

WHO OFFSET PUBLICATION No. 85

THE INTERNATIONAL
DRINKING WATER SUPPLY
AND SANITATION DECADE

REVIEW OF NATIONAL
BASELINE DATA

(as at 31 December 1980)

World
Health
Organization,
Geneva



LO 820 Int 84
ISN 4107

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ISBN 92 4 170085 8

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PRINTED IN SWITZERLAND

84/6185 - Imprimeries Populaires - 8000

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PREFACE

The collection of data on drinking-water supply and sanitation is a difficult task because of the large number of communities and isolated sites where the users of the facilities live, the many agencies involved in planning, constructing, operating and supervising the relevant activities, and the almost universal lack of national systems to channel the information from where it is generated to the central levels. This task becomes even harder when the range of enquiry broadens beyond the traditional questions on coverage, as was done in the present survey, which includes other elements believed to be important for the effective management of sector operations and for the attainment of the International Drinking Water Supply and Sanitation Decade objectives.

Definite advantages are expected from a systematic follow-up to this initial analysis of the Decade baseline situation. Government officials will become progressively more familiar with the questions and the use to which the information put and should therefore be able to provide more complete and reliable answers. Countries that have not provided baseline information should be stimulated by this and similar reports to participate in subsequent updates and perhaps even to provide information retroactively. As a result, the assessment of the progress in countries towards the objectives of the Decade, which is the main objective of global monitoring, will become much more reliable.

This analysis could not have been made without the help of government officials, staff members of the United Nations and its specialized agencies, particularly WHO country staff, and the Resident Representatives of the United Nations Development Programme who have contributed to the collection and routing of the information and whose collaboration is acknowledged with thanks.

INTRODUCTION

Widespread concern to ensure safe water and sanitary disposal of excreta and waste water for communities, households and individuals all over the world and especially in developing countries led to the designation of the current Decade (1981-1990) by the United Nations General Assembly as the International Drinking Water Supply and Sanitation Decade (IDWSSD). International organizations and other external support agencies were requested to intensify their cooperation with developing countries in planning, carrying out and monitoring water supply and sanitation programmes. This document analyses the baseline situation at the beginning of the Decade from which the progress of water supply and sanitation in countries will be assessed.

Pursuant to the Mar del Plata Action Plan recommendation for action through international cooperation that "collaboration with the ongoing activity of the World Health Organization for monitoring and reporting on the status and progress of community water supply and sanitation be intensified", the Steering Committee for Cooperative Action for the IDWSSD requested WHO in November 1980 to assume a central reporting function on Decade progress in coordination with the United Nations regional economic commissions. The principles and procedures subsequently developed were first set down in guidelines issued in August 1981 and later included in an IDWSSD publication (Publication No. 2, National and global monitoring of water supply and sanitation, October 1982).

Global monitoring uses information provided by countries and contained in succinct reports called "country sector digests". The set of forms used to record information for the sector digests is shown in Annex 1. The World Health Organization coordinates globally the collection of data, and is responsible for processing and analysing them. Country sector digests portraying the situation at the end of 1980 provide the information for the present review. Regular updates are foreseen, the results of which will be similarly analysed at approximately two-year intervals during the Decade.

Global monitoring of water supply and sanitation is not a new activity. Worldwide surveys were conducted by WHO in 1962, 1970 and 1975. The concept of country sector digests is not new either; a series of digests was issued by WHO in 1979 on the basis of information collected during 1978-79. In that first series, the content of the digests was oriented towards the status of preparation in countries to accelerate sector development during the Decade.

National administrators are increasingly recognizing the vital importance to programme success of support activities, often called "software" elements, such as appropriate technology, training of staff and public information and participation in the improvement of services. The new sector digests include these aspects in addition to information on coverage and costs. They also consider national Decade targets, national planning and major sector development issues or constraints.

There was some inertia to overcome before the global monitoring activity, started in autumn 1981, gained momentum. Data started coming in towards the end of 1981 and were still being received in mid 1983. This caused a delay in the analysis and also meant that some information, although requested with respect to the end of 1980, might reflect the situation at a later date.

Information was not received from all developing countries. At the time of publication, forms were available for 87 developing countries or territories out of about 140. Geographically, the WHO Regions most affected were AFRO with about 51% and EMRO with about 47% of the countries missing. Some large countries were missing such as China in the Western Pacific Region and Nigeria in the African Region. In several cases answers to the questions in the forms were left blank or inconsistent figures were entered through misinterpretations. It is believed that these difficulties will be progressively ironed out in subsequent collections of data.

The weakness or absence of a permanent sector information system in countries is a serious shortcoming as it deprives them of an essential management tool for planning, monitoring and evaluating the programmes and for seeking external technical and financial cooperation. With this concern in mind, WHO is developing and field testing guiding principles for national monitoring which will be available for distribution to countries in 1984. An established national system for monitoring the progress of drinking-water supply and sanitation can be expected to produce, at regular intervals, reports on the sector which would include all the information in the country sector digests used for global monitoring.

National administrators and programme managers, in comparing the 1980 data of their country with those of other countries as shown in this document, may find inspiration for improvement or cause for satisfaction.

Presentation of data

The data used in this review are those reported by the countries and entered in the sector digest forms, where in most cases the source of information is also given. There may be differences between these data and those in other official United Nations or WHO publications, particularly as concerns population and population projections, per capita gross national product, life expectancy, infant mortality, and water-related diseases.

Seven sets of information are presented: one global summary and six regional summaries. Global data, by region, are presented in two figures and seventeen tables with a commentary. Country data for each WHO Region are presented in 1 or 2 figures and 9-13 tables with a commentary.

- Fig. A.1 (global), 1.1, 2.1, etc. (regional), compare the levels of service prevailing in 1970, 1975 and 1980 and are based on information presented in Tables A.3.2 to A.3.5.
- Tables A.1, 1.1, 2.1, etc. give basic indicators of national need and capacity for improving water supply and sanitation. The gap in coverage was calculated from 1980 coverage figures. Information on water resources was taken from constraint data. These tables use essentially the information on Form 1 complemented by information from Forms 3 and 8.
- Tables A.2, 1.2, 2.2 etc. on Decade targets and plans are derived from Form 2 and are self-explanatory.
- Tables A.3, 1.3, 2.3, etc., on 1980 service coverage are based on information from Form 3 and are self-explanatory. Global Table A.3.1 was added to compare percentage service coverage, by region, in the years 1970, 1975 and 1980. Since the number of countries reporting for the four subsectors (urban water supply and sanitation, rural water supply and sanitation) was not always the same, Tables A.3.2, A.3.3, A.3.4 and A.3.5 have been prepared to present coverage figures in more detail for each of the four subsectors.
- Tables 1.4, 2.4, 3.4, etc., (regional) on population coverage show for each country both 1980 figures and 1990 targets. These tables are based on information from Forms 2 and 3. Since full information regarding 1980 coverage and 1990 targets has not been provided by all the reporting countries, the Tables 1.4.1, 1.4.2, 2.4.1, 2.4.2 etc., compare the 1980 coverage with the 1990 targets only for those countries for which the necessary data are available. Tables A.4.1.1, A.4.1.2, A.4.2.1 and A.4.2.2 (global) summarize this information obtained from the various regions.
- Fig. A.2 (global), 1.2, 2.2, etc., (regional) indicate Decade targets for each of the four subsectors in terms of both number and percentage of the population to be covered. These figures are based on the information presented in Tables A.4.1.1, A.4.1.2, A.4.2.1 and A.4.2.2 (global) and 1.4.1, 1.4.2, 2.4.1, 2.4.2 etc. (regional).

- Table A.5 (global) compares regional median staffing figures per million population in 1980 with projected staffing per million population in 1990 without allowing for attrition. Tables 1.5, 2.5 etc. (regional), show actual sector staff on the top line and projected new staff to be recruited and trained on the bottom line - both for new sector activities and as replacements - and their calculated ratio to total country population in 1980. These tables are based on information from Form 5, complemented by population information from other forms.
- Tables A.6, 1.6, 2.6 etc. on unit costs of construction and costs of water production are based on information from Form 6.
- Tables A.7, 1.7, 2.7, etc., based on information from Form 7, use total 1980 sector investments (which were reported more completely than average annual investments during 1975-1980) as a basis for calculating the increase in annual investment necessary for a country to reach its Decade targets. For comparison, the proportion of total national investments devoted to the sector in 1980 and the part played by external funds are also shown in the regional tables.
- Tables A.8, 1.8, 2.8, etc. contain constraints to sector development from Form 8, classified under 18 headings and appropriately ranked.
- Tables A.9, 1.9, 2.9, etc. on Decade approaches based on information from Form 9, are self-explanatory.

The information requested in Form 10, Project Pipeline, was not consistently reported and this made the compilation of tables meaningless.

In all regional tables countries are listed in descending order of population (population data as given in the sector digests).

Where the distributions of average country figures were highly skewed (unit costs, staff and trainee strength, etc.), the regional figures were derived by using median values rather than arithmetic means since these appeared to be more representative of the real situation.

A. GLOBAL REVIEW

Eighty-seven developing countries or territories submitted the information on which this review is based. Although this represents only about one half of the Member countries, it includes most of the developing countries, 24 of the countries designated by the United Nations as least developed, and 32 of the countries designated as most seriously affected. It represents about 83% of the population of the developing countries, excluding China. There is also a representative sample of developing countries in each of the six regions of the World Health Organization. The analysis was therefore first made on a regional basis, the global summary being derived from regional figures. The global figures are compared where possible with figures for least developed countries and most seriously affected countries. The global review consists of eight parts, dealing with aspects covered in a different arrangement in the regional reviews.

Absent and incomplete responses, and large variations between countries, may affect somewhat the validity of the overall results and the regional comparisons. In addition, certain classifications such as urban and rural, reasonable access to safe water in rural areas, safe water sources when they are not subject to laboratory control, adequate on-site excreta disposal, etc., vary considerably from country to country. These reservations should be borne in mind when considering the regional and global averages and other generalizations set forth below.

In order to present a more valid regional and global comparison between existing 1980 coverage and 1990 targets, information is presented separately for selected countries for which all the necessary data are available.

1. Socioeconomic and health situation

Population increases during the Decade are expected to be largest (over 30%) in the African and Eastern Mediterranean Regions and smallest (about 20%) in the South-East Asia Region. Rural populations are expected to increase about 25% in the African and Eastern Mediterranean Regions, about 17% in the South-East Asia and Western Pacific Regions and 10% in the region of the Americas, and remain static in the European Region. Urban populations will increase by about 73% in the African Region, 44% in the Eastern Mediterranean, 33% in the Americas and South-East Asia, and about 27% in the European and Western Pacific Regions. These estimates are lower than those for the corresponding areas during the period 1970-1980. Nevertheless, unassimilated poor areas are growing in many of the world's large cities, and their existing installations are wearing out; consequently the provision of clean water and sanitation for urban areas is an increasingly serious problem.

The need for improved basic sanitary measures in all regions may be deduced from the indicators shown in Table A.1. Life expectancy and infant mortality rates are more unfavourable in Africa, South-East Asia and the Eastern Mediterranean than in the Western Pacific, the Americas, and Europe. Reported waterborne diseases afflict more than 1% of the population in one out of three responding countries. These conditions are caused at least in part by contaminated drinking water and insanitary excreta disposal. Forty-five per cent of the responding countries reported that over half their inhabitants still do not have the benefit of access to clean water and 47% to adequate sanitation.

The countries least able to deal with this situation (least developed countries - LDCs) and those most seriously affected by the current economic situation (most seriously affected countries - MSAs) show up clearly in the statistics in Table A.1. The LDCs and MSAs are less well endowed with fresh-water resources (or knowledge of them), have much lower average life expectancy and higher infant mortality and waterborne disease prevalence rates, and have much lower access to clean water and adequate sanitation than the average of all responding countries.

2. Targets and planning

Most countries have set targets for improved coverage and two-thirds of the responding countries (including two-thirds of the LDCs and three-quarters of the MSAs) have prepared or are preparing formal Decade plans. A significant number of total coverage targets has been set: 48% of the countries plan total urban water supply coverage, 33% urban sanitation, 21% rural water supply and 8% rural sanitation (see Table A.2). Nevertheless, a significant number of countries have set low targets (fifty per cent or less): 9% of the responding countries have set low targets in rural water supply and 23% have set low targets in rural sanitation. As shown at the foot of Table A.2, LDCs and MSAs include a higher-than-average percentage of countries with low targets and MSAs a lower-than-average percentage of countries with total coverage targets; LDCs, on the other hand have, as a group, a larger-than-average percentage of countries with total coverage targets, except for urban water supply.

The fact that targets lower than total coverage have been proposed shows clearly that many countries have given serious consideration to the adequacy and availability of resources. As repeatedly mentioned in this review, even reduced targets call for a tremendous effort and a reorientation in approach stressing low-cost and self-reliant solutions.

3. 1980 service levels

Table A.3 shows the service situation as reported by 86 countries/territories^a for end of 1980, taking into account the reservations indicated in the footnote, namely that for urban water service several countries reported only on coverage through house connections, for rural water service many countries of the Region of the Americas reported only on coverage through private connections and in some cases countries reported on coverage for one or more sub-sector but not all of them. The conclusions that can be derived from the table are in general accord with those set down in the report by the Secretary General of the United Nations on the occasion of the Decade Launch Day^b and can be summarized as follows:

- three urban residents out of four had access to safe water service and about two of those three were served by means of private connections;
- one half of the urban residents had access to adequate sanitation;
- one rural dweller out of three had access to safe water;
- one rural dweller out of eight had access to adequate sanitary facilities.

In 1980 the population was about one-third urban and two-thirds rural.

The levels of service in 1980, earlier surveys in 1970 and 1975 and Decade targets set for 1990 are compared in Table A.3.1 and in Figure A.1. The variations in figures between successive surveys may be the result of many causes, among which are: reporting by different countries; incompleteness of reporting; changed standards of acceptability; improved measuring estimates; and large population increases which have been up to 70% per Decade in the urban areas of some countries and up to 30% in rural areas. Notwithstanding these reservations, it can be concluded that during the previous decade (1971-1980) the percentage coverage increased appreciably for rural water supply, moderately for urban water supply and modestly for rural sanitation, but decreased slightly for urban sanitation.

^a One of the 87 responding countries did not provide information on 1980 coverage.

^b International Drinking Water Supply and Sanitation Decade: Present Situation and Prospects - Report of the Secretary-General, United Nations Document, A/35/367, 18 September 1980.

4. Closing the gap

To reach the targets they have set, individual countries must make an enormous effort: this effort must include the provision of facilities and services for urban and rural areas now lacking them as well as improvement of the quality of services in many areas that are now served. The magnitude of the effort required may be appreciated by analysing for each subsector the projected new population coverages.^a

As shown in Fig. A.2 and Table A.4.1.1 for 55 selected countries representing 64% of the global population,^b the urban water supply target established for 1990 by the various countries (93% coverage) mean that 218 million additional people will have to be served, compared with the 286 million already served in 1980 (71% coverage). Regional differences are significant. On the one hand for the Region of the Americas, achieving the target would mean increasing the 83% coverage in 1980 to 97% by 1990; providing service for 37 million additional beneficiaries compared with the 72 million already served in 1980. On the other hand, for the African Region achieving the target would mean increasing the 60% coverage in 1980 to 96% by 1990; providing service for 16 million additional people compared with the 8 million covered in 1980.

A similar analysis for urban sanitation is shown in Fig. A.2 and Table A.4.1.2 based on 44 selected countries representing 59% of the global population.^a In these countries, in order to achieve the 1990 target (76% coverage) an additional 208 million people would have to be served compared with the 149 million served in 1980 (41% coverage). Regional differences are also significant. The Western Pacific Region's target would mean increasing the 93% coverage in 1980 to 100% by 1990 - providing service for an additional 3 million people in comparison with the 7 million served in 1980. In the South-East Asia Region, coverage would have to be increased from 30% in 1980 to 73% in 1990 - 155 million people in addition to the 70 million already served in 1980. (It should be noted that in this subsector, the selected countries in the Western Pacific Region represent only 10% of the total regional population while in the case of South-East Asia 98% of the Region's population is represented).

For rural water supply, to reach the Decade target in the 61 selected countries (representing 71% of the global population¹) would require the provision of service for a staggering 768 million additional people, as shown in Fig. A.2 and Table A.4.2.1. This would give 86% coverage compared with the 32% coverage and the 349 million people supplied in 1980.

In the American Region the 40% coverage in 1980 would have to be increased to 67% to meet the 1990 Decade target, and service would have to be provided for 25 million beneficiaries in addition to the 28 million already served in 1980. In the African Region the 25% coverage in 1980 would have to increase to 81% in 1990 - 44 million new beneficiaries in addition to the 14 million already served in 1980. However, by far the largest increases in rural water supply are required in the South-East Asia Region to raise the coverage from 31% in 1980 to 89% in 1990. This will mean providing service for an additional 584 million people during the Decade - a measure of the huge task ahead if the Decade goals are to be met.

For rural sanitation, as shown in Fig. A.2 and Table A.4.2.2, in the 52 selected countries (representing 67% of the global population^b) it will be necessary to provide service for an additional 322 million people (compared with 127 million in 1980) in order to reach the Decade target of 36% coverage

^a In this section and supporting tables, population figures have been rounded to the nearest million. Ratios quoted are based on the precise figures given in the Tables for various regions.

^b This refers to the total population of developing countries/territories in the WHO Regions (excluding China).

as compared with the 12% coverage achieved in 1980. The task varies greatly in the different WHO regions. Thus, in the Western Pacific Region the 60% coverage in 1980 would have to be increased to 90% by 1990, involving the provision of service for an additional 42 million beneficiaries compared with the 49 million already served in 1980. In the South-East Asia Region coverage would have to increase from 6% in 1980 to 28% by the end of the Decade, this involving the provision of service for 212 million additional people compared with the 49 million served in 1980.

In summary, though the preceding analyses have been limited to those countries that provided full data, they always reflect the situation of well over half the population of the developing countries (excluding China) in the various regions.

Not surprisingly, the Decade goals of India account for a large part of the global figures. Sector by sector, the new services required to meet India's Decade targets amount to: one-third of the new urban water supply coverage, more than half of new urban sanitation services and rural water supplies, and almost half of the extra rural sanitation facilities required in the selected countries.

5. Staff and training

The present staffing strength of national sector agencies varies greatly between countries. This variation depends on whether the activities of all four sub-sectors are included and on the extent to which community-based staff are included. Most countries recognize sector staffing as a vitally important issue and plan to strengthen their sector agencies with new trained employees at various levels. Accurate projections of Decade staffing needs have not yet been made. An approximation of the ultimate staffing strength per million inhabitants has therefore been calculated by combining the regional median figures for present staff and projected new staff, and these are shown in Table A.5, together with median figures for the least developed countries and the most seriously affected countries. The global medians are 1103 for all countries, 531 for LDCs and 433 for MSAs. It can be seen from the table that both present and projected strengths for African and South-East Asian countries are considerably lower than for the other regions; the figures for LDCs and MSAs are even lower than the African average.

The data available do not permit generalizations on different categories of staff. The data on constraints show that countries in all regions consider the availability of trained staff to be a prime issue and that slightly more emphasis is given to trained professional than to trained sub-professional staff, except in the Region of the Americas and the Western Pacific Region.

6. Financial resources

The estimated cost in capital investment for new facilities and for replacing worn out facilities was calculated at 1980 prices by countries and the corresponding unit prices were reported by sub-sector and service level.

Examination of the country figures in Tables 1.6 to 6.6 shows an extremely wide variation in unit construction costs; some at the lower end of the spectrum evidently do not include all elements of construction costs. (This might for example be the case if rural water supply equipment provided with external funds was costed only for installation). Large variations in unit costs are to be expected between countries in different socioeconomic and climatic situations because of differences in the cost of labour, in the level of technology employed and in the technical solutions for water-abundant and water-scarce areas. Surprisingly, however, in many cases large variations were reported for similar socioeconomic and climatic situations. In the Western Pacific Region, for instance, a range was noted of 1 to 120 in the cost of urban water supply by house connections and of 1 to 150 in the cost of urban sewerage.

This is mentioned here to encourage countries, first, to provide more accurate cost estimates and, second, to examine whether they are employing an unnecessarily high level of technology. Similarly, unit operational costs for water production vary and in a number of countries where fresh water resources are limited and desalination of sea water or of brackish water is used the reported costs appear not to include all elements. Nevertheless, the regional median unit costs, which seem likely to lessen the effect of such uncertainties at the upper and lower ends of the spectra, have been recorded in Table A.6. Most unit costs are significantly higher in the Eastern Mediterranean than elsewhere. Unit costs in Africa, Europe and the Americas are comparable, whilst the lowest costs are in South-East Asia and the Western Pacific. These generalizations apply to both construction and water supply operation. Unit costs in LDCs and MSAs (median values) show no special features but tend to be similar to those in the African Region.

Recovery of construction and operating costs is an issue almost everywhere. Average operating costs exceeded average tariffs in all responding Eastern Mediterranean countries, in most African and American countries and in most LDCs and MSAs. Information from South-East Asia and Europe was too limited for conclusions to be drawn. Only in the Western Pacific did a majority of countries report that average tariffs exceed average operating costs. Two-thirds or more of the countries in all regions except Africa practise progressive tariffs in order to reduce wastage of water by large consumers and in order to permit some cross subsidy for low-income consumers. Only slightly more than half of the LDCs and MSAs, however, practise progressive tariffs.

To reach national Decade targets at the current unit construction costs will necessitate an acceleration by several times in annual investments during the Decade. The median increases by region are shown in Table A.7. Excluding the figure for the European Region (which is based on only one country), it may be seen that from one-and-one-half to four times as much investment each year as in 1980 will be needed. The least developed countries as a group will need to increase their investments more than any regional group, the median ratio for LDCs being 5.4:1. The median ratio for the most seriously affected countries is 4:1.

The proportion of external aid in total sector investment in 1980 was reported by 33 countries, with figures ranging from a low of 5% to a high of 100% (two countries) and a median value of 50%. Among these countries, 13 were LDCs with figures ranging from a low of 21% to a high of 100% (median 71%); 17 were MSAs with the same range of figures as the LDCs and a median value of 63%.

7. Constraints

The constraints shown in Table A.8 were ranked in descending order of importance by multiplying the number of countries reporting on a particular constraint by three if it was classified as very severe, by two if severe, and by one if moderate and then adding the products.

Overriding constraints at the global level include the insufficiency of trained personnel, limitations of funds, shortcomings in operation and maintenance and in logistics and inadequate means to recover from customers the cost of operating the services. Regional variations are not great in this respect. The Region of the Americas ranks inadequate cost-recovery as the most important constraint, the Eastern Mediterranean Region gives a comparatively low ranking to funding limitations which, however, are listed at the top in the two special groups (least developed countries and most seriously affected countries). It is worth noting that insufficient health education efforts or non-involvement of communities do not appear among the top five constraints in any region or for the two special groups.

