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World Health Organization

MEETING THE MDG DRINKING WATER AND SANITATION TARGET

A Mid-Term Assessment of Progress

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Foreword

The combination of safe drinking water and hygienic sanitation facilities is a precondition for health and for success in the fight against poverty, hunger, child deaths and gender inequality. It is also central to the human rights and personal dignity of every woman, man and child on earth. Yet 2.6 billion people – half the developing world – lack even a simple 'improved' latrine. One person in six – more than 1 billion of our fellow human beings – has little choice but to use potentially harmful sources of water. The consequences of our collective failure to tackle this problem are dimmed prospects for the billions of people locked in a cycle of poverty and disease.

In adopting the Millennium Development Goals, the countries of the world pledged to reduce by half the proportion of people without access to safe drinking water and basic sanitation. The results so far are mixed. With the exception of sub-Saharan Africa, the world is well on its way to meeting the drinking water target by 2015, but progress in sanitation is stalled in many developing regions.

This report, produced by the WHO/UNICEF Joint Monitoring Programme on Water Supply and Sanitation (JMP), provides the latest estimates and trends on where we stand today. The JMP's estimates are critical for calculating rates of progress towards national goals and for highlighting priorities, especially those that target the underserved.

For those countries in which progress has been slow, the report's finding should provide an incentive to accelerate action in the crucial years ahead. For countries 'on track', they should remind us that our work is not finished until every citizen is served.

LEE Jong-wook
Director-General
World Health Organization

Carol Bellamy
Executive Director
UNICEF

Definitions of Indicators

Access to safe drinking water is estimated by the percentage of the population using improved drinking water sources, as described below. Similarly, access to sanitary means of excreta disposal is estimated by the percentage of the population using improved sanitation facilities. Improved sanitation facilities are those more likely to ensure privacy and hygienic use. Improved drinking water technologies are those more likely to provide safe drinking water than those characterized as unimproved. See page 23 for a discussion of other issues concerning definitions.

Improved drinking water sources

Household connection
Public standpipe
Borehole
Protected dug well
Protected spring
Rainwater collection

Unimproved drinking water sources

Unprotected well
Unprotected spring
Rivers or ponds
Vendor-provided water
Bottled water*
Tanker truck water

Improved sanitation facilities

Connection to a public sewer
Connection to a septic system
Pour-flush latrine
Simple pit latrine**
Ventilated improved pit latrine

Unimproved sanitation facilities

Public or shared latrine
Open pit latrine
Bucket latrine

*Bottled water is not considered improved due to limitations in the potential quantity, not quality, of the water.

**Only a portion of poorly defined categories of latrines are included in sanitation coverage estimates.

The Purpose of this Report

In September 2000, 189 UN Member States adopted the Millennium Development Goals (MDGs), setting clear, time-bound targets for making real progress on the most pressing development issues we face. Achieving these targets will directly affect the lives and future prospects of billions of people around the globe. It will also set the world on a positive course at the start of the 21st century.

Goal 7 is to ensure environmental sustainability. One of its targets is the subject of this report:

Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

Although the MDGs were formulated in 2000, the baseline for most of the MDG targets, including that on water and sanitation, has been set as 1990. Therefore 2002, the last year for which comprehensive data are available, can be considered the halfway mark towards achieving the 2015 MDG deadline.

This report, prepared by the WHO/UNICEF Joint Monitoring Programme (JMP), provides coverage data for 1990 and 2002 at national, regional and global levels and an analysis of trends towards 2015. It also marks a new cycle of more frequent reporting, which can be effectively used for sector capacity-building efforts at the national and sub-national levels.

The report is intended as a 'reality check' for individual countries and the international community on how far we have come, and where we need to focus next, in order to fulfil our commitment.

Why Meeting the Target Matters

Beyond the focus of public attention, an unseen emergency continues to unfold. It doesn't fell dozens all at once, like a bomb, or carry away whole towns in the blink of an eye, like a flood. Rather, it kills its victims – mostly infants and small children – largely unnoticed, spiriting them away one by one from rural villages and urban slums in every corner of the developing world.

Every day, this unremitting but seemingly invisible disaster claims the lives of more than 3,900 children under five, according to WHO. And for every child that dies, countless others, including older children and adults, suffer from poor health, diminished productivity and missed opportunities for education.

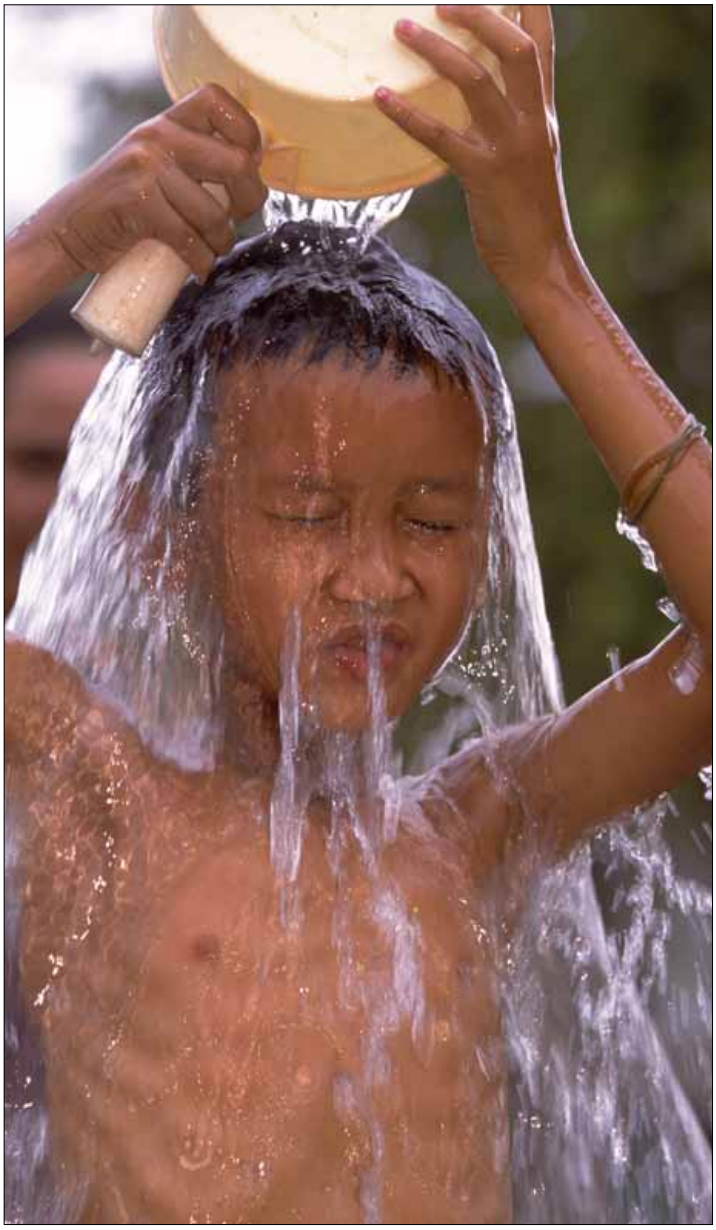
What is behind this wholesale loss of life and potential? It is the absence of something that nearly every reader of this report takes for granted, something basic, unremarkable, commonplace: toilets and other forms of improved sanitation and safe drinking water.

The good news is that, with 83 per cent coverage, the world is on track to meet the MDG target for drinking water. The news is tempered, however, by slow progress in sub-Saharan Africa and stalled action on sanitation in most developing regions. An estimated 2.6 billion people are without improved sanitation facilities. And if the 1990-2002 trend holds, the world will miss the sanitation target by half a billion people.

The figures and trends in this report, based on national surveys and censuses, indicate how far we are from achieving the sanitation target. But they also reveal that a number of low-income countries have made tremendous gains in expanding services, even in the face of rapid population growth and economic stagnation. The lesson that can be drawn from these countries is that rapid progress is indeed possible, and that the goals, while ambitious, are within our grasp.

Meeting the sanitation target will require that an additional 1 billion urban dwellers and almost 900 million people in often remote rural communities are able to use improved sanitation services. Accomplishing this by 2015 will be no small feat. But it will also be a testament to what the world can achieve with a clear vision and with the focused will and determination of every country on earth.

Getting on track to meet the target in both drinking water and sanitation will mean better health, longer lives and greater dignity for billions of the world's poorest people. It will also make a significant contribution to the achievement of other Millennium Development Goals.



