroon             | 2               |
| Central African Rep. | 2               |
| Congo                | 2               |
| Ghana                | 2               |
| Guinea               | 2               |
| Mozambique           | 2               |
| Nigeria              | 2               |
| Rwanda               | 2               |
| South Africa         | 2               |
| Uganda               | 2               |
| Zambia               | 2               |
| Zimbabwe             | 2               |
| Burkina Faso         | 3               |
| Côte d'Ivoire        | 3               |
| Gambia               | 3               |
| Guinea-Bissau        | 3               |
| Lesotho              | 3               |
| Madagascar           | 3               |
| Mali                 | 3               |
| Mauritania           | 3               |
| Namibia              | 3               |
| Senegal              | 3               |
| Togo                 | 3               |
| Angola               | 4               |
| Benin                | 4               |
| Chad                 | 4               |
| Congo, Dem. Rep.     | 4               |
| Ethiopia             | 4               |
| Liberia              | 4               |
| Malawi               | 4               |
| Niger                | 4               |
| Sierra Leone         | 4               |
| Somalia              | 4               |
| Eritrea              | No data         |
| Gabon                | No data         |



**MIDDLE EAST AND NORTH AFRICA**

|                  | LEVEL OF ACCESS |
|------------------|-----------------|
| Algeria          | 1               |
| Iran             | 1               |
| Jordan           | 1               |
| Libya            | 1               |
| Oman             | 1               |
| Saudi Arabia     | 1               |
| Tunisia          | 1               |
| U. Arab Emirates | 1               |
| Iraq             | 2               |
| Lebanon          | 2               |
| Morocco          | 2               |
| Syria            | 2               |
| Turkey           | 2               |
| Egypt            | 3               |
| Sudan            | 4               |
| Yemen            | 4               |
| Israel           | No data         |
| Kuwait           | No data         |



**CENTRAL ASIA**

|              | LEVEL OF ACCESS |
|--------------|-----------------|
| Kazakstan    | 1               |
| Kyrgyzstan   | 1               |
| Turkmenistan | 1               |
| Afghanistan  | 4               |
| Armenia      | No data         |
| Azerbaijan   | No data         |
| Georgia      | No data         |
| Tajikistan   | No data         |
| Uzbekistan   | No data         |



**EAST/SOUTH ASIA AND PACIFIC**

|                  | LEVEL OF ACCESS |
|------------------|-----------------|
| Australia        | 1               |
| Korea, Rep.      | 1               |
| Malaysia         | 1               |
| Philippines      | 1               |
| Singapore        | 1               |
| Thailand         | 1               |
| Bhutan           | 2               |
| Indonesia        | 2               |
| Mongolia         | 2               |
| Sri Lanka        | 2               |
| Bangladesh       | 3               |
| India            | 3               |
| Lao Rep.         | 3               |
| Myanmar          | 3               |
| Pakistan         | 3               |
| Cambodia         | 4               |
| China            | 4               |
| Nepal            | 4               |
| Papua New Guinea | 4               |
| Viet Nam         | 4               |
| Japan            | No data         |
| Korea, Dem.      | No data         |
| New Zealand      | No data         |



**AMERICAS**

|                 | LEVEL OF ACCESS |
|-----------------|-----------------|
| Costa Rica      | 1               |
| Dominican Rep.  | 1               |
| El Salvador     | 1               |
| Guatemala       | 1               |
| Honduras        | 1               |
| Jamaica         | 1               |
| Panama          | 1               |
| Trinidad/Tobago | 1               |
| Argentina       | 2               |
| Bolivia         | 2               |
| Colombia        | 2               |
| Cuba            | 2               |
| Ecuador         | 2               |
| Mexico          | 2               |
| Uruguay         | 2               |
| Venezuela       | 2               |
| Brazil          | 3               |
| Nicaragua       | 3               |
| Paraguay        | 3               |
| Peru            | 3               |
| Haiti           | 4               |
| Canada          | No data         |
| Chile           | No data         |
| United States   | No data         |

**WHAT THE TABLE RANKS**  
 Percentage of population with access to a sanitary means of excreta disposal

**WHAT THE RANKINGS MEAN**

- 1 75-100% ACCESS
- 2 50-74% ACCESS
- 3 25-49% ACCESS
- 4 0-24% ACCESS

The definition of access varies by country and refers to a means of sanitation either in the dwelling or at a convenient distance. (See 'Sanitation access: Data dilemmas'.)  
 Note: Comparable sanitation data do not exist for Europe.

