

# INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

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## behind the statistics

(An overview of national baselines and targets)



1981-1990

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1981-1990

## FOREWORD

This booklet is an interpretation of statistical data contained in the WHO Publication *Review of National Baseline Data*. Information on the current situation and targets in developing countries has been taken from the WHO Global Monitoring System for the International Drinking Water Supply and Sanitation Decade (IDWSSD).

Analysis and comments are based on data provided by the countries themselves during the early years of the Decade and reflect the baseline situation at the end of 1980, with targets for 1990. Readers interested in more details of individual country statistics are referred to the *Review of National Baseline Data*.

*Behind the Statistics* was prepared by the WHO Unit for Global Promotion and Cooperation for Water Supply and Sanitation, with the assistance of Mr Brian Appleton, Editor of *World Water* magazine.

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# STATISTICS!

## HANDLE WITH CARE

A total of 87 countries with a combined population of about 1,870 million people provided some information for this baseline review. Some reported on only one or two of the four main subsectors — urban water supply; urban sanitation; rural water supply; and rural sanitation. Some countries reported only the baseline (1980) statistics, without indicating their 1990 targets, and some gave intermediate targets (1985 for example).

The statistics are therefore incomplete, and different reporting countries may be involved in the global estimates of people served and investments required for different subsectors. Rural sanitation in particular was under-reported, and the figures quoted here are therefore generally underestimates of the numbers of people served and the 1990 targets for that particular subsector.

In order to make use of as much information as possible in presenting this overview, incomplete data has often been included, and qualification added in the text. So, for example, global totals will almost always be in the form of "not less than . . .", "at least . . .", "more than . . .". The same qualifications apply to figures quoted for the cost of Decade programmes. All available programme costs have been included in the "little over \$100 billion" quoted as the total cost of Decade programmes in the 70 countries reporting costs. However, in several countries, the costs are incomplete — either referring only to the end of the current planning period (e.g. The Libyan Arab Jamahiriya and The Republic of Korea), or relating only to urban programmes or to just the water supply sector (e.g. Kenya).

While it is valid to say that these statistics, with appropriate qualifications, represent the baseline situation and targets in countries representing at least three-quarters of the population of the developing world (excluding China), extrapolation to full global figures can only be attempted with extreme caution. In population terms, India represents 40% of the sample and has targets and cost figures usually at the extreme ends of the global range. Missing countries include Nigeria, Turkey, Iran, Ethiopia, and several others, where no valid comparison can be made with global or regional statistics.

Statistical inexactitude has been eliminated in presenting the comparison of 1980 coverage and 1990 targets for the four subsectors on the histograms. Only countries which provided full data have been included. The histograms therefore fairly represent the ambitions of the selected countries, comparing like with like. The price paid for precision is a smaller sample; so that the number of countries contributing comparable data varies from 44 in urban sanitation (representing 59% of the global population excluding China) to 61 countries (71%) for rural water supply. And the actual countries reporting are not always the same from subsector to subsector.

By accepting some degree of imprecision, partial information from a number of countries has enabled conclusions to be drawn for a significantly larger population sample. For example, the 92% of Egypt's 1990 urban population targeted to be served by house connection can be included, although no data are available as to whether the remaining 8% will have standposts or no supplies. The same form of reasoning brings Brazil into the urban sample.

This kind of interpretation means that the figures in the overview represent the 1980 situation and 1990 targets, with appropriate qualifications, in about 70 countries (not always the same countries) for each subsector except rural sanitation (58 countries), with a minimum 1980 population sample of about 1,700 millions (77% of the global population excluding China).

Appendix 1 indicates the countries included in each subsector sample, both for the total analysis represented by the histograms and for the general conclusions presented throughout this overview.

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1981-1990

# National targets mix ambition with realism

Well over a billion people will gain access to a safe supply of drinking water and over 600 million people will be given improved means of sanitation if the targets reported by developing countries are achieved during the International Drinking Water Supply and Sanitation Decade (IDWSSD, 1981-1990).

An analysis by the World Health Organization (WHO) of information provided by countries representing over three-quarters of the developing world (excluding China) shows that selection of appropriate technology and service levels is having a significant effect in bringing down the capital costs of water supply and sanitation projects. It shows too, that the biggest priority identified by the countries for urgent action is correcting a severe shortage of skilled manpower.

Other points to emerge from this first survey of the plans prepared by the developing countries themselves in response to the IDWSSD initiative are:

- Costs of implementing water supply and sanitation projects are generally lowest in WHO's South-East Asia region, where the emphasis has been on community participation and choice of appropriate technology. In contrast, much higher costs are reported by African countries, calling for high capital investments to meet Decade goals.
- Funding remains a serious constraint to sector progress, but there are several examples of dramatic progress where external support has been made available for well-planned sector development.

## The Targets

At the launch of the Decade, much publicity was given to the "water and sanitation for all" ideal, and less attention was given to the broader message that countries must set their own targets according to available resources and scope for accelerated investment. The targets reported here are those set by national governments, who have endorsed the Decade ideals, identified the constraints to be overcome, and fixed objectives to match.

As the statistics "warning" panel makes clear, the countries providing data for the

different subsectors are not always the same. Nevertheless, by combining full and partial information, the baseline situation and targets quoted here for each subsector can be said to represent a sample of about 1,700 million people in some 70 countries. Two-thirds of those people live in rural areas.

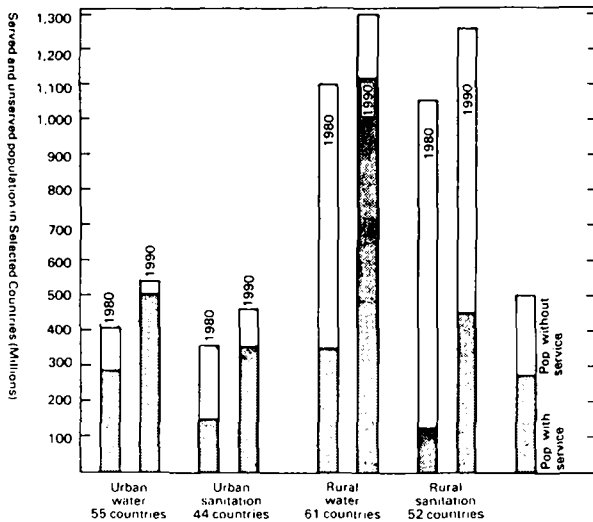
In 1980, more than half of the people were without access to a safe supply of drinking water and three-quarters had inadequate means of excreta disposal. By 1990, the population of the same 70 countries will have grown to 2,100 million, so that an extra 400 million would need new services simply to keep the unserved population at the same depressingly high figures.

In fact, the targets set by the countries would provide more than 1,000 million extra people with clean water and 600 million more with proper sanitation facilities. If those goals were to be achieved, the number of people without access to safe water would be down to about 12% of the total population. Half of the people would, however, still be without proper sanitation facilities.

While the migration of people from rural to urban areas will continue to be a major problem for governments, particularly in the African, Eastern Mediterranean and Latin American countries, the biggest numbers of unserved people remain in the rural areas. Decade plans will begin to redress the imbalance, especially in the water supply subsector, but the 860 million rural people who will still depend on unhygienic means of



*Choice of appropriate technology and service levels bring down costs.*



1980 Baseline Situation and 1990 Targets for Selected Countries. Note: for details of individual countries providing data for each subsector, see Appendix I.

Even from the restricted samples, the needs of the Decade (and beyond) are clear. Note the scale of effort needed in rural areas and the continuing shortage of rural sanitation.

excreta disposal even if goals are achieved (65% of the rural population in 1990) will ensure that efforts to improve the sector coverage must not end in one Decade.

Comparison of urban and rural coverage in 1980 gives some idea of the scale of the rural challenge, even though by then several countries had already begun to focus more attention on rural development. The figures for the 70 country sample show that three-quarters of 1980's urban population of 560 million had access to safe water, and half had proper sanitation facilities. In the rural areas, only one third of the 1,120 million population had safe water supplies, and a mere 13% had adequate means of excreta disposal.

By 1990, the aim is to build new water supply facilities for at least 770 million more rural people, which will mean only 14% should be without access to a safe supply at the end of the Decade. Rural sanitation progress is less clearly defined (fewer countries have reported fully on their plans for the subsector) but at least 320 million extra people should be provided with proper facilities, bringing rural coverage up to 35%. The equivalent targets for the urban sector show 94% coverage with safe water and 87% having adequate sanitation by 1990.

The histograms, abstracted from the official *Review of National Baseline Data*, published by WHO, also demonstrate the dominating rural needs, though in this case they relate only to countries for which complete and comparable data was reported for both 1980 and 1990 in the particular subsector.

In any global analysis like this, the figures are influenced enormously by India's programme. With a 1980 population of 672 million, expected to grow to 800 million by 1990, India alone accounts for 40% of the people included in this survey. In statistical

terms, therefore, what India does, the rest of the world seems to be doing. The Government's target that every Indian citizen should have access to a safe supply of drinking water by the end of the Decade itself accounts for 523 million (half) of the extra supplies that are needed.

Among other large countries, noteworthy statistics come from:

- **Brazil**, where the target is to provide sewer-connected sanitation facilities for an extra 46 million people in the course of the Decade — an almost threefold increase in the urban population with sewer connections.
- **Indonesia**, where the aim is to give 50 million more rural people water supplies, to lift rural water supply coverage to 60% from 19% in 1980 (it was 1% in 1970).
- **Pakistan**, where a mixed programme of new house connections and standpost supplies has as its target to raise urban water supply coverage from 72% to 100%, despite a 44% increase in the urban population during the Decade.
- **Vietnam**, where a focus on rural areas aims to see new water supplies for 29 million and new sanitation facilities for 24 million rural people in the ten years.

These individual targets are analysed in the region-by-region summaries which follow this global review, and which show that the magnitude of the Decade task is not confined to the big few. Potentially one of the most successful Decade programmes of all began two years early (1979) in the **Solomon Islands** (1980 population just 224,000). With population growth taken into account, the government plans to supply an extra 230,000 rural people with new water supplies by 1990 in addition to the 40,000 who had access to safe water in 1980. The good news is that 25,000 of those 40,000



received their supply during 1979 and 1980 — exactly the number targeted.

Just as many countries have adopted 1990 coverage targets of less than 100%, taking account of national constraints, so the time-scale for achieving "Decade" goals has also come under scrutiny. **Egypt**, for example, having acknowledged past difficulties in the water supply and sanitation sector, has set the year 2000 as a more appropriate date for the achievement of full coverage. That will allow time to create the necessary institutional arrangements for coping with an accelerated programme, and to tackle the major current operational problems of intermittent service, low pressure and high leakage in existing systems. Like many other countries, **Egypt** has suffered from poor maintenance, inadequate cost recovery, and low investment. Rehabilitation of existing systems will be a major plank in the initial Decade plan, as it will need to be in many other countries.

### Costs

Totting up the estimated new investment costs of the Decade programmes in the 70 countries which provided enough data gives a total of a little over \$100,000 million. To this must be added, of course, the increased bill for operation and maintenance of new facilities, plus, in many cases, rehabilitation of existing installations. As the statistics "warning" panel makes clear, the cost figures do not include some important countries, and are substantially influenced by the figures from **India**. Accurate global extrapolations cannot therefore be made.

Most countries will need to scale up investments in the water supply and sanitation sector by a factor of two or more above 1980

levels to achieve the spending programmes they envisage during the Decade.