Advancing the Millennium Development Goals

MDG goals	Contribution of improved drinking water and sanitation
Goal 1: **Eradicate Extreme Poverty and Hunger**	**• The security of household livelihoods rests on the health of its members; adults who are ill themselves or must care for sick children are less productive.** **• Illnesses caused by unsafe drinking water and inadequate sanitation generate high health costs relative to income for the poor.** **• Healthy people are better able to absorb nutrients in food than those suffering from water-related diseases, particularly helminths, which rob their hosts of calories.** **• The time lost because of long-distance water collection and poor health contributes to poverty and reduced food security.**
Goal 2: **Achieve Universal Primary Education**	**• Improved health and reduced water-carrying burdens improve school attendance, especially among girls.** **• Having separate sanitation facilities for girls and boys in school increases girls' attendance, especially after they enter adolescence.**
Goal 3: **Promote Gender Equality and Empower Women**	**• Reduced time, health and care-giving burdens from improved water services give women more time for productive endeavours, adult education and leisure.** **• Water sources and sanitation facilities closer to home put women and girls at less risk of assault while collecting water or searching for privacy.**
Goal 4: **Reduce Child Mortality**	**• Improved sanitation and drinking water sources reduce infant and child morbidity and mortality.**
Goal 5: **Improve Maternal Health**	**• Accessible sources of water reduce labour burdens and health problems resulting from water portage, reducing maternal mortality risks.** **• Safe drinking water and basic sanitation are needed in health-care facilities to ensure basic hygiene practices following delivery.**
Goal 6: **Combat HIV/AIDS, Malaria and Other Diseases**	**• Safe drinking water and basic sanitation help prevent water-related diseases, including diarrhoeal diseases, schistosomiasis, filariasis, trachoma and helminths.** **• The reliability of drinking water supplies and improved water management in human settlement areas reduce transmission risks of malaria and dengue fever.**
Goal 7: **Ensure Environmental Sustainability**	**• Adequate treatment and disposal of wastewater contributes to better ecosystem conservation and less pressure on scarce freshwater resources. Careful use of water resources prevents contamination of groundwater and helps minimize the cost of water treatment.**
Goal 8: **Develop a Global Partnership for Development**	**• Development agendas and partnerships should recognize the fundamental role that safe drinking water and basic sanitation play in economic and social development.**

DRINKING WATER COVERAGE

In 2002, 83 per cent of the world's population – around 5.2 billion people – used improved drinking water sources. These include piped water connections and standpipes, as described on page 4 (coverage estimates for individual countries can be found in the table starting on page 24).

The good news – gains in all regions since 1990 – is counterbalanced by the fact that 1.1 billion people were still using water from unimproved sources in 2002. In sub-Saharan Africa, 42 per cent of the population is still unserved.

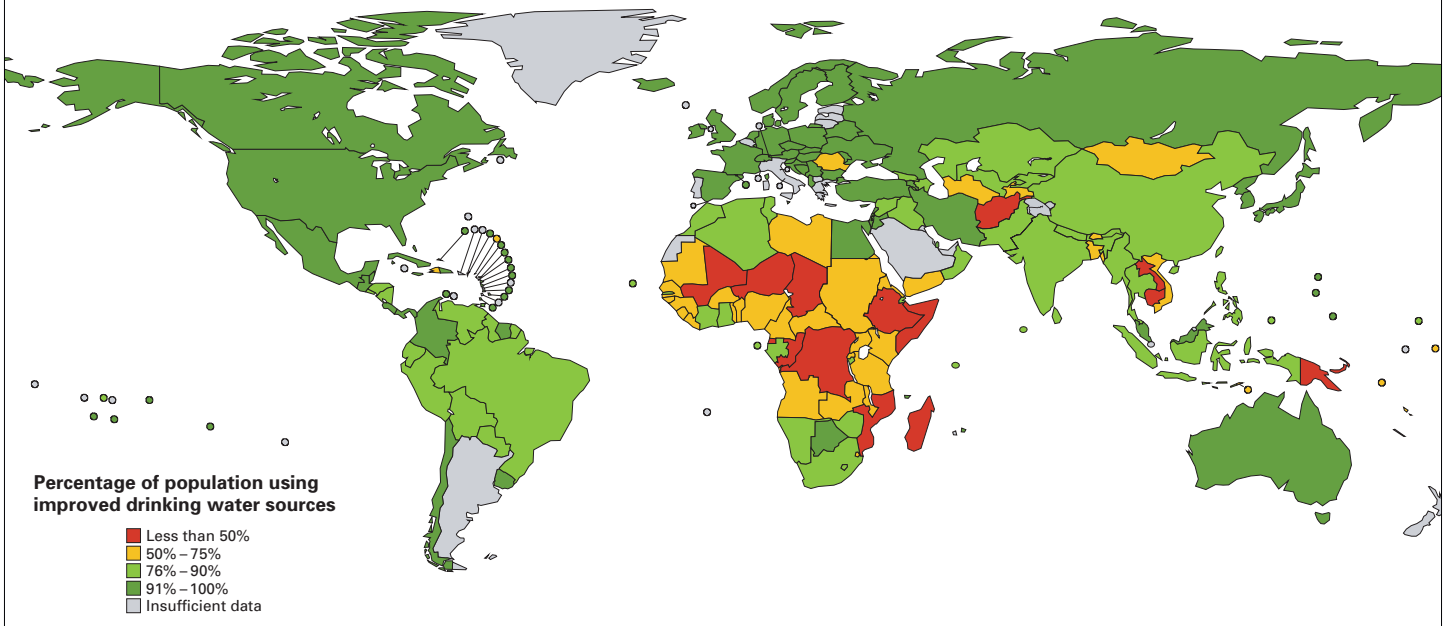
Of the 1.1 billion people using water from unimproved sources, nearly two thirds live in Asia. The number of people without improved water sources in China alone is equal to the number of unserved in all of Africa.

The lowest drinking water coverage levels are found in sub-Saharan Africa and in Oceania.* In contrast, several regions, including Northern Africa, Latin America and the Caribbean, and Western Asia, have achieved coverage levels of close to 90 per cent or more.

*Country distribution by region can be found on the map on page 32.

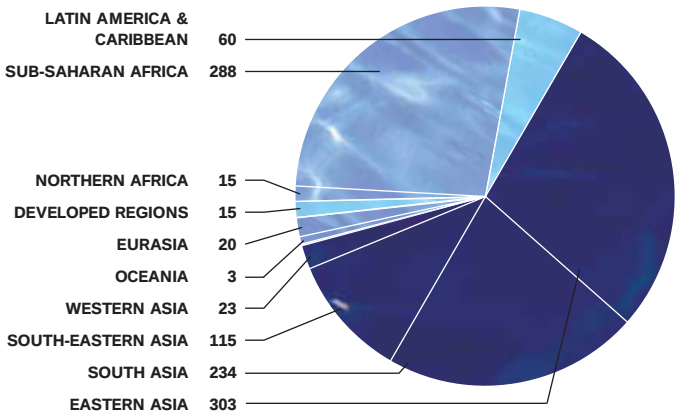
Good water coverage attained in most regions