*To deny people basic sanitation is not just inhumane—it also kicks the first step out from a country's ladder of development.*



Basic hygiene: Learning early to wash hands in Bolivia.

Sources: WHO, Water Supply and Sanitation Collaborative Council and UNICEF, *Water Supply and Sanitation Sector Monitoring Report: 1996*; other government reports; MICS and DHS.

# WATER AND SANITATION PROGRESS AND DISPARITY



A strong commitment to sanitation is essential to reducing the incidence of diarrhoea, a leading killer of children under 5.

## Water/sanitation gap widening

An estimated 2.9 billion people lack access to adequate sanitation, up from 2.6 billion in 1990. But access to safe water is improving. Today, almost 800 million more people can count on safe water supplies than could in 1990. The number with access increased from 2.5 billion to 3.3 billion.

Most governments and communities have placed a higher priority on safe water, but that in itself is not a panacea for all ills. Without a stronger commitment to sanitation, it will be difficult to reduce the incidence of diarrhoea, a leading child killer, and other diseases that flourish in unsanitary conditions. Among steps to combat disease and malnutrition, the Convention on the Rights of the Child calls on countries to ensure provision of clean drinking water and sanitation (article 24).

The table shows the percentage of people with access to safe drinking water and sanitation in the 15 developing countries with the largest under-5 populations, along with the percentage point gap between the two. In Bangladesh, China, Egypt and India, the gap is greater than 40 percentage points, with Egypt having the widest—54 percentage points. Only in Nigeria is the gap reversed, with 58% of the population having

access to sanitation and 51% with access to safe drinking water.

A small gap is not necessarily a sign of success. Ethiopia, for example, has a small gap, but also the lowest combined access rate among these countries: 25% for safe water and 19% for sanitation.

### Water and sanitation: Coverage disparities

Coverage gaps in developing countries with the highest under-5 population

|                | % access to safe water | % access to sanitation | % pt. gap |
|----------------|------------------------|------------------------|-----------|
| Egypt          | 83                     | 29                     | 54        |
| India          | 81                     | 29                     | 52        |
| Bangladesh     | 97                     | 48                     | 49        |
| China          | 67                     | 24                     | 43        |
| Brazil         | 72                     | 44                     | 28        |
| Pakistan       | 74                     | 47                     | 27        |
| Congo, D. Rep. | 42                     | 18                     | 24        |
| Viet Nam       | 43                     | 22                     | 21        |
| Myanmar        | 60                     | 43                     | 17        |
| Mexico         | 83                     | 72                     | 11        |
| Iran           | 90                     | 81                     | 9         |
| Philippines    | 86                     | 77                     | 9         |
| Indonesia      | 61                     | 53                     | 8         |
| Ethiopia       | 25                     | 19                     | 6         |
| Nigeria        | 51                     | 58                     | -7        |

Data from 1993 to 1995, except Brazil and Ethiopia (1991).

Sources: WHO, Water Supply and Sanitation Collaborative Council and UNICEF, *Water Supply and Sanitation Sector Monitoring Report: 1996*; other government reports; MICS and DHS.

## 78% of all guinea worm cases occurring in Sudan

Conflict in southern Sudan has cast a shadow over remarkable global progress towards the World Summit for Children goal of elimination of guinea worm disease (dracunculiasis) by the year 2000. In 1996, Sudan accounted for 78% of all guinea worm cases worldwide, up from 32% just two years before. This reflects both a decline in incidence in other countries and better reporting of cases in Sudan.

Guinea worm disease is caused by drinking water contaminated with a parasite that grows 20 to 30 inches in a patient's body, bringing debilitating pain, ulcers, fever and joint deformities. Only 10 years ago, it afflicted millions of people in Africa and Asia. But today, only 10 countries report more than 1,000 guinea worm cases, and all except Sudan have shown a decline in cases in the past three years, nearly conquering the 'fiery serpent', as the parasite is known. Pakistan, which has had no reported

cases since 1994, was certified in January as having eliminated the disease, and Kenya had no reported cases in 1996. India reported nine cases but verified that the spread of the disease was contained, thereby increasing the possibility of achieving elimination in 1997.