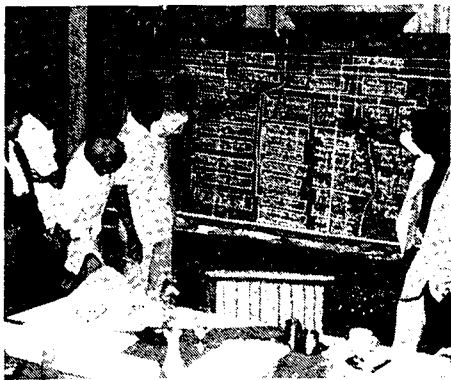
Investment levels planned by different countries vary from less than \$2 a year per head of the population in **Bangladesh, Burma, Nepal and Pakistan**, to more than \$100 per head per year in **Saudi Arabia, Brunei and the Cayman Islands**. In general planned spending is lowest in WHO's South-East Asia region, where three of the largest countries — **India, Indonesia and Thailand** — all have programmes representing \$2.50 to \$3 per head per year. In Africa, on the other hand, though per capita GNP's are generally similar to those of the Asian countries, the Decade programmes translate into an average investment level of \$10 per head per year — much closer to the \$12 per head per year average in the American, Eastern Mediterranean and Western Pacific Regions.

South-East Asia's investments are lower, not because their aims are any less ambitious than the other regions, but because the unit costs of constructing safe water supplies and adequate sanitation facilities reported by the Asian countries are generally about half those of the African countries. At the same time, developments in South-East Asia involve considerably more of the lower cost standpost supplies and low-cost excreta disposal facilities, and a lower proportion of expensive house connections and water-borne sewerage.

African countries, almost without exception, quote comparatively high unit costs and appear to be basing their Decade plans on levels of technology and service markedly higher than their Asian counterparts. From the regional reviews, it is clear that African countries face the hardest challenge of all in achieving the acceleration in spending needed to meet their Decade goals. Rehabilitation of existing systems,

Unit costs of construction (US\$ per capita)  
(median values)

Region	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation
	House connection	Standpost	Sewer connection	Other means		
Africa	100	46	150	53	32	15
South-East Asia	55	4	63	15	18	9
Eastern Mediterranean	250	102	530	365	112	100
Americas	125	62	165	62	88	30
Western Pacific	80	20	220	50	26	5



*Training and institution development are important needs*

accompanied by training programmes to ensure future operation and maintenance, has been given high priority in the region. This initial recovery programme may also create time for the development of lower cost alternatives to house connections and sewerage, and for a general lowering of costs through increased community participation and local manufacture of key components, two important reasons for South-East Asia's cost-cutting successes.

### **Manpower needs**

Broken down systems, water losses up to 50%, and a major imbalance between operating costs and revenue are prevalent symptoms of what almost every region has identified as the main constraint to progress in the water supply and sanitation sector — insufficiency of trained staff at all levels.

In just 28 countries which have put numbers to their manpower needs, an extra 350,000 people will need to be trained during the Decade, to achieve staffing levels deemed necessary for proper management, operation and maintenance of water supply and sanitation systems. Huge training programmes are envisaged in **Mexico** (93,000 projected trainees, to raise the ratio of trained staff to about 2,000 per million population), the **Philippines**, where 79,000 of the planned 86,000 trainees will be community-based workers, and **Venezuela**, whose extra 39,000 trained staff will raise the national ratio to more than 3,000 per million population.

Planned staffing ratios are lowest in the three reporting countries from the South-East Asia Region: **India** at 100 trained staff per million people (a fourfold increase over the 1980 level); **Burma** (150, up by a factor of 1.7); and the **Maldives** (80 in 1990 compared with 25 in 1980). In Africa, **Niger's** planned tenfold increase in the number of



trained staff, will still leave the country with only just over 100 staff per million population, while at the other end of the scale, **Kenya** and **Benin** plan to increase to more than 1,500 staff per million and **Sierra Leone** to almost double that figure.

The American, Eastern Mediterranean and Western Pacific countries plan average levels of about 1,000 trained staff per million population. Judgements on the correct staffing levels clearly vary from country to country, and depend on both the level of service envisaged and the percentage of the population benefiting from the various services. In the developed world, a rough guide to staffing levels of *water* undertakings is 2,000 staff per million *consumers*.

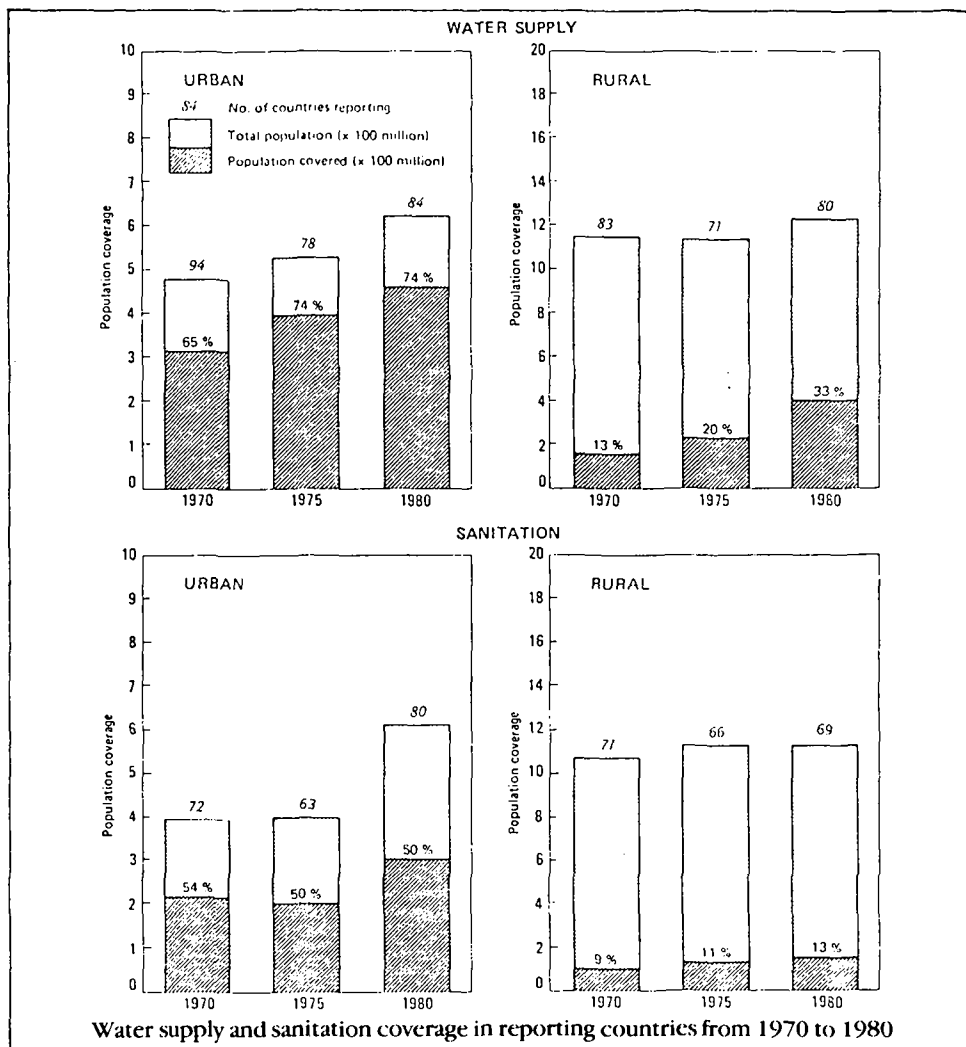
For the developing countries, training will not be the end of the story. Job satisfaction and career development are vital elements in ensuring that trained people remain in post. Too often in the past, disenchantment or lack of proper institutional back-up has defeated the object of training programmes. With so many people due off the training production line during the Decade, recognition of the need to motivate through proper support and adequate rewards may be the difference between success and failure for many countries.

### **Cost Recovery**

However many trained people are available, no system can be properly operated and maintained without money. It is significant, therefore, to find in the statistics that two-thirds of the reporting countries have water tariffs lower than operating costs.

**Egypt** quotes the example of a major undertaking for which operating costs plus interest charges exceeded revenue by a factor of two-and-a-half before corrective action was taken. In fact, none of the seven countries from the Eastern Mediterranean region which reported tariff data actually recover the costs of water production.

Western Pacific is the best of the regions so far as cost recovery is concerned, but even there only nine out of fourteen reporting countries have tariffs higher than operating costs. In the Americas, four countries — **Brazil**, **Argentina**, **Chile** and **Panama** — reports tariffs which more than recover the costs of production, while all the others quote inadequate cost recovery as a "severe" or "very severe" constraint to development. Four African countries — **Burkina Faso**, **Senegal**, **Guinea** and **Benin** — also show



Water supply and sanitation coverage in reporting countries from 1970 to 1980

higher tariffs than costs, whereas 14 countries report the reverse. In the extreme case, Cape Verde records water production costs of \$1.84/m<sup>3</sup> and a tariff of just 16c/m<sup>3</sup>.

### Progress Monitoring

WHO compiled statistics on water supply and sanitation coverage through the Organisation's six regions in 1970 and 1975 as well as these latest figures for 1980. The number of countries reporting, and the actual countries, were not always the same, which makes direct comparison difficult. Also, standards of service deemed to be adequate are continuously being reviewed by the countries, so that caution is needed in evaluating progress.

The histograms above show some growth in coverage during the ten years leading up to the Decade in all sectors except urban sanitation, where the 50% coverage indicated

by the 80 countries reporting the 1980 situation in the subsector is less than the 54% reported by 72 countries in 1970. Urban drift and changing standards of acceptability both influence these statistics, but both are parameters which must be faced in the Decade.

To avoid the statistical inaccuracies inherent in projecting targets based on different groups of countries, the histograms showing planned progress during the Decade have been based only on those countries for which full information was available for the particular subsector.

The rising coverage levels show the scale of aspirations of the developing countries and are a measure of the intensity of effort that is going to be needed from the countries themselves and those providing external support, if the aims of the IDWSSD are to become reality.



# Improved maintenance is key to success

Investments totalling \$7,000 million will be needed during the Decade, to meet aspirations of the 12 African countries\* who have provided full information on their 1980 baselines and 1990 targets in water supply and sanitation.

That level of spending — equivalent to \$10 a year for every man, woman and child in the 12 countries — would bring new water supplies to an extra 60 million people (only 22 million had access to a safe supply in 1980). New sanitation facilities would also be provided for 45.5 million people (20.6 million had adequate means of excreta disposal in 1980).

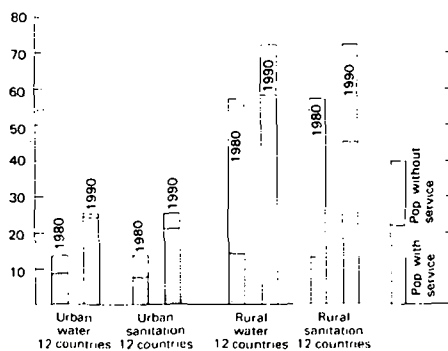
In percentage terms, the figures mean that, by the end of the decade, 96% of the urban population of those countries should have access to safe water (up from 60% in 1980), and 84% should have proper means of sanitation (56% in 1980). In the rural areas, safe water will be available to 81% (from 25%) of the people and adequate sanitation to 62% (22%).

If the countries even approach the targets they have set themselves, it will represent a remarkable reversal of trends from the years leading up to the Decade. With the single exception of rural water supply, where some progress was made from a very low baseline, almost every country reported a drop in the percentage of the population with adequate service between 1975 and 1980. In some cases of course, the advent of the Decade has meant a review of standards, so that services previously regarded as acceptable may now be deemed unsatisfactory.