FIGURE 1 **Coverage with improved drinking water sources in 2002**



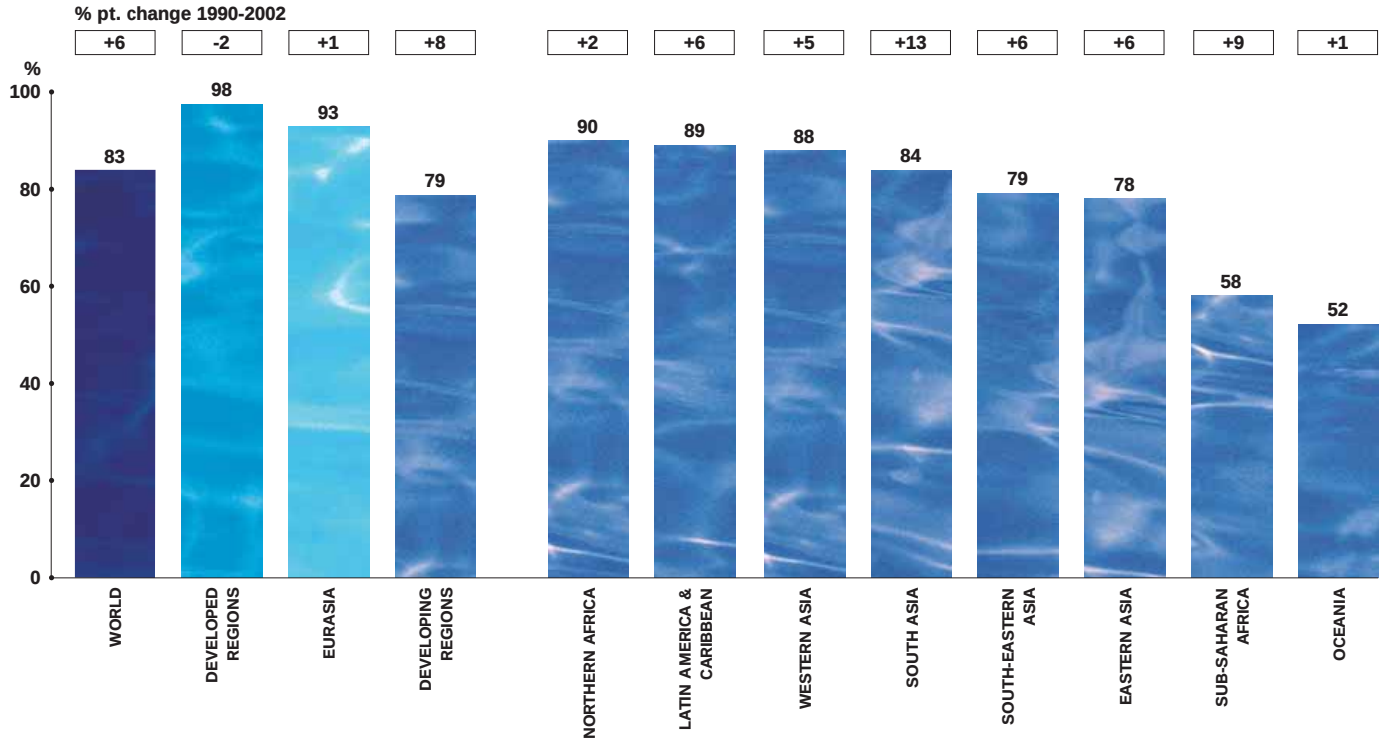
More than one billion people, most of them in Asia, are still without improved drinking water sources

FIGURE 2 Population without improved drinking water sources by region in 2002 (in millions)



More than 80 per cent of the world population use improved drinking water sources

FIGURE 3 Coverage with improved drinking water sources by region in 2002



PROGRESS TOWARDS THE DRINKING WATER TARGET

The world is on track to meet the drinking water target, but sub-Saharan Africa lags behind.

In 1990, 77 per cent of the world's population used improved drinking water sources. Considerable progress was made between 1990 and 2002, with about 1.1 billion people gaining access to improved water sources. Global coverage in 2002 reached 83 per cent, putting the world on track to achieve the MDG target.

The region that made the greatest progress was South Asia, which increased coverage from 71 to 84 per cent between 1990 and 2002. This jump was fuelled primarily by increased use of improved water sources in India, home to over 1 billion people.

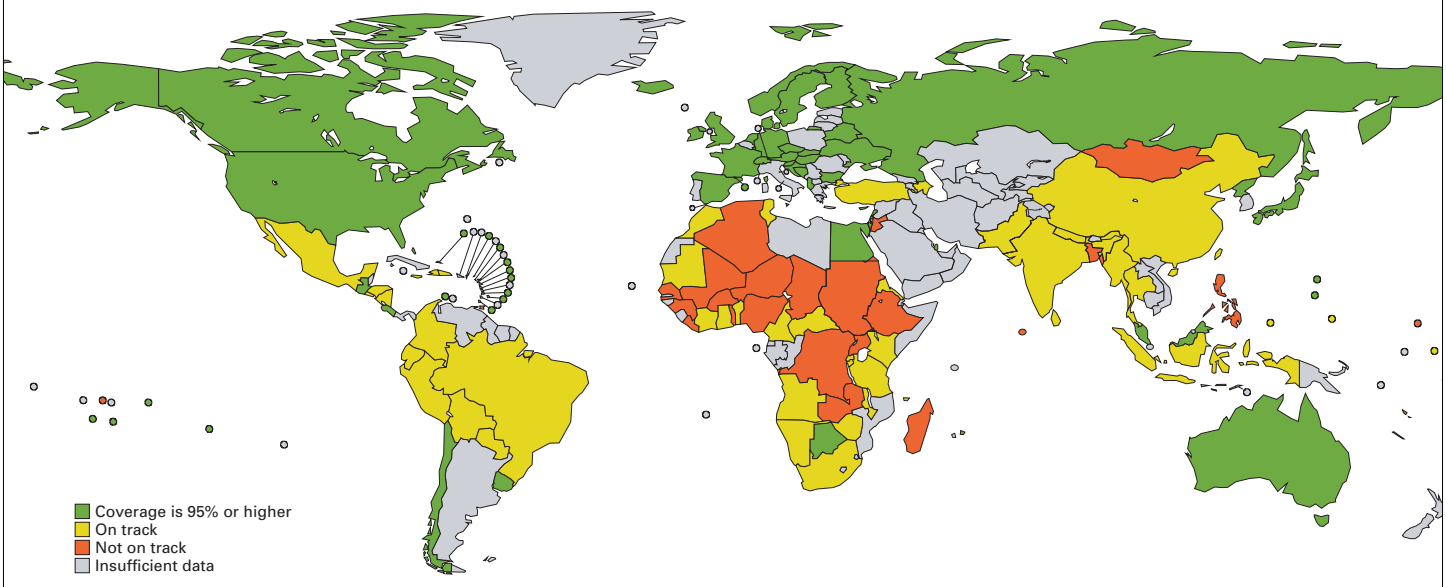
Progress in sub-Saharan Africa was also impressive: coverage increased from 49 to 58 per cent between 1990 and 2002, a nine percentage point increase. But this falls far short of the progress needed to achieve the MDG target of 75 per cent coverage by 2015.

Obstacles to accelerating the rate of progress in sub-Saharan Africa include conflict and political instability, high rates of population growth, and low priority given to water and sanitation. What's more, breakdown rates of water supply systems in rural Africa can be very high. Among the approaches shown to be effective in speeding up progress, despite these obstacles, are decentralizing responsibility and ownership and providing a choice of service levels to communities, based on their ability and willingness to pay.

One recent success in Africa has been steady progress in the eradication of Guinea worm disease. Through improved drinking water and other interventions, the number of people suffering from this disease has been reduced by 99 per cent: from an estimated 3.5 million cases in 1986 to less than 35,000 reported cases in 2003.

If the current trend continues, sub-Saharan Africa will not reach the MDG target

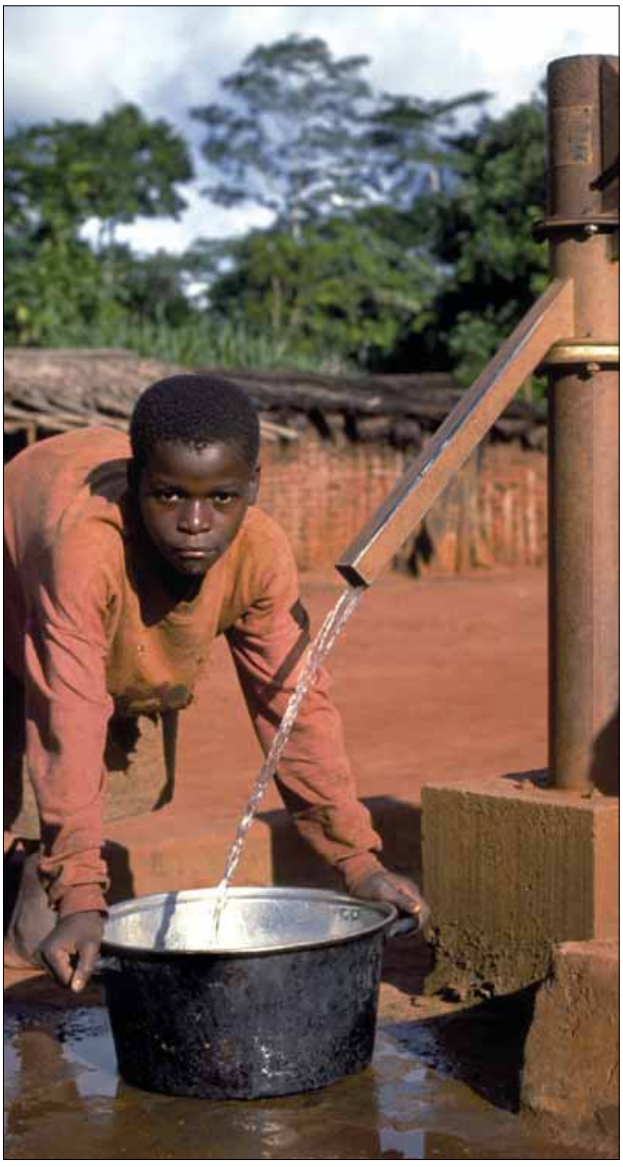
FIGURE 4 **Progress in drinking water coverage, 1990-2002**



THE CHALLENGE OF OUTPACING POPULATION GROWTH

Population growth is a significant factor in the ability of countries, particularly low-income countries, to increase the coverage of drinking water. For example, just to maintain its 1990 coverage level of 74 per cent, Peru would have had to ensure drinking water services to more than 350,000 people a year, on average, over the period 1990 to 2002. In fact, it provided water to more than 480,000 people a year, raising coverage from 74 per cent to 81 per cent.