In Sudan, armed conflict continues to hamper prevention efforts, although there is now greater access for health workers and equipment to southern Sudan where most guinea worm cases occur. Population upheaval because of the civil war could retard much of the progress in eradication. Unlike immunization, which can be accomplished during a few 'days of tranquillity' agreed to by forces in conflict, eliminating guinea worm disease takes continuous work for a year or more. Community water supplies must be improved, cloth water strainers distributed to families, and health education and surveillance programmes set up.

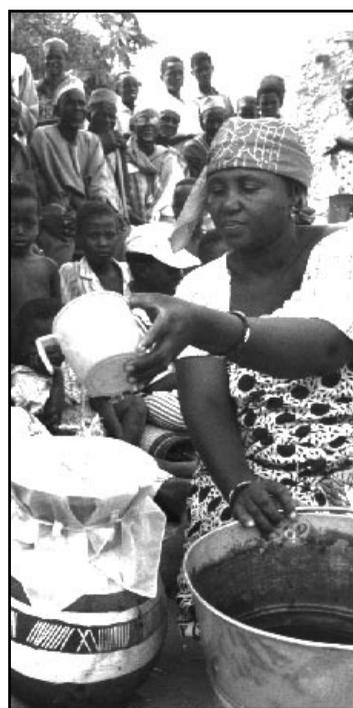
### War against guinea worm

Occurrence of guinea worm disease

|               | Guinea worm cases, 1996 | % of total cases* |
|---------------|-------------------------|-------------------|
| Sudan         | 114,772                 | 78                |
| Nigeria       | 10,729                  | 7                 |
| Ghana         | 4,877                   | 3                 |
| Burkina Faso  | 3,199                   | 2                 |
| Niger         | 2,978                   | 2                 |
| Côte d'Ivoire | 2,785                   | 2                 |
| Mali          | 2,249                   | 2                 |
| Togo          | 1,583                   | 1                 |
| Uganda        | 1,455                   | 1                 |
| Benin         | 1,204                   | 1                 |
| Mauritania    | 464                     | 0                 |
| Ethiopia      | 372                     | 0                 |
| Chad          | 117                     | 0                 |
| Yemen         | 62                      | 0                 |
| Senegal       | 20                      | 0                 |
| Cameroon      | 13                      | 0                 |
| India         | 9                       | 0                 |
| Kenya         | 0                       | 0                 |
| Pakistan      | 0                       | 0                 |

\*Percentages do not add up to 100 due to rounding.

Source: US Centers for Disease Control and Prevention, *Guinea Worm Wrap Up*, issue number 64, 7 February 1997.



Niger: A health worker demonstrates filtering water, part of the fight to eradicate guinea worm.

# Grading school sanitation: Few high marks

How sanitary can conditions be when 90 young children in a school are sharing one toilet? Or when 54% of the toilets are not functioning?

Primary schools in some of the poorest countries have inadequate sanitation facilities, according to a

pilot survey of 14 countries in 1995. The worst findings were in rural schools in Bangladesh, Maldives and Nepal, where more than 90 pupils on average are sharing one toilet. By comparison, rural schools in Burkina Faso, Madagascar and Togo have

fewer than 50 students per toilet. In urban areas, though, these three countries are among those with the worst record, with more than 50 pupils per toilet on average. Six countries have fewer than 50 students per toilet in city schools.

None of the 14 countries has increased the number of school toilets by more than 8% since 1990, suggesting that they are barely managing to keep up with the rise in student populations.

The record on toilet conditions is equally dismal. In Bangladesh, Maldives and Nepal, around half the school toilets are unusable, meaning they are either unclean (flush toilets) or in need of a new hole (latrines). Cape Verde rates best in cleanliness, with 91% of toilets being cleaned daily. In Bangladesh, 40% of schools reported that toilets are cleaned not even once a week.