## Manpower needs

A consistent factor, though, is the inadequate and intermittent service from numerous existing systems, brought about by severe shortage of skilled manpower and hopelessly insufficient cost recovery for operation and maintenance. The most vital message for

Served and unserved population in Selected Countries (Millions)



*African countries retain ambitious plans, though little progress was achieved in the years leading up to the Decade. Note the very high urban growth forecast. The sample for these histograms is just 12 countries (see footnote).*

African countries emerging from this survey is that investment in water supply and sanitation facilities must be accompanied by parallel programmes for training operators, professional staff and community-based workers operating in cooperation with primary health care programmes. Tariff structures which ensure enough revenue to meet recurrent costs of regular maintenance are another clear priority. At the same time, rehabilitation of existing systems will go a considerable way towards building up the numbers of people with safe water.

To their great credit, the African countries have recognised manpower development as a top priority. Huge human resources development programmes are being planned for Kenya (a virtual doubling of 1980's 776 staff per million population), Malawi, Sierra Leone, Togo, Benin, and to a lesser degree in the Sahelian states Burkina Faso and Niger. In the last case, though Niger is aiming for a tenfold increase in the number of trained staff, it is an indication of the desperate state of conditions in that country, that accomplishment of that aim will still leave the country with only about 100 trained staff for every million people.

## Poorest countries

The African sample includes some of the world's poorest countries. Of the 12 for which full information is available, no less than ten are classified by the UN as "most seriously affected" countries, and ten also

\* The 12 countries: Kenya, Ghana, Mali, Burkina Faso, Malawi, Niger, Rwanda, Burundi, Benin, Sierra Leone, Togo and Cape Verde, have a combined population of 71 million, or 21% of the population of the regional member states. Ten more countries: Madagascar, Angola, Senegal, Guinea, Mauritania, Lesotho, Mauritius, Guinea Bissau, Gambia and Sao Tome & Principe, provided partial information, which has been used to verify trends referred to in the text. The 22 countries have a combined population of 103.5 million, 31% of the regional population.



rank as least developed countries. Average per capita GNP across the 12 countries in 1980 was \$278, and in the highest, **Ghana**, it was only \$400 per capita.

Clearly, raising the necessary funds for the countries' Decade plans will be far from easy, particularly when the recurrent costs of operating and maintaining new and rehabilitated systems are taken into account. All 12 sample countries have provided estimates for achieving their targets, though in the case of **Kenya** the \$1,500 million plus programme relates to water supply investments only (on current unit costs, the sanitation objectives would add \$300-700 million more), and in **Togo** only the first five years' activities have been costed.

For any of these countries to achieve a sector investment of \$10 per head of population every year throughout the Decade would be a remarkable achievement. In only two cases — **Benin** (+30%) and **Burundi** (+60%) — is the planned investment level less than double sector investments in 1980. Elsewhere the planned acceleration

amounts to 2.6 times 1980 levels in **Ghana** and **Malawi**, a 3.3 times increase in **Sierra Leone** and factors of 5.3, 5.9 and 7.3 in **Niger**, **Burkina Faso** and **Kenya**.

Looked at in relation in GNP, **Niger's** billion dollar programme to bring new water supplies to 5.5 million people and adequate sanitation facilities to an extra 6.9 million people by 1990 — means \$17.8 per head of the 1980 population every year of the Decade, or 6.6% of the 1980 GNP (\$270).

The lowest per capita target spending planned by the 12 countries is \$2.0 per year, or 0.8% of GNP reported by **Sierra Leone**. Paradoxically, however, **Sierra Leone** has the highest unit costs of constructing water and sanitation facilities of any of the countries. The costs of \$350 per capita for house connections, \$300 per capita for standpost supplies, \$300 for non-sewered urban sanitation, \$60 for rural water supply and \$30 for rural sanitation compare with median values for the African countries of \$100, \$46, \$53, \$32

and \$15 respectively. With those unit costs, **Sierra Leone's** ambitious programme to provide more than a million urban people with new water supply and sanitation facilities and even more rural people with new services, would top \$800 million during the Decade. That compares with a planned spending target of \$63 million. In setting spending targets at the more realistic lower figure, it is clear that **Sierra Leone** will need to give high priority to applying appropriate technology and levels of service with much reduced unit costs.

Standing out from the African statistics as a dire example of the enormous gap between needs and available resources, is the poorest country in the sample, the Sahelian state of **Mali**. To achieve its Decade goal of providing safe water and adequate sanitation for

the estimated 2 million urban population and more than half of the 7 million rural population expected by 1990, **Mali** has calculated that it would need to spend \$1,700 million between 1980 and 1990. That means \$24.5 a head every year in a country where the GNP is just \$140 per capita. So required water and sanitation sector investment would total 17.5% of the coun-



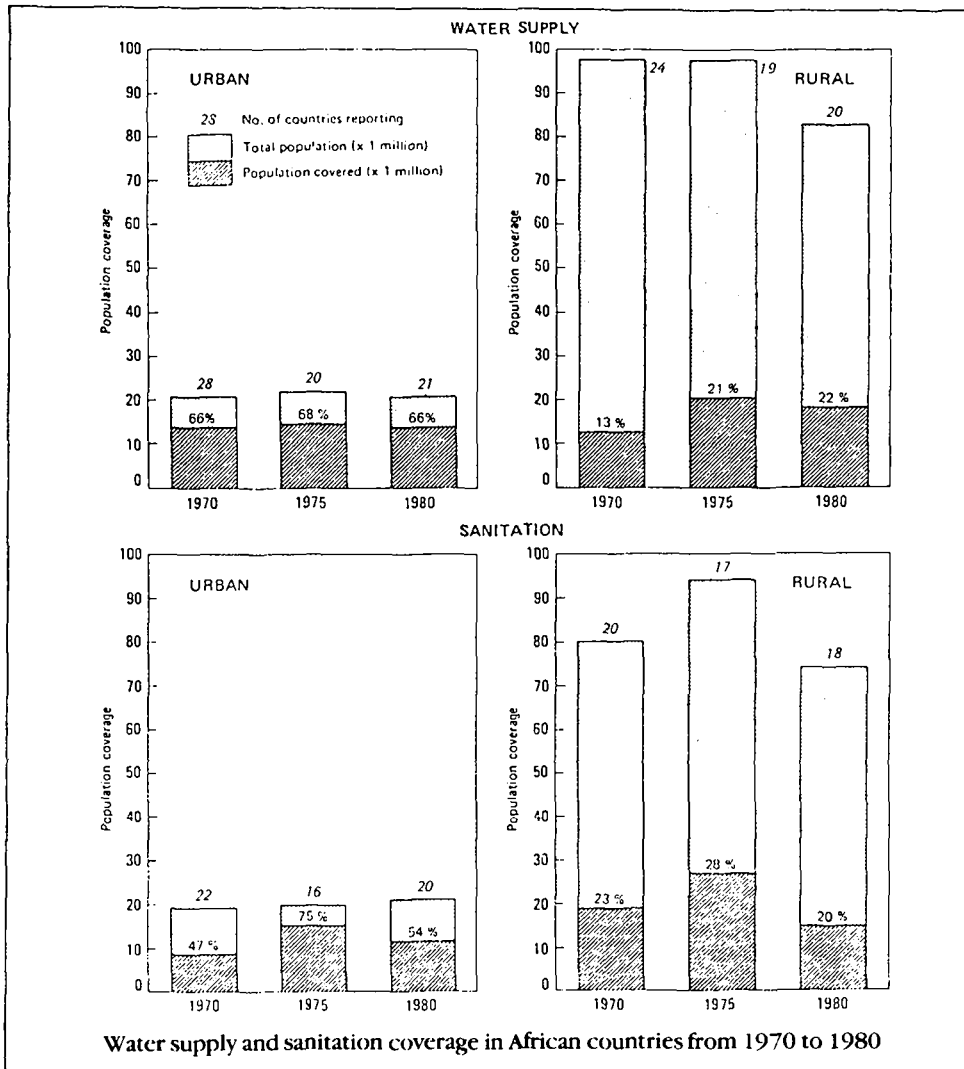
*This Earthscan picture by Mark Edwards shows women and children gathering water from a cement-lined well in Southern Niger.*

try's gross national product.

Investment in the sector in **Mali** has to come essentially from external sources, and in the past water and sanitation spending has been low; the 1980 total for the sector was just \$620,000. The current 5-year plan (1981-85) included \$88M for water supply and sanitation — a considerable acceleration, but still only a tenth of the apparent needs. And all of this ignores the inevitable recurrent costs which would arise if such a monumental development of the sector were to take place.

### Tariff problems

Like ten of the 12 selected countries, **Mali** suffers from another of the major problems of the Decade — higher water production costs than tariffs, meaning not enough revenue for routine operations and maintenance. The exceptions are **Burkina Faso**, where the average cost of water production is \$0.23 per cubic metre compared with a tariff of \$0.40, and **Benin** where the corres-



ponding figures are \$0.30 for production and \$0.33/m<sup>3</sup> average tariff. From a sample of 15 African countries providing production cost and tariff data, median value for cost was \$0.40 and for tariff \$0.25.

### Confusing figures

Statistics can be unkind. In **Benin** for instance, a direct comparison of coverage percentages reported for urban water supplies in 1975 and 1980 shows a substantial drop in coverage during the five years. In fact, **Benin** has made significant investments in urban water supply and been successful in building up the number of house connections from 34,000 in 1975 to 162,000 in 1980. On the other side of the equation however, comes a reported huge jump in the urban population (570,000 up to 1,580,000 in the five years), and a reduction in the number of operating

standposts (down from 536,000 to 258,000 people served).

**Benin** is rapidly building up its trained staff, introducing tariff policies capable of supporting maintenance and repair of water systems, and improving the level of service to many urban people. In the meantime, a number of people formerly dependent on standposts have no doubt found it temporarily expedient to purchase water from their newly connected neighbours. The statistics do not tell the full story.

### Enormous challenge

From the 12 country sample, confirmed by partial information from another nine African countries, it is abundantly clear that the challenge facing the African continent during the Decade is an enormous one. Of paramount importance, in assessing the region's capa-



city to improve the desperate conditions of so many of its people, is the speed with which individual countries can correct the institutional, manpower and tariff weaknesses which have created so many problems during the years leading up to the Decade.

It is comparatively easy to put development of capital projects forward as the solution to Africa's highly visible problems. It will take courage for national planners, backed as strongly as possible by external support agencies, to put manpower development, tariff structures, operation and maintenance facilities, and rehabilitation ahead of new investment. Only then can the downward trend of the late 1970s be reversed.

### Early success

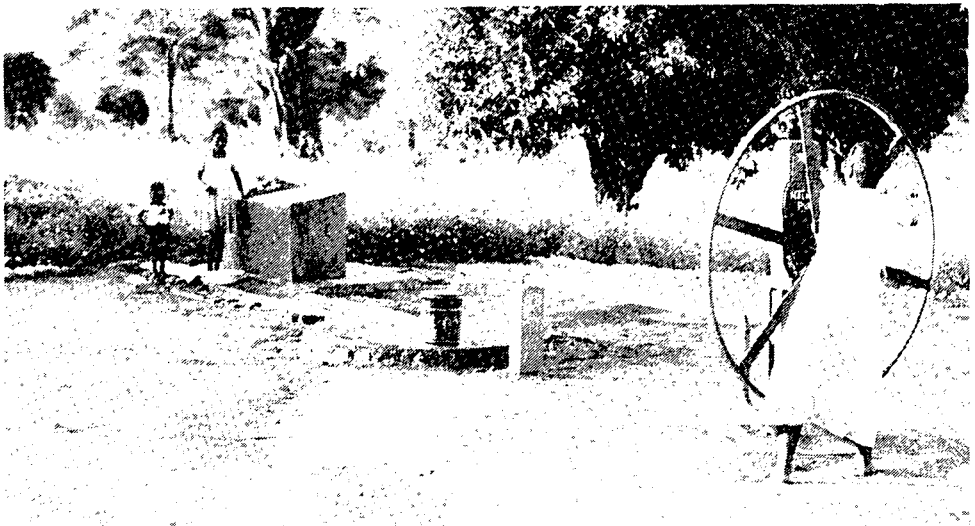
One country, Malawi, is beginning to show that successes can be achieved when the approach is right. Until 1979, water-related activities in Malawi were scattered across six ministries in 14 departmental units – usually as an adjunct to their main responsibilities and therefore having low priority in resource allocation. In April 1980, the Government integrated the water activities in one department – the Department of Lands, Valuation and Water (DLVW) – under the Office of the President and Cabinet. The Ministry of Health retains responsibility for monitoring water quality and promoting rural sanitation, though DLVW carries out much of the day-to-day activities.