8. Decade approaches

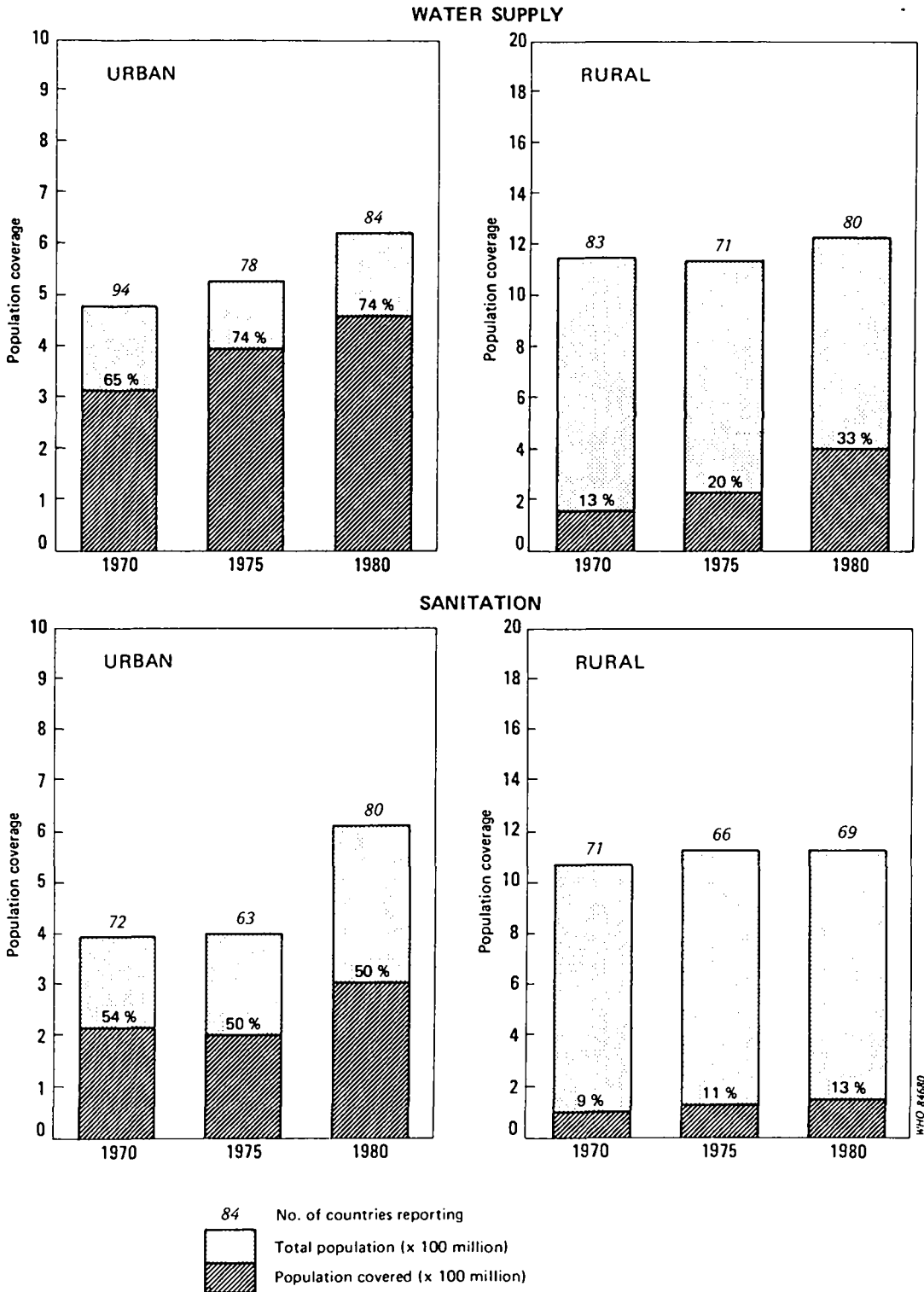
It can be seen from Table A.9 that Decade-oriented activities have been initiated in over one-third of the responding countries. Unfortunately the information received is too scanty to permit interregional comparisons; some comments on regional trends are included in the regional reviews in Part B, and information from the country digests is recorded in Tables 1.9 to 6.9. It is interesting to note that during 1980 the inhabitants of rural communities in 32 countries took part in building their own community water

supply and sanitation improvements. In 29 countries primary school children received instruction in the hygienic use of water and disposal of wastes, and in many countries this health education was universal. In 28 countries rural communities participated in operating their water supply and sanitation facilities and in 24 countries leaders of rural communities took part in planning water supply and sanitation improvements. In 19 countries water supply and sanitation facilities and services for urban poor populations were improved. The proportion of LDCs and MSAs in which such activities took place during 1980 was similar to the global average, except that village participation in construction was higher, taking place in more than half the responding countries.

Emphasis is also given, in the Decade plans, to adequate excreta disposal. In absolute numbers, the total of people to be provided with safe water supplies in 1990 is more than the number to be provided with sanitation facilities. However, as made clear in Tables A.4.1.1 to A.4.2.2, the growth required in sanitation coverage is greater in relation to the number of beneficiaries in 1980.

Fig. A.1 GLOBAL

POPULATION COVERAGE IN 1970, 1975 AND 1980^a

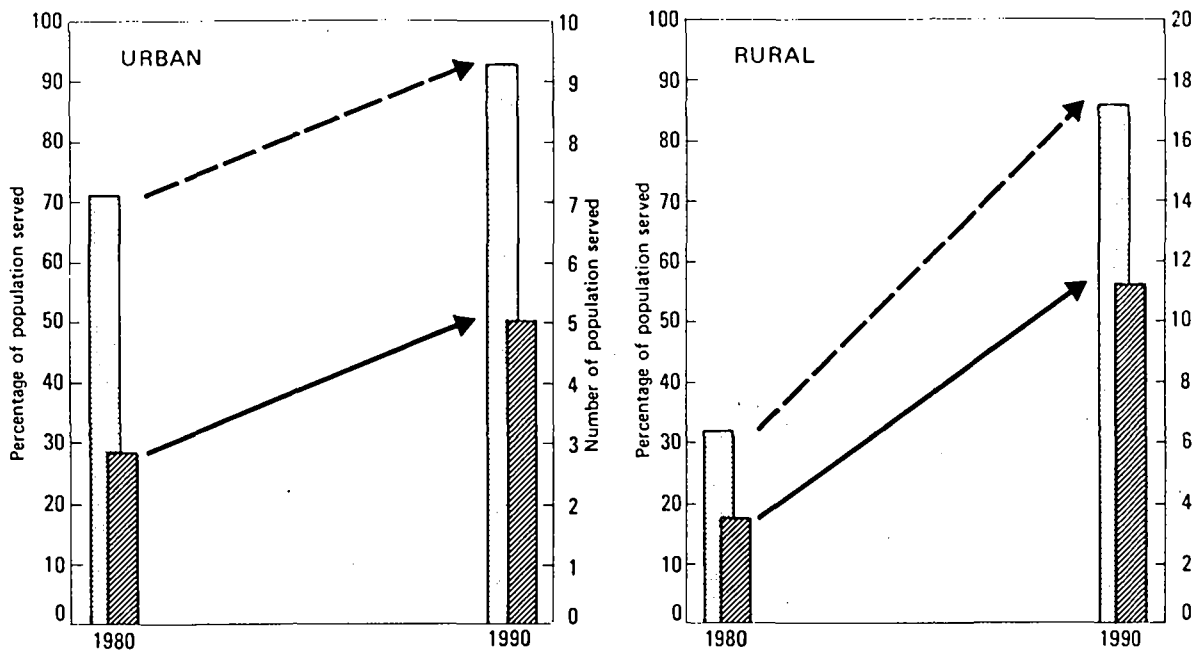


^a See Tables A.3.2 to A.3.5 and Section A.3.

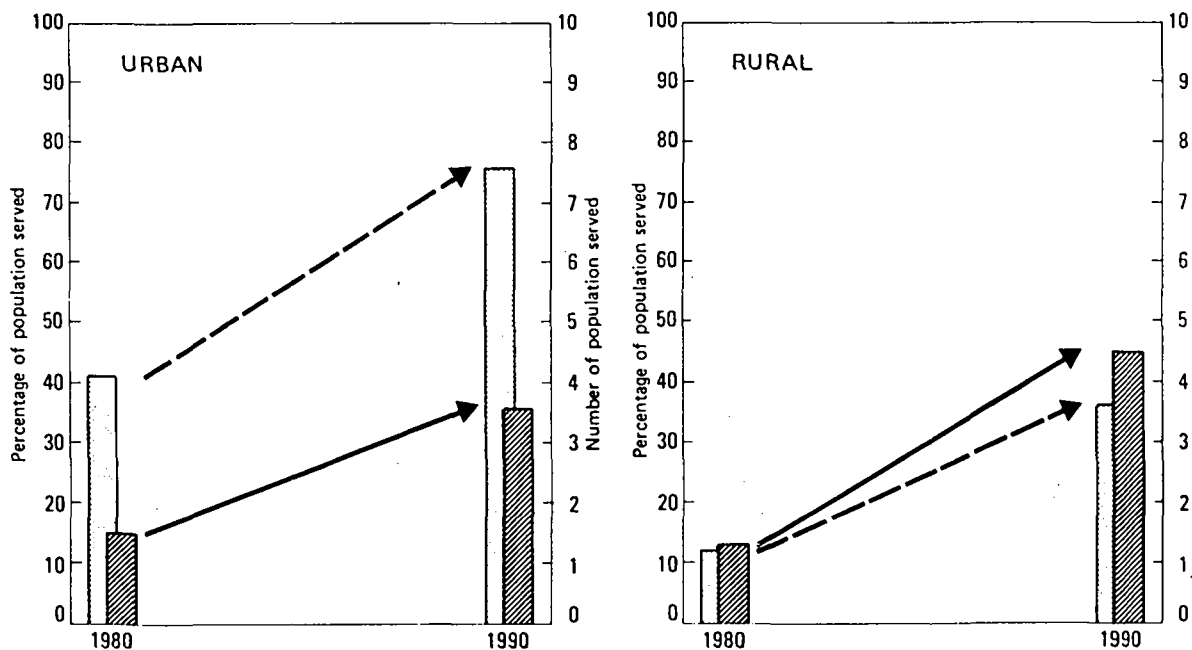
Fig. A.2 GLOBAL

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION
IN SELECTED COUNTRIES COMPARED WITH THE EXISTING COVERAGE IN 1980^a

WATER SUPPLY



SANITATION



Percentage of population served
 Number of population served (x 100 million)

WHO 84665

^a See Tables A.4.1.1, A.4.1.2, A.4.2.1 and A.4.2.2 and Section A.4.

TABLE A.1 - GLOBAL

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH

Region/ grouping	No. of responding countries/ territories	Estimated population increase 1980-1990:			No. of LDC and MSA countries		Number of countries with						
		Total (%)	Urban (%)	Rural (%)	LDC ^a	MSA ^b	Fresh water resources		Life expectancy under 50 years	Infant mortality over 100 per 1000 live births	Waterborne diseases in over 1% of population	50% or more population lacking safe water	50% or more population lacking adequate sanitation
							Very limited	Not well known					
Africa	22	36	73	26	15	17	3	7	17	12	11	16	17
Americas	21	25	32	10	0	4	3	5	0	3	6	5	9
South- East Asia	9	21	33	17	4	5	0	0	4	6	1	8	7
Europe	3	26	60	0	0	0	0	0	0	2	0	0	0
Eastern Mediterranean	12	31	44	24	4	5	6	5	4	6	4	5	5
Western Pacific	20	24	27	22	1	1	4	1	0	0	6	5	3
Totals	87				24	32	16	18	25	29	28	39	41
%							18	21	29	33	32	45	47
LDCs	24						5	12	20	18	10	20	16
MSAs	32						8	12	19	20	13	24	25

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

TABLE A.2 - GLOBAL

COVERAGE TARGETS AND DECADE PLANS

Region/ grouping	No. of countries with total coverage targets				No. of countries with low (50% or less) targets in rural areas		No. of countries that have prepared or are preparing formal Decade plans
	Urban water supply	Urban sanitation	Rural water supply	Rural sanitation	Water	Sanitation	
Africa	9	8	5	1	3	5	13
Americas	8	6	1	0	1	5	15
South-East Asia	2	2	1	0	2	7	9
Europe	2	1	2	1	0	0	2
Eastern Mediterranean	8	3	3	2	2	2	7
Western Pacific	12	8	6	3	0	1	12
TOTALS	41	28	18	7	8	20	58
%	48	33	21	8	9	23	67
LDCs ^a	10	14	7	3	5	8	16
%	42	58	29	13	21	33	67
MSAs ^b	13	10	7	2	7	11	23
%	41	31	22	6	22	34	72

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

TABLE A.3 - GLOBAL

1980 LEVELS OF SERVICE (populations in thousands; percentages shown in brackets)

Region	No. of reporting countries/territories	Population										
		Population			Population with drinking-water				Population with sanitation			
		Total	Urban	Rural	Total	Urban		Rural	Total	Urban		Rural
						by H.C. ^a	by P.S. ^b			by S.C. ^c	by other	
Africa	21	103 723	20 788 (20)	82 935 (80)	13 723 (66)	5 294 (29)	7 705 (37)	17 981 (22)	11 214 (54)	2 273 (11)	8 941 (43)	14 787 (20)
Americas	21	333 398	218 109 (65)	115 289 (35)	169 302 (78)	155 375 (71)	13 927 ^d (7)	48 628 ^e (42)	122 822 (56)	91 613 (42)	31 209 (14)	14 675 ^f (20)
South-East Asia		1 019 961	232 601 (23)	787 360 (77)	148 834 (64)	...	...	241 664 (31)	70 075 (30)	...	...	49 431 (6)
Europe	3	65 185	28 303 (43)	36 882 (57)	27 258 (96)	17 543 (62)	9 715 (34)	15 580 ^f (62)	11 239 ^f (57)	2 000 ^f (10)	9 000 ^f (46)	67 ^f (84)
Eastern Mediterranean	12	180 607	65 498 (36)	115 109 (64)	54 117 (83)	34 596 (53)	19 521 (30)	34 532 (30)	36 052 (57)	16 779 (42)	9 155 (46)	6 315 (7)
Western Pacific	20	165 075	66 397 (40)	98 678 (60)	45 446 (81)	43 089 (77)	...	40 075 (41)	51 905 (93)	9 459 (17)	42 528 (76)	62 221 (63)
Totals	86	1 867 949	631 696 (34)	1 236 253 (66)	458 680 (74)	...	...	398 460 (33)	303 307 (50)	...	...	147 496 (13)

^a H.C. = house connection.^b P.S. = public standpost.^c S.C. = sewer connection.^d Not all countries reported on urban public standposts.^e Several countries reported only on rural house connections.^f Not all countries for which population is given reported on this item, percentage quoted is based on population of reporting countries.^g Approximate percentage based on information from countries reporting on house and sewer connections.

TABLE A.3.1 - GLOBAL

PERCENTAGE COVERAGE IN 1970, 1975 AND 1980

WHO Region	Year	Urban water supply		Urban sanitation		Urban sanitation as percentage of urban water supply	Rural water supply	Rural sanitation	Rural sanitation as percentage of rural water supply
		House connection	Stand- post	Sewer	Other				
Africa	1970	33	33	8	39	71	13	23	177
	1975	37	31	15	60	110	21	28	133
	1980	29	37	11	43	85	22	20	91
Americas	1970	61	15	36	40	100	24	24	100
	1975	67	14	35	45	99	32	25	78
	1980	71	7	42	14	72	42	20	48
South-East Asia ^a	1970	46 ^b			33 ^b	72	8	4	50
	1975	63 ^b			31 ^b	49	17	4	24
	1980	64 ^b			30 ^b	47	31	6	19
Europe	1970	47	21	31	12	63	45	5	11
	1975	67	14	21	17	47	63	18	29
	1980	62	34	10 ^c	46 ^c	58	62	84 ^c	--
Eastern Mediterranean	1970	56	23	7	55	78	19	12	63
	1975	52	28	10	53	79	16	14	88
	1980	53	30	42	15	69	30	7	23
Western Pacific	1970	65	10	27	54	108	23	19	83
	1975	75	16	24	57	89	30	43	143
	1980	77	4	17	76	115	41	63	154

Sources: 1970 and 1975 data from World health statistics report, Vol. 29, No. 10 (1976). 1980 data from Decade baseline country digests.^a Corrected figures for SEARO countries.^b No breakdown given.^c Data from only one country.

TABLE A.3.2 - GLOBAL
COMPARISON OF COVERAGE AS OF 1970, 1975 AND 1980 - URBAN WATER SUPPLY

WHO Region	1970			1975			1980			Number of countries reporting		
	Urban pop. (000)	Urban coverage (000)	(%)	Urban pop. (000)	Urban coverage (000)	(%)	Urban pop. (000)	Urban coverage (000)	(%)	1970	1975	1980
Africa	20 823	13 743	66	21 971	14 940	68	20 788	13 723	66	28	20	21
Americas	157 261	119 518	76	181 130	146 715	81	218 109	169 302	78	25	25	21
South-East Asia	165 400	76 800	46	201 500	127 600	63	232 601	148 834	64	7	7	9
Europe	26 224	17 832	68	24 667	19 980	81	28 303	27 258	96	3	2	3
Eastern Mediterranean	67 039	52 961	79	57 840	46 272	80	65 498	54 117	83	20	15	12
Western Pacific	37 177	27 883	75	40 040	36 036	90	55 768	45 446	81	11	9	18
Total	473 924	308 737	65	527 148	391 543	74	621 067	458 680	74	94	78	84

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures: for 1980, Tables 1.3, 2.3, 3.3, 4.3, 5.3 and 6.3.

TABLE A.3.3 - GLOBAL

 COMPARISON OF COVERAGE AS OF 1970, 1975 AND 1980 - URBAN SANITATION

WHO Region	1970			1975			1980			Number of countries reporting		
	Urban pop. (000)	Urban coverage (000)	(%)	Urban pop. (000)	Urban coverage (000)	(%)	Urban pop. (000)	Urban coverage (000)	(%)	1970	1975	1980
Africa	19 021	8 940	47	20 179	15 134	75	20 788	11 214	54	22	16	20
Americas	115 854	88 049	76	59 929	47 943	80	218 109	122 822	56	19	17	21
South-East Asia	165 400	54 100	33	201 500	62 500	31	232 601	70 075	30	7	7	8
Europe	12 598	5 417	43	24 945	9 479	38	19 884	11 239	57	3	3	2
Eastern Mediterranean	44 642	27 678	62	54 451	34 304	63	63 608	36 052	57	12	12	11
Western Pacific	36 878	29 871	81	39 838	32 269	81	55 688	51 905	93	9	8	18
Total	394 393	214 055	54	400 842	201 629	50	610 678	303 307	50	72	63	80

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures: for 1980, Tables 1.3, 2.3, 3.3, 4.3, 5.3 and 6.3.

TABLE A.3.4 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975 AND 1980 - RURAL WATER SUPPLY

WHO Region	1970			1975			1980			Number of countries reporting		
	Rural pop. (000)	Rural coverage (000)	(%)	Rural pop. (000)	Rural coverage (000)	(%)	Rural pop. (000)	Rural coverage (000)	(%)	1970	1975	1980
Africa	97 731	12 705	13	97 890	20 557	21	82 935	17 981	22	24	19	20
Americas	119 521	28 685	24	74 131	23 722	32	115 289	48 628	42	25	23	20
South-East Asia	653 000	49 400	8	727 000	123 900	17	787 360	241 664	31	7	7	9
Europe	32 044	14 420	45	32 032	20 180	63	25 172	15 580	62	2	2	2
Eastern Mediterranean	168 432	32 002	19	149 781	23 965	16	115 109	34 532	30	18	13	12
Western Pacific	76 970	17 703	23	60 153	18 046	30	98 656	40 075	41	7	7	17
Total	1 147 698	154 915	13	1 140 987	230 370	20	1 224 521	398 460	33	83	71	80

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures: for 1980, Tables 1.3, 2.3, 3.3, 4.3, 5.3 and 6.3.

TABLE A.3.5 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975 AND 1980 - RURAL SANITATION

WHO Region	1970			1975			1980			Number of countries reporting		
	Rural pop. (000)	Rural coverage (000)	Rural coverage (%)	Rural pop. (000)	Rural coverage (000)	Rural coverage (%)	Rural pop. (000)	Rural coverage (000)	Rural coverage (%)	1970	1975	1980
Africa	80 417	18 496	23	94 604	26 498	28	74 335	14 787	20	20	17	18
Americas	112 596	27 023	24	63 592	15 898	25	73 268	14 675	20	24	21	16
South-East Asia	653 000	23 100	4	727 000	27 800	4	787 360	49 431	6	7	7	8
Europe	18 160	908	5	31 794	5 273	18	80	67	84	3	3	1
Eastern Mediterranean	130 150	15 618	12	146 536	20 515	14	92 412	6 315	7	10	11	9
Western Pacific	74 816	14 215	19	60 672	26 089	43	98 226	62 221	63	7	7	17
Total	1 069 139	99 360	9	1 124 198	122 523	11	1 125 681	147 496	13	71	66	69

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures: for 1980, Tables 1.3, 2.3, 3.3, 4.3, 5.3 and 6.3.

TABLE A.4.1.1 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1981-1990)^a - URBAN WATER SUPPLY

WHO Region	No. of selected countries ^a	% of total Regional population ^b	Urban population (millions) ^a		Urban coverage				Additional beneficiaries ^a (millions)	Ratio ^c
			1980	1990	1980		1990 target			
					No. (millions) ^a	(%)	No. (millions) ^a	(%)		
Africa	12	21	14	25	8	60	24	96	16	1.93
Americas	14	38	87	112	72	83	109	97	37	0.51
South-East Asia	8	98	233	309	149	64	274	89	125	0.84
Europe	-	-	-	-	-	-	-	-	-	-
Eastern Mediterranean	9	40	41	58	33	82	58	100	25	0.74
Western Pacific	12	41	30	38	23	78	38	100	15	0.63
Total	55	64	405	542	285	71	503	93	218	0.76

^a For those countries that provided the necessary data for 1980 coverage and 1990 targets.

^b Based on total population of developing countries/territories in the WHO Regions (excluding China).

^c Ratio of additional people to be served by 1990 to number served in 1980.

TABLE A.4.1.2 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1981-1990)^a - URBAN SANITATION

WHO Region	No. of selected countries ^a	% of total Regional population ^b	Urban population (millions) ^a		Urban coverage				Additional beneficiaries ^a (millions)	Ratio ^c
			1980	1990	1980		1990 target			
					No. (millions) ^a	(%)	No. (millions) ^a	(%)		
Africa	12	21	14	25	8	56	21	84	13	1.75
Americas	9	25	56	75	46	82	67	90	21	0.45
South-East Asia	8	98	233	309	70	30	225	73	155	2.21
Europe	-	-	-	-	-	-	-	-	-	-
Eastern Mediterranean	6	34	34	49	18	54	34	69	16	0.87
Western Pacific	9	10	8	10	7	93	10	100	3	0.42
Total	44	59	365	468	149	41	357	76	208	1.40

^a For those countries that provided the necessary data for 1980 coverage and 1990 targets.

^b Based on total population of developing countries/territories in the WHO Regions (excluding China).

^c Ratio of additional people to be served by 1990 to number served in 1980.

TABLE A.4.2.1- GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1981-1990)^a - RURAL WATER SUPPLY

WHO Region	No. of selected countries ^a	% of total Regional population ^b	Rural population (millions) ^a		Rural coverage				Additional beneficiaries ^a (millions)	Ratio ^c
			1980	1990	1980 No. (millions) ^a	1980 (%)	1990 target No. (millions) ^a	1990 target (%)		
Africa	12	21	57	72	14	25	58	81	44	3.13
Americas	17	55	70	79	28	40	53	67	25	0.90
South-East Asia	8	98	786	923	242	31	826	89	584	2.42
Europe	-	-	-	-	-	-	-	-	-	-
Eastern Mediterranean	10	54	100	124	33	33	90	73	57	1.75
Western Pacific	14	69	83	102	32	38	90	88	58	1.82
Total	61	71	1 096	1 300	349	32	1 117	86	768	2.20

^a For those countries that provided the necessary data for 1980 coverage and 1990 targets.

^b Based on total population of developing countries/territories in the WHO Regions (excluding China).

^c Ratio of additional people to be served by 1990 to number served in 1980.

TABLE A.4.2.2 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1981-1990)^a - RURAL SANITATION

WHO Region	No. of selected countries ^a	% of total Regional population ^b	Rural population (millions) ^a		Rural coverage				Additional beneficiaries ^a (millions)	Ratio ^c
			1980	1990	1980	1990 target				
					No.	No.				
		(millions) ^a	(%)	(millions) ^a	(%)	(millions)	(%)			
Africa	12	21	57	72	13	22	45	62	32	2.48
Americas	14	47	63	71	12	18	35	49	23	2.00
South-East Asia	8	98	786	923	49	6	261	28	212	4.29
Europe	-	-	-	-	-	-	-	-	-	-
Eastern Mediterranean	7	36	69	89	4	5	17	19	13	3.66
Western Pacific	11	67	83	102	49	60	91	90	42	0.85
Total	52	67	1 058	1 257	127	12	449	36	322	2.54

^a For those countries that provided the necessary data for 1980 coverage and 1990 targets

^b Based on total population of developing countries/territories in the WHO Regions (excluding China).

^c Ratio of additional people to be served by 1990 to number served in 1980.

TABLE A.5 - GLOBAL

STAFF AND TRAINEES

Region/ grouping	Total staff employed per million population median of national figures 1980	Total projected trainees per million population median of national figures 1980 - 1990	Ultimate projected staff per million population 1990
Africa	268	374	642
Americas	590	618	1 208
South-East Asia	25	77	102
Europe	2 709 ^c	9 ^d	2 718
Eastern Mediterranean	750	163	913
Western Pacific	467	636	1 103
LDCs ^a	229	302	531
MSAs ^b	270	163	433

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

^c Figures available from two countries.

^d Figures available from one country.