The 14 countries do somewhat better in providing safe water in schools. All of them except Ethiopia and Togo provide water to at least half the primary schools. In Cape Verde all

schools have safe water. Bhutan provides water to 95% of schools and Maldives to 90% of schools.

Inadequate sanitation and water in schools jeopardize not only students' health but also their attendance. Girls in particular are likely to be kept out of school if there are no sanitation facilities.

## Student access to toilets

|                   | Pupils per toilet |       | % toilets non-usable |
|-------------------|-------------------|-------|----------------------|
|                   | rural             | urban |                      |
| Nepal             | 92                | 9     | 54                   |
| Bangladesh        | 91                | 9     | 48                   |
| Maldives          | 95                | -     | 48                   |
| Madagascar        | 45                | 55    | 36                   |
| Benin             | -                 | 67    | 34                   |
| Bhutan            | 85                | 15    | 32                   |
| Burkina Faso      | 36                | 64    | 31                   |
| Tanzania          | 68                | 32    | 29                   |
| Cape Verde        | -                 | 90    | 24                   |
| Uganda            | 80                | 20    | 24                   |
| Togo              | 46                | 54    | 14                   |
| Ethiopia          | 77                | 23    | 12                   |
| Zambia            | 85                | -     | 6                    |
| Equatorial Guinea | -                 | 80    | -                    |

Source: A. Schleicher, M. Siniscalco and N. Posilethwaite, *The Conditions of Primary Schools: A Pilot Study in the Least Developed Countries; A Report to UNESCO and UNICEF*, September 1995.



UNICEF/93-21006/Pirazzi

*Inadequate sanitation at schools hinders students' health and hygiene and can drive down attendance, especially for girls. These children in Benin are benefiting from a newly installed latrine at their primary school.*

## Making ORT a household habit

Diarrhoeal dehydration is a leading child killer in developing countries, largely because of inadequate sanitation. It claimed the lives of an estimated 2.2 million children under age 5 in 1995 alone. As many as 90% of these deaths could have been prevented with ORT (oral rehydration therapy).

ORT—defined by WHO in 1993 as an increased volume of fluids, either oral rehydration salts (ORS) or other recommended home fluids, along with continued feeding—addresses the dehydration promptly, by replacing body fluids lost by diarrhoea at the first sign of the disease.

Children in the 15 developing countries listed come down with diarrhoea from 2 to 6 times each year. In 10 of these countries, more than 80% of children are given ORT; in Bangladesh,

Ethiopia, Indonesia and Pakistan, virtually every child is treated with ORT.

Yet, while significant progress has been made in recent years, it is difficult to accurately measure the gains. A previous definition of ORT simply called for giving the child ORS or home fluids, without specifying the importance of the volume of fluids or of continued feeding. Since the definition was modified only in 1993, most survey data, including those in this table, are still based on the earlier definition. About three quarters of the households in developing countries now use ORT as defined before 1993, up from 38% in 1994. But only about one third of homes now use ORT following the new definition, a more effective treatment for diarrhoeal dehydration.

## Progress in oral rehydration

ORS/RHF\* use in countries with the most diarrhoeal episodes among under-5s per year

|                  | Estimated annual diarrhoeal episodes (millions) | % of diarrhoeal episodes treated by ORS/RHF |
|------------------|---|---|
| China            | 360   | 85  |
| India            | 310   | 67  |
| Nigeria          | 110   | 86  |
| Pakistan         | 90  | 97  |
| Bangladesh       | 70  | 96  |
| Brazil           | 50  | 83  |
| Ethiopia         | 50  | 95  |
| Congo, Dem. Rep. | 50  | 90  |
| Indonesia        | 40  | 99  |
| Mexico           | 30  | 81  |
| Philippines      | 30  | 63  |
| Sudan**          | 30  | 35  |
| Tanzania         | 30  | 90  |
| Iran**           | 20  | 37  |
| Kenya            | 20  | 76  |

\* Oral rehydration salts/recommended home fluids.

\*\* Excludes RHF.

Note: Estimated diarrhoeal episodes are best estimates from a variety of sources.

Sources: National household surveys including DHS and MICS reports, 1993-1996.



UNICEF/92-0058/Lemoyne

*In China, 85% of diarrhoeal episodes are treated with ORT.*