Urban water supplies are expected to be

self-financing and the government has set a target for directly-operated district centres to attain viability within two years. A budget subsidy is expected to be needed for urban sewerage. In rural areas, water is seen as a social service, but community participation in construction and maintenance is very strong. Malawi's Decade programme is headed by a long list of projects for training and manpower development, and demonstration units for teaching and maintenance skills.

With a strong focus on local manufacture too, Malawi has entered the Decade following all the procedures now recognised as crucial to successful development of the water and sanitation sector. The country's progress in the early years of the Decade will be closely watched. Already, observers are impressed by the rapid implementation of successful rural water projects, and the apparent commitment of the beneficiaries to regular maintenance.

Malawi's Decade target is to raise urban water supply coverage from 77% in 1980 to 100% in 1990, and to bring rural water coverage from 37% to 100%. In all that means water supplies for another 5.1 million people. Urban sanitation coverage is reported to be 100%, and rural sanitation coverage 81%; the target will be to match increasing population in the sanitation sector, leaving coverage percentages unchanged. If the financial resources can be found (\$265 million in the course of the Decade), many believe Malawi is the front runner in Africa in meeting the challenge of the Decade.



*Malawi is progressing well, with community participation very strong.*

# Racing to keep pace with urban growth

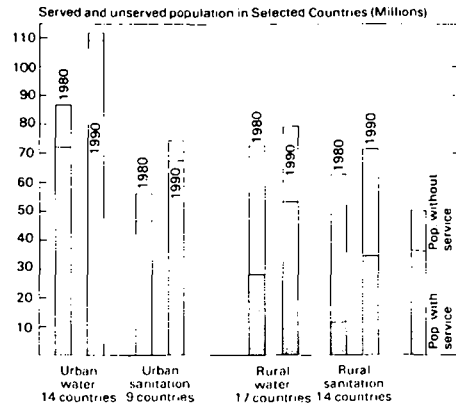
One in three of the 333 million people in the Americas' 21 reporting countries was without access to a safe supply of drinking water in 1980. By 1990, despite an anticipated 25% growth in population, the countries aim to reduce that figure to less than 1 in 6. Accomplishment of that Decade aim will call for new water supplies for 120 to 150 million people, 95 million of them in urban areas. (The imprecision in estimating rural water supply targets stems from the fact that some countries, including **Brazil** and **Peru** with large populations, have not specified their rural targets).

The countries' goals imply raising urban sanitation coverage from 56% in 1980 to 72% in 1990, with new services provided for 90 million people\*. The rural sanitation picture is less clear. In the 14 countries which reported 1980 coverage and 1990 targets (they represent 47% of the total regional population, except USA and Canada), rural sanitation coverage is planned to rise from 18% to 49% during the Decade, providing facilities for 35 million people compared to 12 million when the Decade began.

Achieving all these aims will mean an investment over the ten years, 1981-1990 of some \$40 billion in the 21 reporting countries.

## Generation lead

Latin American countries started the Decade with a generation of water supply and sanitation sector development already behind them. A resolution in Punta del Este in 1961, stating that, by the end of the 1960's, 70% of the urban populations and 50% of the rural ones should have satisfactory water supply and sewerage facilities began the drive to develop the sector. Strong commitments, not least financial support for urban projects from the Inter American Development Bank, kept water supply and sanitation in the forefront of development plans and led to the



strengthening of sector agencies.

By 1970, 25 countries reported that water supply had reached 76% of their 157 million urban population. Urban sanitation coverage was also reported to be 76%, though with fewer countries (19) reporting, involving an urban population of 116 million. Rural progress had been less dramatic, though water supply services did reach 24% of the 120 million rural population in 25 countries (up from 8% in 1961). Fresh goals were set in 1972 — still eight years before the launch of the Water Decade — and the sector continued to progress, with rural facilities receiving more attention.

In their reporting for the 1980 baseline, some American countries have reviewed the standards of service deemed to be adequate, so that direct comparison of 1970 and 1980 figures may be misleading.

Under the criteria now being adopted, the Decade baseline coverages for the reporting countries show:

- Of 218 million urban inhabitants, at least 169 million or 78% have access to a supply of safe water (21 countries).
- Some 48.6 million (42%) of the 115 million rural population have access to safe water (20 countries).
- Sewerage or acceptable alternative means of excreta disposal is available to at least 123 million (56%) of the urban population (21 countries).
- Fifteen million (20%) of the 73 million rural population in 16 reporting countries had proper sanitation facilities.

## Urban drift

What is clear is that the marked population shift from rural to urban areas which is one

\* In their 1980 reporting and 1990 forecasting, several countries have counted only sewer connections, whereas in the past alternative sanitation facilities were included. For nine countries (25% of the population) which counted all facilities, urban sanitation coverage in 1980 was 82% and the 1990 target 90%.



of the region's major problems has considerably influenced both the 1980 coverage statistics and the 1990 targets. The danger of using coverage percentages as a yardstick of development progress is well demonstrated in the case of **Venezuela**.

In its Decade plan, **Venezuela** envisages providing sewerage connections for an additional 5.5 million people (7.2 million in 1980 raised to 12.7 million in 1990). The programme will include reducing the number of people who presently depend on alternative sanitation methods from 3.6 million to 0.8 million. Yet this commendable (and costly) programme shows in the Decade statistics as a *drop* in **Venezuela's** urban sanitation coverage from 90% in 1980 to 80% in 1990.

In the region's most populous country, **Brazil**, coping with the disproportionate growth in the urban population (set to grow by 38% in the 10 years) will be the Decade's main challenge. To raise its urban water supply coverage from 80% (1980) to 90% (1990) (only supply by house connections is included in the **Brazil** statistics, the country will need to serve more than 35 million extra people in the Decade, over half as many as were served in 1980. At the same time, the Decade programme includes new sewer connections for more than 46 million people in **Brazil's** urban conurbations; there were less than 26 million people connected in 1980.

### Varying costs

Clearly, new urban services are going to account for a major share of planned Decade investment in the region, and the unit costs of providing these services are of critical importance in assessing the potential achievement of the Decade goals. Construction costs for providing house connections vary significantly across the region, from a low \$50 per capita in the **Dominican Republic** to highs of \$300 per capita in **Venezuela** and **Trinidad and Tobago** (the \$1,200 per capita quoted for the **Cayman Islands** is clearly a special case).

The median value of \$125 matches closely the \$120 (1978 prices) used in compiling global estimates at the start of the Decade<sup>1</sup>. Significantly too, **Brazil**, with its enormous urban programmes, quotes just \$100 per capita as the cost of new house connections.

The story is similar for sewer connections. Per capita costs range from \$55 in **El Salvador** and \$60 in **Guatemala** to \$331 in **Costa Rica** and \$600 in **Trinidad and Tobago**. At \$150 per capita, **Brazil** is again below the regional median value (\$165) for sewer connections. Decade global estimates<sup>1</sup> were based on 1978 prices of \$250 per capita for sewer connections in urban areas.

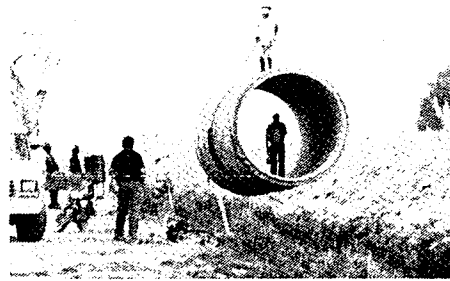
An interesting comparative statistic here comes from WHO's survey of progress from 1970 to 1975. At that time, with new services evenly divided between house connections and public standposts, the cost of providing water supply was put at \$66 per capita<sup>2</sup>.

Taking account both of inflation and of the considerably lower cost of standpost supplies (currently half the cost of house connections per capita), it is clear that, in real terms, progress has been made in holding down and even reducing the unit costs of house connections in the American region.

There are several cost elements which can contribute to such a unit cost reduction, and in the Latin American experience, particularly in the case of **Brazil** and **Mexico**, a very important one is likely to be the impact of local manufacturing facilities for previously imported materials and equipment.

Though the region's unit costs for urban water supply and sewerage services through house connections are well in line with the global estimates, alternative methods of providing water and sanitation facilities are comparatively expensive. The medium value of \$62 per capita for standpost supplies compares with \$40 per capita used in global estimates, and includes a regional variation from \$10 per capita in **El Salvador** and **Nicaragua** to \$250 per capita in **Argentina**. At \$25 per capita, **Brazil's** figure is again lower than the medium, but the Decade plan makes clear that supplies by house connection will be the main focus of **Brazil's** urban programme.

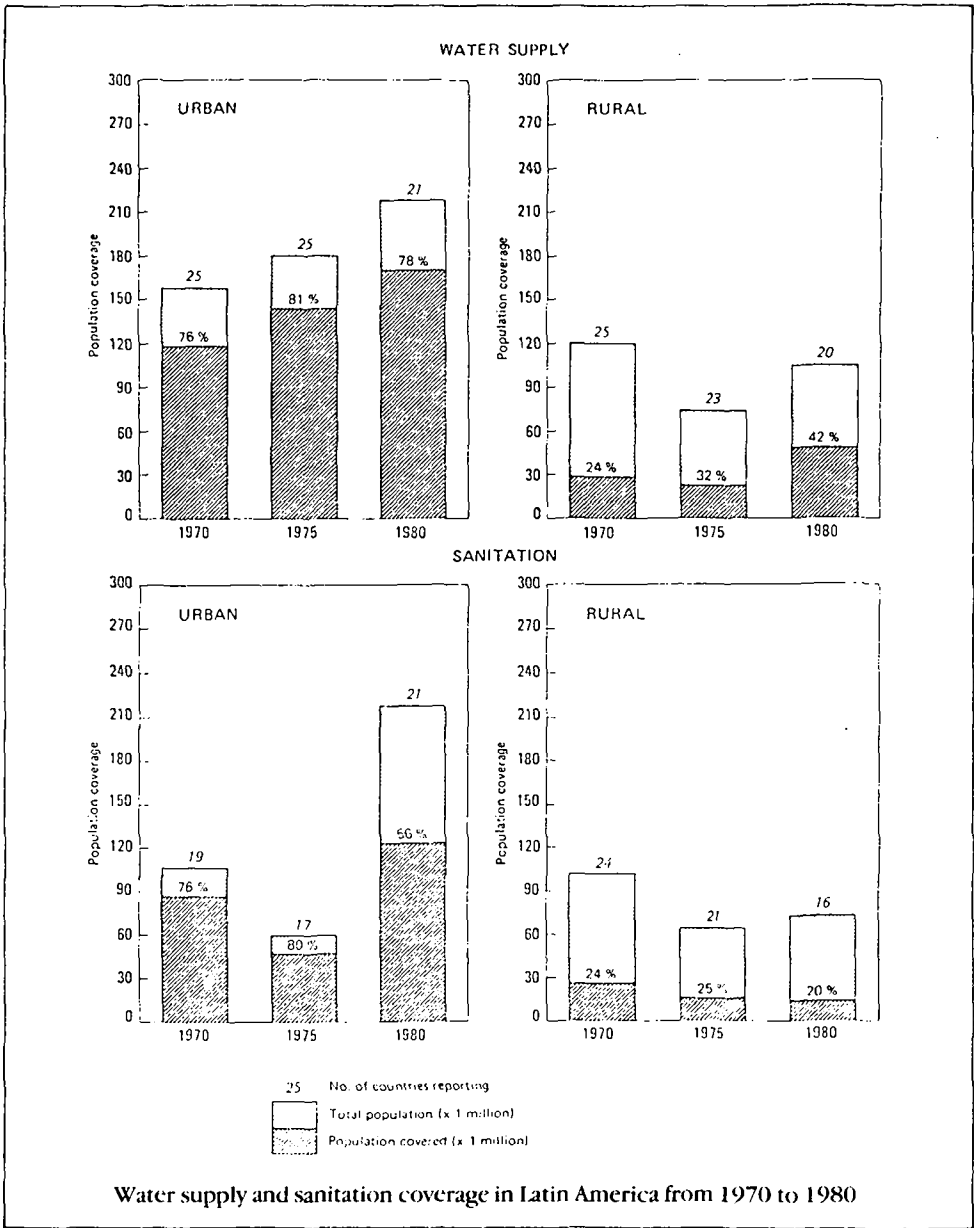
Non-sewered alternatives for urban sanita-