On a global level, the number of people using improved water sources has increased by more than 90 million people a year since 1990. But because of population growth, the absolute number of people without coverage has only decreased by about 10 million people a year.



African countries making rapid progress in drinking water coverage, 1990–2002

FIGURE 5 **Countries that increased coverage by at least 25% between 1990 and 2002***

	Drinking water coverage (%)		% increase
Country	1990	2002	1990-2002
Tanzania, United Republic of	**38**	**73**	**92**
Chad	**20**	**34**	**70**
Malawi	**41**	**67**	**63**
Angola	**32**	**50**	**56**
Central African Republic	**48**	**75**	**56**
Ghana	**54**	**79**	**46**
Eritrea	**40**	**57**	**43**
Mali	**34**	**48**	**41**
Kenya	**45**	**62**	**38**
Namibia	**58**	**80**	**38**
Mauritania	**41**	**56**	**37**
Burkina Faso	**39**	**51**	**31**
Uganda	**44**	**56**	**27**
Cameroon	**50**	**63**	**26**
Rwanda	**58**	**73**	**26**

* Table includes countries that increased coverage by at least 25% between 1990 and 2002. Countries with coverage higher than 80% in 1990 were not included, even though they may have increased coverage levels significantly. Nor does it include countries that may have made significant progress but for which data were insufficient to estimate a trend.

SANITATION COVERAGE

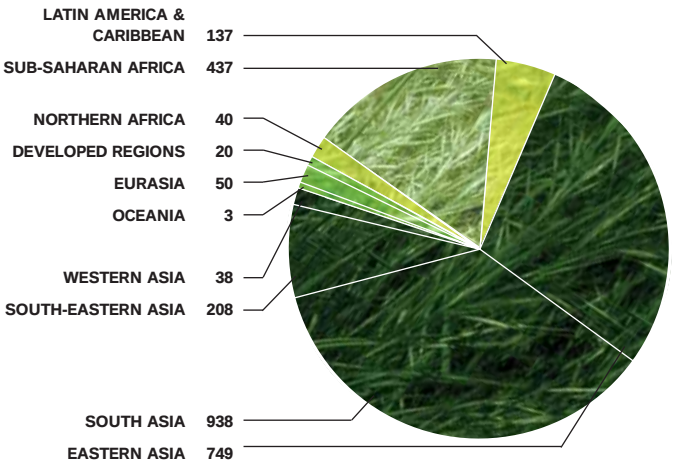
Global sanitation coverage rose from 49 per cent in 1990 to 58 per cent in 2002. Still, some 2.6 billion people – half of the developing world – live without improved sanitation. Sanitation coverage in developing countries (49 per cent) is only half that of the developed world (98 per cent).

Though major progress was made in South Asia from 1990 to 2002, little more than a third of its population are currently using improved sanitation. In sub-Saharan Africa as well, coverage is a mere 36 per cent.

Over half of those without improved sanitation – nearly 1.5 billion people – live in China and India.

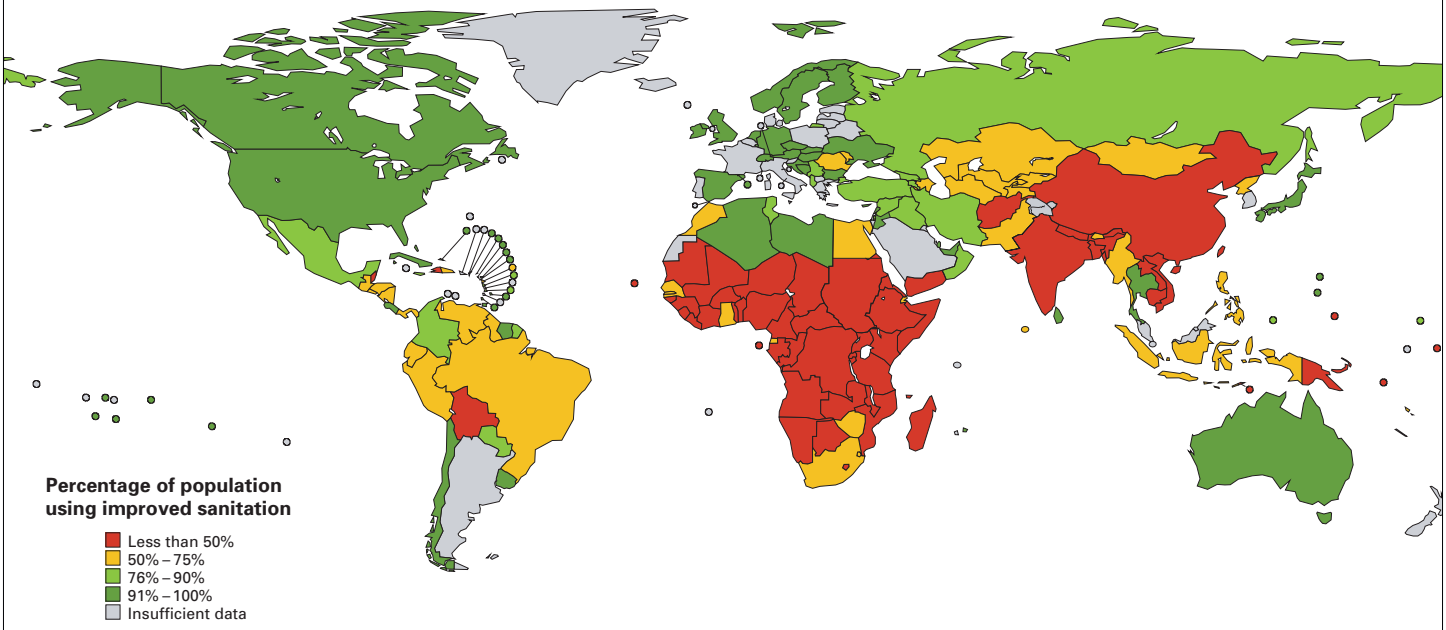
2.6 billion people without improved sanitation

FIGURE 6 **Population without improved sanitation by region in 2002 (in millions)**



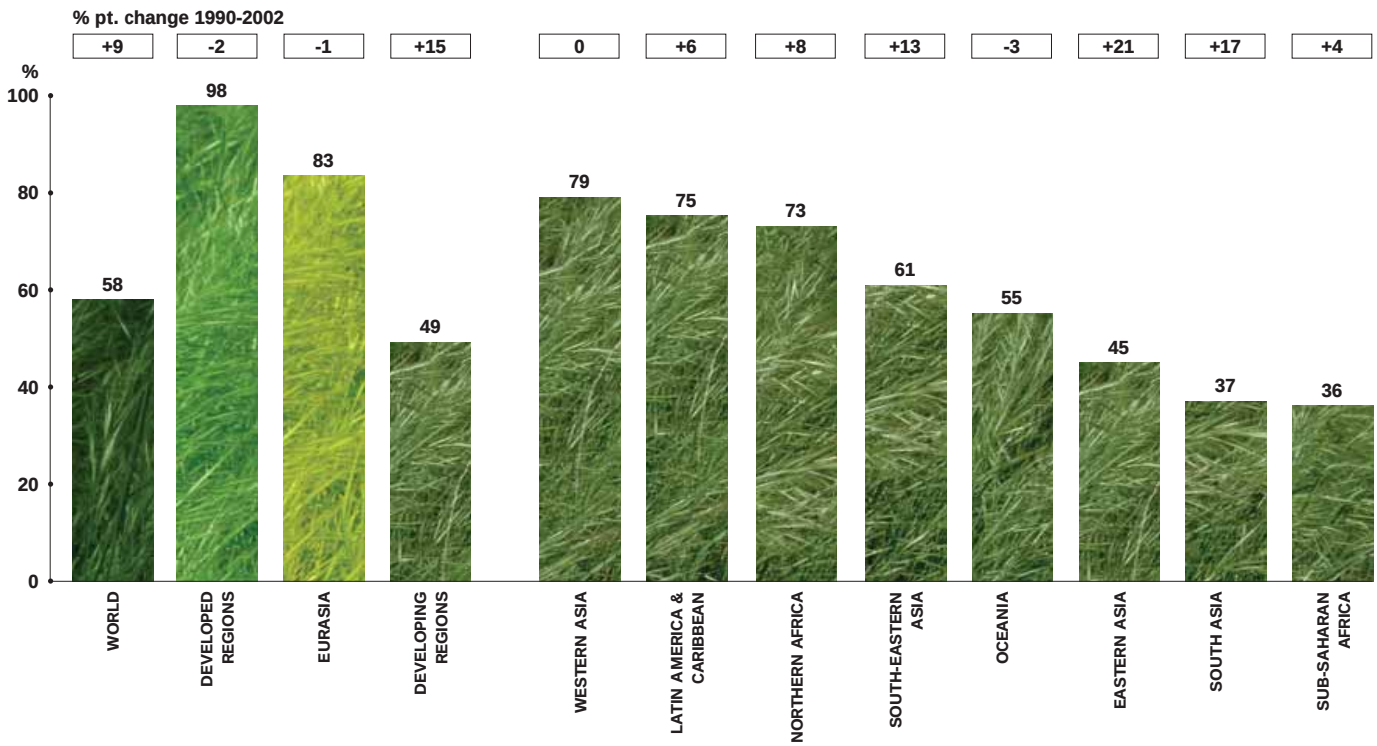
Half the developing world are still without improved sanitation