TABLE A.6 - GLOBAL

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³):
 MEDIAN VALUES OF NATIONAL AVERAGES

Region/ grouping	Construction				Operation					
	Urban water supply		Urban sanitation		Rural water supply	Rural sani- tation	Average cost of water	Average water tariff	% of countries	
	House connec- tion	Stand- post	Sewer connec- tion	Other means					Where average tariff exceeds average cost	With pro- gressive tariff
Africa	100	46	150	53	32	15	0.40	0.25	27	50
Americas	125	62	165	62	88	30	0.20	0.21	27	76
South-East Asia	55	4 ^c	63	15	18	9	0.10	0.12	0	88
Europe	100	77 ^c	150 ^c	50 ^c	93	...	0.35	0.28	50	100
Eastern Mediterranean	250	102	530	365	112	100	0.80	0.13	0	60
Western Pacific	80	20	220	50	26	5	0.16	0.19	64	63
LDCs ^a	100	40	150	52	29	18	0.40	0.30	31	56
MSAs ^b	100	60	150	61	40	15	0.30	0.20	29	56

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

^c Data available from only one country.

TABLE A.7 - GLOBAL

INCREASE IN INVESTMENT RATE NEEDED TO MEET DECADE TARGETS SET BY COUNTRIES

Region/Grouping	Multiplication factor		
	Minimum	Median	Maximum
Africa	1.3	4.3	294.0
Americas	1.2	2.6	5.2
South-East Asia	3.2	4.2	41.0
Europe		...	
Eastern Mediterranean		2.9 ^c	
Western Pacific	0.3	1.5	5.8
LDCs ^a	0.9	5.3	294.0
MSAs ^b	0.9	4.0	294.0

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

^c Data available from only one country.

TABLE A.8 - GLOBAL

RANKING AND FREQUENCY OF CONSTRAINTS (NUMBER OF REPORTING COUNTRIES: 87)

Constraints	No. of countries indicating constraint			Ranking index ^a
	Very severe	Severe	Moderate	
Insufficiency of trained personnel (professional)	16	40	27	155
Funding limitations	21	31	30	155
Insufficiency of trained personnel (sub-professional)	16	38	29	153
Operation and maintenance ^b	16	36	23	143
Logistics ^b	11	35	23	126
Inadequate cost-recovery framework	11	34	22	123
Inappropriate institutional framework	6	30	35	113
Insufficient health education efforts	7	24	43	112
Intermittent water service	10	19	32	100
Lack of planning and design criteria	6	17	41	93
Non-involvement of communities	6	15	44	92
Inadequate or outmoded legal framework	10	14	34	92
Inappropriate technology	5	18	33	84
Insufficient knowledge of water resources	1	20	39	82
Inadequate water resources	5	11	40	77
Lack of definite government policy for sector	4	10	44	76
Import restrictions	5	12	21	60

^a Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

^b "Logistics" is ranked ahead of "Operation and maintenance" in the group of Least Developed Countries.

TABLE A.9 - GLOBAL

DECADE APPROACHES DURING 1980

Region/ grouping	Number of countries				
	With improved services for urban poor	Where rural communities participated in improvements to water supply and sanitation facilities			Where primary school children received health education
		Planning	Building	Operating	
Africa	10	9	13	10	7
Americas	5	4	8	8	5
South-East Asia	3	1	2	1	3
Europe	1	...	...	1	2
Eastern Mediterranean	1	3	3	3	5
Western Pacific	1	9	9	8	7
Totals	19	24	32	28	29
%	23	29	39	34	35
LDCs ^a	10	11	16	12	5
%	42	46	67	50	21
MSAs ^b	12	12	18	14	10
%	38	38	56	44	31

^a LDC = Least Developed Country.

^b MSA = Most Seriously Affected Country.

B. REGIONAL REVIEWS

1 AFRICAN REGION

1.1 Socioeconomic and health situation

Twenty-two of the Region's countries submitted information on their Decade baseline status^a. These countries are representative of various geographical, climatic and economic situations. Their population is expected to increase by 36% during the Decade, rural areas by 26% and urban areas by 73%. Fifteen of these countries are classified by the United Nations as least developed countries and 17 as most seriously affected countries. The per capita gross national product varies from US\$150 to US\$1000. Three countries have very severe or severe water resource shortages and four others have serious lack of knowledge of their fresh-water resources.

Only three of the responding countries have an average life expectancy of more than 50 years and 12 of them have infant mortality rates of over 100 per 1000 live births. Five countries have over 5% of their population afflicted with waterborne diseases. These conditions are believed to be due at least in part to the high proportion of the population lacking safe drinking water and adequate excreta disposal facilities. Over half the inhabitants in 18 out of 20 responding countries lack such facilities.

1.2 Targets and planning

Progress during 1970-1980 appears to have been rather uneven (Tables A.3.1 to A.3.5 and Fig. 1.1 refer). The overall percentage of the population covered remained substantially the same for urban water supply, while it increased by 7% for urban sanitation and by 9% for rural water supply but declined by 3% for rural sanitation. If however, the comparison is made for the 5-year period 1975-1980, a very small increase in percentage coverage occurred only as regards rural water supply, whereas there was a decrease in all other subsectors and especially in urban sanitation (-21%) and rural sanitation (-8%). It must be noted, however, that the data used to prepare Fig. 1.1 were based on different numbers of reporting countries in 1970, 1975 and 1980; in 1970, 28 countries reported on urban water supply, 24 on rural water supply, 22 on urban and 20 on rural sanitation. In 1975 these numbers decreased to 20, 19, 16 and 17 countries respectively, and in 1980 they were 21, 20, 20 and 18. Also, some reporting may have been incomplete in some cases and the concept of adequate water supply and sanitation may have changed in a number of countries during that decade. It should also be borne in mind that the rate of population increase has been much larger in urban than in rural areas causing significant shifts in the ratios of urban to rural population, and that in some cities the total population covered may have increased while the percentage covered decreased.

Information regarding 1980 coverage and 1990 targets for all 4 subsectors has been provided by 12 countries with 69% (71 million people) of the total population of the 22 reporting countries (21% of the total regional population) and is presented in Fig. 1.2. Since these data were provided by the same countries and for the same periods, they should permit a more valid comparison and analysis. Fig. 1.2 shows the targets in terms of both the number of persons to be covered and the percentages.

The achievement of the plans and targets as established by the various countries implies a considerable effort by governments, communities and individuals, the magnitude of which may be appreciated from Tables A.4 (Global), 1.2, 1.3 and 1.4. As shown on Fig. 1.2, urban water supply coverage would have to increase from 60% to 96% during the Decade - providing service for 24.3 million people in 1990 instead of 8.3 million in 1980. This would

^a The 22 countries which submitted information on their Decade baseline status represent some 104 million people or 31% of the 336 million living in the Region's member states and territories at the end 1980.

mean that there would be 16 million additional beneficiaries, 1.93 times the number covered in 1980. For rural water supply, the target of 81% coverage by 1990 would mean more than 44 million additional beneficiaries, 3.13 times the number served in 1980 (58.2 million people to be served in 1990 as compared with 14.1 million in 1980). Fig. 1.2 also shows that for urban sanitation the established target is 84% coverage by 1990 representing an additional 13.5 million beneficiaries, 1.75 times the number of people covered in 1980. Finally, for rural sanitation the target of 62% coverage in 1990 implies 32 million new beneficiaries, 2.48 times the number of people served in 1980.

The figures given above show that, the countries of the Africa Region are responding to the challenge of the Decade in a determined fashion and thirteen countries have prepared or are preparing formal Decade plans. However, seventeen countries have still not established definite government policies in these sectors, and virtually all countries lack satisfactory legal instruments for carrying out their programmes of construction and operation.

1.3 Staff and training

Staff now employed and additional staff which should be employed and trained in order to carry out envisaged Decade activities are shown by country in Table 1.5. There is a wide variation in the proportion of managers, technical staff, craftsmen, administrative staff and community-based staff in different countries, which may be accounted for by different organizational arrangements; however, the overall strength of staffing to plan or guide the design, building and operation of urban and rural water supply and sanitation facilities throughout the countries may be compared in relation to population. Of the 16 countries that gave figures for presently employed staff, the largest staff per million inhabitants is in Mauritania (798 staff members) and the smallest is in Niger (10 staff members), the median being 268. In terms of new staff to be employed and trained during the Decade the range is from 94 in Niger to 2553 in Sierra Leone, with a median of 374.

Human resources development has been stressed in many African countries during the past five years; a regional association of water supply agencies is being formed and both country and intercountry training facilities are being developed.

1.4 Financial Resources

Table 1.6 gives the average unit costs of building new facilities and of operating water systems in the responding countries, together with some tariff information. Urban water supplies cost as little as US\$2 per capita supplied through public standposts in Guinea and as much as US\$470 per capita supplied by house connections in Mauritania; the median costs are US\$46 by standpost and US\$100 by house connection. In 10 countries progressive tariffs have been introduced to encourage economy by large users and permit some subsidy of poor users; nevertheless only four countries report that average tariffs exceed average production costs - Upper Volta, Senegal, Guinea and Benin.

The median costs for urban sanitation are US\$150 (sewers) and US\$53 (other means). In individual countries unit costs range from US\$14 per capita for urban sewerage systems in Cape Verde to US\$300 in Ghana; for alternative sanitation facilities from US\$6 in Cape Verde to US\$370 in Rwanda.

Rural systems also show a wide variation in cost. Rural water supply costs from US\$10 per capita in Rwanda to US\$246 in Mali with a median value of US\$32; rural sanitation costs from US\$5 in Togo and Benin to US\$45 in Mali, with a median of US\$15.

The total cost to reach Decade targets reported by 10 countries is shown in Table 1.7. These estimates are compared with actual 1980 sector investments for seven countries as a means of estimating the investment increase needed to meet the cost. The results range from 1.3 times 1980 investments in Benin to 294 times in Mali, with a median value of 4.3. The proportion of external aid in total sector investment in 1980 was reported by

14 countries with figures ranging from a low of 21% to a high of 100% and a median value of 49%. All African countries consider funding to be a major obstacle in sector development, nine of them classifying it as very severe: 18 countries have problems with cost recovery, three of them, Angola, Malawi and Sierra Leone, classifying them as very severe.

1.5 Decade approaches

Information was requested from countries in their sector digests especially on three Decade-oriented activities: improved services for the urban poor, enlistment of rural communities' participation in the improvement of their own facilities, and health education for primary school children on the hygienic use of water and disposal of wastes. Table 1.9 compared with the first column of Table 1.4 shows that poor populations comprise from 10% to 80% (median value: 48%) of the total urban population in African countries. Ten countries indicated that action was taken during 1980 to improve water supply and sanitation facilities for these poor populations, with, however, only a small proportion of them benefiting from these actions.

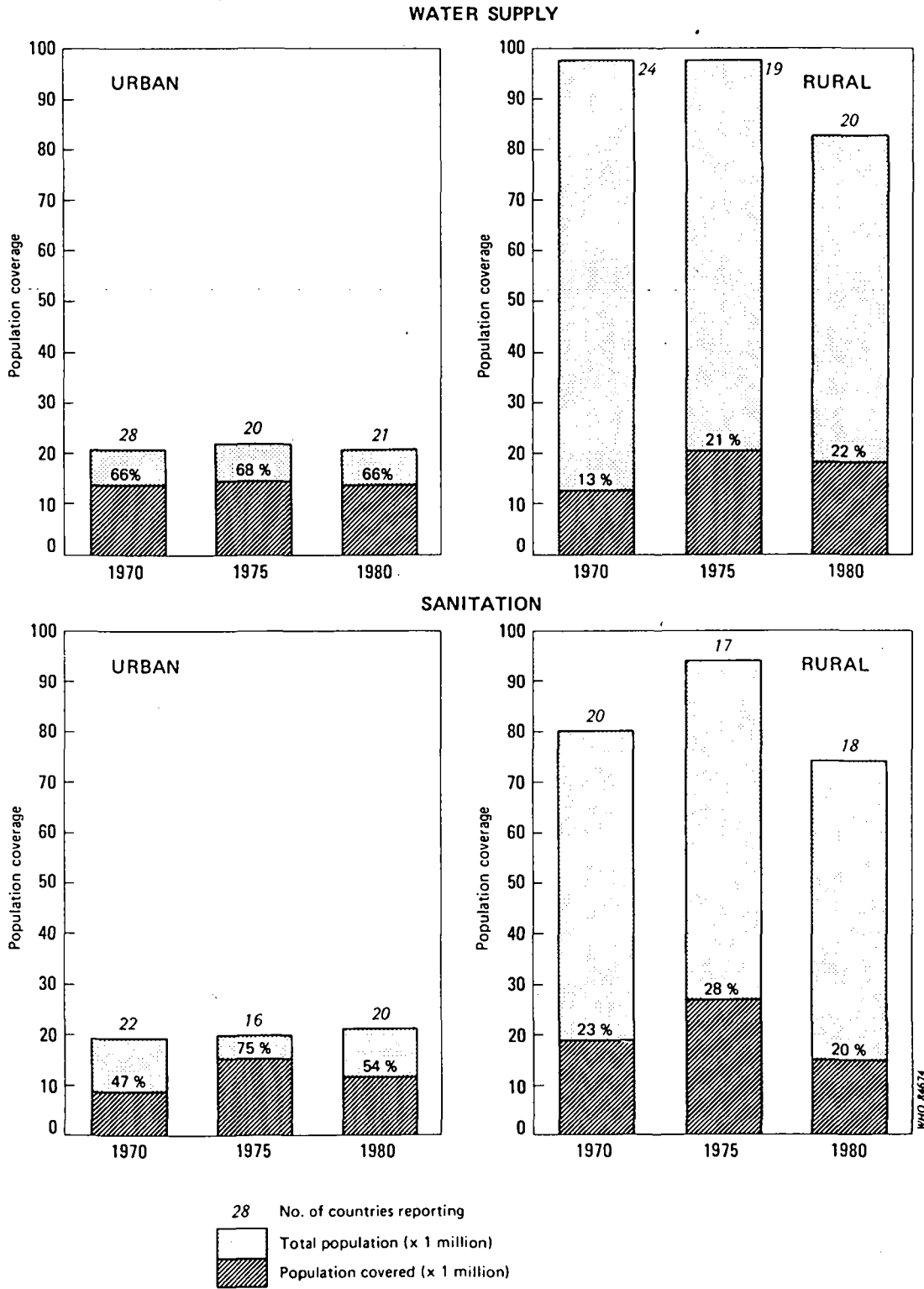
Thirteen countries reported that rural communities participated in building new water and sanitation works, 10 of them reported that local citizens also took part in operating them and nine that participation extended to planning. The number of participating communities ranged from 10 in Cape Verde to over 4000 in Malawi.

Seven countries reported that health education relating to the hygienic use of water and handling of wastes is given to primary school children. In Kenya and Angola, all primary school children benefited; elsewhere the figure was only about 5%.

Among major constraints to sector development, five countries mentioned insufficient community participation and seven mentioned insufficient health education.

Fig. 1.1 AFRICAN REGION

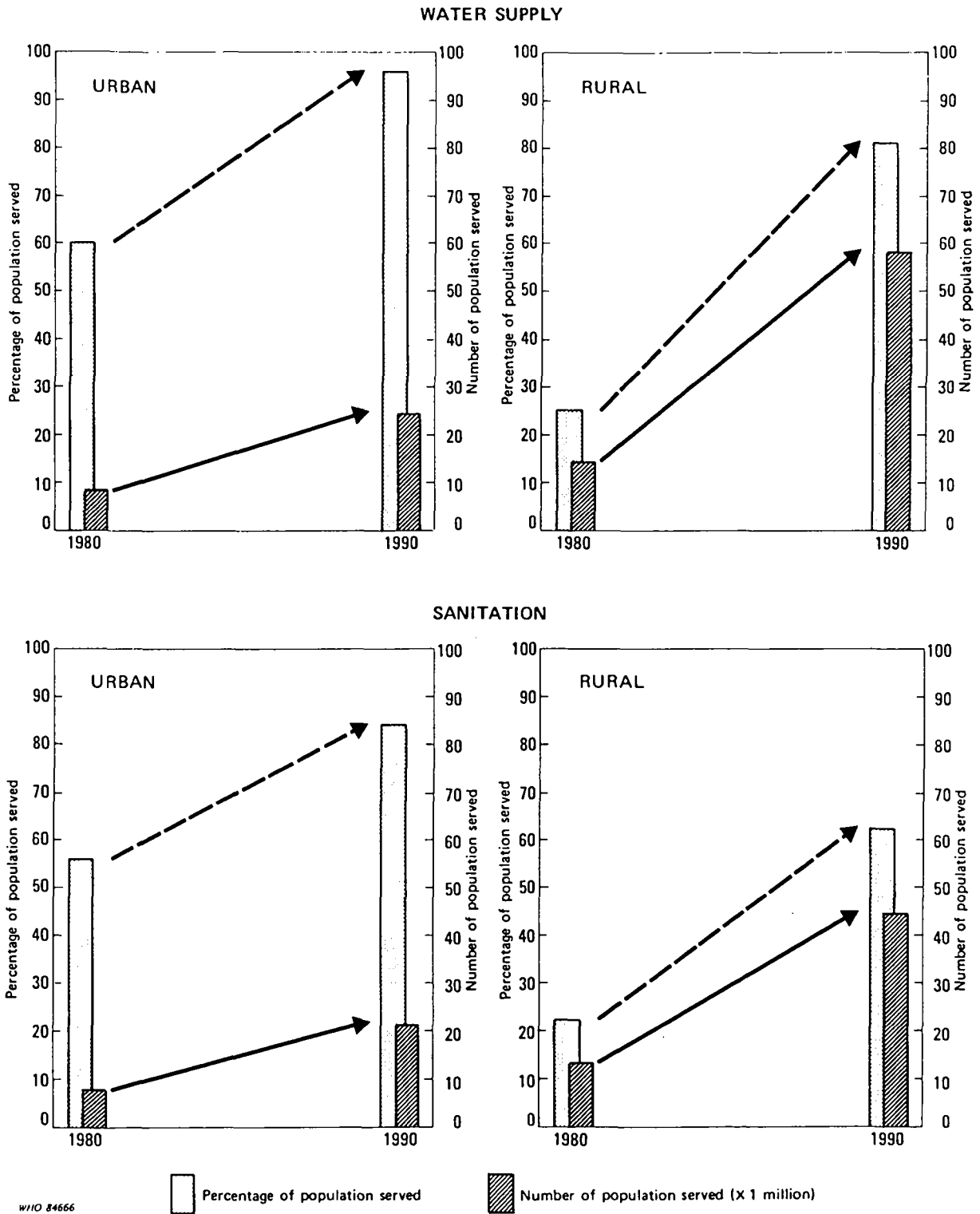
POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2 to A.3.5 and Section 1.2.

Fig. 1.2 AFRICAN REGION

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN 12 SELECTED COUNTRIES COMPARED WITH EXISTING COVERAGE IN 1980^a



^a See Tables 1.4.1 and 1.4.2 and Section 1.2.

TABLE 1.1 AFRICAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH 1980

Country / Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Waterborne diseases: cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Kenya ^b	15 900	3.5	380	54	112	...	74	70
Ghana ^b	11 573	2.9	400	37	156	...	53	73
Madagascar ^b	8 740	2.8	350	46	73	7 690	79	91
Angola	7 900	2.5	440	41	100	4 690	79	81
Mali ^{a, b}	7 204	2.8	148	40	...	4 600	94	87
Upper Volta ^{a, b}	6 129	2.0	190	34	190	2 200	70	90
Malawi ^a	6 007	2.6	178	42	142	92	59	17
Senegal ^b	5 728	2.8	430	44	92	360	58	67
Niger ^{a, b}	5 534	2.8	270	42	200	2 500	67	93
Rwanda ^{a, b}	5 185	3.7	180	46	44	5 400	46	49
Guinea ^{a, b}	5 017	2.7	280	47	156	...	83	87
Burundi ^{a, b}	4 214	2.5	180	45	126	2 000	76	65
Benin ^{a, b}	3 540	...	257	46	350	...	80	76
Sierra Leone ^{a, b}	3 161	2.5	250	47	225	15 400	84	87
Togo ^a	2 500	2.7	380	46	91	...	58	86
Mauritania ^b	1 443	2.5	320	42	...	8 200	16	99
Lesotho ^{a, b}	1 300	2.3	459	50	114	30	86	86
Mauritius	957	2.0	1 024	...	...	...	1	6
Guinea-Bissau ^{a, b}	795	2.1	170	40	200	3 880	90	85
Gambia ^{a, b}	601	2.6	230	41	217	...	...	...
Cape Verde ^{a, b}	296	0.8	262	61	60	7 160	50	81
Sao Tome and Principe ^a	95	2.7	296	57	70	...	...	...

^a Least Developed Country (LDC)^b Most Seriously Affected Country (MSA)

TABLE 1.2 AFRICAN REGION

COVERAGE TARGETS (% of population) (1990) AND DECADE PLANS

Country/ Territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Stand post	Sewer connection	By other means			
Kenya	90	10	71 ^a		60	43	1983
Ghana	42	58	0	80	78	78	1982
Madagascar	...	...	...	...	...	...	None
Angola	...	...	...	...	...	...	None
Mali	75	25	100 ^a		60	50	None
Upper Volta	34	37	25	52	100	38	1982
Malawi	67	33	7	93	100	80	None
Senegal	42	50	...	...	...	...	1981
Niger	60	40	20	80	100	100	1983
Rwanda	50	50	62	38	100	80	None
Guinea	27	50	16	39	22	...	1980
Burundi	59	39	40	60	90	70	1982
Benin	32	48	20	60	100	43	1983
Sierra Leone	70	30	18	82	70	50	1981
Togo		100 ^a		100 ^a	91	80	1982
Mauritania	...	...	...	...	...	...	None
Lesotho	89	11	20	80	26	...	1982
Mauritius	...	...	...	...	...	...	In preparation
Guinea-Bissau	...	...	...	...	...	...	None
Gambia	32	63	...	44	15	...	In preparation
Cape Verde	70	19	56	28	60	60	None
Sao Tome and Principe	...	...	...	...	...	...	...

^a No breakdown given.

TABLE 1.3 AFRICAN REGION

1980 LEVELS OF SERVICE (Populations in thousands; percentages shown in brackets)

Country/ Territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Urban		Rural	Urban			Rural	
				Total	by H.C. ^a		by P.S. ^b	Total	by S.C. ^c		by other
Kenya	15 900	2 414 (15)	13 486 (85)	2 051 (85)	1 436 (59)	615 (26)	2 055 (15)	2 140 (89)	1 180 (49)	960 (40)	2 590 (19)
Ghana	11 573	4 164 (36)	7 409 (64)	3 015 (72)	1 100 (26)	1 915 (46)	2 439 (33)	1 940 (47)	160 (4)	1 780 (43)	1 226 (17)
Madagascar	8 740	1 720 (20)	7 020 (80)	1 380 (80)	330 (19)	1 050 (61)	500 (7)	150 (9)	60 (4)	90 (5)	...
Angola	7 900	1 200 (15)	6 700 (85)	1 020 (85)	360 (30)	660 (55)	670 (10)	480 (40)	240 (20)	240 (20)	1 000 (15)
Mali	7 204	1 210 (17)	5 994 (83)	451 (37)	248 (20)	203 (17)	8 (0)	955 (79)	10 (1)	945 (78)	6 (0)
Upper Volta	6 129	930 (15)	5 199 (85)	255 (27)	155 (16)	100 (11)	1 612 (31)	349 (38)	0 (0)	349 (38)	260 (5)
Malawi	6 007	576 (10)	5 431 (90)	443 (77)	307 (53)	136 (24)	1 995 (37)	576 (100)	90 (16)	486 (84)	4 400 (81)
Senegal	5 728	1 810 (32)	3 918 (68)	1 400 (77)	600 (33)	800 (44)	980 (25)	1 811 (100)	91 (5)	1 720 (95)	79 (2)
Niger	5 534	701 (13)	4 833 (87)	286 (41)	203 (29)	83 (12)	1 547 (32)	252 (36)	...	252 (36)	145 (3)
Rwanda	5 185	233 (4)	4 952 (96)	112 (48)	70 (30)	42 (18)	2 700 (55)	140 (60)	0 (0)	140 (60)	2 500 (50)
Guinea	5 017	1 117 (22)	3 900 (78)	769 (69)	180 (16)	589 (53)	90 (2)	600 (54)	145 (13)	455 (41)	40 (1)
Burundi	4 214	219 (5)	3 995 (95)	197 (90)	49 (22)	148 (68)	799 (20)	88 (40)	18 (8)	70 (32)	1 393 (35)

Benin	3 540	1 580 (45)	1 960 (55)	413 (26)	165 (10)	248 (16)	300 (15)	760 (48)	0 (0)	760 (48)	80 (4)
Sierra Leone	3 161	923 (29)	2 238 (71)	462 (50)	185 (20)	277 (30)	45 (2)	284 (31)	7 (1)	277 (30)	134 (6)
Togo	2 500	700 (28)	1 800 (72)	490 (70)	100 (14)	390 (56)	565 (31)	170 (24)	0 (0)	170 (24)	180 (10)
Mauritania	1 443	354 (25)	1 089 (75)	283 (80)	71 (20)	212 (60)	925 (85)	18 (5)	18 (5)	...	...
Lesotho	1 300	150 (12)	1 150 (88)	55 (37)	36 (24)	19 (13)	126 (11)	20 (13)	15 (10)	5 (3)	162 (14)
Mauritius	957	410 (43)	547 (57)	410 (100)	287 (70)	123 (30)	536 (98)	410 (100)	225 (55)	185 (45)	492 (90)
Guinea-Bissau	794	159 (20)	635 (80)	29 (18)	17 (11)	12 (7)	49 (8)	34 (21)	2 (1)	32 (20)	81 (13)
Gambia	601 ^a	110 (18)	491 (82)	94 (85)	...	...	...	...	...	...	...
Cape Verde	296	108 (36)	188 (64)	108 (100)	25 (23)	83 (77)	40 (21)	37 (34)	12 (11)	25 (23)	19 (10)
Total	103 723	20 788 (20)	82 935 (80)	13 723 (66)	5 924 (29)	7 705 (37)	17 981 (22)	11 214 (54)	2 273 (11)	8 941 (43)	14 787 (20)

- a H.C. = house connection.
b P.S. = public standpost.
c S.C. = sewer connection.