*Expanding urban populations present Latin American countries with the Decade's main challenge. Major new water supply and sewerage projects, like this one in Mexico, mean high expenditure.*

<sup>1</sup> World Bank Figures

<sup>2</sup> World Health Statistics Report



tion are least expensive in Honduras (\$15 per capita) and Peru (\$18) and highest in Argentina and Trinidad and Tobago (\$200). The median value of \$62 for the region compares with \$30 per capita for latrines or \$100 for septic tanks in the global figures.

### Maintenance needs

Behind the regional statistics for the two decades leading up to 1980, lie some extremely good individual country achievements. Seven of the 21 reporting countries had reached 100% coverage in urban water sup-

ply by the start of the Decade (Colombia, Chile, Costa Rica, Panama, Trinidad & Tobago, Guyana and Cayman Islands).

Of course, as coverage increases so too does the maintenance commitment. Several Latin American countries have learned the hard way that provision for regular maintenance is vital to the continuing operation of new facilities. Interrupted service and water leakage plague a number of major cities, and mean either rehabilitation or costly development of additional sources. Proper maintenance means a high demand for trained staff, and throughout the region

*Proper operation and maintenance are crucial needs. This Jamaican pumping station feeds storage tanks serving 2,500 people. Its caretakers come from the benefiting community.*



this is recognised as a constraint to be overcome during the Decade programme.

In Chile for instance, the 6,200 staff employed in the water supply and sanitation sector in 1980 represents 550 staff for every million people in the country, close to the median value for the region. In the course of the Decade, the plan is to train enough craftsmen, administrative personnel, and professionals to raise the ratio to 1,000 staff per million population.

Two major human resources development programmes for the Decade are reported by Mexico and Venezuela. Lifting Mexico's 1980 staffing ratio of 920 per million population to the Decade goal of 2,300 per million

population (a figure which compares favourably with that of most countries in Europe) will involve training another 46,000 craftsmen, 18,600 technical staff, 26,500 clerical and administrative staff and 1,400 more professionals in the planning and management field.

Venezuela envisages the highest staffing ratio of the reporting countries, and will need to raise the number of trained people in the sector from 15,400 in 1980 to 54,500 by 1990 to achieve the intended 3,400 staff per million population. (Note: all ratios refer to the total population of the country *not* to the number of people with water and sanitation services).

### Price tag

It would cost some \$40,000 million to implement the Decade plans of the American region's 21 reporting countries (a figure based on specific spending targets estimated by the 14 countries providing figures and the calculated cost of the other countries' programmes using reported coverage targets and unit cost figures). The \$4,000 million a year would imply an acceleration of slightly more than 2.6 over the \$1,500 million spent in the sector in 1980.

In the current economic climate, generation of funds on such a scale must be seen as a considerable constraint to full achievement of countries' aspirations, particularly as provision of the necessary recurrent costs for operation and maintenance of new systems is recognised as a top priority. However, the region's countries have already shown that a great deal can be achieved through national commitment and good organisation. It is significant too that for the biggest country, Brazil, an increase of less than 20% in the 1980 sector investment should enable the country to meet its own Decade goals.



*Local manufacture of latrines keep costs down on this Costa Rican rural health project.*



# Low costs encourage ambitious plans

New water supplies will be provided for about 710 million people and new sanitation facilities for 370 million, if the nine countries which have set themselves Decade targets achieve their aims. To do so, they will need to invest more than \$26,000 million between 1981 and 1990.

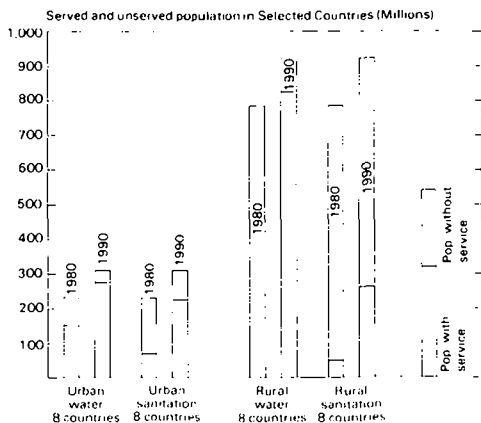
The statistics are dominated by **India**, whose estimated 800 million 1990 population represents 65% of the regional total, and where Prime Minister Indira Gandhi has proclaimed that every Indian will have access to a safe supply of drinking water by the end of the Decade. That pledge alone means that 523 million people will need to have a supply provided, 128 million of them representing the growth in population alone. Put another way, every day during the Decade, more than 140,000 people must gain access to a safe water supply in India alone.

The histograms demonstrate the magnitude of the task facing the region, and they reflect two highly encouraging factors. All countries plan significant increases in the proportion of the population receiving satisfactory water and sanitation services, despite an anticipated 21% increase in the region's population during the Decade; and the targets, while reflecting a significant increase in sector investments, have been set taking account of recognised constraints in the country concerned. Thus, only **India** in the water supply sector aims for 100% coverage during the Decade, and **Sri Lanka's** 92% target for rural sanitation is well above what others set out to achieve. In both cases, great progress has been made in the years leading up to the Decade, and appropriate technology, proper operation and maintenance, and community participation feature strongly in current programmes.

Elsewhere, countries have realistically lowered their sights, reviewed the progress made in the years leading up to the launch of the Decade, and set targets which, while still calling for substantial efforts and acceleration of project implementation, represent achievable aims — not wild dreams.

## Cost comparisons

Interesting comparisons can be made as a result of the collection and analysis of the



baseline data. For instance, the unit cost of providing water via a house connection in the urban areas of **India** has been estimated to be \$50 per head, while in **Sri Lanka** the same form of service works out at \$125 per head. In the rural sector, the cost differential is the other way round; **Sri Lanka** estimates that it can provide rural water supplies at a per capita cost of \$10, while in **India** the equivalent figure is \$20.

These are by no means the regional extremes. Taking rural water supply for example, **Bangladesh**, where the geology is extremely favourable, and a simple and appropriate method has been developed for installing tubewells with locally manufactured handpumps, costs are as low as \$4 per capita. By comparison, in **Nepal**, where the terrain is more difficult, and water less readily accessible, the unit cost is \$28.

The reporting countries represent 98% of the population of WHO's South East Asia Region — more than a billion people in all. The fact that such considerable improvements in water and sanitation provisions as are represented by the countries' target coverages are estimated to cost just \$26 billion, spread over ten years, (or \$2.60 per head per year) offers great hope for success in the sector. It reflects a new approach to appropriate technology and levels of service, with affordability, maintenance commitments, manpower availability, institutional capabilities, and above all realism, dominating the planning process.

## Rural focus

Already, the majority of countries have begun the switch of attention towards rural needs, which WHO and other agencies saw as so necessary if the Decade was to have maximum impact for the largest number of people. Comparison of the 1980 statistics with those of 1975 and 1970 show substantial improvements in rural water supply



and sanitation coverage — subsectors so badly neglected in the past.

In **Indonesia**, the second most populous country in the region, just over one million people in the rural areas had access to a proper water supply in 1970 — 1% of the rural population. By 1975, coverage had increased to 4%, or 4.8 million people. In the five years leading up to the Decade, an extra 13 million people have been given safe water in the rural areas, bringing the coverage to 19% in 1980. With per capita costs down to just \$10, **Indonesia's** Decade target is to provide supplies for another 50 million rural people by 1990, representing a coverage level of 60%.

Rural sanitation is also being considerably improved. The rural population with access to adequate means of sanitation rose from 5.6 million (5%) in 1975 to 20 million (21%) in 1980. Another 25 million rural people will be provided with facilities under the Decade plan, at an estimated cost of only \$3 per capita, bringing **Indonesia's** rural sanitation coverage figure to 40% by 1990.

The story is the same in **Thailand**. Only 10% of rural Thais, or 3 million people, had safe water on hand in 1970, and the equivalent figure for 1975 was 16% (5.6 million). By 1980, the population covered had grown to 23 million (63%), and a detailed Decade plan envisages raising the coverage to 95% by the end of the Decade, by providing an extra 18 million rural people with water. Quality of service has been carefully considered too, and **Thailand's** per capita costs in rural areas range from \$1.20 for converting an existing dug well into a protected well with a handpump, through \$15 per capita for a tubewell and handpump to serve 200 people, \$31.40 for family rainwater storage, to \$35 for a simple piped water supply (none of the figures include labour costs, which are



*Handpump development has been a prominent feature of water supply progress in India.*

generally part of the local community's contribution to the project).