FIGURE 7 **Sanitation coverage in 2002**



Sanitation coverage lowest in sub-Saharan Africa and South Asia

FIGURE 8 **Coverage with improved sanitation by region in 2002**



Countries with low sanitation coverage

FIGURE 9 **Countries where coverage with improved sanitation was one third or less in 2002**

Country	Sanitation coverage 2002 (%)	Country	Sanitation coverage 2002 (%)
Ethiopia	**6**	**Central African Republic**	**27**
Afghanistan	**8**	**Mozambique**	**27**
Chad	**8**	**Nepal**	**27**
Congo	**9**	**Micronesia (Federated States of)**	**28**
Eritrea	**9**	**Congo, Democratic Republic of the**	**29**
Burkina Faso	**12**	**Angola**	**30**
Niger	**12**	**India**	**30**
Guinea	**13**	**Namibia**	**30**
Cambodia	**16**	**Yemen**	**30**
Comoros	**23**	**Solomon Islands**	**31**
Lao People's Democratic Republic	**24**	**Benin**	**32**
Sao Tome and Principe	**24**	**Madagascar**	**33**
Somalia	**25**	**Timor-Leste**	**33**
Liberia	**26**		

PROGRESS TOWARDS THE SANITATION TARGET

Without a sharp acceleration in the rate of progress, the world will miss the sanitation target by half a billion people.

To halve the proportion of people without improved sanitation, global coverage needs to grow to 75 per cent by 2015, from a starting point of 49 per cent in 1990. However, if the 1990-2002 trend continues, the world will miss the sanitation target by more than half a billion people. In other words, close to 2.4 billion people will be without improved sanitation in 2015, almost as many as there are today.

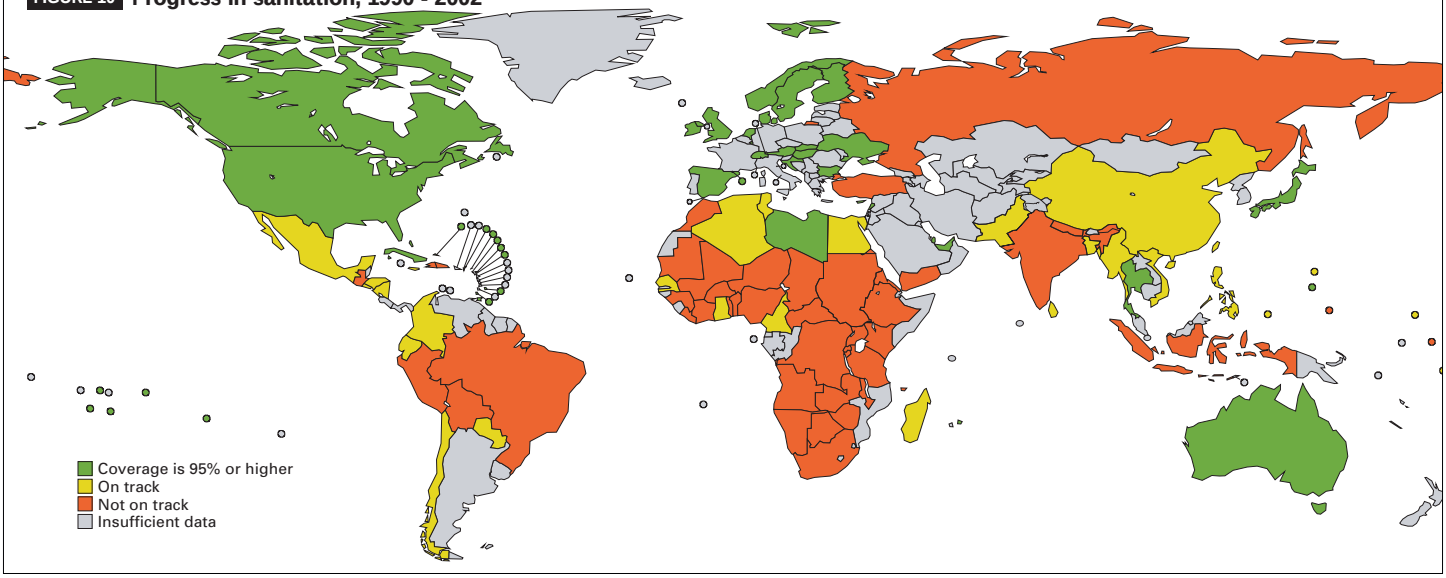
The situation is most serious in South Asia, sub-Saharan Africa, Western Asia, Eurasia and Oceania, none of which are on track for meeting the sanitation target.

Despite disappointing progress overall, a number of regions have made tremendous gains. Eastern Asia's coverage, for example, has almost doubled since 1990. Similarly, South Asia managed to move from 20 per cent to 37 per cent coverage, although it started with the lowest baseline of any region.

The widening gap between progress registered and the target (see Figure 11) signals that the world will meet its sanitation goal only with a dramatic acceleration in the provision of services. The proportion of the world's population with improved sanitation has increased by just 9 percentage points since 1990, a far slower rate than that required to meet the MDG target.

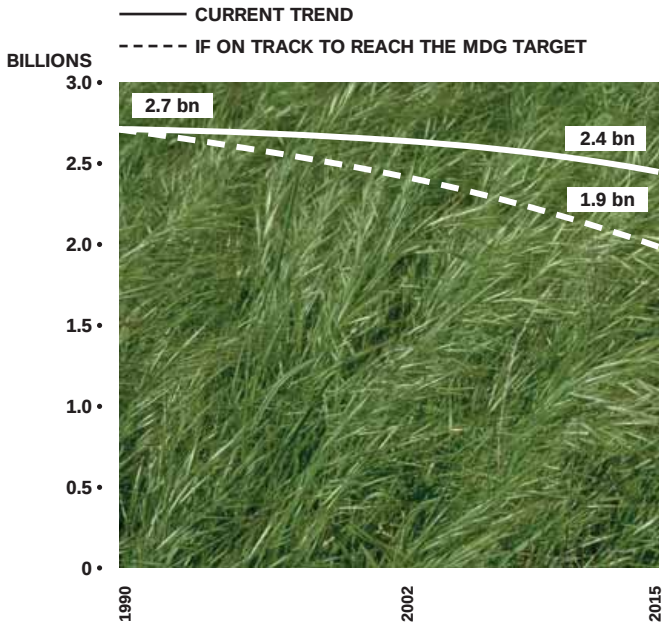
As shown in Figure 12, Eastern and South-eastern Asia are clearly on track to meet the MDG target in sanitation by 2015. Northern Africa and Latin America and the Caribbean are well on their way. However, the remaining regions will not meet the target without a rapid acceleration in progress.

FIGURE 10 **Progress in sanitation, 1990 - 2002**



Accelerate progress or miss the sanitation target by half a billion people

FIGURE 11 **Projected population without improved sanitation 1990-2015**



SANITATION SITUATION WORSE THAN PREVIOUSLY THOUGHT

An analysis of recent household surveys – nearly twice the number available since the last update in 2001 – has prompted the Joint Monitoring Programme to revise its global sanitation figures from 2.4 billion people to 2.6 billion people unserved.