TABLE 1.4 AFRICAN REGION

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country/ Territory	Urban population	Water supply		Sanitation		Rural population	Safe water	Adequate sanitation
		House connection	Stand post	Sewer connection	Other means			
Kenya	2 414	1 436	615	1 180	960	13 486	2 055	2 590
	6 119	5 507	612		4 325 ^a	19 193	11 516	8 300
Ghana	4 164	1 100	1 915	160	1 780	7 409	2 439	1 226
	6 922	2 922	4 000	0	5 540	8 937	7 000	7 000
Madagascar	1 720	300	1 050	60	90	7 020	500	...
	2 360	...	...	...	...	9 114	...	...
Angola	1 200	360	660	240	240	6 700	670	1 000

Mali	1 210	248	203	10	945	5 994	8	6
	1 957	1 467	490		1 957 ^a	7 043	4 226	3 522
Upper Volta	930	155	100	0	349	5 199	1 612	260
	1 305	449	481	331	683	6 292	6 292	2 391
Malawi	576	307	136	90	486	5 431	1 995	4 400
	1 080	726	354	80	1 000	6 500	6 500	5 200
Senegal	1 810	600	800	91	1 720	3 918	980	79
	2 883	1 200	1 450	...	...	4 832	...	...
Niger	701	203	83	0	252	4 833	1 547	145
	1 550	930	620	310	1 240	5 739	5 739	5 739
Rwanda	233	70	42	0	140	4 952	2 700	2 500
	322	161	161	200	122	6 828	6 828	5 463
Guinea	1 117	180	589	145	455	3 900	90	40
	1 575	420	790	250	610	4 995	1 080	...
Burundi	219	49	148	18	70	3 995	799	1 393
	351	206	137	140	210	4 918	4 425	3 442
Benin	1 580	165	248	0	760	1 960	300	80
	2 952	945	1 417	590	1 771	1 703	1 700	736
Sierra Leone	923	185	277	7	277	2 238	45	134
	1 485	1 040	446	265	1 220	2 595	1 817	1 298

Togo	700	100	390	0	170	1 800	565	180
	1 020		1 020 ^a		1 020 ^a	2 300	2 100	1 840
Mauritania	354	71	212	18	0	1 089	925	...
	578	...	...	...	...	1 274	...	...
Lesotho	150	36	19	15	5	1 150	126	162
	214	190	24	42	172	1 590	410	...
Mauritius	410	287	123	225	185	547	536	492

Guinea-Bissau	159	17	12	2	32	635	49	81
	244	...	...	...	...	734	...	...
Gambia	110		94 ^a	...	...	491	...	...
	158	50	100	0	70	619	90	...
Cape Verde	108	25	83	12	25	188	40	19
	180	126	35	100	50	153	92	92
Sao Tome and Principe	...	...	...	...	...	...	...	...

^a No breakdown given.

Table 1.4.1 AFRICAN REGION

DECADE TARGETS FOR URBAN WATER SUPPLY AND SANITATION

Country/Territory	Urban population (000)		Water Supply				Sanitation			
	Urban population (000)		Population covered (000)				Population covered (000)			
	1980	1990	1980	%	1990	%	1980	%	1990	%
Kenya	2 414	6 119	2 051	85	6 119	100	2 140	89	4 325	71
Ghana	4 164	6 922	3 015	72	6 922	100	1 940	47	5 540	80
Mali	1 210	1 957	451	37	1 957	100	955	79	1 957	100
Upper Volta	930	1 305	255	27	930	71	349	38	1 014	78
Malawi	576	1 080	443	77	1 080	100	576	100	1 080	100
Niger	701	1 550	286	41	1 550	100	252	36	1 550	100
Rwanda	233	322	112	48	322	100	140	60	322	100
Burundi	219	351	197	90	343	98	88	40	350	100
Benin	1 580	2 952	413	26	2 362	80	760	48	2 361	80
Sierra Leone	923	1 485	462	50	1 486	100	284	31	1 485	100
Togo	700	1 020	490	70	1 020	100	170	24	1 020	100
Cape Verde	108	180	108	100	161	89	37	34	150	83
Total	13 758	25 243	8 283	60	24 253	96	7 691	56	21 154	84
Additional people to be covered by 1990					15 970				13 463	
Ratio of additional people to be served by 1990 to number served in 1980					1.93:1				1.75:1	

Table 1.4.2 AFRICAN REGION

DECADE TARGETS FOR RURAL WATER SUPPLY AND SANITATION

<u>Country/Territory</u>	<u>Rural population</u>		<u>Water Supply</u>				<u>Sanitation</u>			
			<u>Population covered (000)</u>				<u>Population covered (000)</u>			
	1980	1990	1980	%	1990	%	1980	%	1990	%
Kenya	13 486	19 193	2 055	15	11 516	60	2 590	19	8 300	43
Ghana	7 409	8 937	2 439	33	7 000	78	1 226	17	7 000	78
Mali	5 994	7 043	8	0	4 226	60	6	0	3 522	50
Upper Volta	5 199	6 292	1 612	31	6 292	100	260	5	2 391	38
Malawi	5 431	6 500	1 995	37	6 500	100	4 400	81	5 200	80
Niger	4 833	5 739	1 547	32	5 739	100	145	3	5 739	100
Rwanda	4 952	6 828	2 700	55	6 828	100	2 500	50	5 463	80
Burundi	3 995	4 918	799	20	4 425	90	1 393	35	3 442	70
Benin	1 960	1 703	300	15	1 700	100	80	4	736	43
Sierra Leone	2 238	2 595	45	2	1 817	70	134	6	1 298	50
Togo	1 800	2 300	565	31	2 100	91	180	10	1 840	80
Cape Verde	188	153	40	21	92	60	19	10	92	60
Total	57 485	72 201	14 105	25	58 235	81	12 933	22	45 023	62
Additional people to be covered by 1990			44 130				32 090			
Ratio of additional people to be served by 1990 to number served in 1980			3.13:1				2.48:1			

TABLE 1.5 AFRICAN REGION

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/ Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community- based	Totals per million population
Kenya	160	1 000	7 000	...	4 219	779
	400	1 300	10 000	...	...	736
Ghana	22	1 476	2 043	61	...	311

Madagascar	...	...	...	...	...	...

Angola	8	65	338	200	1 350	248

Mali	38	201	77	...	...	44

Upper Volta	5	139	159	31	...	54
	7	208	478	109	...	131
Malawi	58	485	1 200	98	...	307
	40	250	1 500	25	...	302
Senegal	17	111	473	29	...	110
	22	...	...	...	...	...
Niger	5	8	40	...	...	10
	55	114	350	...	...	94
Rwanda	19	68	538	47	134	155

Guinea	1	25	240	8	...	55
	1	1	2	...	...	...
Burundi	...	...	...	...	...	...
	20	200	300	150	1 200	444
Benin	4	30	150	28	600	229
	11	53	330	22	5 300	1 615
Sierra Leone	2	280	451	120	600	460
	3	466	250	100	7 250	2 553
Togo	9	319	311	79	...	287
	...	350	369	38	...	303

Mauritania	2	39	1 111	...	...	798

Lesotho	6	75	100	70	190	339

Mauritius	...	...	...	...	...	...

Guinea-Bissau	1	46	277	18	13	447

Gambia	...	...	...	...	...	...

Cape Verde	...	...	...	...	...	...

Sao Tome and Principe	...	...	...	...	...	...

TABLE 1.6 AFRICAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³)

Country/ Territory	Construction				Operation				
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand- post	Sewer connection	Other means					
Kenya	130	65	165	...	93	...	0.30	0.25	some
Ghana	100	80	300	160	80	...	0.30	0.20	no
Madagascar	90	40	110	30	35	16	...	0.26	no
Angola	90	...	75	40	25	8	...	0.10	no
Mali	425	...	89	...	246	45	0.24	0.18	some
Upper Volta	100	40	150	25	25	20	0.23	0.40	yes
Malawi	75	40	...	250	15	10	0.45	0.31	some
Senegal	...	...	...	...	...	...	0.40	0.46	yes
Niger	143	52	175	53	40	...	...	...	yes
Rwanda	100	30	...	370	10	15	0.65	0.22	no
Guinea	27	2	...	...	21	...	0.40	0.50	no
Burundi	...	...	...	...	...	...	0.39	0.29	no
Benin	100	25	150	50	20	...	0.30	0.33	no
Sierra Leone	350	300	...	300	60	30	0.80	0.20	no
Togo	95	...	...	20	29	5	0.66	0.31	yes
Mauritania	470	...	...	88	50	...	...	...	some
Lesotho	400	200	166	70	100	25	1.00	0.33	no
Mauritius	...	...	...	...	...	...	0.25	0.20	yes
Guinea-Bissau	...	...	...	...	...	...	...	0.15	no
Gambia	...	...	...	...	...	...	...	...	yes
Cape Verde	36	13	14	6	26	7	1.84	0.16	...
Sao Tome and Principe	...	...	...	...	...	...	...	...	...
Median	100	46	150	53	32	15	0.40	0.25	

TABLE 1.7 AFRICAN REGION

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country/ Territory	Estimated 10-year cost to reach country Decade targets (US\$ million)	1980 Sector investments			Rate of investment increase needed (1980 level)
		Total (US\$ million)	Percentage of total development investment	External (US\$ million)	
Kenya	1 536 ^a	21	...	5.1	7.3 ^a
Ghana	840	32	6.0	9	2.6
Madagascar	...	2	...	0.9	...
Angola	114 ^a	1.7	...	0.6	6.7 ^a
Mali	1 762	0.6	1.8	0.6	294
Upper Volta	400	6.8	4.5	6.7	5.9
Malawi	266	10.2	5.8	10.0	2.6
Senegal	1 027	...	3.2	...	...
Niger	986	18.6	5.4	...	5.3
Rwanda	225	...	...	...	...
Guinea	152 ^a	1.2	...	0.6	12.7 ^a
Burundi	237	14.5	7.5	3.1	1.6
Benin	202	16.0	5.0	14.4	1.3
Sierra Leone	63	1.9	9.0	0.4	3.3
Togo	41 ^a	5.5	...	2.6	...
Mauritania	38 ^a	2.9	...	2.5	...
Lesotho	180	7.4	1.0	5.8	2.4
Mauritius	...	16.5	8.9	...	...
Guinea-Bissau	...	...	...	...	...
Gambia	53 ^a	...	6.0	...	...
Cape Verde	39	...	...	...	...
Sao Tome and Principe	...	...	...	...	...

a These figures are underestimates because either not all sub-sectors were included or projections for the late years of the Decade were not made.

TABLE 1.8 AFRICAN REGION
RANKING AND FREQUENCY OF CONSTRAINTS ^a

Constraints	No. of countries indicating constraint			Ranking index ^b
	Very severe	Severe	Moderate	
Funding limitations	9	7	6	47
Insufficiency of trained personnel (professional)	6	12	4	46
Logistics	7	11	2	45
Operation and maintenance	8	7	7	45
Insufficiency of trained personnel (sub-professional)	7	6	8	41
Inadequate or outmoded legal framework	5	6	10	37
Intermittent water service	5	6	7	34
Inappropriate institutional framework	2	10	7	33
Insufficient knowledge of water resources	1	8	12	31
Inadequate cost-recovery framework	3	6	9	30
Lack of planning and design criteria	2	6	11	29
Import restrictions	4	6	4	28
Inappropriate technology	2	7	8	28
Insufficient health education efforts	1	6	11	26
Lack of definite government policy for sector	2	3	12	24
Non-involvement of communities	1	4	11	22
Inadequate water resources	1	2	11	18

^a Number of reporting countries: 22.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 1.9 AFRICAN REGION

DECADE APPROACHES DURING 1980

Country / Territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor popula- tion (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning	Building	Operating	
Kenya	271	...	...	1 812	1 812	1 812	3 750
Ghana	...	...	...	...	...	...	...
Madagascar	464	...	...	...	...	...	...
Angola	720	5	10	...	38	...	1 480
Mali	...	...	...	21	21	21	...
Upper Volta	580	...	...	459	459	3 000	64
Malawi	461	5	10	3 000	2 300	4 100	...
Senegal	...	...	...	...	...	...	...
Niger	357	...	16	3 000	3 000	1 400	...
Rwanda	142	10	...	...	35	60	497
Guinea	112	...	...	135	135	180	...
Burundi	131	70	65	...	...	...	...
Benin	474	10	...	84	280	224	...
Sierra Leone	460	5	5	80	80	...	23
Togo	280	...	...	...	...	...	...
Mauritania	160	25	...	...	...	...	1
Lesotho	89	2	...	...	36	431	...
Mauritius	...	9.5	...	...	...	...	10
Guinea-Bissau	...	...	...	195	144	164	...
Gambia	22	...	...	...	...	...	...
Cape Verde	19	...	...	...	10	...	...
Sao Tome and Principe	...	...	...	...	...	...	...

2 REGION OF THE AMERICAS

2.1 Socioeconomic and health situation

Twenty-one countries or territories representing 95% of the Region's population (excluding the United States of America and Canada) provided baseline information. The population of these countries is expected to increase by 25% between 1980 and 1990. In the same period the urban population will increase by 32% and the proportion of urban dwellers will increase from 65% to 70%. The total regional rural population will increase only 10% and in some countries it will remain the same (Brazil, Venezuela) or even decrease (Argentina, Uruguay).

The per capita gross national product ranges from about US\$300 to US\$3700. Four countries (Guatemala, El Salvador, Honduras and Guyana) are classified by the United Nations as most seriously affected countries. Three countries, Guatemala, El Salvador and Paraguay, have indicated some constraints as to fresh water resources; three others, Peru, Honduras and Bolivia, consider that knowledge of their fresh water resources needs improvement.

All but two of the countries reporting on this have average life expectancies of over 60 years; however, eight have infant mortality rates higher than 50 per 1000 live births and three have rates higher than 100. Of 10 countries that provided information on waterborne diseases, five reported over 5% of the total population afflicted. These unfavourable health conditions are undoubtedly related in part to the absence of safe water and/or adequate wastes disposal, which affects over half the population of eight countries.

2.2 Targets and planning

Tables A.3.1 to A.3.5 (Global), Tables 2.2 and 2.3 and Fig. 2.1 indicate the reported progress in the different subsectors during 1970-1980. The percentage of people served increased slightly for urban water supply and there was a substantial percentage increase in rural water supply. On the other hand, there was a slight decrease in rural sanitation coverage and a considerable decline in urban sanitation (although accompanied by an increase in sewer connections). If the comparison is made for the 5-year period 1975-1980, there were decreases in all subsectors, except for rural water supply and this decrease was especially marked in urban sanitation (-24%). It should be noted, however, that the data used do not necessarily permit a valid comparison since different numbers of countries provided the information in 1970, 1975 and 1980. Criteria on adequacy of services may also have changed and sometimes reporting may have been incomplete. Moreover, in a number of countries there were marked population shifts from rural to urban areas. It should also be noted that in general, the number of countries reporting in 1970, 1975 and 1980 showed a decreasing trend.

Information regarding 1980 coverage and 1990 targets was not provided in full by all the 21 reporting countries; however, Fig. 2.2 compares the 1980 coverage and the 1990 targets only for those countries for which the complete data are available.

For urban water supply, 14 countries (representing 38% of the total population of the American Region member states - except for Canada and the United States of America) provided the information which is presented in Table 2.4.1.1 and Fig. 2.2. According to the goals established by these countries, coverage would increase from 83% in 1980 to 97% by 1990 meaning that 36.8 million additional people would have to be served by the end of the Decade - 0.51 times the number of people already served in 1980.

For rural water supply, information from 17 countries (representing 55% of the total population of the member states - except for Canada and the United States of America) is presented in Table 2.4.2.1 and Fig. 2.2. Coverage will have to increase from 40% in 1980 to 67% by the end of the Decade according to

established national goals and 25.2 million additional people will have to be served, 0.9 times the number (27.8 million) served in 1980.

As shown in Table 2.4.1.2 and Fig. 2.2, 9 countries (representing 25% of the Regional population) reported on their 1980 baseline situation and 1990 goals for urban sanitation. Coverage would increase from 82% to 90% representing 21 million additional people to be served, 0.45 times the 46.4 million already served in 1980.

For rural sanitation, as shown on Table 2.4.2.2 and Fig. 2.2, the goals are the most ambitious and for the 14 countries indicated (47% of the regional population) coverage would increase from 18% to 49%, meaning that 23 million additional people would have to be served by the end of the Decade, 2.0 times the 11.5 million already served in 1980.

Fifteen countries have prepared or are preparing formal Decade plans. However, a big task lies ahead. Countries which have already achieved total or nearly total coverage must maintain strong organizations to operate and repair the installations and to extend them as necessary for the new households that will appear during the Decade. The other countries must be able to transform the present popular and official interest and enthusiasm for better services into action. Despite the setting of targets, most countries in the Region state that they need clearer government sector policies and a more adequate legal framework.

2.3 Staff and training

Staff now employed in national sector agencies and new staff to be recruited and trained - either for the expansion of services or as replacements - are indicated in Table 2.5. As in other regions, the relative proportion of different categories of staff vary tremendously according to organizational differences. Existing staff strength ranges from 347 per million population in Bolivia to 1933 per million in Trinidad and Tobago; Decade trainees projected range from 35 per million in Guyana to 2436 per million in Venezuela. The median current strength is 590 and the median additional strength for the Decade is 618. All countries recognize shortages of trained staff as a constraint; there is slightly more concern about sub-professional than professional staff.

2.4 Financial resources

The unit costs of construction and operation of water works are recorded in Table 2.6. Urban water systems with house connections range from US\$50 per capita in the Dominican Republic to US\$1200 per capita in the Cayman Islands; the median cost is US\$125. Urban water supplied by standposts costs from US\$10 per capita in El Salvador and Nicaragua to US\$250 in Argentina. Urban sewerage costs from US\$55 per capita in El Salvador to US\$1200 in the Cayman Islands, with a median value of US\$165 and urban excreta disposal by other means costs from US\$15 in Honduras to US\$200 in Argentina and Trinidad and Tobago. Rural water supplies in El Salvador cost US\$40 per capita and in Trinidad and Tobago US\$250; the median cost is US\$88; rural sanitation systems cost US\$5 per capita in Mexico and US\$120 in Venezuela.

The operation of water supplies costs on the average only US\$0.05 per m³ of water produced in Panama and as much as US\$0.58 per m³ in Venezuela, with a median cost of US\$0.20. Water tariffs range from US\$0.09 per m³ in Peru to US\$4.40 in the Cayman Islands, with a median tariff of US\$0.21. Sixteen countries practise progressive tariffs in all or in some communities; nevertheless there are only five countries where average tariffs exceed average water production costs and 17 countries mention cost - recovery mechanisms as being more or less defective.

Table 2.7 gives an idea of the increase required in the rate of investment to reach the national Decade targets. As compared with the investments made during 1980 in the sector, Brazil must only increase its annual investment by 20% and Chile by 30%. However, other countries for which figures are available will require much greater increases. Thus Bolivia will have to

increase its 1980 sector investment by 2.4 times, Peru by 2.6 times, El Salvador by 3.7 times and Guatemala by 5.2 times. The proportion of external aid to total sector investment in 1980 was reported by eight countries with figures ranging from 5% to 61%. Every responding country reported funding as a constraint to sector development and 10 countries reported it as a severe or very severe constraint.

2.2 Americas: Decade Approaches

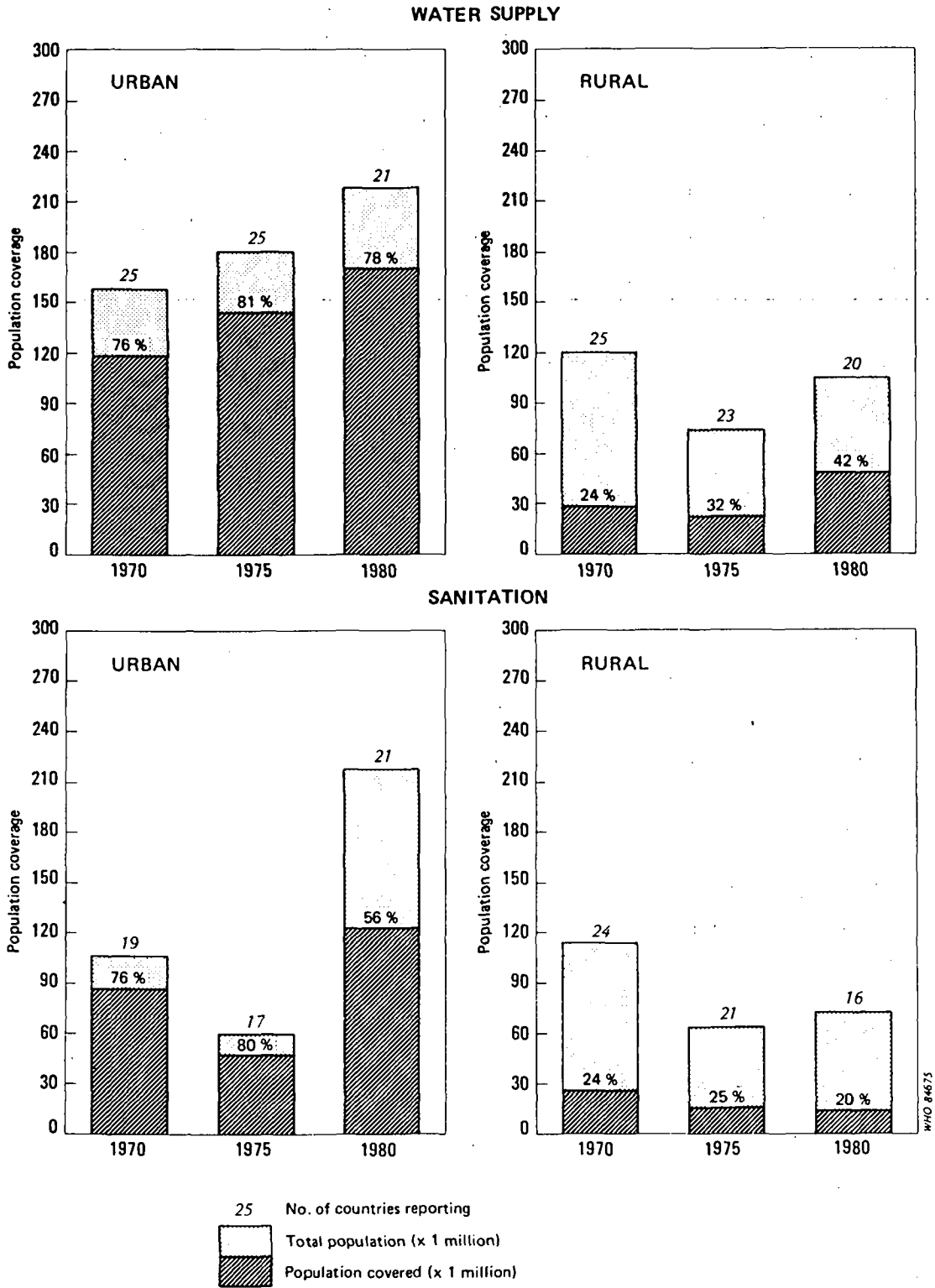
Information on Decade-oriented activities carried out during 1980 from 11 American countries is recorded in Table 2.9. Of the five countries that provided improved services to the urban poor, four classified between 14% and 47% of their total urban population as poor, the remaining country classified under 0.1% as poor. Between 28% (El Salvador) and 70% (Venezuela) of all urban sector development funds were channelled into sector improvements for the poor, and between 0.5% (in El Salvador) and 30% (in Venezuela) of the urban poor benefited from these projects.