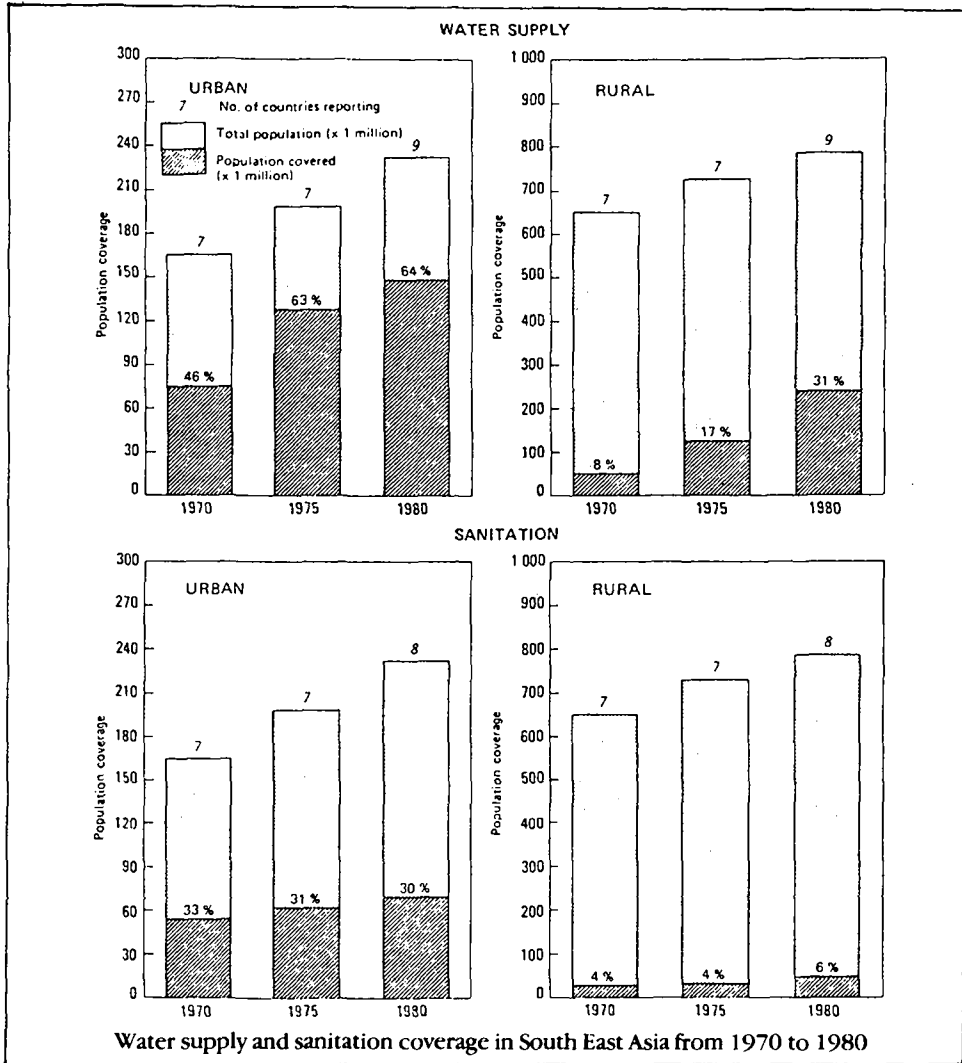
In the rural sanitation subsector, **Thailand** has brought percentage coverage up from 8% in 1970, to 41% in 1980, and plans to add facilities for a further 7 million people during the Decade, to provide 50% coverage by 1990. Technology involved includes single pits without a superstructure at \$1.80 per capita, the same with a superstructure at \$3.60 per capita, double pits at \$3.60 without a superstructure or \$5.40 with one. Again labour costs are excluded.

## Economic battles

The comparatively good progress in South East Asia in the run up to the Decade (albeit from a very low baseline) is especially commendable when viewed alongside the economic statistics. Of the nine reporting countries, four (**Bangladesh, Nepal, Bhutan and Maldives**) are classified by the United Nations as least developed countries and five (**India, Bangladesh, Burma, Nepal and Sri Lanka**) as "most seriously affected countries". Only **Thailand** and **Indonesia** have a per capita GNP greater than \$270.

In aid terms, the region has been receiving less than its share so far as the water and sanitation sector is concerned. On a population basis, South East Asia has almost half of the people in the developing world who lack safe water (all statistics exclude China), yet between 1977 and 1980, more than three quarters of external aid for the sector went to countries outside the region. More recently, low income countries in particular have been badly affected by the cutback in soft loans from the International Development Association (IDA).

In formulating their Decade targets, countries have had to look closely at the spending levels which may be achievable in relation to current investments in the sector. Investment fluctuates from year to year, and the proportion of external finance needed is another important parameter. Clearly any substantial increase in investment levels implies either a general growth in all development sectors or diversion of resources from other sectors into water supply and sanitation. Taking all these factors into account, it is significant that of the five countries for which 1980 sector investment levels are available (**Indonesia, Burma, Nepal, Sri Lanka and Maldives**), in each case the Decade plan calls for annual investments more than three times the 1980 levels. In the current world economic climate, such an acceleration in both internal and external finance will not come easily.



Water supply and sanitation coverage in South East Asia from 1970 to 1980

### Important lessons

For other regions with ambitious Decade goals, South East Asia's progress, particularly in the rural sector offers some valuable experiences. Throughout the region, priority has been given to strengthening the institutional framework for planning, implementing, operating and maintaining new systems: the need for community participation in project planning and development is well recognised; training programmes are being established to generate enough skilled manpower resources; technology is being selected according to affordability, local needs and available materials and skills; rehabilitation of existing systems is gaining momentum; and collaboration between countries is aiding technological development.

A major constraint on **Burma's** sector development was identified as the high

demand for imported materials. The government is therefore giving top priority in its Decade plan to projects which will develop national production of water supply and sanitation equipment and materials (PVC and steel pipes, pumps, engines and cement).

In **Sri Lanka**, the Decade project pipeline is a good demonstration of a planned approach to sector development. High on the list come projects for: rehabilitation of existing water supply systems (with a major component for future operation and maintenance); national manpower development and training programme (exodus of trained staff is a big problem for Sri Lanka); development of an operation and maintenance programme; and development of community participation in water and sanitation programmes.

# Rich and poor chase bold targets

If Pakistan succeeds in its Decade plan to provide another 10 million urban people with adequate sanitation facilities by 1990, it will have doubled the number of urban people served in ten years. Yet there will still be 500,000 more urban Pakistanis without proper sanitation in 1990 than there were in 1980.

Pakistan's projected urban growth of 44% in ten years is average for the eleven countries in WHO's Eastern Mediterranean region who have provided information for this survey. Urban growth presents a major challenge to the national governments.

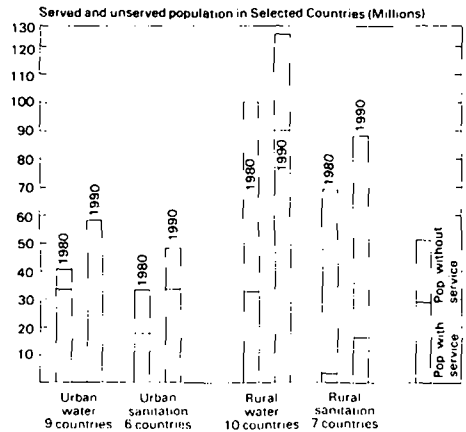
Some \$9 billion will be spent between 1980 and 1990 on urban sanitation alone in the eight countries who have provided cost data. The investment will bring extra facilities for a little over 20 million people, or four million less than the growth in the urban population.

All countries plan costly programmes in an attempt to keep pace. In the urban sanitation subsector, of ten countries which have set 1990 targets, only two — Pakistan (58%) and Egypt (48%) — aim for less than 80% coverage. Urban water supply targets are 100% in eight of the ten countries, 95% in Democratic Yemen, and 92% in Egypt, where only house connections have been counted.

## Resource variations

While the countries of the Eastern Mediterranean share similar problems and aspirations, the costs of achieving their targets, and the financial resources available to meet those costs, vary enormously from country to country. In Pakistan, the cost of supplying those extra 10 million urban people with proper sanitation facilities has been estimated to be \$210 million over the Decade. In the same ten years, Saudi Arabia is budgeting to spend more than \$5,000 million on sewerage facilities and other means of sanitation for just 3.6 million people.

The range of unit construction costs across the region is enormous. Every person served by house connection in the urban centres of the Libyan Arab Jamahiriya means an expenditure of \$1,000 in capital construction. Full coverage of the urban population with safe



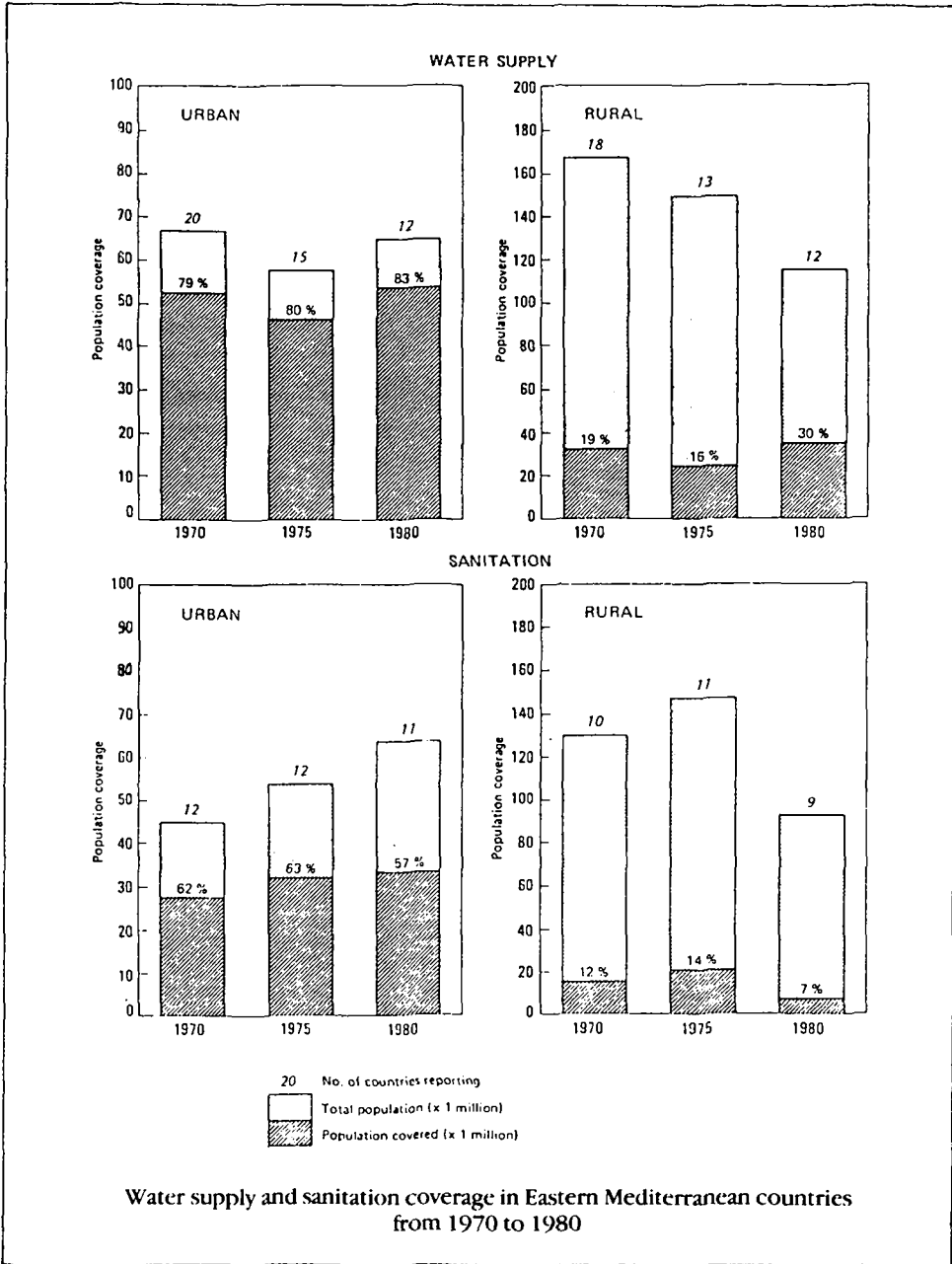
water and adequate sanitation has been consistently reported by Libya since 1970, and, though the country has not set any specific Decade targets, the projected 1.2 million increase in urban population by 1990 has enormous financial implications if full coverage is to be maintained. (The current national development plan, which ends in 1985, does include maintaining full coverage in urban water supplies until that date, which means over a million new people served by house connections in the five years.)

At \$1,800 per capita, Libya's reported unit cost for urban sewerage facilities is easily the highest of all the reporting countries from any region. Again, in the absence of 1990 targets, the 1985 aim to serve an extra 850,000 urban people through sewer connections is an indication of heavy required investment.