The revisions are based on this additional information, more detailed definitions of sanitation facilities and a more stringent method used to estimate coverage. In previous estimates, certain categories of latrines that were poorly defined were counted as 'improved'. Now, a breakdown of these categories is sought from which correction factors can be derived and applied to surveys from the same country. Where this breakdown is not available, only half the share of the population using undefined latrines (such as traditional, pit or simple latrines) are counted as having access to an improved sanitation facility.

Because traditional latrines are widespread in sub-Saharan Africa, this new method of measuring them has lowered considerably the coverage figures for the region. However, as more surveys are conducted, using more complete definitions and better breakdowns of facilities, sanitation estimates will become even more precise.

PROGRESS TOWARDS THE SANITATION TARGET

CLOSING MAJOR COVERAGE GAPS AND REACHING THE HARD TO REACH

Meeting the MDG target requires that, between 1990 and 2015, the world reduces by half the proportion of the population not using improved drinking water sources and sanitation.

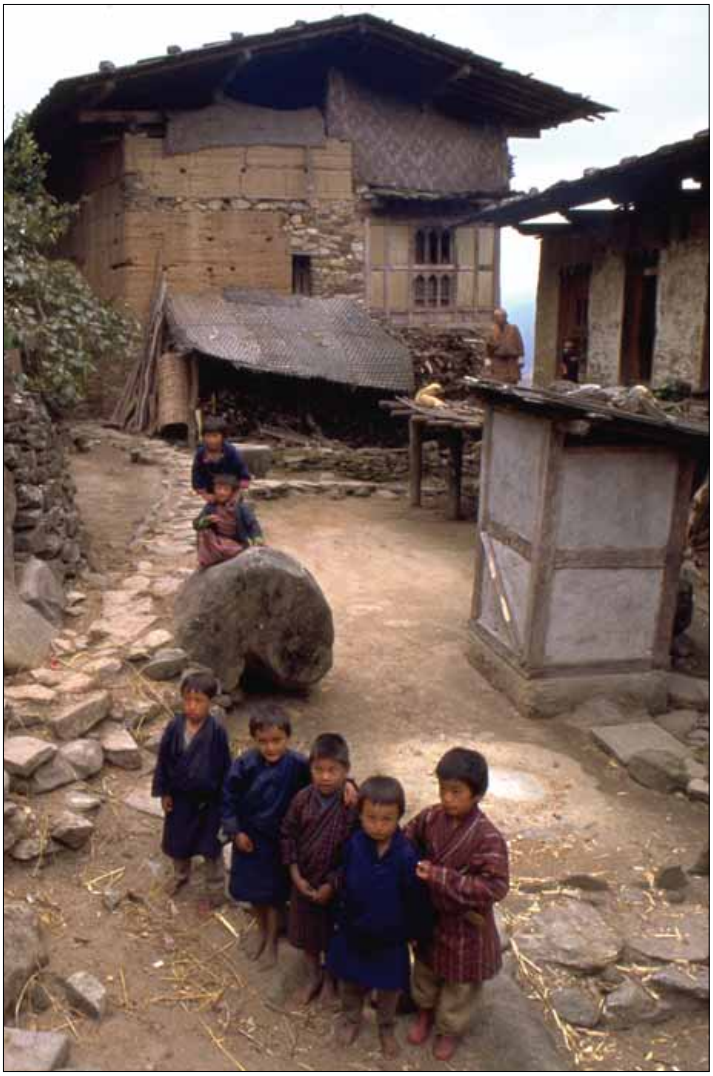
It would seem that countries whose poverty and poor capacity led them to have such low coverage to begin with are charged with the most difficult task. But is achieving a 5 per cent increase when you have high coverage easier than a 20 per cent increase when you have low coverage overall? Not necessarily. Reaching the remaining population without coverage is usually increasingly difficult the higher your overall coverage becomes.

Higher per capita investment costs to reach the remaining few follow the law of diminishing returns. Servicing urban slums, remote rural villages and arid areas may require a much greater effort than reaching a population in more accessible or less arid regions. In large urban areas, for example, it is becoming increasingly difficult to provide drinking water services because of rapid urbanization and the fact that new water sources may be further away. In addition, water treatment plants are more complex due to polluted water sources, because transmission mains have to cross long distances, and because there is often the need for costly pumping stations with sophisticated operations and maintenance.

Five regions are not on track to meet the sanitation target

FIGURE 12 **Regional progress towards the MDG sanitation target**

	Coverage in 1990 (%)	Coverage in 2002 (%)	Coverage needed in 2002 to be on track (%)	Coverage needed by 2015 to achieve the MDG target (%)
Regions on track				
Eastern Asia	**24**	**45**	**43**	**62**
South-eastern Asia	**48**	**61**	**61**	**74**
Regions nearly on track				
Northern Africa	**65**	**73**	**74**	**82**
Latin America and Caribbean	**69**	**75**	**77**	**84**
Regions not on track				
South Asia	**20**	**37**	**40**	**60**
Sub-Saharan Africa	**32**	**36**	**49**	**66**
Western Asia	**79**	**79**	**84**	**90**
Eurasia	**84**	**83**	**88**	**92**
Oceania	**58**	**55**	**68**	**79**
World	49	58	62	75



Countries making rapid progress in sanitation

FIGURE 13 **Countries that increased coverage by at least 25% between 1990 and 2002***

	Sanitation coverage (%)		% increase
Country	1990	2002	1990-2002
Myanmar	**21**	**73**	**248**
Benin	**11**	**32**	**191**
Madagascar	**12**	**33**	**175**
India	**12**	**30**	**150**
Cameroon	**21**	**48**	**129**
Haiti	**15**	**34**	**127**
Nepal	**12**	**27**	**125**
Bangladesh	**23**	**48**	**109**
China	**23**	**44**	**91**
Viet Nam	**22**	**41**	**86**
Congo, Dem. Rep. of the	**18**	**29**	**61**
Kiribati	**25**	**39**	**56**
Mauritania	**28**	**42**	**50**
Senegal	**35**	**52**	**49**
Pakistan	**38**	**54**	**42**
Nicaragua	**47**	**66**	**40**
Honduras	**49**	**68**	**39**
Yemen	**21**	**30**	**38**
Bolivia	**33**	**45**	**36**
Ghana	**43**	**58**	**35**
Philippines	**54**	**73**	**35**
Paraguay	**58**	**78**	**34**
Sri Lanka	**70**	**91**	**30**
Côte d'Ivoire	**31**	**40**	**29**
Ecuador	**56**	**72**	**29**
Malawi	**36**	**46**	**28**
Egypt	**54**	**68**	**26**
Mali	**36**	**45**	**25**
Namibia	**24**	**30**	**25**

*Countries that increased coverage by at least 25% between 1990 and 2002 and that had at least 25% coverage in 2002. Table includes only countries for which data were sufficient to estimate trends.

REDUCING THE RURAL BACKLOG AND TACKLING URBAN GROWTH

Many of the 2.6 billion people without improved sanitation are among those hardest to reach: families living in remote rural areas and urban slums, families displaced by war and famine, and families mired in the poverty-disease trap, for whom improved sanitation and drinking water could offer a way out.

Though more than a billion people gained improved sanitation between 1990 and 2002, the population without coverage declined by only 100 million. The challenge will be seven times greater in the crucial years leading up to the MDG deadline. The population without coverage will need to decrease from 2.6 billion people in 2002 to 1.9 billion in 2015, a total decline of 760 million people. Meeting this target, and reducing rural and urban disparities, will mean providing sanitation services to a billion new urban dwellers and almost 900 million people living in rural communities, where progress has been slower.

DISPARITIES IN COVERAGE

From now until 2015, greater effort must be made to reach the poor and those in rural areas, whose deprivation is hidden behind national averages.