Eight countries reported on participation by rural communities in water supply and sanitation improvements. Though the number of communities in most cases is not large, it represents an important start. Communities participated in construction and operation in eight countries and in half of them (Argentina, Chile, Guatemala, and Peru,) community residents also took part in planning the improvements.

Health education on hygienic use of water and disposal of wastes was given to all primary school children in Mexico, Chile, and Trinidad and Tobago and to a few children in Paraguay and Uruguay. Although health education on sanitary improvements has been emphasized throughout the region for three decades it is still recognized as being insufficient by all countries.

Fig. 2.1 REGION OF THE AMERICAS

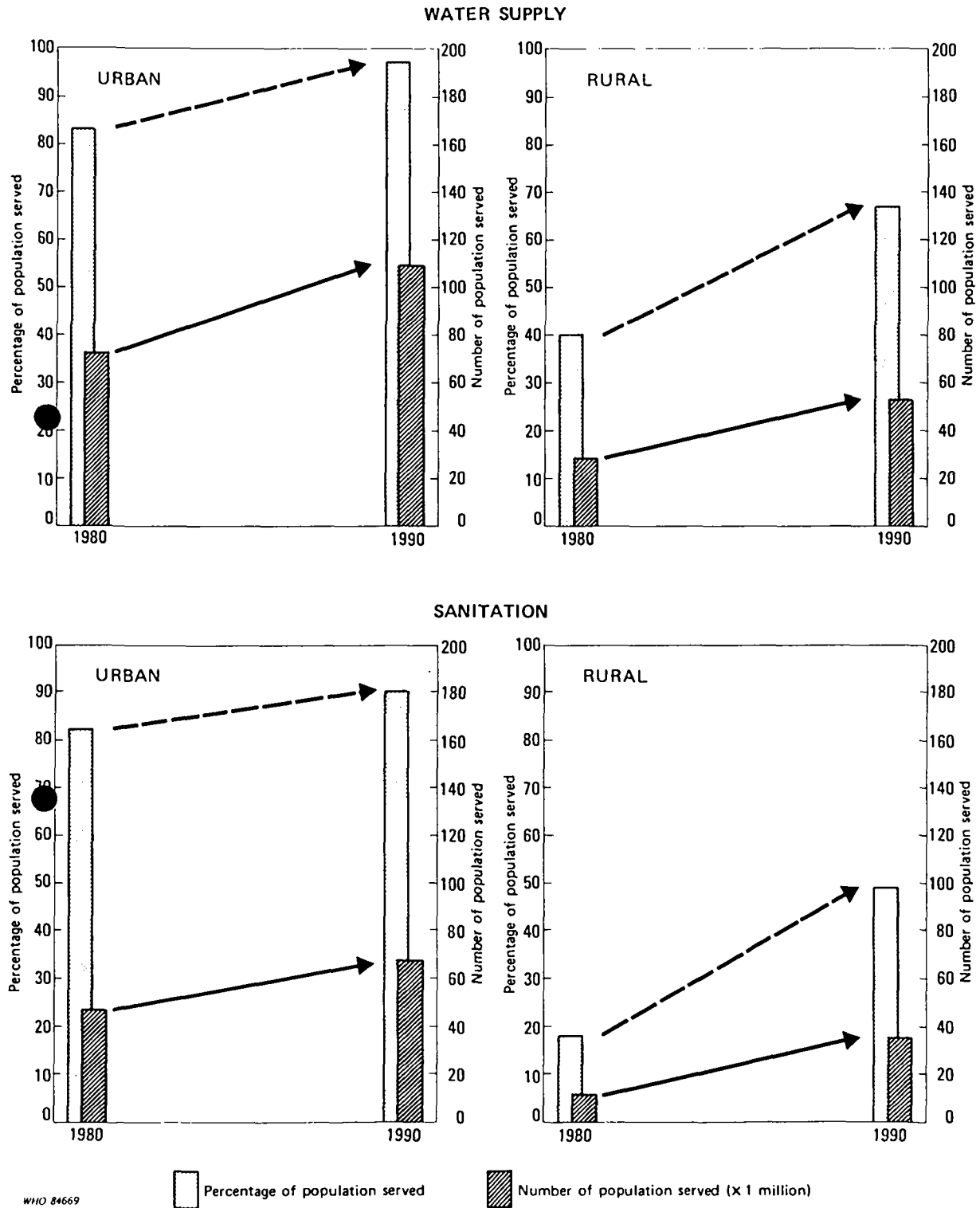
POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2 to A.3.5 and Section 2.2.

Fig. 2.2 REGION OF THE AMERICAS

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN SELECTED COUNTRIES COMPARED WITH EXISTING COVERAGE IN 1980^a



^a See Tables 2.4.1.1, 2.4.1.2, 2.4.2.1 and 2.4.2.2 and Section 2.2.

TABLE 2.1 REGION OF THE AMERICAS
 BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH (1980)

Country/ Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Water disease cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Brazil	119 100	2.5	1 664	64	89	...	29	...
Mexico	67 400	2.8	1 215	66	55	...	44	63
Argentina	27 863	1.8	2 012	68	41	700	43	21
Colombia	25 000	2.1	935	62	80	8 200	8	35
Peru	16 812	2.6	1 000	60	101	705	49	63
Venezuela	16 048	3.1	3 721	...	32	...	19	15
Chile	11 199	1.7	810	66	32	144	16	20
Ecuador	8 354	3.4	1 100	63	64	...	55	75
Guatemala ^a	7 260	3.0	1 123	61	74	...	55	71
Bolivia	5 600	2.5	285	51	160	7 000	63	82
Dominican Republic	5 431	2.9	1 050	63	31	...	41	85
El Salvador ^a	4 539	2.8	712	...	42	3 600	49	51
Honduras ^a	4 092	3.4	804	53	99	...	56	65
Paraguay	3 062	3.0	903	64	73	...	79	9
Uruguay	2 939	0.5	1 540	69	38	60	20	41
Nicaragua	2 733	3.4	781	...	98	6 190	47	...
Costa Rica	2 213	2.3	1 909	73	22	...	16	13
Panama	1 825	2.5	1 930	70	22	2 788	18	55
Trinidad and Tobago	1 096	1.6	3 000	65	...	...	2	7
Guyana ^a	825	2.4	582	67	120	...	28	14
Cayman Islands	17	4.0	3 500	...	18	843	0	6

^a Most Seriously Affected Country (MSA).

TABLE 2.2 REGION OF THE AMERICAS

COVERAGE TARGETS (% of population) (1990) AND DECADE PLANS

Country / Territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Stand posts	Sewer connection	By other means			
Brazil	90	...	65	...	...	...	None
Mexico	83	...	62	...	58	26	1982
Argentina	80	20	70	...	99	50	1981
Colombia	90	10	80	20	95	35	1982
Peru	84	11	78	6	...	...	None
Venezuela	90	3	75	5	85	10	In preparation
Chile	100	0	100	0	39	...	1982
Ecuador	85	10	65	20	70	60	1982
Guatemala	76	24	78	...	50	80	None
Bolivia	60	30	40	40	60	60	1981
Dominican Republic	70	16	35	...	54	8	In preparation
El Salvador	85	...	...	...	58	98	1982
Honduras	90 ^a	...	60	...	90	80	1982
Paraguay	69	...	34	...	18	95	1983
Uruguay	...	...	...	...	...	...	None
Nicaragua	91	9	51	...	50	...	None
Costa Rica	100	0	70	30	74	90	1982
Panama	100	0	99	1	85	90	1983
Trinidad and Tobago	99 ^a	...	67	33	98	89	None
Guyana	100	0	22	78	95	95	1982
Cayman Islands	...	...	...	...	0	0	1983

^a No breakdown given.

TABLE 2.3 REGION OF THE AMERICAS

1980 LEVELS OF SERVICE

Country/ Territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Urban		Rural ^{d/}	Urban		Rural		
				Total	by H.C. ^a		by P.S. ^b	Total		by S.C. ^c	by other
Brazil	119 090	80 470 (68)	38 620 (32)	64 600 (80)	64 600 (80)	...	19 600 (51)	25 900 (32)	25 900 (32)	...	...
Mexico	67 400	43 400 (64)	24 000 (36)	27 600 (64)	26 800 (62)	800 (2)	10 300 (43)	22 200 (51)	21 500 (49)	700 (2)	2 800 (12)
Argentina	27 863	23 113 (83)	4 751 (17)	14 977 (65)	14 146 (61)	831 (4)	787 (17)	20 544 (89)	7 390 (32)	13 154 (57)	1 532 (32)
Colombia	25 000	16 000 (64)	9 000 (36)	16 000 (100)	11 840 (74)	4 160 (26)	7 110 (79)	16 000 (100)	9 760 (61)	6 240 (39)	370 (4)
Peru	16 812	10 925 (65)	5 887 (35)	7 407 (68)	6 227 (57)	1 180 (11)	1 210 (21)	6 242 (57)	6 000 (55)	242 (2)	24 ^{e/} (0)
Venezuela	16 048	12 029 (75)	4 019 (25)	11 004 (91)	9 804 (82)	1 200 (10)	2 010 (50)	10 824 (90)	7 217 (60)	3 607 (30)	2 814 (70)
Chile	11 199	9 071 (81)	2 128 (19)	9 071 (100)	8 420 (93)	651 (7)	355 (17)	9 015 (99)	6 251 (69)	2 764 (30)	...
Ecuador	8 354	3 700 (44)	4 654 (56)	3 028 (82)	1 739 (47)	1 289 (35)	745 (16)	1 443 (39)	1 332 (36)	111 (3)	651 (14)
Guatemala	7 260	2 690 (37)	4 570 (63)	2 403 (89)	1 377 (51)	1 026 (38)	828 (18)	1 215 (45)	945 (35)	270 (10)	920 (20)
Bolivia	5 599	2 488 (44)	3 111 (56)	1 728 (69)	599 (24)	1 129 (45)	316 (10)	916 (37)	579 (23)	337 (14)	116 (4)
Dominican Republic	5 431	2 752 (51)	2 679 (49)	2 330 (85)	1 642 (60)	688 (25)	897 (33)	691 (25)	691 (25)	...	110 (4)
El Salvador	4 539	1 902 (42)	2 637 (58)	1 281 (67)	1 171 (62)	110 (6)	1 049 (40)	1 524 (80)	914 (48)	610 (32)	688 (26)

Honduras	4 093	1 563 (38)	2 530 (62)	782 (50)	719 (46)	63 (4)	1 012 (40)	766 (49)	672 (43)	94 (6)	658 (26)
Paraguay	3 062	1 148 (37)	1 914 (63)	448 (39)	448 (39)	...	192 (10)	1 091 (95)	341 (30)	750 (65)	1 703 (89)
Uruguay	2 939	2 439 (83)	500 (17)	2 353 (96)	2 190 (90)	163 (7)	12 (2)	1 443 (59)	357 (15)	1 086 (44)	300 (60)
Nicaragua	2 733	1 459 (53)	1 273 (47)	1 330 (91)	985 (68)	345 (24)	125 (10)	505 (35)	505 (35)	...	...
Costa Rica	2 213	1 096 (50)	1 117 (50)	1 096 (100)	1 041 (95)	55 (5)	761 (68)	1 019 (93)	471 (43)	548 (50)	916 (82)
Panama	1 825	900 (49)	925 (51)	900 (100)	838 (93)	62 (7)	602 (65)	556 (62)	556 (62)	...	261 (28)
Trinidad and Tobago	1 096	700 (64)	396 (36)	700 (100)	550 (79)	150 (21)	370 (93)	665 (95)	165 (24)	500 (71)	350 (88)
Guyana	825	247 (30)	578 (70)	247 (100)	222 (90)	25 (10)	347 (60)	247 (100)	67 (27)	180 (73)	462 (80)
Cayman Islands	17	17 (100)	...	17 (100)	17 (100)	...	...	16 (94)	0	16 (94)	0
TOTALS	333 398	218 109 (65)	115 289 (35)	169 302 (78)	155 375 (71)	13 927 (7)	48 628 (42)	122 822 (56)	91 613 (42)	31 209 (14)	14 675 (20)

^a H.C. = house connection.

^b P.S. = public standpost.

^c S.C. = sewer connection.

^d Several countries reported only on house or patio connections for rural areas.

^e This figure only includes people served by connections to sewer systems.

TABLE 2.4 REGION OF THE AMERICAS

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country/ territory	Urban population	Water supply		Sanitation		Rural population	Safe water	Adequate sanitation
		House connection	Stand- posts	Sewer connection	Other means			
Brazil	80 470	64 600	...	25 900	...	38 620	19 600	...
	110 900	99 810	...	72 085	...	38 600	...	...
Mexico	43 400	26 800	800	21 500	700	24 000	10 300	2 800
	57 013	47 514	...	35 295	...	25 878	14 942	6 857
Argentina	23 113	14 146	831	7 390	13 154	4 751	787	1 532
	25 776	20 621	5 155	18 043	...	4 428	4 384	2 214
Colombia	16 000	11 840	4 160	9 760	6 240	9 000	7 110	370
	21 600	19 440	2 160	17 280	4 320	9 700	9 215	3 395
Peru	10 925	6 227	1 180	6 000	242	5 887	1 210	24
	13 934	11 637	1 552	10 861	776	8 055	...	...
Venezuela	12 029	9 804	1 200	7 217	3 607	4 019	2 010	2 814
	16 909	15 218	500	12 682	845	4 241	3 605	421
Chile	9 071	8 420	651	6 251	2 764	2 128	355	...
	10 451	10 451	0	10 451	0	2 452	952	...
Ecuador	3 700	1 739	1 289	1 332	111	4 654	745	651
	5 581	4 744	558	3 628	1 116	6 095	4 266	3 657
Guatemala	2 690	1 377	1 026	945	270	4 570	828	920
	3 900	2 950	950	3 040	...	5 900	2 950	4 700
Bolivia	2 488	599	1 129	579	337	3 111	316	116
	3 763	2 258	1 128	1 505	1 509	3 636	2 181	2 192
Dominican Republic	2 752	1 642	688	691	...	2 679	897	110
	4 243	2 956	688	1 487	...	3 010	1 617	236
El Salvador	1 902	1 171	110	914	610	2 637	1 049	688
	2 524	2 145	...	...	...	3 473	2 000	3 400
Honduras	1 563	719	63	672	94	2 530	1 012	658
	2 237	2 013	...	1 342	...	2 868	2 580	2 294

Paraguay	1 148	448	...	341	750	1 914	192	1 703
	1 650	1 144	...	565	...	2 440	441	2 307
Uruguay	2 439	2 190	163	357	1 086	500	12	300
	2 580	...	...	...	...	470	...	...
Nicaragua	1 459	985	345	505	...	1 273	125	...
	2 350	2 140	210	1 190	...	1 470	740	...
Costa Rica	1 096	1 041	55	471	548	1 117	761	916
	1 370	1 370	0	959	411	1 396	1 028	1 256
Panama	900	838	62	555	...	925	602	261
	1 120	1 120	0	1 109	11	1 112	945	1 000
Trinidad and Tobago	700	550	150	165	500	396	370	350
	892	885 ^a	...	600	292	414	407	370
Guyana	247	222	25	67	180	578	347	462
	312	312	0	70	242	740	703	703
Cayman Islands	17	17	0	...	16	0	0	0
	27	...	0	...	...	0	0	0

^a No breakdown given.

TABLE 2.4.1.1 REGION OF THE AMERICAS

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/Territory	Urban Population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Argentina	23 113	25 776	14 977	65	25 776	100
Colombia	16 000	21 600	16 000	100	21 600	100
Peru	10 925	13 934	7 407	68	13 189	95
Venezuela	12 029	16 909	11 004	91	15 718	93
Chile	9 071	10 451	9 071	100	10 451	100
Ecuador	3 700	5 581	3 028	82	5 302	95
Guatemala	2 690	3 900	2 403	89	3 900	100
Bolivia	2 488	3 763	1 728	69	3 386	90
Dominican Republic	2 752	4 243	2 330	85	3 644	86
Nicaragua	1 459	2 350	1 330	91	2 350	100
Costa Rica	1 096	1 370	1 096	100	1 370	100
Panama	900	1 120	900	100	1 120	100
Trinidad and Tobago	700	892	700	100	885	99
Guyana	247	312	247	100	312	100
Total	87 170	112 201	72 221	83	109 003	97
Additional people to be covered by 1990					36 782	
Ratio of additional people to be served by 1990 to number served in 1980					0.51:1	

TABLE 2.4.1.2 REGION OF THE AMERICAS

DECADE TARGETS FOR URBAN SANITATION

Country/Territory	Urban population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Colombia	16 000	21 600	16 000	100	21 600	100
Peru	10 925	13 934	6 242	57	11 637	84
Venezuela	12 029	16 909	10 824	90	13 527	80
Chile	9 071	10 451	9 015	99	10 451	100
Ecuador	3 700	5 581	1 443	39	4 744	85
Bolivia	2 488	3 763	916	37	3 014	80
Costa Rica	1 096	1 370	1 019	93	1 370	100
Trinidad and Tobago	700	892	665	95	892	100
Guyana	247	312	247	100	312	100
Total	56 256	74 812	46 371	82	67 547	90
Additional people to be covered by 1990					20 976	
Ratio of additional people to be served by 1990 to number served in 1980					0.45:1	

TABLE 2.4.2.1 REGION OF THE AMERICAS

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/Territory	Rural population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Mexico	24 000	25 878	10 300	43	14 942	58
Argentina	4 751	4 428	787	17	4 384	99
Colombia	9 000	9 700	7 110	79	9 215	95
Venezuela	4 019	4 241	2 010	50	3 605	85
Chile	2 128	2 452	355	17	952	39
Ecuador	4 654	6 095	745	16	4 266	70
Guatemala	4 570	5 900	828	18	2 950	50
Bolivia	3 111	3 636	316	10	2 181	60
Dominican Republic	2 679	3 010	897	33	1 617	54
El Salvador	2 637	3 473	1 049	40	2 000	58
Honduras	2 530	2 868	1 012	40	2 580	90
Paraguay	1 914	2 440	192	10	441	18
Nicaragua	1 273	1 470	125	10	740	50
Costa Rica	1 117	1 396	761	68	1 028	74
Panama	925	1 112	602	65	945	85
Trinidad and Tobago	396	414	370	93	407	98
Guyana	578	740	347	60	703	95
Total	70 283	79 253	27 806	40	52 956	67
Additional people to be covered by 1990					25 150	
Ratio of additional people to be served by 1990 to number served in 1980					0.90:1	

TABLE 2.4.2.2 REGION OF THE AMERICAS

DECADE TARGETS FOR RURAL SANITATION

Country/Territory	Rural population (000)		Population covered			
			1980		1990	
	1980	1990	No. (000)	%	No. (000)	%
Mexico	24 000	25 878	2 800	12	6 857	26
Argentina	4 751	4 428	1 532	32	2 214	50
Colombia	9 000	9 700	370	4	3 395	35
Ecuador	4 654	6 095	651	14	3 657	60
Guatemala	4 570	5 900	920	20	4 700	80
Bolivia	3 111	3 626	116	4	2 192	60
Dominican Republic	2 679	3 010	110	4	236	8
El Salvador	2 637	3 473	688	26	3 400	98
Honduras	2 530	2 868	658	26	2 294	80
Paraguay	1 914	2 440	1 703	89	2 307	95
Costa Rica	1 117	1 396	916	82	1 256	90
Panama	925	1 112	261	28	1 000	90
Trinidad & Tobago	396	414	350	88	370	89
Guyana	578	740	462	80	703	95
TOTAL	62 862	71 090	11 537	18	34 581	49
Additional people to be covered by 1990					23 044	
Ratio of additional people to be served by 1990 to number served in 1980					2.00:1	

TABLE 2.5 REGION OF THE AMERICAS

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/ Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community- based	Totals per million population
Brazil	4 956	7 996	41 684	15 634	...	590

Mexico	620	8 680	37 200	15 500	...	920
	1 400	18 600	46 500	26 500		1 380
Argentina	273	19 282	6 717	5 450	53	1 140

Colombia	1 100	3 500	5 200	2 200	3 100	604
	46	2 380	2 071	952	1 428	275
Peru	663	1 358	3 370	2 152	...	449
	118	1 382	955	1 419	...	230
Venezuela	223	2 722	10 649	1 800	24	961
	4 800	16 000	...	18 300	...	2 436
Chile	191	1 028	3 452	1 533	...	554
	205	253	3 138	1 449	...	450
Ecuador	...	...	...	...	...	...

Guatemala	119	763	2 772	261	...	539
	300	1 600	3 454	510	...	808
Bolivia	250	618	1 077	...	...	347
	...	481	760	1 249	...	445
Dominican Republic	25	178	1 379	640	549	510

El Salvador	45	184	957	567	...	386

Honduras	...	...	...	...	...	...

Paraguay	42	586	340	443	150	510

Uruguay	29	121	2 352	1 401	25	1 337

Costa Rica	...	...	...	...	...	...

Panama	21	326	846	568	4	967
	500	850	1 230	800	...	1 852
Trinidad and Tobago	19	300	940	860	...	1 933
	10	200	600	50	...	783
Guyana	2	10	...	...	...	...
	4	13	12	...	...	35
Cayman Islands	...	...	...	...	...	...

TABLE 2.6 REGION OF THE AMERICAS

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³).

Country / Territory	Construction					Operation			
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand- post	Sewer connection	Other means					
Brazil	100	25	150	30	54	20	0.06	0.10	some
Mexico	105	42	150	...	53	5	0.15	0.10	some
Argentina	250	250	320	200	200	50	0.08	0.11	some
Colombia	108	...	200	...	104	51	0.30	0.24	yes
Peru	143	57	134	18	58	84	0.18	0.09	yes
Venezuela	300	175	250	100	180	120	0.58	0.34	some
Chile	170	...	145	40	128	...	0.22	0.23	no
Ecuador	135	65	180	75	110	75	...	...	some
Guatemala	75	60	60	100	70	20	...	...	some
Bolivia	119	96	151	40	88	40	...	...	yes
Dominican Republic	50	...	...	...	...	...	...	...	no
El Salvador	60	10	55	50	40	10	0.20	0.20	no
Honduras	165	70	200	15	54	15	...	0.19	no
Paraguay	125	...	140	180	130	30	0.40	0.30	yes
Uruguay	...	...	...	...	...	...	...	0.26	yes
Nicaragua	90	10	110	...	50	25	0.30	0.20	some
Costa Rica	231	...	331	...	115	...	...	...	yes
Panama	100	...	200	...	55	...	0.05	0.22	no
Trinidad and Tobago	300	200	600	200	250	...	...	...	some
Guyana	...	...	...	...	...	...	...	...	some
Cayman Islands	1 200	...	1 200	...	...	...	...	4.40	some
Median	125	62	165	62	88	30	0.20	0.21	

TABLE 2.7 REGION OF THE AMERICAS

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country / Territory	Estimated 10-year cost to reach country Decade targets (US\$ million)	1980 Sector investments			Rate of investment increase needed (times 1980 investment)
		Total US\$ million	Percentage of total development investment	External US\$ million	
Brazil	10 300	876	...	130	1.2
Mexico	11 500	...	...	...	...
Argentina	4 456	...	...	...	...
Colombia	1 612	...	...	...	...
Peru	1 484 ^a	58	...	31	2.6 ^a
Venezuela	...	174	...	...	...
Chile	444	33	2.5	1.8	1.3
Ecuador	1 536	...	...	...	...
Guatemala	620	12	0.9	3.5	5.2
Bolivia	730	31	5.0	19	2.4
Dominican Republic	620	...	...	...	...
El Salvador	712	19	...	4.6	3.7
Honduras	443	...	...	...	...
Paraguay	...	...	...	...	...
Uruguay	...	6.4	...	1.12	...
Costa Rica	...	...	...	...	...
Panama	...	13	...	3.1	...
Trinidad and Tobago	1 055	...	...	...	...
Guyana	...	...	...	...	...
Cayman Islands	36	...	...	...	...

a These figures are underestimates because either not all sub-sectors were included or projections for the late years of the Decade were not made.