Three more countries from the Eastern Mediterranean region report urban sanitation costs through sewer connections above \$1,000 per capita: Saudi Arabia with a figure of \$1,347; the United Arab Emirates at \$1,075; and Democratic Yemen, where not only are sewer connection services costed at \$1,200 per capita, but non-sewered alternatives are reported to cost \$900 per capita.

Unlike the others, Democratic Yemen does not have a high national income to help pay for these costly services. At \$424 per capita, the country's 1980 GNP is dwarfed by Libya (\$8,200), Saudi Arabia (\$12,727), and the Emirates (\$28,700). Nevertheless Democratic Yemen plans to raise the number of people served by sewer connections from 319,000 to 713,000 in the course of the Decade (though the noted spending in the sector at \$132 million indicates that some savings will need to be made on the very high units costs).

At the other end of the costs scale, Pakistan calculates the cost of urban house con-



nection services at \$40 per beneficiary, and urban sewerage at just \$25 a head. In the rural sector, Pakistan puts the per capita cost of water supply services at \$25, and sanitation facilities at \$10. The 38.6 million rural people who will be provided with new water supplies under the Decade plan, will raise Pakistan's coverage in the subsector from 20% in 1980 to 65% in 1990, at a cost of \$415 million. Another \$88 million would be needed for the plan to boost rural sanitation coverage from a mere 2% in 1980 to 13% by

the end of the Decade, serving an extra 8.7 million people.

In Egypt, high priority is being given to the sector, but, with many cases of water shut down and failure to reach high storeys, the government has decided to spread its recovery programme over a longer period and to aim for full coverage in all sectors by the year 2000. That will allow time for action to be taken to remedy defects and rehabilitate existing systems, including reduction of water losses. Spending needs have been esti-



*Basic facilities for safe drinking water and sanitation are rare in rural Pakistan. Here, at a rural school near Islamabad, one water pot and an aluminium cup serve to quench the thirst of all the pupils. (UNICEF photo by Bruce Thomas).*

mated at almost \$400 million a year, approximately two-thirds in the sanitation sector, which has lagged behind in the past.

Part of Egypt's problem has been tariff structures inadequate to cover operation and maintenance costs. In 1980, for example, the operating and interest expenses of the Greater Cairo/Helwan Water Authority were two and a half times its revenue. Government subsidies are still intended, to keep the cost of water affordable, but the policy is to make all water undertakings profit-accountable.

Egypt shares with the other countries of the region a severe shortage of trained personnel. Of the eleven countries reporting, ten identify insufficiency of professional and sub-professional trained personnel as a severe or very severe constraint to sector development, and the clearly linked item of operation and maintenance also ranks as a hindrance to progress. As in other regions, training and manpower development pro-

grammes are being developed as a key element in the Decade plans.

## Costs

The countries who have supplied information for this survey have a combined population of 180 million, 60% of the total for developing countries in WHO's Eastern Mediterranean region. They include, as is clear from the spending plans, some of the richest and some of the poorest in the region. From the statistical point of view, however, it is dangerous to draw regional conclusions from the sample. This is particularly true where spending is concerned. Most of the high income countries are included, but the absentees include Iran, Iraq, Ethiopia, Sudan, and a number of other countries where no close parallel can be drawn with reporting countries.

The huge differences between the apparent per capita costs from country to country of providing new water supply and sanitation facilities (compare for example the numbers of beneficiaries for similar planned investments in Pakistan and Tunisia) are an indication of the difficulties countries have in providing cost data, and of the risks involved in making global projections. Total investment from the eight countries listed is some \$19 billion during the Decade, to bring new water supplies to 91 million people and new sanitation facilities to 34 million. To that can be added the 5-year programme of the **Libyan Arab Jamahiriya**, which involves total spending of \$2,070 million between 1981 and 1985 to provide another one million people with water through house connections and new sewer-connected services for 850,000 people.

Country by country, the declared investments from 1980 to 1990 are:

<b>Pakistan</b>	\$1,433 million	to give 56 million more people water supplies and 18.7 million more people sanitation facilities
<b>Egypt</b>	\$3,700 million	to give 17.8 million more people water supplies and 5.1 million more people sanitation facilities (no rural sanitation figure given)
<b>Syrian Arab Republic</b>	\$1,570 million	to give 4.9 million more people water supplies
<b>Saudi Arabia</b>	\$9,472 million	to give 3.5 million more people water supplies and 3.6 million more people sanitation facilities
<b>Tunisia</b>	\$1,593 million*	to give 1.4 million more people water supplies and 1.9 million more people sanitation facilities
<b>Yemen</b>	\$814 million	to give 6.6 million more people water supplies and 2.7 million more people sanitation facilities
<b>Democratic Yemen</b>	\$314 million	to give 487,000 more people water supplies and 1.4 million more people sanitation facilities
<b>Djibouti</b>	\$89.5 million	to give 290,000 more people water supplies and 310,000 more people sanitation facilities

\* Tunisia's spending figure includes only the rural water supply and urban sanitation programmes.

# Building on a sound base

Very high coverage in all sectors is the common 1990 target of the 20 reporting countries in WHO's Western Pacific region. An \$11 billion<sup>1</sup> plus investment programme envisages close to 100% coverage of urban populations with safe water supplies<sup>2</sup>, nearly 90% coverage in the rural water and urban sanitation<sup>2</sup> subsectors, and 90% for rural sanitation.

By 1990, if the Decade targets are achieved, more than 80 million people will have been provided with new water supplies and at least 50 million given new sanitation facilities throughout the region, compared with the situation in 1980.

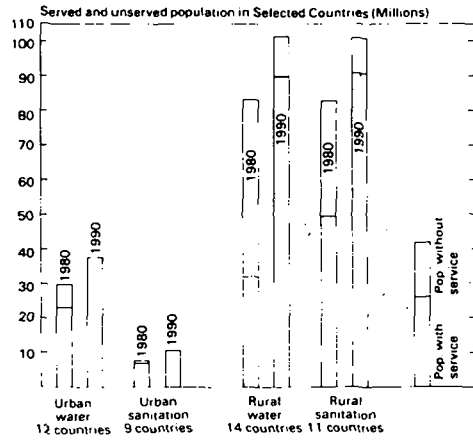
Some statistics are available from 20 countries in the region, together representing more than 90% of the population of the developing country members (excluding China). Though not all countries have provided data on both 1980 coverage and 1990 targets, and some have not reported on all subsectors, it is clear that a significant acceleration is planned in a sector where several countries already have a good track record.

## The big three

In numerical terms, three countries — **Vietnam**, **The Philippines**, and **The Republic of Korea** — account for 84% of the reporting countries' population (1980), and their programmes therefore dominate the regional statistics. All envisage substantial construction of new services, particularly in rural areas.

In the **Philippines**, where rural water supply coverage has improved progressively from 20% in 1970 to 31% in 1975 and 43% in 1980, another 25.5 million people will need to be served during the Decade, to achieve the target of 100% coverage by 1990. In comparison, the progress from 1975 to 1980 saw 4 million extra rural people provided with water in five years.

While the **Philippines'** rural sanitation target stops short of the 100% goal, raising



the 1980 (67%) coverage to the intended 95% will still call for new sanitation facilities for some 16 million people. No goals have been set in the urban sanitation subsector, where 81% of the 1980 urban population had a satisfactory service; but the 100% urban water supply target (up from 65% in 1980) means new supplies for 10.6 million urban people.

In all, the **Philippines'** Decade programme calls for an investment of \$5,900 million over the ten year period. In 1980, sector investments topped \$100 million, a significant jump from earlier years, but still only one sixth of the annual needs of the Decade programme.

**Vietnam** does not report the anticipated cost of the country's Decade plan, nor is any information given on the 1980 situation in urban areas. The scale of **Vietnam's** programme is nevertheless clear from the rural sector targets. In water supply, the aim will be to raise the number of people served from 13.6 million (32%) in 1980 to 42.2 million (80%) in 1990, while sanitation coverage is targeted to grow from 23.5 million (55%) in 1980 to 47.5 million (90%) in 1990.

The statistics show that the **Republic of Korea** was ahead of **Vietnam** and the **Philippines** in terms of coverage already achieved in the years leading up to the Decade. Nevertheless, significant investment in new systems is envisaged in the six years (1981-86) for which the country has developed a water and sanitation sector programme. The \$2.66 billion spending aims to

<sup>1</sup>The Republic of Korea's \$2.66 billion programme covers only 1981-86, and in the case of Malaysia, though no investment figures are given, target coverage and unit cost figures suggest that between \$500 million and \$750 million will be needed. These figures have been included in the total figure quoted here. No investment figures are available for Vietnam, Papua New Guinea or Tuvalu.

<sup>2</sup>For the countries which supplied full details of their 1980 coverage and 1990 targets, 100% was the target in all cases for urban water supply and urban sanitation. However, partial information from other countries shows some lower targets, which have been taken into account here.



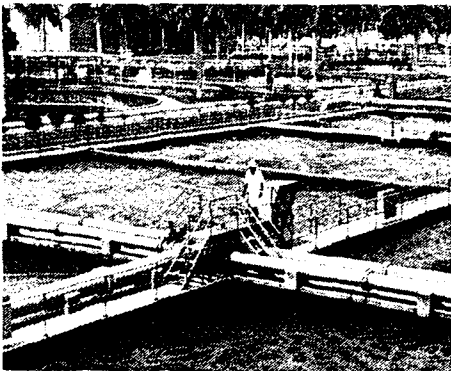
bring new water supplies to 3.6 million urban and 6.1 million rural people, and sanitation facilities to 1.3 million extra urban people and 2.4 million more rural ones. That will mean 100% coverage in both urban and rural sanitation, 95% in urban water supply and 92% in rural water supply by 1986.

### Smaller states progress

While the figures of the big three countries naturally swamp those of the many smaller states which make up WHO's Western Pacific region, they should not be allowed to mask the achievements and plans of those countries, many of which aim for substantial progress during the Decade. On a per capita basis, the Decade spending plans of the **Pacific islands** (\$92 per year for every inhabitant) outstrip the multi-billion dollar programmes of the **Philippines** (\$12.3 per head per year) and the **Republic of Korea** (\$7).

Ambitious targets in the **Solomon Islands** show a need to bring new water supplies to 230,000 rural people (98% coverage) in the course of the Decade, compared to just 40,000 who benefited from such services in 1980. Some 180,000 new sanitation facilities will also be needed to bring rural coverage up from 10% to 72% by 1990. At \$13 million, the **Solomon Islands'** programme represents spending of about \$6 per head of the population per year throughout the Decade. Like many other countries in the region, the Islands will be looking to external agencies for substantial support (up to 60% of the planned investment is anticipated from aid agencies).

In the past, the **Solomon Islands** has managed to attract enough external contributions, though with a smaller scale of invest-



*The Kim Chuan sewage treatment works in Singapore serves 60,000 people, handling a daily flow of 120,000m<sup>3</sup>.*

ment in the sector. In 1980, when sector investment was \$400,000, three-quarters came from external sources. Already, the Decade plan has been assured of substantial support from the Asian Development Bank in particular, and external agencies are expressing confidence in the government's approach to water supply and sanitation developments.

Planning for the Decade began early, and a 12-year Rural Water Supply and Sanitation Project Proposal was drafted with WHO assistance in 1978. A National Action Committee composed of all ministries and departments involved in the sector recommended its incorporation in the National Development Cycle, and Asian Development Bank support was obtained. In the first two years (1979 and 1980), 25,000 people were provided with new water supplies (100% of the target), and 3,000 with sanitation facilities (10% of the target).