Disparities in drinking water service levels

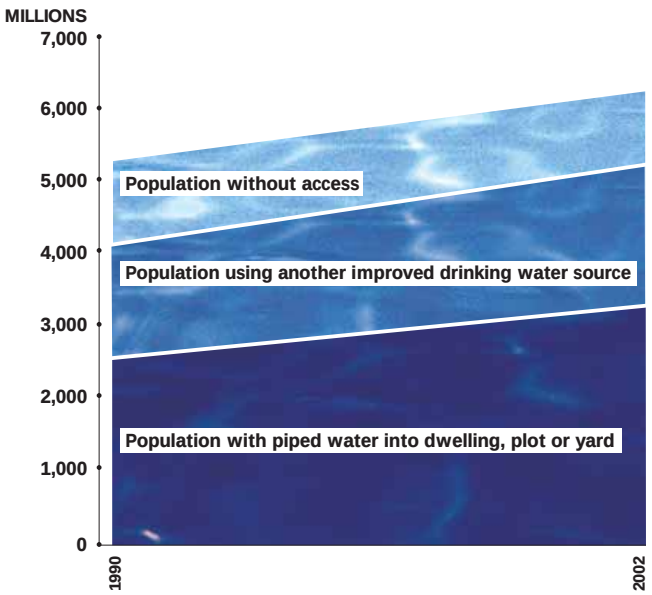
Global coverage figures from 2002 indicate that, of every 10 people, roughly 5 have a connection to a piped water supply at home (in their dwelling, plot or yard); 3 make use of some other sort of improved water supply, such as a protected well or public standpipe; and 2 are unserved, with no choice but to rely on potentially unsafe water from rivers, ponds, unprotected wells or water vendors (see Figure 14).

The way that people secure their drinking water has a direct impact on their health and on the economic status of households. In households using only a remote and unprotected source, health can be jeopardized by water contamination. Moreover, the quantity of water collected is likely to be too small for effective hygiene, even if bathing and laundry are carried out at the source. Using improved water sources, such as a protected spring or well within a reasonable walking distance, provides substantial health benefits. But hygiene may still be compromised and water may be contaminated in transport and storage.

Once water is available at home – through a yard or house tap, for example – then hygienic behaviour and the maintenance of water quality becomes easier. Major improvements in household health usually accompany the use of piped water at home. Similarly, the time saved in not having to collect water may also contribute significantly to improvements in the household economy.

In 2002, more than half the world's population used water from a piped connection at home

FIGURE 14 Trends in service levels for drinking water



Disparities in rural and urban areas

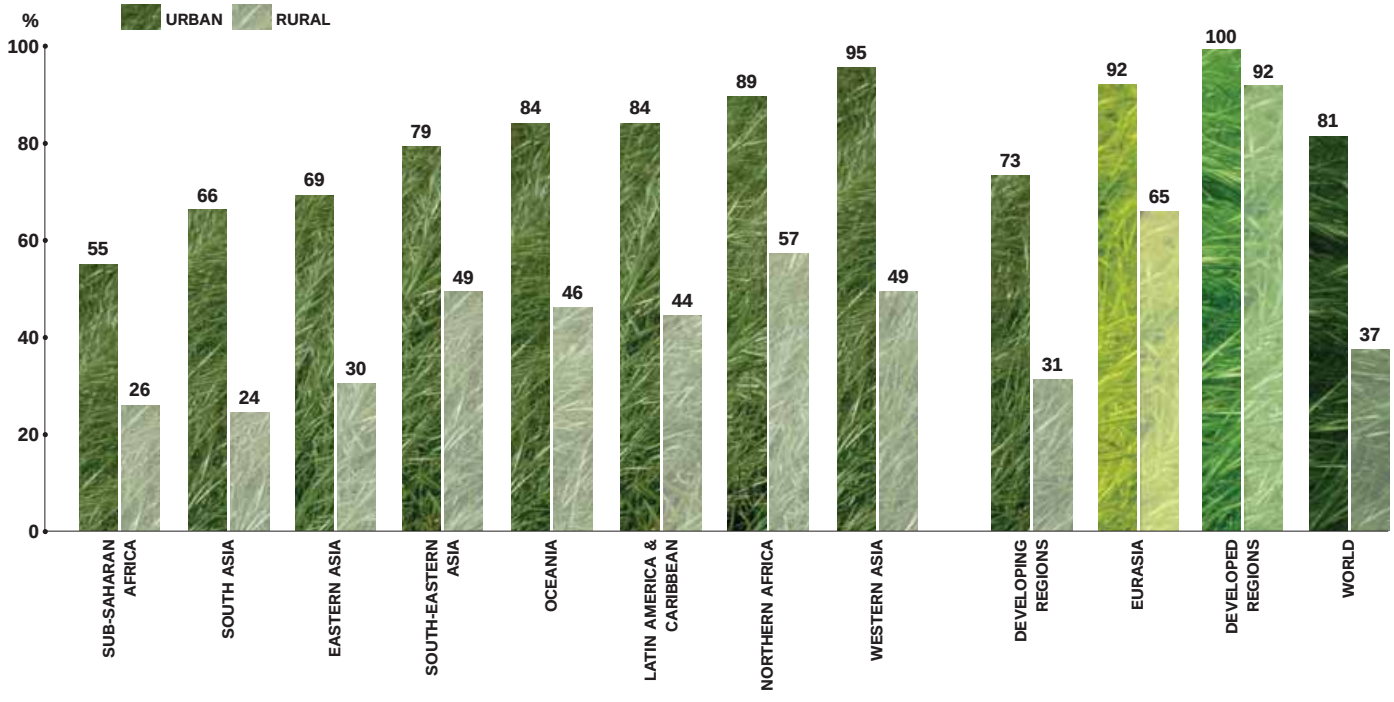
Ninety-two per cent of the urban population and 70 per cent of the rural population in developing countries use improved drinking water sources. That means that for every person without improved drinking water in urban centres, there are six people unserved in rural areas. The disparities are greatest in sub-Saharan Africa, with a difference of 37 percentage points between rural and urban dwellers.

The disparities in urban and rural sanitation are even worse. Only 31 per cent of rural inhabitants in developing regions have access to any type of improved sanitation, as opposed to 73 per cent of urban dwellers. In 2002, the total population in developing regions without improved sanitation was around 560 million in urban areas, compared with a staggering 2 billion in rural areas.

Currently, estimates of water and sanitation coverage in urban areas include those living in urban slums. As a consequence, the statistics tend to mask the deprivation found in these communities. Calculating separate estimates for slum and other urban dwellers poses formidable technical challenges. However, efforts are under way to improve the statistical methods used so that a more accurate picture of the water and sanitation situation in slum communities can be presented.

Rural communities have less than half the sanitation coverage of urban areas

FIGURE 15 **Urban and rural sanitation coverage by region in 2002**



DISPARITIES IN COVERAGE

Disparities by wealth

Not surprisingly, water and sanitation coverage, as well as levels of service, are higher among the rich than the poor. An analysis of 20 Demographic and Health Surveys from the past five years shows that only about 1 in 6 households in the poorest 20 per cent of the population uses improved sanitation facilities – compared to 3 out of 4 households in the richest 20 per cent. Fewer than 4 in 10 of the poorest households use an improved water source, whereas nearly 9 out of 10 of the richest households do.

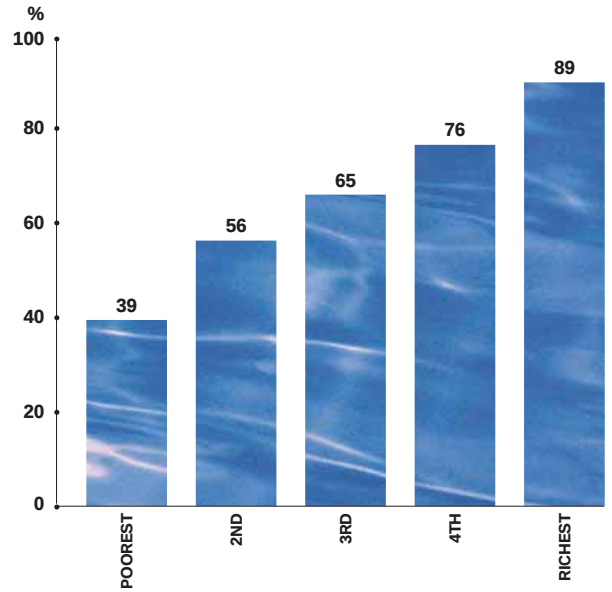
INVESTMENTS IN DRINKING WATER AND SANITATION YIELD HIGH DIVIDENDS

Increased use of improved water and sanitation has many benefits: a significant reduction in disease, especially diarrhoea; averted health-related costs; and time savings associated with having water and sanitation facilities located closer to home. Time saved may translate into higher productivity and school attendance, more leisure time and other, less tangible benefits, such as convenience and well-being, all of which can have an economic impact.

If these benefits are translated into monetary terms, it is possible to compare the total benefits with the costs of a potential intervention. Such an evaluation can often tip the balance in favour of water and sanitation investments. A recent cost-benefit analysis undertaken by WHO found that achieving the MDG target in water and sanitation would bring substantial economic gains: every $1 invested would yield an economic return of between $3 and $34, depending on the region. Globally, meeting the target would require an additional investment of around $11.3 billion per year, over and above current investments. Among the benefits would be an average 10 per cent reduction worldwide in episodes of diarrhoeal diseases.