TABLE 2.8 REGION OF THE AMERICAS

RANKING AND FREQUENCY OF CONSTRAINTS^a

Constraints	No. of reporting countries/ territories: 21	No. of countries indicating constraint			Ranking Index ^b
		Very severe	Severe	Moderate	
Inadequate cost-recovery framework		4	12	2	38
Funding limitations		3	8	10	35
Operation and maintenance		2	11	7	35
Insufficiency of trained personnel (sub-professional)		2	9	10	34
Insufficiency of trained personnel (professional)		2	7	12	32
Insufficient health education efforts		1	9	11	32
Logistics		1	8	9	28
Inappropriate institutional framework		3	6	7	28
Intermittent water service		2	6	7	25
Lack of planning and design criteria		1	5	12	25
Non-involvement of communities		0	7	11	25
Lack of definite government policy for sector		1	3	14	23
Inappropriate technology		1	5	10	23
Inadequate or outmoded legal framework		2	3	11	23
Inadequate water resources		1	2	13	20
Insufficient knowledge of water resources		0	6	8	20
Import restrictions		0	2	8	12

^a Number of reporting countries/territories: 21.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 2.9 REGION OF THE AMERICAS

DECADE APPROACHES DURING 1980

Country / territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor popula- tion (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning	Building	Operating	
	Brazil	
Mexico	34	10	40	...	...	...	all
Argentina	...	...	...	50	37	515	...
Colombia	...	...	...	...	...	...	...
Peru	3 603	7	45	176	176	1 112	...
Venezuela	5 650	30	70	...	...	...	...
Chile	1 300	8	44	308	62	308	all
Ecuador	1 960	...	...	...	...	...	...
Guatemala	...	...	...	25	25	25	...
Bolivia	...	...	...	...	112	100	...
Dominican Republic	...	...	...	...	5	5	...
El Salvador	560	0.5	28	...	...	...	...
Honduras	...	...	...	...	...	...	...
Paraguay	...	...	...	...	47	18	3
Uruguay	...	...	...	...	...	...	5
Costa Rica	...	...	...	...	71	71	...
Panama	...	...	...	...	...	...	...
Trinidad and Tobago	...	...	...	...	...	...	all
Cayman Islands	...	...	...	...	...	...	...

3. SOUTH-EAST ASIA REGION

3.1 Socioeconomic and health situation

Decade baseline information is available from nine of the region's 11 countries and partial information from the remaining two. A recent publication (SEARO Regional Health Papers No. 1 (1983) (IDWSSD Decade Commencement Report) summarizes and analyses these data. The present publication includes the nine countries from which country digest forms were received.

The population of these countries is expected to increase by 21% by 1990, urban communities by 33% and rural communities by 17%. These forecasts are, respectively, the lowest of all regions for overall increase, the third highest for urban increase, and represent a median value for rural increase. Four of these countries are classified by the United Nations as least developed countries and five as most seriously affected countries. The per capita gross national product ranges from US\$90 in Bhutan to US\$590 in Thailand.

As shown in Table 3.1, life expectancy ranges from 42 to 66 years. Six countries have infant mortality rates per 1000 live births of more than 100. Of the four responding countries, one reports high incidence of waterborne disease and the other three moderately high incidence. More than half of the population in eight out of nine countries lack access to safe water and adequate sanitation. This fact is certainly responsible at least in part for the relatively poor health indices reported by these countries.

3.2 Targets and planning

The data presented in Tables A.3.1 to A.3.5 (Global) and Fig. 3.1, show that progress in urban and rural water supply during the period 1970-1980 appears to have been significant, while that for rural sanitation was more limited, and that coverage slightly decreased for urban sanitation. However, this may not convey the true picture. The apparent decrease is probably due to changed criteria on adequacy of services and has also probably been influenced by population shifts from rural to urban areas.

All of the responding countries have set Decade targets and have prepared or are preparing formal Decade plans. In 1980, most countries had not set specific targets on levels of service. The Decade plans under elaboration or undergoing refinement will make a distinction between water supply services provided via house connections and those through public standposts and between sanitation services by sewer connection and those involving on-site excreta disposal.

Fig. 3.2, supported by Tables 3.4.1 and 3.4.2, presents a comparison between the reported 1980 coverage and the Decade targets established by eight selected countries, which represent 98% of the total population of the Region's member states. This information is presented not only in terms of percentages of population covered but also in terms of numbers of persons. Thus, according to the targets, urban water supply coverage would increase from 64% in 1980 to 89% in 1990, from serving 149 million to serving 274 million people. For rural water supply, 31% coverage in 1980 would be increased to 89% in 1990, service being provided for an additional 584 million people, 2.42 times the number covered in 1980. For urban sanitation, the increase in coverage from 30% to 73% would mean providing service for an additional 155 million people, 2.21 times the population covered in 1980. For rural sanitation, the increase in coverage from 6% to 28% would concern an additional 212 million people, or 4.29 times the 49 million covered in 1980. These figures are truly impressive and illustrate the magnitude of the Decade targets these countries have set for themselves.

3.3 Staff and training

Three countries provided information and forecasts on actual staff and

training plans in the light of Decade needs. Table 3.5 gives these data and Table A.5 compares them with those from other regions. It may be observed that the present staff strengths, expressed as total number of staff per million inhabitants, are small, representing only 5% to 10% or less of the strengths reported from other regions. Similarly, the training plans include recruitment and training of many fewer new staff than for the other regions. All responding countries except Thailand rate insufficiency of trained professional and sub-professional personnel as a constraint to sector development, and all except India rate this constraint as severe.

3.4 Financial resources

Unit costs of constructing water and sanitation facilities and of operating water systems are shown in Table 3.6 and compared with figures from other regions in Table A.6. Urban water supplies with house connections range in cost from US\$42 per capita in Nepal to US\$125 in Sri Lanka; the cost of building water supplies with standposts is provided only by Maldives (US\$4 per capita). Urban sewerage systems cost from US\$27 in Maldives to US\$150 in Sri Lanka, and other urban excreta disposal systems cost from US\$7 per capita in Bangladesh to US\$24 in Maldives. Rural water supplies cost from US\$4 per capita in Bangladesh to US\$54 in Maldives and rural excreta disposal facilities cost from US\$3 per capita in Indonesia to US\$18 in Nepal.

The average cost of water production may be compared with the average tariff in two countries: Sri Lanka reports US\$0.10 per m³ for both cost of production and tariff and Bangladesh reports US\$0.10 per m³ as the cost and US\$0.13 per m³ as the average tariff. Seven countries use progressive tariffs and Indonesia and Thailand use them throughout the country.

With regard to sector investments made in 1980 compared with projected costs of realizing the Decade targets (Table 3.7) it appears that South-East Asian countries must increase their annual investments considerably. The median increase is to 4.2 times existing investments. The proportion of external aid to total sector investment in 1980 was reported by five countries with figures ranging from 36% to 71% and a median value of 49%.

3.5 Decade approaches

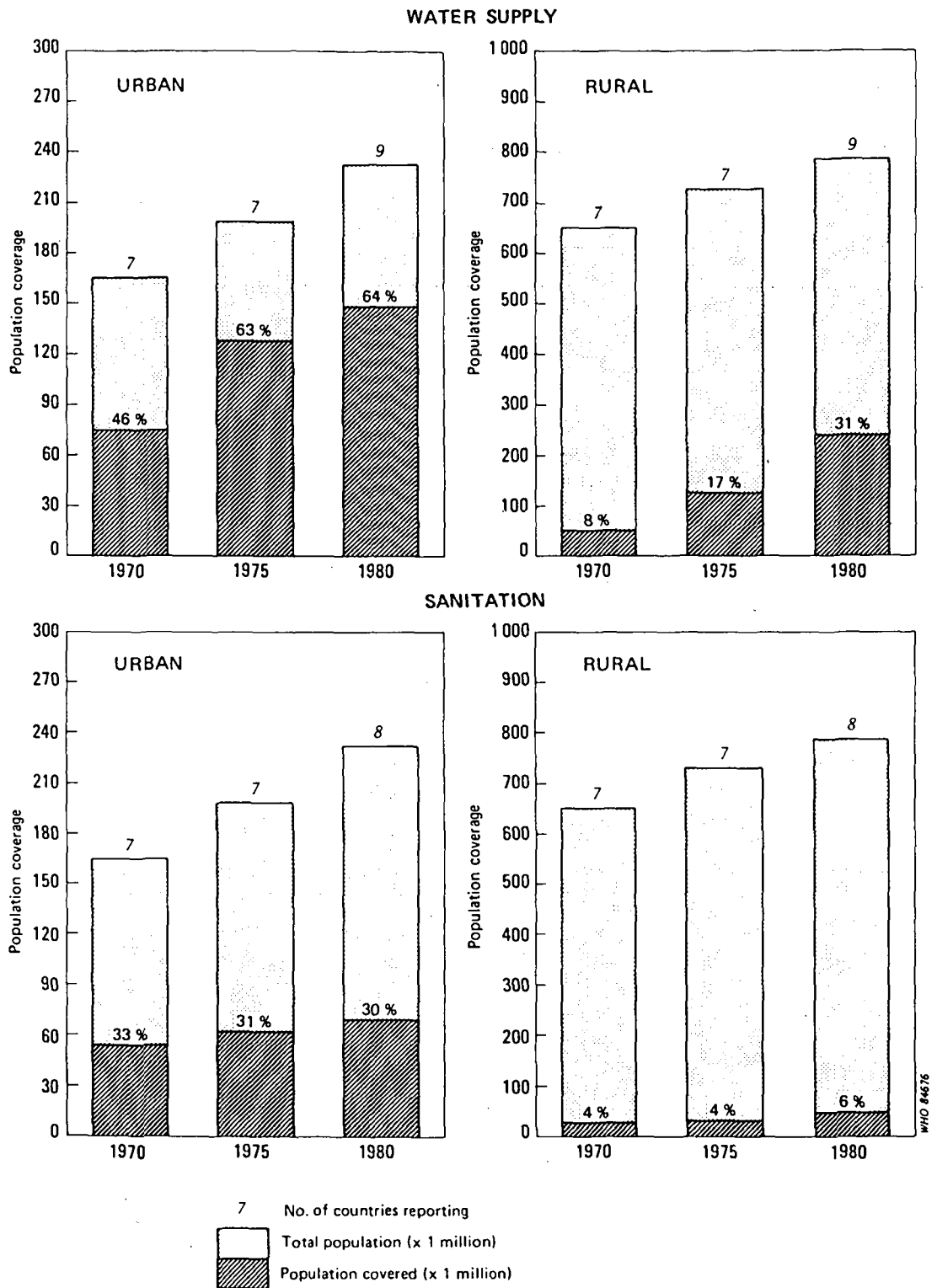
Table 3.9 records information on Decade-related activities carried out during 1980 and Table A.9 compares it with similar data from other regions. Bangladesh, which classifies 60% of its urban population as poor, provided improved drinking-water and sanitation facilities to 5% of this group during the year; Nepal, which classifies 22% of its urban population as poor, improved water and sanitation services for 45% of this group; and Sri Lanka, which classifies 35% of its urban population as poor, improved water supplies and sanitation for 40% of this group.

In Bangladesh, all rural communities where water supply or sanitation facilities were improved during the year participated in building them. In Nepal, most rural communities where improvements were made during the year took part in planning, building and operating them.

All primary school children in these three countries received instruction on the hygienic use of water and disposal of wastes.

As shown in Table 3.8, none of the other countries rated lack of health education or community participation as severe constraints to the development of the sector.

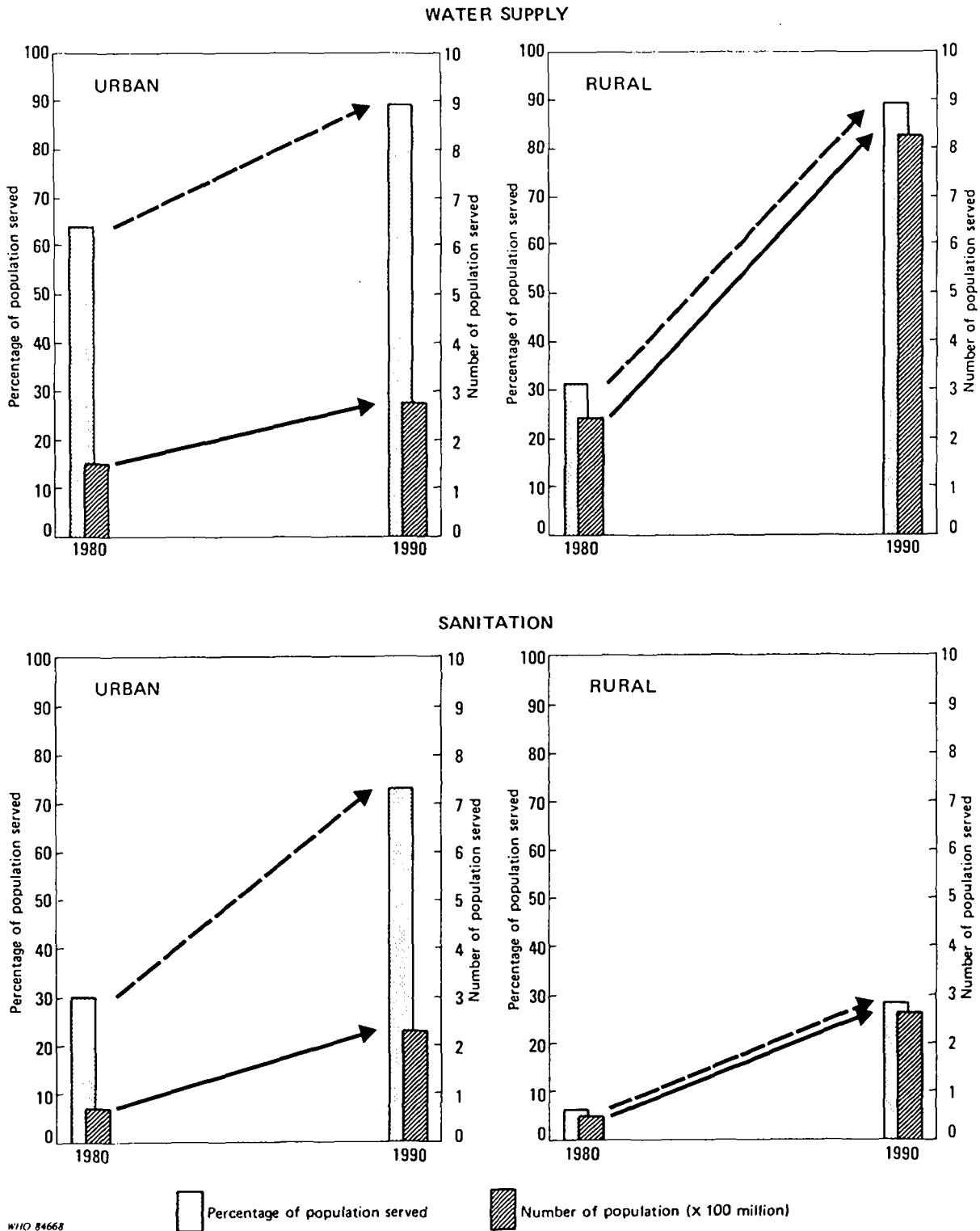
Fig. 3.1 SOUTH-EAST ASIA REGION
POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2, A.3.3, A.3.4 and A.3.5 and Section 3.2.

Fig. 3.2 SOUTH-EAST ASIA REGION

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN 8 SELECTED COUNTRIES COMPARED WITH EXISTING COVERAGE IN 1980^a



^a See Tables 3.4.1 and 3.4.2 and Section 3.2.

TABLE 3.1 SOUTH-EAST ASIA REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH (1980)

Country/Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Waterborne diseases: cases per 100 000	Population without safe water (%)	Population without sanitation (%)
India ^b	672 000	1.9	190	52	125	800	59	94
Indonesia	147 500	2.3	430	51	108	116	76	76
Bangladesh ^{a, b}	90 000	2.4	130	42	153	...	62	97
Thailand	47 500	1.9	620	62	27	...	37	54
Burma ^b	32 900	2.2	160	54	56	...	79	79
Nepal ^{a, b}	14 000	2.6	108	48	150	4 500	86	98
Sri Lanka ^b	14 700	1.9	230	66	37	962	67	31
Bhutan ^a	1 200	2.1	90	45	117	...	92	...
Maldives ^a	161	3.0	200	47	106	...	95	85

^a Least Developed Country (LDC).^b Most Seriously Affected Country (MSA).

TABLE 3.2 SOUTH-EAST ASIA REGION

COVERAGE TARGETS (% OF POPULATION) (1990) AND DECADE PLANS

Country/Territory	Urban water supply ^a		Urban sanitation ^a		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Stand-post	Sewer connection	By other means			
India	100		80		100	25	1983
Indonesia	75		60		60	40	1982
Bangladesh	58		50		77	13	1980
Thailand	71		71		95	51	1984
Burma	50		70		50	50	1984
Nepal	82		27		65	12	1980
Sri Lanka	80		90		51	92	1980
Bhutan	100		100		60	60	1982
Maldives	93		100		79	29	1980

^a No breakdown given between house connections and public standposts and between sewer connections and other means.

TABLE 3.3 SOUTH-EAST ASIA REGION

1980 LEVELS OF SERVICE

Country/Territory	Population			Population with service				
	Total	Urban	Rural	Drinking-water		Rural	Sanitation	
				Urban ^a			Urban ^a		Rural
				Total	by H.C.	by P.S.	Total	by S.C.		by other
India	672 000	148 000 (22)	524 000 (78)	115 000 (77)		162 000 (31)	40 000 (27)	2 800 (0.5)
Indonesia	147 500	50 500 (34)	97 000 (66)	17 700 (35)		18 000 (19)	14 600 (29)	20 000 (21)
Bangladesh	90 000	10 000 (11)	80 000 (89)	2 600 (26)		32 000 (40)	2 100 (21)	900 (1)
Thailand	47 500	10 900 (23)	36 600 (77)	7 000 (65)		23 000 (63)	7 000 (64)	15 000 (41)
Burma	32 900	8 300 (25)	24 600 (75)	3 200 (38)		3 700 (15)	3 150 (38)	3 700 (15)
Nepal	14 000	1 000 (7)	13 000 (93)	800 (83)		900 (7)	160 (16)	1 (1)
Sri Lanka	14 700	3 800 (26)	10 900 (74)	2 500 (65)		2 000 (18)	3 040 (80)	6 900 (63)
Bhutan	1 200	60 (5)	1 140 (95)	30 (50)		60 (5)	...	...
Maldives	161	41 (25)	120 (75)	4 (11)		4 (3)	25 (60)	1 (1)
Totals	1 019 961	232 601 (23)	787 360 (77)	1 48 334 (64)		241 664 (31)	70 075 (30)	49 431 (6)

^a No breakdown given between house connections and public standposts and between sewer connections and other means.

TABLE 3.4 SOUTH-EAST ASIA REGION

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country/Territory	Urban population	Water supply ^a		Sanitation ^a		Rural population	Safe water	Adequate sanitation
		House connection	Stand posts	Sewer connection	Other means			
India	148 000	115 000		40 000		524 000	162 000	2 800
	191 000	191 000		152 000		609 000	609 000	152 000
Indonesia	50 500	17 700		14 600		97 000	18 400	20 000
	70 000	53 000		42 000		113 000	68 000	45 000
Bangladesh	10 000	2 600		2 100		80 000	32 000	900
	18 000	10 400		8 900		96 000	74 000	12 400
Thailand	10 900	7 100		7 000		36 600	23 000	15 000
	14 000	10 000		10 000		43 000	41 000	22 000
Burma	8 300	3 200		3 150		24 600	3 700	3 700
	10 000	5 000		7 000		32 000	16 000	16 000
Nepal	1 000	800		160		13 000	900	130
	1 100	900		300		17 000	11 000	2 000
Sri Lanka	3 800	2 500		3 040		10 900	2 000	6 900
	5 000	4 000		4 500		13 000	6 600	12 000
Bhutan	60	30		...		1 140	60	...
	90	90		90		1 400	850	850
Maldives	41	4		25		120	4	1
	54	50		54		140	110	40

^a

No breakdown given between house connections and public standposts and between sewer connections and other means.

TABLE 3.4.1 - SOUTH-EAST ASIA REGION

DECADE TARGETS FOR URBAN WATER SUPPLY AND SANITATION

Country/Territory	Population covered (000)									
	Urban population (000)		Water supply				Sanitation			
	1980	1990	1980	%	1990	%	1980	%	1990	%
India	148 000	191 000	115 000	77	191 000	100	40 000	27	152 000	80
Indonesia	50 500	70 000	17 700	35	53 000	75	14 600	29	42 000	60
Bangladesh	10 000	18 000	2 600	26	10 400	58	2 100	21	8 900	50
Thailand	10 900	14 000	7 000	64	10 000	71	7 000	64	10 000	71
Burma	8 300	10 000	3 200	38	5 000	50	3 150	38	7 000	70
Nepal	1 000	1 100	800	80	900	82	160	16	300	27
Sri Lanka	3 800	5 000	2 500	65	4 000	80	3 040	80	4 500	90
Maldives	41	54	4	10	50	93	25	61	54	100
Total	232 541	309 154	148 804	64	274 350	89	70 075	30	224 754	73
Additional people to be covered by 1990					125 546				154 679	
Ratio of additional people to be served by 1990 to number served in 1980					0.84:1				2.21:1	

TABLE 3.4.2 - SOUTH-EAST ASIA REGION

DECADE TARGETS FOR RURAL WATER SUPPLY AND SANITATION

Country/Territory	Population covered (000)									
	Rural population (000)		Water supply				Sanitation			
	1980	1990	1980	%	1990	%	1980	%	1990	%
India	524 000	609 000	162 000	31	609 000	100	2 800	0.5	152 000	25
Indonesia	97 000	113 000	18 000	19	68 000	60	20 000	21	45 000	40
Bangladesh	80 000	96 000	32 000	40	74 000	77	900	1	12 400	13
Thailand	36 600	43 000	23 000	63	41 000	95	15 000	41	22 000	51
Burma	24 600	32 000	3 700	15	16 000	50	3 700	15	16 000	50
Nepal	13 000	17 000	900	7	11 000	65	130	1	2 000	12
Sri Lanka	10 900	13 000	2 000	18	6 600	51	6 900	63	12 000	92
Maldives	120	140	4	3	110	79	1	1	40	29
Total	786 220	923 140	241 604	31	825 710	89	49 431	6	261 440	28
Additional people to be covered by 1990					584 106				212 009	
Ratio of additional people to be served by 1990 to number served in 1980					2.42:1				4.29:1	

TABLE 3.5 SOUTH-EAST ASIA REGION

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community-based	Totals per million population
India	...	...	14 123	1 163	10	23
	...	...	48 760	2 430	560	77
Indonesia	...	...	...	...	...	...

Bangladesh	...	...	...	...	...	...

Thailand	...	...	...	...	...	...

Burma	6	907	899	8	...	54
	4	1 828	1 740	21	...	106
Nepal	...	...	...	...	...	...

Sri Lanka	...	...	...	...	...	...

Bhutan	...	...	...	...	...	...

Maldives	3	1	...	...	...	25
	1	6	...	2	...	56

TABLE 3.6 SOUTH-EAST ASIA REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³)

Country/Territory	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand-post	Sewer connection	Other means					
India	50	...	63	...	20	15	...	...	some
Indonesia	60	...	...	...	10	3	...	...	yes
Bangladesh	70	...	...	7	4	6	0.10	0.13	some
Thailand	...	...	...	...	20	5	...	...	yes
Burma	50	...	...	15	15	6	...	...	some
Nepal	42	...	...	...	28	18	...	...	some
Sri Lanka	125	...	150	...	10	12	0.10	0.10	some
Bhutan	...	...	...	...	...	...	...	...	...
Maldives	...	4	27	24	54	16	...	...	no
Median	55	4 ^a	63	15	18	9	0.10	0.12	

^a Based on only one country.

TABLE 3.7 SOUTH-EAST ASIA REGION

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country/Territory	Estimated 10-year cost to reach country Decade targets (US\$ million)	1980 Sector investments			Rate of investment needed (times 1980 investments)
		Total (US\$ million)	Percentage of total development investment	External (US\$ million)	
India	17 708	...	...	...
Indonesia	4 153	125	...	58	3.3
Bangladesh	1 248	...	...	...
Thailand	1 383	...	...	...
Burma	504	15.8	4	9.9	3.2
Nepal	238	4.14	1	2.94	5.7
Sri Lanka	921	22.0	...	10.8	4.2
Bhutan	55.9	...	...	...
Maldives	39	0.096	...	0.035	41

TABLE 3.8 SOUTH-EAST ASIA REGION

RANKING AND FREQUENCY OF CONSTRAINTS ^a

Constraints	No. of countries indicating constraint			Ranking index ^b
	Very severe	Severe	Moderate	
Funding limitations	1	7	0	17
Insufficiency of trained personnel (professional)	0	7	1	15
Insufficiency of trained personnel (sub-professional)	0	7	1	15
Inappropriate institutional framework	0	3	4	10
Inadequate cost-recovery framework	0	3	0	6
Insufficient health education efforts	0	2	2	6
Non-involvement of communities	0	1	2	4
Logistics	0	2	0	4
Operation and maintenance	0	1	0	2
Intermittent water service	0	1	0	2
Inadequate or outmoded legal framework	0	0	2	2
Inappropriate technology	0	1	0	2
Inadequate water resources	0	0	1	1
Insufficient knowledge of water resources	0	0	0	0
Lack of definite government policy for sector	0	0	0	0
Lack of planning and design criteria	0	0	0	0
Import restrictions	0	0	0	0

^a Number of reporting countries: 9.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 3.9 SOUTH-EAST ASIA REGION

DECADE APPROACHES DURING 1980

Country/Territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning	Building	Operating	
India	...	...	...	...	...	...	...
Indonesia	...	...	...	...	...	...	...
Bangladesh	6 000	5	4	...	all	...	all
Thailand	...	...	...	...	...	...	...
Burma	...	...	...	...	...	...	...
Nepal	225	45	12	most	most	most	all
Sri Lanka	1 350	40	...	...	...	...	all
Bhutan	...	...	...	...	...	...	...
Maldives	...	...	...	...	...	...	...