The **Solomon Islands'** Decade approach leans heavily on the use of appropriate technology. Insufficient health education has been identified as a serious constraint, and the sanitation programme is concentrating on training environmental health staff and demonstrating and encouraging the local people to build appropriate sanitary facilities.

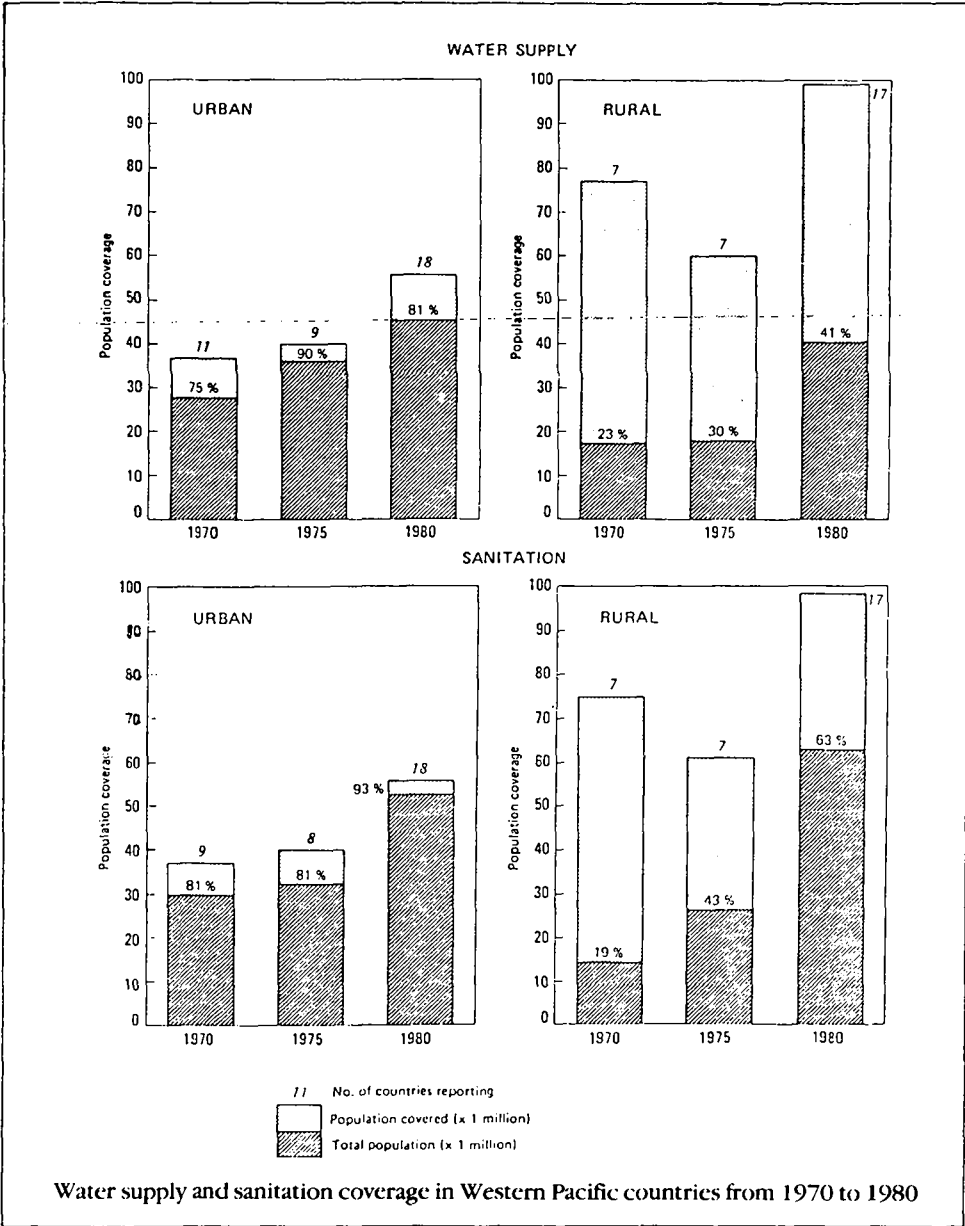
If the aid level is maintained, many people believe that the **Solomon Islands'** programme could become one of the Decade's real success stories.

### Urban upgrading

**Malaysia's** Decade plan combines a substantial increase in the number of people served in rural areas with upgrading of services for the urban population. An extra 3.2 million rural people should get new water supplies, bringing the coverage up from 1980's 49% to 83% in 1990; at the same time an extra 1.1 million rural people will receive new sanitation facilities, raising coverage to 66% from 55%.

**Malaysia** already has 100% coverage in urban sanitation, but the Decade will see not only services for the anticipated extra two million urban population, but also conversion to sewer-connected services for a significant number of urban people who depended in 1980 on alternative sanitation systems. Increasing the level of service also features in **Malaysia's** plans for development of the urban water supply subsector. The 4.1 million people (90%) in urban areas who benefited from house connections in 1980 will be increased to 6.6 million (100% coverage) in the course of the Decade.





Though Malaysia has not reported the programme costs, it is clear from the unit cost figures that sanitation will be the major cost element. At \$12 per capita, the reported construction cost for urban water supply service by house connection is one of the lowest in the region (only Singapore at \$8 a head is lower, and the median is \$80). Urban sanitation by sewer connection on the other hand is listed as costing \$275 per capita, 60% more than the regional mean.

**Staff needs**

In common with all reporting regions, the

Western Pacific countries identify shortage of trained staff as principal constraints to development, closely followed by funding limitations. Not forgetting that expansion of services brings with it an operation and maintenance obligation implying additional expenditure on a recurrent basis, training programmes, tariff structures, and institutional reforms are now receiving priority attention in many countries. The confidence of external support agencies in the successful implementation of these changes will dictate as much as anything else the progress achieved during the Decade.

## Appendix 1

The 87 countries which provided some data for the Baseline Review are listed below, according to their WHO region.

In the table, the letter B indicates, for each subsector, those countries which provided full data on their 1980 baseline situation and 1990 targets. This data was used to compile the histograms of planned progress used throughout this document.

The letter P indicates that partial information was used in formulating the more general conclusions in the text.

Country	1980 statistics				Country	1980									
	pop ('000)	Urban Water San	Rural Water San	pop ('000)		Urban Water San	Rural Water San								
<b>AFRICA</b>					<b>SOUTH EAST ASIA</b>										
Kenya	15,900	B B	B B	India	672,000	B B	B B	Indonesia	147,000	B B	B B				
Ghana	11,573	B B	B B	Bangladesh	90,000	B B	B B	Thailand	47,500	B B	B B				
Madagascar	8,740			Burma	32,900	B B	B B	Nepal	14,000	B B	B B				
Angola	7,900			Sri Lanka	14,700	B B	B B	Bhutan	1,200	P	P				
Mali	7,204	B B	B B	Maldives	161	B B	B B	TOTALS:	9	8	1 8				
Burkina Faso	6,129	B B	B B	<b>EASTERN MEDITERRANEAN</b>					1 8	1 8	1				
Malawi	6,007	B B	B B	Pakistan	83,780	B	B	Egypt	42,710	P	P				
Senegal	5,728	P		Afghanistan	16,270			Saudi Arabia	7,508	B	B				
Niger	5,534	B B	B B	Syria	8,979	B	P B	Tunisia	6,300	B	P B				
Rwanda	5,185	B B	B B	Yemen A.R.	6,227	B	B	Libya	3,245	P	P				
Guinea	5,017	P	P	Jordan	2,233	B	B	Dem. Yemen	1,925	B	P B				
Burundi	4,214	B B	B B	U.A. Emirates	1,081	B	B	Djibouti	330	B	B				
Benin	3,540	B B	B B	TOTALS:	12	9	2 6	<b>WESTERN PACIFIC</b>							
Sierra Leone	3,161	B B	B B	Vietnam	53,000	P	P B	Vietnam	53,000	P	P B				
Togo	2,500	B B	B B	Philippines	47,914	B	B	Philippines	47,914	B	B				
Mauritania	1,443			Rep. of Korea	38,100	P	P	Rep. of Korea	38,100	P	P				
Lesotho	1,300	P	P	Malaysia	13,430	B	B	Malaysia	13,430	B	B				
Mauritius	957			Hong Kong	5,095	B	B	Hong Kong	5,095	B	B				
Guinea Bissau	795			Papua New G.	3,007			Papua New G.	3,007						
Gambia	601			Singapore	2,414	B	B	Singapore	2,414	B	B				
Cape Verde	296	B B	B B	Fiji	638	B B	B B	Fiji	638	B B	B B				
S.Tome & Prin	95			Macao	323	B B	B B	Macao	323	B B	B B				
TOTALS:	22	12	3 12	2 12	2 12	1	<b>WESTERN PACIFIC</b>								
<b>AMERICAS</b>					<b>WESTERN PACIFIC</b>										
Brazil	119,100	P	P	P	Vietnam	53,000	P	P B	B	Vietnam	53,000	P	P B	B	
Mexico	67,400	P	P B	B	Philippines	47,914	B	B	B	Philippines	47,914	B	B	B	
Argentina	27,683	B	P B	B	Rep. of Korea	38,100	P	P	P	Rep. of Korea	38,100	P	P	P	
Colombia	25,000	B	B	B	Malaysia	13,430	B	B	B	Malaysia	13,430	B	B	B	
Peru	16,812	B	B	P	Hong Kong	5,095	B	B	B	Hong Kong	5,095	B	B	B	
Venezuela	16,048		B	B	Papua New G.	3,007				Papua New G.	3,007				
Chile	11,199	B	B	B	Singapore	2,414	B	B		Singapore	2,414	B	B		
Ecuador	8,354	B	B	B	Fiji	638	B	B	B	Fiji	638	B	B	B	
Guatemala	7,260	B	P B	B	Macao	323	B	B	B	Macao	323	B	B	B	
Bolivia	5,600	B	B	B	Solomon Isles	224	B	B	B	Solomon Isles	224	B	B	B	
Dominican Rep	5,431	B	P B	B	Brunei	185				Brunei	185				
El Salvador	4,539	P	P B	B	Western Samoa		B	B	B	Western Samoa		B	B	B	
Honduras	4,092	P	P B	B	New Caledonia	138	B	B	B	New Caledonia	138	B	B	B	
Paraguay	3,062	P	P B	B	Vanuatu	118	B	B	B	Vanuatu	118	B	B	B	
Uruguay	2,939	P	P	P	Pacific Isles	117	P	B	B	Pacific Isles	117	P	B	B	
Nicaragua	2,733	B	P B		Tonga	98	P	B	B	Tonga	98	P	B	B	
Costa Rica	2,123	B	B	B	Kiribati	55	B	B	B	Kiribati	55	B	B	B	
Panama	1,825	B	P B	B	Amer. Samoa	32	B	B	B	Amer. Samoa	32	B	B	B	
Trin & Tobago	1,096	B	B	B	Cook Islands		B	B	B	Cook Islands		B	B	B	
Guyana	825	B	B	B	Tuvalu	7				Tuvalu	7				
Cayman Isles	17	P	P	P	TOTALS:	20	12	4 9	2 14	1 11	1	<b>GRAND TOTALS:</b>			
TOTALS:	21	14	7 9	12 17	4 14	1	87	55	17	44	22	61	9	52	6
<b>EUROPE</b>					<b>GRAND TOTALS:</b>										
Turkey	44,737				TOTALS:	87	55	17	44	22	61	9	52	6	
Morocco	20,130														
Malta	318														
TOTALS:	3														



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