Richest are twice as likely to use drinking water from an improved source than the poorest

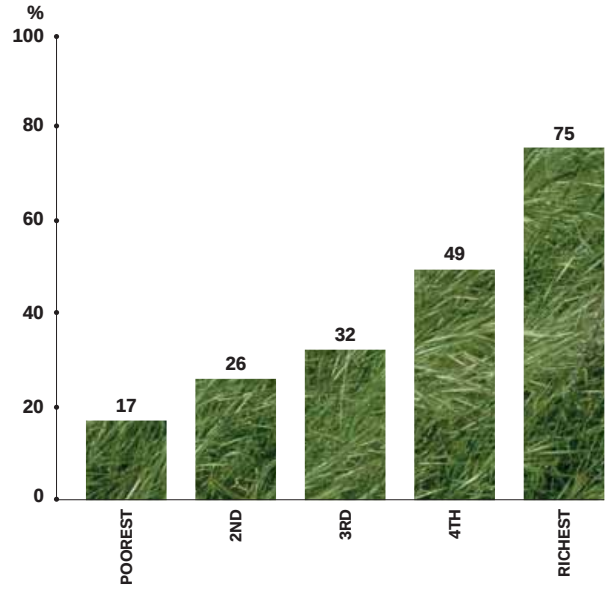
FIGURE 16 Improved drinking water coverage by wealth quintiles



SOURCE: BASED ON DATA FROM SELECTED DHS SURVEYS FOR 20 DEVELOPING COUNTRIES

Richest are four times more likely to use improved sanitation than the poorest

FIGURE 17 Improved sanitation coverage by wealth quintiles



SOURCE: BASED ON DATA FROM SELECTED DHS SURVEYS FOR 20 DEVELOPING COUNTRIES

ADVANCING GENDER EQUALITY THROUGH TOILETS AND TAPS

Ask anyone what it will take to make women's equality a reality and 'toilets' will probably not be the response. Yet it is difficult to exaggerate the impact that access to private, safe and sanitary toilets would have on the daily lives and long-term prospects of the 1.3 billion women and girls that are currently doing without. The burdens of water-hauling are widely understood: this tedious, time-consuming and physically debilitating chore reduces the time available for productive activities and, for girls, to attend school. Less discussed are the blows to health, productivity and dignity that result from poor sanitation.

In some cultural settings where basic sanitation is lacking, women and girls have to rise before dawn, making their way in the darkness to fields, railroad tracks and roadsides to defecate in the open, knowing they may risk rape or other violence in the process. In such circumstances, women and girls often go the whole day without relieving themselves until night affords them the privacy of darkness. Sometimes, they limit their daytime intake of food and water so that they can make it until evening. Without toilets in schools, girls must go in the open – that is, if they are even allowed to attend. For many girls, the onset of adolescence means the end of school.

All who lack adequate sanitation facilities are exposed to unpleasant and unhealthy daily routines. However, the impact on women and girls is greatest. In their household roles, they may more readily transmit disease-causing pathogens from exposed faeces to other family members. And restricted toilet opportunities cause discomfort and increase the likelihood of health problems such as urinary tract infections and chronic constipation as well as causing unnecessary mental stress. Sick, pregnant and postpartum women particularly suffer from lack of sanitation. How can the future be better if today's girls must drop out of school for want of something as basic as a toilet?

THE JOINT MONITORING PROGRAMME

Since 1990, WHO and UNICEF have teamed up to track progress on global water and sanitation goals through the Joint Monitoring Programme for Water Supply and Sanitation. The JMP monitors trends in coverage; helps build national monitoring capacity in developing countries; develops and harmonizes questionnaires, indicators and definitions to ensure comparability of data over time and among countries; and informs policy makers of the status of the water supply and sanitation sector worldwide through publications such as this one. The JMP draws guidance from a technical advisory group of leading experts in water supply, sanitation and hygiene, and from institutions involved in data collection and sector monitoring.

Further information about the JMP and its methodology can be found at: **www.wssinfo.org**.

The JMP database

The JMP database is the source for WHO and UNICEF's estimates on the use of drinking water and sanitation facilities. The database currently draws upon more than 350 nationally representative household surveys and censuses, double the amount of data that was available for the 2000 monitoring report. The surveys include the UNICEF-supported Multiple Indicator Cluster Surveys, the USAID-supported Demographic and Health Surveys, the World Bank's Living Standard Measurement Surveys and, most recently, WHO's World Health Surveys.

The JMP assembles, reviews and assesses household survey and census data. A rigorous review process, based on a set of objective criteria, ensures that only reliable data are included in the database.

The shift from provider-based to user-based data

Prior to 2000, coverage data were based on information from service providers, such as utilities, ministries and water agencies, rather than on household surveys. The quality of the information varied considerably. Provider-based data, for example, often did not include facilities built by householders themselves, such as private wells or pit latrines, or even systems installed by local communities. Governments had their own definitions of improved water supply and sanitation, which would change over time. Therefore comparisons could not be made among countries or for the same country over time. The shift in 2000 to the use of household surveys, and the clarification of definitions, provide a more accurate picture by monitoring the type of services and facilities that people actually use.

Household surveys are usually conducted by national institutes of statistics, carried out by trained national staff who collect information on a wide range of health and living conditions through face-to-face interviews.

Survey and census data are plotted on a time scale from 1980 to the present. Four graphs for each country show both urban and rural coverage for water and for sanitation. A linear trend line, based on the least-squares method, is drawn through these data points to estimate coverage for 1990 and 2002.

THE JOINT MONITORING PROGRAMME

Challenges and responses

The MDG target refers to "access to safe drinking water and basic sanitation." Though it sounds straightforward, monitoring such a target can be complex. How is drinking water defined, for example, and how is an interviewer to determine whether a household's water is safe? In order to standardize data collection, the JMP defines drinking water as the water used for normal domestic purposes, including consumption and hygiene.

Extensive research in rural areas found that people satisfy their basic needs for water if the source can be reached in a round trip of 30 minutes or less. When it takes more than 30 minutes to get to the water source and back, people typically haul less water than they need to meet their basic requirements. These requirements are determined locally, depending upon water availability, local customs, and the amount of water required to prepare food staples.

Measuring 'basic sanitation' is equally complicated. Ideally, the definition of this term would encompass critical components of what sanitation services should aim for: privacy, dignity, cleanliness and a healthy environment. From a monitoring point of view, however, such characteristics are difficult to measure.

To resolve these issues, the JMP classifies sanitation facilities and water supply sources as either 'improved' or 'unimproved', as defined on page 4 of this report. In doing so, it makes the assumption that those classified as 'improved' are likely to be more sanitary than 'unimproved' ones.

Not all people that have access to improved facilities or sources actually use them. Consequently, the JMP has adopted 'use' as the primary indicator for monitoring progress in both water and sanitation.

Current coverage estimates from the JMP are expressed as the percentage of the population using improved drinking water sources and improved sanitation facilities.

Other issues

The use of household surveys has significantly increased the quality and comparability of information on improved drinking water sources and sanitation. Making this data even more useful to policy makers means tackling additional challenges:

• *Harmonizing indicators and survey questions.* Surveys use different indicators and methodologies, making it difficult to compare information. A guide harmonizing questions and response categories for drinking water supply and sanitation is being prepared and discussions are under way on incorporating them in major household survey programmes and population censuses.

• *Measuring gender disparities.* Data on water and sanitation are collected at the household level. Therefore gender-specific data cannot be calculated. However, who bears the main responsibility for water collection and how long it takes can be ascertained. Questions along these lines are being reflected in the design of new surveys.

• *Safety and water quality.* Existing surveys do not provide information on the quality of water, either at the source or in households. Improved sources may still contain harmful substances, and water can be contaminated during transport and storage. Although 'improved drinking water sources' provides a good indicator for progress, it is not a direct measure of it. Dangerous levels of chemicals, such as the arsenic and flouride that are increasingly found in groundwater in South and South-eastern Asia, are of growing concern, along with infectious or other toxic substances. The proportion of the population using safe drinking water is therefore likely to be lower than that using improved drinking water sources.

In response, WHO and UNICEF are conducting a pilot study to develop procedures for assessing drinking water quality at the household level. The study is being carried out in China, Ethiopia, Jordan, Nicaragua, Nigeria and Tajikistan with the support of the British Government.