4 EUROPEAN REGION

The European Region differs considerably from other regions in that of its 33 Member States few are classified as developing. Most of the countries of the region range from highly industrialized to moderately industrialized with a soundly developed agricultural base. In all of these countries the level of service in terms of coverage is very high and little progress can be expected during the Decade in terms of changes in population served, except possibly in the rural areas where service, particularly sanitation, always lags behind that in the urban areas.

The main problems to be faced in Europe during the Decade will, therefore, not be those of extending service coverage but rather those of protecting water sources from pollution in the face of increasing and changing industrial practices and population expansion. Also, source protection will play an important role in ensuring the availability of raw water suitable for conversion to potable use for the future.

In the light of these facts, it was considered appropriate to develop a separate monitoring system for the 30 European developed countries, oriented towards the Region's priorities. This monitoring system, launched in 1983, is being implemented in collaboration with the International Water Supply Association, a nongovernmental organization in official relations with WHO, and the first results will be published during the second half of 1984.

4.1 Socioeconomic and health situation

The three countries that submitted baseline information (Malta, Morocco and Turkey) all have average life expectancies over 50 years and low reported incidence of waterborne diseases. Two of them, however, have infant mortality rates per 1000 live births of more than 100. The population of these countries as a whole is expected to increase by 26% by 1990, the entire increase being in urban communities. The 1980 combined rural population is 36.88 million and in 1990 the rural population is expected to be 36.83 million.

Morocco reported on 1980 levels of service for urban water only and Turkey reported on all sub-sectors except rural sanitation. It is likely that the large infant mortality rates in these countries are due at least partly to lack of safe water and sanitation.

4.2 Targets and planning

Tables A.3.1 to A.3.5 (Global) and Fig. 4.1 indicate the reported sector progress from 1970 to 1980. The data for 1970, 1975 and 1980 were provided by different countries, however, and the values represented in Fig. 4.1 should not be compared.

Because only a few developing countries provided relevant data, it is not possible to provide, for the European Region, comparisons between the 1980 baseline and 1990 goals. The necessary data for urban water supply are available only for Malta and Morocco, while for the other three subsectors such information is available only for Malta.

Malta already has total urban and rural coverage with safe water supply, the urban service being entirely by house connections. Morocco has total urban coverage with safe water and Turkey has nearly total urban coverage. As regards sanitation, Malta has total urban sewerage and 84% coverage of rural populations with adequate sanitation. Although Malta is not preparing a Decade plan, there are plans to extend sanitation in rural areas to the remaining unserved population. Morocco, which is preparing a formal Decade plan, intends to extend water supply by house connection to all urban populations and safe water supply to all rural communities. Turkey is preparing a formal Decade plan but has not yet indicated its targets as compared with the baseline data.

4.3 Staff and training

Information provided by Turkey and Malta on present sector staff strength and training plans during the Decade is recorded in Table 4.5. Turkey employs a staff of 1641 per million inhabitants and does not indicate its training plans. Malta employs a staff of 1191 (3776 per million inhabitants); its training requirements are not known. As indicated in the constraints table, all three countries are concerned about the need for trained staff: Malta gives more weight to the need for professional staff, Morocco gives more weight to the need for sub-professional staff, and Turkey gives equal weight to both.

4.4 Financial resources

Table 4.6 shows the unit costs of construction and of water production in the three responding European countries. Bearing in mind the reservations on unit costs mentioned in section A.6 (global financial resources), urban water systems with house connections cost US\$28 per capita to build in Malta, US\$100 in Turkey, and US\$200 in Morocco; water systems with standposts cost US\$77 in Morocco. Urban sewerage costs US\$150 per capita to build in Turkey and other urban excreta disposal systems cost US\$50 per capita. Providing access to safe water in rural communities costs US\$28 per capita in Malta, US\$93 in Turkey and US\$115 in Morocco.

The production of drinking-water costs on the average US\$0.20 per m³ in Turkey and the average tariff is US\$0.25 per m³, which indicates a situation of financial efficiency. The production of drinking water in Malta costs on the average US\$0.51 per m³ and the average tariff is US\$0.30. On the other hand, funding and cost recovery are indicated as moderate constraints in Malta and as severe constraints in Turkey and Morocco.

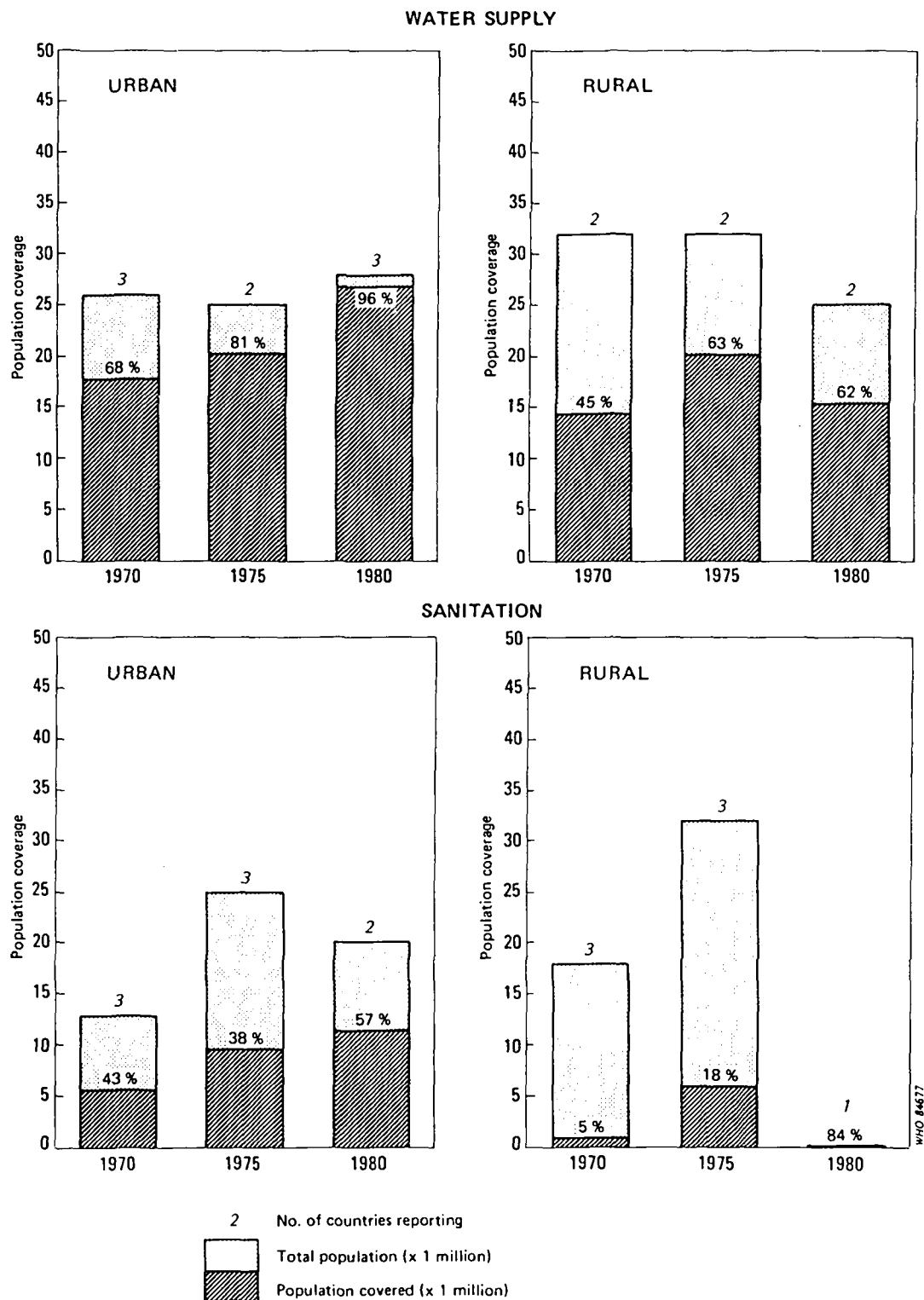
To maintain its total coverage status, according to the figures provided by the Government, Malta will need to increase its sector investment to 20 times compared with the 1980 levels. No comparable figures have been provided by the other two countries. None of the three reporting countries provided figures on the external aid received during 1980.

4.5 Decade approaches

Turkey and Malta gave information on Decade-oriented activities carried out during 1980. Turkey, which classifies one-quarter of its urban population as poor, improved water supply and sanitation services for many of these people during the year. All primary school children in Turkey and Malta received instruction in the hygienic use of domestic water and disposal of wastes. Most of the rural communities in Turkey (1570 villages) participated in the operation and maintenance of their water supply and sanitation facilities.

Fig. 4.1 EUROPEAN REGION

POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2, A.3.3, A.3.4 and A.3.5 and Section 4.2.

TABLE 4.1 EUROPEAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH (1980)

Country/Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Water disease cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Turkey	44 737	2.1	1 327	60	110	33	24	...
Morocco	20 130	3.0	750	55	130	60	...	...
Malta	318	0.7	3 860	71	16	...	0	4

TABLE 4.2 EUROPEAN REGION

COVERAGE TARGETS (% of population) (1990) AND DECADE PLANS

Country/Territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of decade plan preparation
	House connection	Stand posts	Sewer connection	By other means			
Turkey	...	...	...	...	...	...	1982
Morocco	100 ^a		...	...	100	...	in preparation
Malta	100	0	100	0	100	100	None

^a No breakdown given.

TABLE 4.3 EUROPEAN REGION

1980 LEVELS OF SERVICE (Populations in thousands; percentages shown in brackets)

Country/Territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Urban		Rural	Urban		Rural		
				Total	by H.C. ^a		by P.S. ^b	Total		by S.C. ^c	by other
Turkey	44 737	19 645 (44)	25 092 (56)	18 600 (95)	13 600 (69)	5 000 (26)	15 500 (62)	11 000 (56)	2 000 (10)	9 000 (46)	...
Morocco	20 130	8 419 (40)	11 711 (60)	8 419 (100)	3 704 (44)	4 715 (56)	...	...	...	...	...
Malta	318	239 (75)	80 (25)	239 (100)	239 (100)	0	80 (100)	239 (100)	...	...	67 (84)
Totals	65 185	28 303 (43)	36 883 (57)	27 258 (96)	17 543 (62)	9 715 (34)	15 580 (62)	11 239 (57)	2 000 ^d (10)	9 000 ^d (46)	67 ^d (84)

^a H.C. = house connection.

^b P.S. = public standpost.

^c S.C. = sewer connection.

^d Data from only one country.

TABLE 4.4 EUROPEAN REGION

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country/Territory	Urban population	Water supply		Sanitation		Rural population	Safe water	Adequate sanitation
		House connection	Stand-post	Sewer connection	Other means			
Turkey	19 645	13 600	5 000	2 000	9 000	25 092	15 500	...
	31 687	...	...	...	...	22 946	...	...
Morocco	8 419	3 704	4 715	...	...	11 711	...	...
	13 454	13 454 ^a	...	...	...	13 793	13 793	...
Malta	239	239	0	239	0	80	80	67
	258	258	0	258	0	86	86	86

^a No breakdown given.

TABLE 4.5 EUROPEAN REGION

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community-based	Totals per million population
Turkey	...	...	50 470	4 960	18 000	1 641

Morocco	...	...	...	...	...	...

Malta	2	152	841	206	...	3 777
	1	2	...	...	...	...

TABLE 4.6 EUROPEAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³)

Country	Construction					Operation			
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand-post	Sewer connection	Other means					
Turkey	100	...	150	50	93	...	0.20	0.25	some
Morocco	200	77	...	...	115	...	...	...	...
Malta	28	...	...	...	28	...	0.51	0.30	some
Median	100	77 ^a	150 ^a	50 ^a	93	...	0.35	0.28	

^a Based on only one country.

TABLE 4.7 EUROPEAN REGION

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country	Estimated cost to reach country Decade targets US\$ million	1980 sector investments			Rate of investment needed (times 1980 investments)
		Total US\$ million	Percentage of total development investment	External US\$ million	
Turkey	...	...	4.2	...	
Morocco	...	...	...	...
Malta	125	0.640	5.5	...	20

TABLE 4.8 EUROPEAN REGION

RANKING AND FREQUENCY OF CONSTRAINTS ^a

Constraints	No. of countries indicating constraint			Ranking index ^b
	Very severe	Severe	Moderate	
Funding limitations	2	0	1	7
Operation and maintenance	1	1	1	6
Insufficiency of trained personnel (professional)	0	2	1	5
Inadequate cost-recovery framework	0	2	1	5
Logistics	0	2	1	5
Lack of planning and design criteria	0	2	1	5
Insufficient health education efforts	0	2	1	5
Insufficiency of trained personnel (sub-professional)	0	2	1	5
Intermittent water service	0	1	2	4
Lack of definite government policy for sector	0	1	2	4
Inappropriate institutional framework	0	0	3	3
Insufficient knowledge of water resources	0	0	3	3
Inappropriate technology	0	1	1	3
Non-involvement of communities	0	1	1	3
Inadequate water resources	0	0	2	2
Import restrictions	0	1	0	2
Inadequate or outmoded legal framework	0	0	2	2

^a Number of reporting countries: 3.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 4.9 EUROPEAN REGION

DECADE APPROACHES DURING 1980

Country/Territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning	Building	Operating	
	Turkey	5 000	70 ^a	9	...	...		1 570	1 400
Morocco	...	...	...	...	...	...	...
Malta	...	...	...	...	...	...	32

^a This probably refers to the situation prevailing in 1980, rather than to improvements realized during 1980.

5. EASTERN MEDITERRANEAN REGION

5.1 Socioeconomic and health situation

Twelve countries provided information on the status of their water supply and sanitation facilities and services at the start of the Water Decade. Table 5.1 summarizes the demographic, socioeconomic and health data of the countries and the regional data are compared with those of other regions in Table A.1. The population is expected to increase by 31% during the Decade, 44% in urban areas and 24% in rural areas. Four countries expect their rural populations to decrease during this period: Djibouti, Libyan Arab Jamahiriya, Saudi Arabia, and United Arab Emirates.

Four countries are classified by the United Nations as least developed countries and five as most seriously affected countries. There is a large economic difference between the countries: per capita gross national product varies from US\$150 in Afghanistan to US\$28700 in the United Arab Emirates. Although fresh-water resources are limited in most countries of the region, this fact has long been taken into account in planning; in the overall rating this constraint is placed below trained staff, operation and maintenance of facilities and institutional reforms.

Four of the 10 responding countries have average life expectancies of less than 50 years and six out of 10 have infant mortality rates of over 100 per 1000 live births. Four of eight countries providing information on waterborne disease, Jordan, Tunisia, the United Arab Emirates, and Yemen reported that over 2% of their population was afflicted during 1980. These unsatisfactory health conditions are believed to be at least partly due to the insufficiency of clean water and of sanitary wastes disposal from which more than half the population suffers in half of the responding countries.

5.2 Targets and planning

Tables A.3.1 to A.3.5 (Global) and Fig. 5.1 indicate the progress reported in the various sectors from 1970 to 1980. In the countries that have provided full information, the percentage of people served with adequate rural water supply has increased and a slight increase in coverage is also reported for urban water supply while there appear to have been decreases in urban and rural sanitation. Moreover, for all four subsectors, the reported changes have been more pronounced during the period 1975-1980 than during the previous 5 year period. It must, however, be noted that different countries provided the data for 1970, 1975 and 1980 and the concepts of adequate coverage with water supply and sanitation may have changed in a number of countries during the period 1970-1980; therefore the data presented in Fig. 5.1 do not necessarily permit a valid comparison of the trends.

Ten of the reporting countries have set coverage targets for the Decade and 7 have prepared or are preparing formal Decade plans for improving sector facilities and services. Access to a safe water supply for all urban populations is a declared aim for 1990 in 8 countries; 3 countries plan to provide adequate sanitation for all urban populations; 3 countries plan to provide safe water for all rural populations by 1990; and 2 countries have established a target to provide adequate sanitation to all rural populations.

Information regarding 1980 coverage and 1990 targets has not been provided in full by the 12 countries that provided 1980 baseline information; Fig. 5.2 therefore compares the 1980 coverage and 1990 targets only for those countries for which the necessary data are available. These comparisons are presented in terms of percentage increases as well as in terms of persons to be covered.

For urban water supply, 9 countries representing 40% of the total population of the Eastern Mediterranean Region Member States provided the necessary information which is presented in Table 5.4.1.1 and Fig. 5.2. According to the targets established by these countries, coverage would increase from 82% in 1980 to 100% by 1990, meaning that 24.9 million additional people would have to be served by the end of the Decade.

For rural water supply, information from 10 countries representing 54% of the total population of the Region's member states is presented in Table 5.4.2.1 and Fig. 5.2. Coverage is planned to increase from 33% in 1980 to 73% at the end of the Decade, and therefore 57.5 million additional people would have to be covered, 1.75 times the number covered in 1980.

Six countries reported on their Decade targets for urban sanitation as shown in Table 5.4.1.2 and Fig. 5.2. They represent 34% of the total population of the Region. Coverage would increase from 54% to 69%, representing 15.6 million additional people to be served.

For rural sanitation, as shown on Table 5.4.2.2 and Fig. 5.2, the targets are the most ambitious. For the 7 countries that provided data (representing 36% of the Regional population) coverage would increase from 5% to 19% meaning that 13.1 million additional people would have to be covered by the end of the Decade, 3.66 times the number covered in 1980.

5.3 Staff and training

Only three countries provided information on staff resources and on training projects. Yemen had 92 staff per million population in 1980 and plans to train another 46 per million population by 1990. In Jordan, the 1980 level was 750 per million population and there are plans to train a further 710 per million by 1990. Corresponding figures for Democratic Yemen are 1463 staff per million population in 1980 and a further 163 trainees per million by 1990. All responding countries except Tunisia gave top importance to shortage of trained personnel, emphasizing almost equally their need for professional and subprofessional staff.

5.4 Financial resources

Unit costs are shown by country in Table 5.6 and compared with those of other regions in Table A.6. Urban water supplies with house connections cost as little as US\$40 per capita in Pakistan and as much as US\$1000 in Libyan Arab Jamahiriya, with a median value of US\$250. The cost of urban sewerage ranges from US\$25 per capita in Pakistan to US\$1800 in Libyan Arab Jamahiriya. Urban water supply from standposts costs from US\$27 (Djibouti) to US\$250 (Yemen) and urban sanitation other than by sewerage costs from US\$28 (Djibouti) to US\$900 (Democratic Yemen). Rural water systems cost from US\$25 (Pakistan) to US\$250 (Djibouti) with a median of US\$112 and rural sanitation improvements cost from US\$10 (Pakistan) to US\$450 (Jordan) with a median value of US\$100.

Cost of fresh-water production does vary greatly, as might be supposed, the lowest being reported in Pakistan (US\$0.11 per m³) and the highest in the United Arab Emirates (US\$1.32) with a median cost of US\$ 0.80 per m³. Tariffs range from \$0.07 (Pakistan) to US\$0.90 (United Arab Emirates) per m³, with a median value of US\$0.13 per m³. Six countries have progressive tariffs.

Despite the low construction and operating costs, Pakistan must increase its annual investment to nearly three times the 1980 level in order to reach its Decade targets. At the 1980 rate of annual investment, Yemen would reach Decade targets in 1990. Unfortunately no other country in the region provided data permitting a similar calculation. The proportion of external aid to total sector investment in 1980 was reported only by Yemen, at 73%. Six countries reported funding as a severe or very severe constraint to sector development and six also reported cost-recovery mechanisms as seriously or very seriously deficient.

5.5 Decade approaches

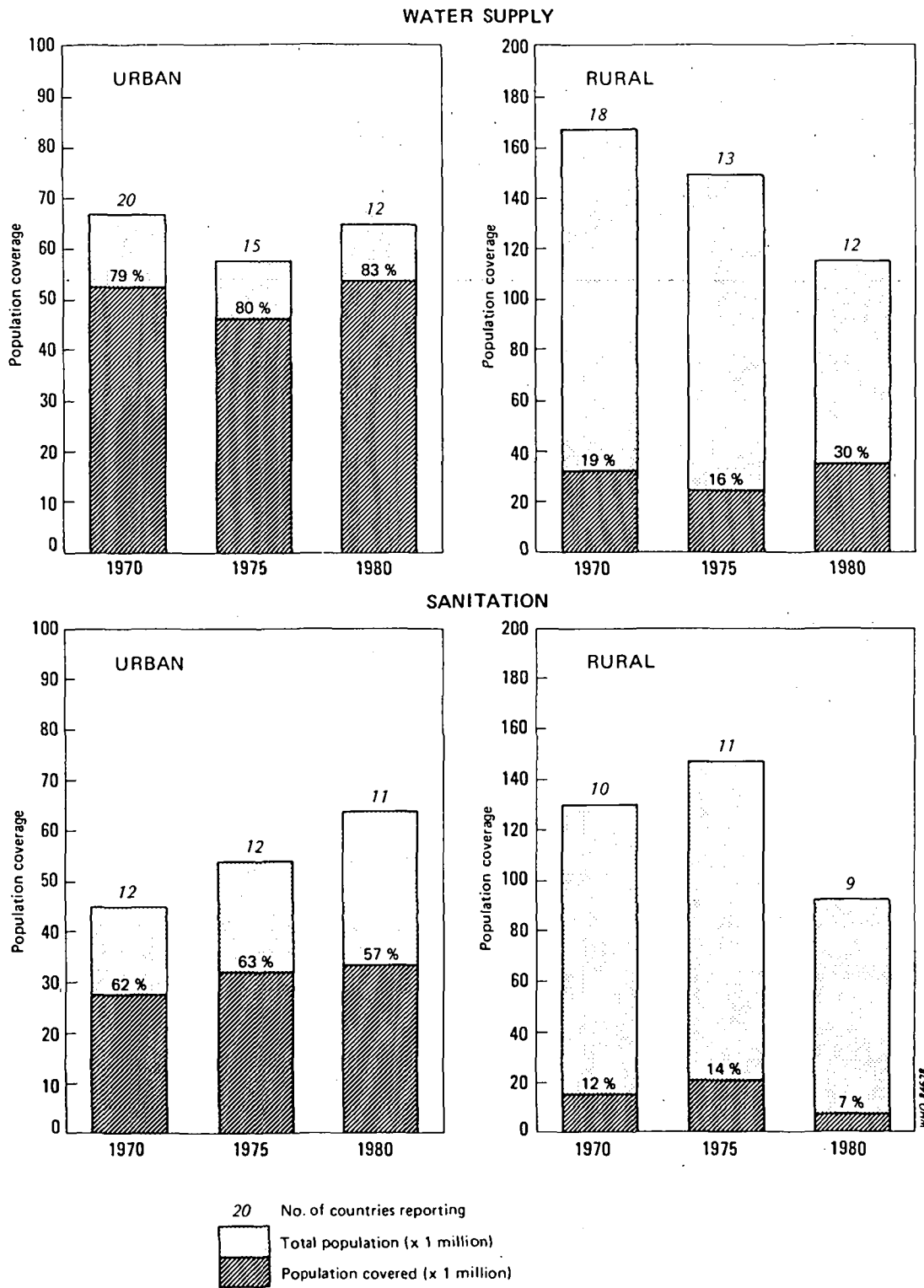
Seven countries gave data on Decade-related activities carried out during 1980. Yemen has classified three-quarters of its urban population as poor, and has provided improved water supply and sanitation services for 25% of these people during 1980. Tunisia's 4000 rural communities all took part in planning improved services. The rural communities in the United Arab Emirates and Yemen participated in all phases of planning, building and

operating improved water and sanitation facilities, and Democratic Yemen's rural communities participated in building and running them.

Primary school children in Jordan, Libyan Arab Jamahiriya, the Syrian Arab Republic, United Arab Emirates and Yemen were instructed in the hygienic use of water and disposal of wastes. Most countries considered lack of health education and participation of citizens in planning, building and operating sanitary facilities as constraints to the satisfactory development of the sector, and four countries gave these matters high priority.

Fig. 5.1 EASTERN MEDITERRANEAN REGION

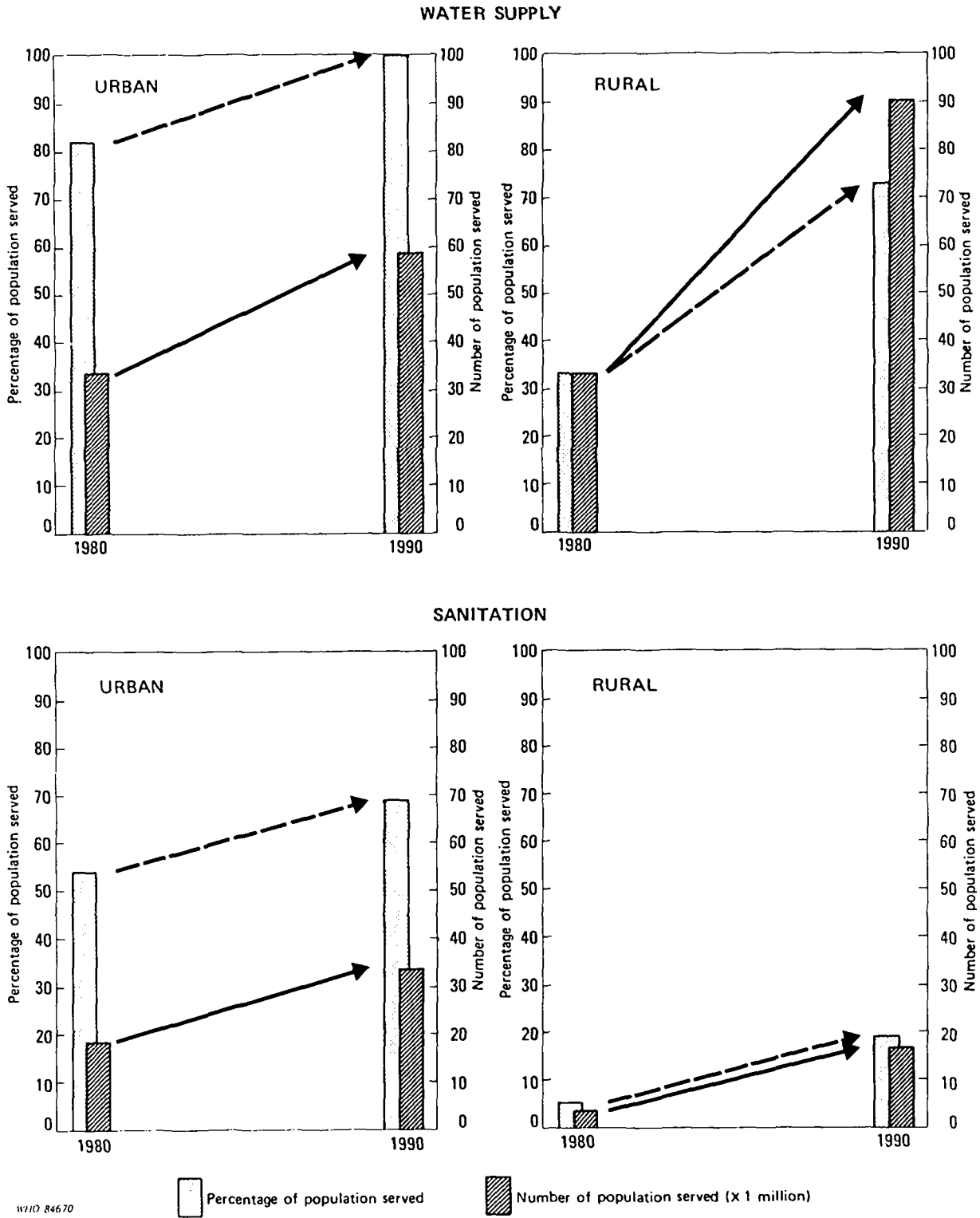
POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2, A.3.3, A.3.4 and A.3.5 and Section 5.2.

Fig. 5.2 EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN SELECTED COUNTRIES COMPARED WITH EXISTING COVERAGE IN 1980^a



^a See Tables A.5.4.1.1, A.5.4.1.2, A.5.4.2.1 and A.5.4.2.2 and section 5.2.

TABLE 5.1 EASTERN MEDITERRANEAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH (1980)

Country/Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Waterborne diseases: cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Pakistan ^b	83 780	3.0	200	52	105	315	65	87
Egypt ^b	42 710	2.3	360	55	116	78	25	74
Afghanistan ^{a, b}	16 270	2.3	150	40	184	...	90	...
Syrian Arab Republic	8 979	3.5	1 446	64	63	149	29	55
Saudi Arabia	7 508	3.2	12 727	...	...	...	9	24
Tunisia	6 300	2.7	1 070	59	80	2 740	37	44
Yemen Arab Republic ^{a, b}	6 227	2.9	420	43	159	2 341	73	...
Libyan Arab Jamahiriya	3 245	3.5	8 200	...	...	...	2	6
Jordan	2 233	4.0	1 750	67	70	4 000	11	24
Democratic Yemen ^{a, b}	1 925	2.9	424	47	152	...	56	67
United Arab Emirates	1 081	3.9	28 700	63	30	2 600	7	14
Djibouti ^a	330	2.8	450	45	120	193	55	61

^a Least Developed Country (LDC).

^b Most Seriously Affected Country (MSA).

TABLE 5.2 EASTERN MEDITERRANEAN REGION

COVERAGE TARGETS (% of population) (1990) AND DECADE PLANS

Country / Territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Stand- post	Sewer connection	By other means			
Pakistan	51	49	58 ^a		65	13	1980
Egypt	92	...	48	...	90	...	in preparation
Afghanistan	...	...	...	...	...	...	none
Syrian Arab Republic	100	0	90	...	80	54	1981
Saudi Arabia	83	17	70	24	100	61	none
Tunisia	100	0	81	...	31	...	1982
Yemen	100	0	100	0	100	30	none
Libyan Arab Jamahiriya	...	...	...	...	...	...	none
Jordan	95	5	73	23	95	74	1982
Democratic Yemen	85	10	86	...	40	89	1982
United Arab Emirates	100	0	85	15	95	100	none
Djibouti	47	53	84	16	100	100	in preparation

^a No breakdown given.

TABLE 5.3 EASTERN MEDITERRANEAN REGION

1980 LEVELS OF SERVICE (Populations in thousands; percentages shown in brackets)

Country/Territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Urban		Rural		Urban		Rural	
				Total	by H.C. ^a	by P.S. ^b	Total	by S.C. ^c	by other	Total	by S.C. ^c	by other
Pakistan	83 800	23 700 (28)	60 100 (72)	17 000 (72)	7 100 (30)	9 900 (42)	12 000 (20)	10 000 (42)	...	...	1 000 (2)
Egypt	42 710	19 880 (47)	22 830 (53)	17 450 (88)	13 770 (69)	3 680 (19)	14 540 (64)	8 930 (45)	8 930 (45)	...	2 280 (10)
Afghanistan	16 270	1 890 (12)	14 380 (88)	521 (28)	136 (7)	385 (21)	1 100 (8)	...	...	...	...
Syrian Arab Republic	8 979	3 436 (38)	5 543 (62)	3 367 (98)	3 367 (98)	0	2 982 (54)	2 548 (74)	2 548 (74)	0	1 533 (28)
Saudi Arabia	7 508	6 358 (54)	1 150 (46)	5 832 (92)	2 225 (35)	3 607 (57)	1 000 (87)	5 131 (81)	1 231 (20)	3 900 (61)	575 (50)
Tunisia	6 300	3 500 (55)	2 800 (45)	3 500 (100)	2 480 (71)	1 020 (29)	470 (17)	3 500 (100)	1 600 (46)	1 900 (54)	...
Yemen	6 227	710 (11)	5 517 (89)	710 (100)	355 (50)	355 (50)	993 (18)	426 (60)	71 (10)	355 (50)	...
Libyan Arab Jamahiriya	3 245	2 596 (80)	649 (20)	2 596 (100)	2 466 (95)	130 (5)	584 (90)	2 596 (100)	1 146 (44)	1 450 (56)	467 (72)
Jordan	2 233	1 550 (69)	683 (31)	1 550 (100)	1 208 (78)	342 (22)	444 (65)	1 458 (94)	280 (18)	1 178 (76)	231 (34)
Democratic Yemen	1 925	637 (33)	1 288 (67)	539 (85)	509 (80)	30 (5)	316 (25)	446 (70)	319 (50)	127 (20)	193 (15)
United Arab Emirates	1 080	967 (90)	113 (10)	915 (95)	870 (90)	45 (5)	92 (81)	899 (93)	654 (68)	245 (25)	25 (22)
Djibouti	330	274 (83)	56 (17)	137 (50)	110 (40)	27 (10)	11 (20)	118 (43)	...	...	11 (20)
Totals	180 607	65 498 (36)	115 109 (64)	54 117 (83)	34 596 (53)	19 521 (30)	34 532 (30)	36 052 (57)	16 779 (42)	9 155 ^d (15)	6 315 (7)

^a H.C. = house connection. ^b P.S. = public standpost. ^c S.C. = sewer connection. ^d This partial total does not correspond to adjusted percentage.

TABLE 5.4 EASTERN MEDITERRANEAN REGION

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country / Territory	Urban population	Water supply		Sanitation		Rural population	Safe water	Adequate sanitation
		House connection	Stand-post	Sewer connection	Other means			
Pakistan	23 700	7 100	9 900		10 000 ^a	60 100	12 000	1 000
	34 200	17 400	16 800		20 000 ^a	77 300	50 600	9 700
Egypt	19 880	13 770	3 680	8 930	...	22 830	14 540	2 280
	29 000	26 700	...	14 000	...	25 000	22 500	...
Afghanistan	1 890	136	385	...	...	14 380	1 100	...

Syrian Arab Republic	3 436	3 367	...	2 548	...	5 543	2 982	1 533
	4 866	4 866	0	4 384	...	7 908	6 352	4 298
Saudi Arabia	6 358	2 225	3 607	1 231	3 900	1 150	1 000	575
	9 346	7 772	1 574	6 519	2 278	940	940	575
Tunisia	3 500	2 480	1 020	1 600	1 900	2 800	470	...
	4 300	4 300	0	3 500	...	3 400	1 040	...
Yemen	710	355	355	71	355	5 517	993	...
	944	944	0	944	0	7 343	7 343	2 203
Libyan Arab Jamahiriya	2 596	2 466	130	1 146	1 450	649	584	467
	3 838	...	...	...	...	307	...	...
Jordan	1 550	1 208	342	280	1 178	683	444	231
	2 227	2 115	112	1 626	512	982	933	727
Democratic Yemen	637	509	30	319	127	1 288	316	193
	831	710	80	713	...	1 394	552	1 234
United Arab Emirates	967	870	45	654	245	113	92	25
	1 378	1 378	0	1 171	207	78	74	78
Djibouti	274	110	27		118 ^a	56	11	11
	405	190	215	340	65	30	30	30

^a No breakdown given.

Table 5.4.1.1 EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/Territory	Urban population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Pakistan	23 700	34 200	17 000	72	34 200	100
Syrian Arab Republic	3 436	4 866	3 367	98	4 866	100
Saudi Arabia	6 358	9 346	5 832	92	9 346	100
Tunisia	3 500	4 300	3 500	100	4 300	100
Yemen	710	944	710	100	944	100
Jordan	1 550	2 227	1 550	100	2 227	100
Democratic Yemen	637	831	539	85	790	95
United Arab Emirates	967	1 378	915	95	1 378	100
Djibouti	274	405	137	50	405	100
Total	41 132	58 497	33 550	82	58 456	100
Additional people to be covered by 1990					24 906	
Ratio of additional people to be served by 1990 to number served in 1980					0.74:1	

Table 5.4.1.2 EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR URBAN SANITATION

Country/Territory	Urban Population (000)		Population Covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Pakistan	23 700	34 200	10 000	42	20 000	58
Saudi Arabia	6 358	9 346	5 131	81	8 797	94
Yemen	710	944	426	60	944	100
Jordan	1 550	2 227	1 458	94	2 138	96
United Arab Emirates	967	1 378	899	93	1 378	100
Djibouti	274	405	118	43	405	100
Total	33 559	48 500	18 032	54	33 662	69
Additional people to be covered by 1990					15 630	
Ratio of additional people to be served by 1990 to number served in 1980					0.87:1	

Table 5.4.2.1 EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/Territory	Rural population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
-						
Pakistan	60 100	77 300	12 000	20	50 600	65
Egypt	22 830	25 000	14 540	64	22 500	90
Syrian Arab Republic	5 543	7 908	2 982	54	6 352	80
Saudi Arabia	1 150	940	1 000	87	940	100
Tunisia	2 800	3 400	470	17	1 040	31
Yemen	5 517	7 343	993	18	7 343	100
Jordan	683	982	444	65	933	95
Democratic Yemen	1 288	1 394	316	25	552	40
United Arab Emirates	113	78	92	81	74	95
Djibouti	56	30	11	20	30	100
Total	100 080	124 375	32 848	33	90 364	73
Additional people to be covered by 1990					57 516	
Ratio of additional people to be served by 1990 to number served in 1980					1.75:1	

TABLE 5.4.2.2 EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR RURAL SANITATION

Country/Territory	Rural Population (000)		Population Covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Pakistan	60 100	77 300	1 000	2	9 700	13
Syrian Arab Republic	5 543	7 908	1 533	28	4 298	54
Saudi Arabia	1 150	940	575	50	575	61
Jordan	683	982	231	34	727	74
Democratic Yemen	1 288	1 394	193	15	1 234	89
United Arab Emirates	113	78	25	22	78	100
Djibouti	56	30	11	20	30	100
Total	68 933	88 632	3 568	5	16 642	19
Additional people to be covered by 1990					13 074	
Ratio of additional people to be served by 1990 to number served in 1980					3.66:1	

TABLE 5.5 EASTERN MEDITERRANEAN REGION

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community-based	Totals per million population
Pakistan	...	...	...	...	...	...
Egypt	...	...	...	...	...	...
Afghanistan	...	...	...	...	...	...
Syrian Arab Republic	...	...	...	...	...	...
Saudi Arabia	...	...	...	...	...	...
Tunisia	...	...	...	...	...	...
Yemen	18 16	74 75	196 108	282 86	...	92 46
Libyan Arab Jamahiriya	...	...	...	...	...	...
Jordan	25 75	169 250	760 760	720 500	...	750 710
Democratic Yemen	32 21	450 202	2 038 90	300 ...	...	1 465 163
United Arab Emirates	...	...	...	...	...	...
Djibouti	...	...	...	...	...	...

TABLE 5.6 EASTERN MEDITERRANEAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³)

Country	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand-post	Sewer connection	Other means					
Pakistan	40	...	25	...	25	10	0.11	0.07	no
Egypt	...	...	...	...	...	...	...	...	...
Afghanistan	...	...	...	...	...	...	...	...	no
Syrian Arab Republic	250	...	125	...	100	80	0.25	0.13	some
Saudi Arabia	544	...	1 347	...	...	235	1.26	0.10	no
Tunisia	250	...	88	...	200	...	...	0.31	yes
Yemen	300	250	400	300	125	150	...	...	some
Libyan Arab Jamahiriya	1 000	...	1 800	300	...	300	0.80	0.07	some
Jordan	360	...	660	720	197	450	0.80	0.40	yes
Democratic Yemen	217	174	1 200	900	58	100	0.15	0.13	...
United Arab Emirates	100	30	1 075	430	85	20	1.32	0.90	no
Djibouti	75	27	140	28	250	23	...	0.42	yes
Median	250	102	530	365	112	100	0.80	0.13	

TABLE 5.7 EASTERN MEDITERRANEAN REGION

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country	Estimated cost to reach country Decade targets US\$ million	1980 sector investments			Rate of investment needed (times 1980 investment)
		Total US\$ million	Percentage of total development investment	External US\$ million	
Pakistan	1 433	49	...	...	2.9
Egypt	3 700	...	...	...	...
Afghanistan	...	...	...	...	...
Syrian Arab Republic	1 570 ^a	175	...	...	...
Saudi Arabia	9 472	...	...	...	...
Tunisia	1 593 ^a	...	...	...	...
Yemen	814	90	3	66	0.9
Libyan Arab Jamahiriya	...	...	...	...	...
Jordan	...	...	...	...	...
Democratic Yemen	314	...	...	...	...
United Arab Emirates	...	333	6.5	...	...
Djibouti	89.5	...	...	...	...

^a These figures are underestimates because either not all sub-sectors were included or projections for the late years of the Decade were not made.

TABLE 5.8 EASTERN MEDITERRANEAN REGION

RANKING AND FREQUENCY OF CONSTRAINTS^a

Constraints	No. of countries indicating constraint			Ranking index ^b
	Very severe	Severe	Moderate	
Insufficiency of trained personnel (professional)	5	5	1	26
Insufficiency of trained personnel (sub-professional)	5	5	1	26
Operation and maintenance	3	8	1	26
Inappropriate institutional framework	1	6	4	19
Funding limitations	3	3	4	19
Inadequate water resources	2	4	4	18
Logistics	1	6	3	18
Insufficient health education efforts	2	2	7	17
Intermittent water service	2	3	5	17
Non-involvement of communities	3	0	7	16
Inadequate cost-recovery framework	1	5	3	16
Inappropriate technology	1	3	6	15
Insufficient knowledge of water resources	0	5	4	14
Lack of planning and design criteria	1	2	6	13
Inadequate our outmoded legal framework	1	2	4	11
Import restrictions	0	2	5	9
Lack of definite government policy for sector	0	1	6	8

^a Number of reporting countries: 12.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 5.9 EASTERN MEDITERRANEAN REGION

DECADE APPROACHES DURING 1980

Country	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning	Building	Operating	
Pakistan	...	...	...	...	...	...	...
Egypt	3 780	...	...	...	...	...	...
Afghanistan	...	...	...	...	...	...	...
Syrian Arab Republic	...	...	...	...	...	...	1 000
Saudi Arabia	...	...	...	...	...	...	...
Tunisia	...	...	...	4 000	...	...	...
Yemen	533	25	15	176	40	40	16
Libyan Arab Jamahiriya	...	...	...	...	...	...	607
Jordan	...	...	...	...	...	...	almost all
Democratic Yemen	255	...	...	...	700	570	...
United Arab Emirates	...	...	...	45	22	70	62
Djibouti	...	...	...	...	...	...	...

6 WESTERN PACIFIC REGION

6.1 Socioeconomic and health situation

In the 20 countries or territories reporting baseline information, the overall population increase during the Decade is expected to be 24%, that of urban areas 27% and that of rural areas 17%. As compared with other regions, these figures represent the second lowest overall increase, the lowest urban increase, and the third highest rural increase.

One country is classified by the United Nations as both a least developed country and a most seriously affected country. The per capita gross national product ranges from US\$100 in Viet Nam to US\$10 600 in Brunei. Thirteen countries consider lack of fresh-water resources as a constraint to sector development, four of them rating it as a severe constraint. Four other countries without shortages at present rate lack of knowledge of water resources as a constraint.

All responding countries have average life expectancies of over 50 years, and 10 have expectancies of over 60 years. Infant mortality rates are generally low, 15 countries reporting less than 50 per 1000 live births. Incidence of waterborne diseases is, however, relatively high, reaching 14% of the population in Tuvalu and 27% of the population in Cook Islands during 1980, and being around 1 - 2% in six other responding countries or territories (Malaysia, New Caledonia, Philippines, Tonga, Trust Territory of the Pacific Islands and Viet Nam). The proportion of inhabitants lacking access to safe water exceeds 60% in four countries and the proportion of inhabitants without adequate sanitation exceeds 70% in three of these countries. These deficiencies are undoubtedly responsible at least in part for the relatively high incidence of waterborne diseases in the four countries.

6.2 Targets and planning

As shown in Tables A.3.1 to A.3.5 (Global) and Fig. 6.1, during the period 1970-1980 progress in rural water supply and especially in rural sanitation appears to have been very good. In the urban areas, progress was also reported during the period 1970-1980 although in percentage terms water supply coverage appears to have decreased between 1975 and 1980. It should be noted, however, that the concept of adequate coverage may have changed in several countries during the period 1970-1980. Moreover, the comparisons are based on reports from different countries and therefore may not be fully valid.

Sixteen countries provided data on targets and planning and 12 have prepared or are preparing formal Decade plans. Since information on 1980 coverage and 1990 targets has not been provided in full by all reporting countries, Fig. 6.2 shows a comparison between the existing 1980 coverage and the 1990 targets only for those countries for which the necessary data are available. These comparisons are presented in terms of both percentage increases and persons to be covered.

For urban water supply, 12 countries representing 40% of the total population of the Western Pacific Region Member Countries and territories,^a provided the necessary information which is presented in Table 6.4.1.1 and Fig. 6.2. According to the 1990 coverage targets which all of these countries have established at 100%, compared with an average of 78% in 1980, 14.6 million additional people would have to be served by the end of the Decade, compared with the 23.3 million already served in 1980.

As regards rural water supply, information from 14 countries/territories representing 70% of the region's population,^a is shown in Table 6.4.2.1 and Fig. 6.2. According to the targets established, coverage would increase from 38% in 1980 to 88% in 1990 and therefore 58 million additional people would have to be covered, 1.82 times the number (31.9 million) already covered in 1980.

^aexcept Australia, China, Japan and New Zealand.

As shown in Table 6.4.1.2 and Fig. 6.2, 9 countries/territories representing only 10% of the region's population^a reported on their Decade targets for urban sanitation, which would increase overall from 93% coverage in 1980 to 100% by 1990. This would mean that an additional 3 million people would have to be covered by the end of the Decade, compared with the 7.2 million already covered in 1980.

For rural sanitation, as shown on Table 6.4.2.2 and Figure 6.2, 11 countries, representing 67% of the region's population^a plan to increase coverage from 60% in 1980 to 90% in 1990 meaning that an additional 41.8 million people would require coverage, 0.85 times the 49.3 million already covered in 1980.

6.3 Staff and training

The number of staff now employed in sector activities in the responding countries is recorded in Table 6.5, together with the number that should be employed and trained in order to carry out planned sector development activities during the Decade and to replace resigning staff. The equivalent staff per million inhabitants ranges from 96 in Papua New Guinea to 3000 in Tuvalu with a median of 467. The number of new staff that should be employed and trained for Decade activities, including replacements, varies from 202 per million in Viet Nam to 1797 in the Philippines, with a median of 636. Nearly all the responding countries consider lack of trained professional and sub-professional staff as constraints to sector development; most of the smaller countries rate this constraint as severe or very severe.

6.4 Financial resources

Bearing in mind the reservations expressed on unit costs in section A.6 on global financial resources, the cost of new urban water supplies with house connections varies from US\$ 8 per capita in Singapore to US\$1000 per capita in American Samoa, with a median value of US\$80. Piped systems with standposts vary from US\$19 per capita in the Philippines to US\$233 in Fiji. Urban sewerage costs from US\$10 per capita in Kiribati to US\$1500, in American Samoa, with a median value of US\$177 while the median cost of urban sanitation by other means is US\$60. Rural water supplies cost from US\$8 per capita in the Philippines to US\$146 in the Trust Territories of the Pacific Islands, with a median cost of US\$26, and rural sanitation costs from US\$2 per capita in the Republic of Korea and Kiribati to US\$375 per capita in the Trust Territory of the Pacific Islands, with a median cost of US\$5.

The average cost of producing safe water varies from US\$0.09 per m³ in the Philippines to US\$0.54 per m³ in Fiji. The average tariff varies from US\$0.07 in the Trust Territory of the Pacific Islands to US\$0.31 in Vanuatu. In nine out of 14 responding countries the average tariff exceeds the average cost of production. In 10 out of 16 responding countries progressive water tariffs are used to encourage economic use of water and to permit the subsidizing of poor consumers.

The total estimated investment needed to achieve Decade targets is recorded in Table 6.7 and compared with actual sector investments during 1980 as a means of estimating the investment acceleration needed. Based on this calculation, the Philippines must increase investment to 5.8 times the 1980 levels while in the case of Kiribati no increase appears to be necessary. The proportion of external aid to total sector investment in 1980 was reported by six countries, with figures ranging from 7% to 100% and a median value of 73%.

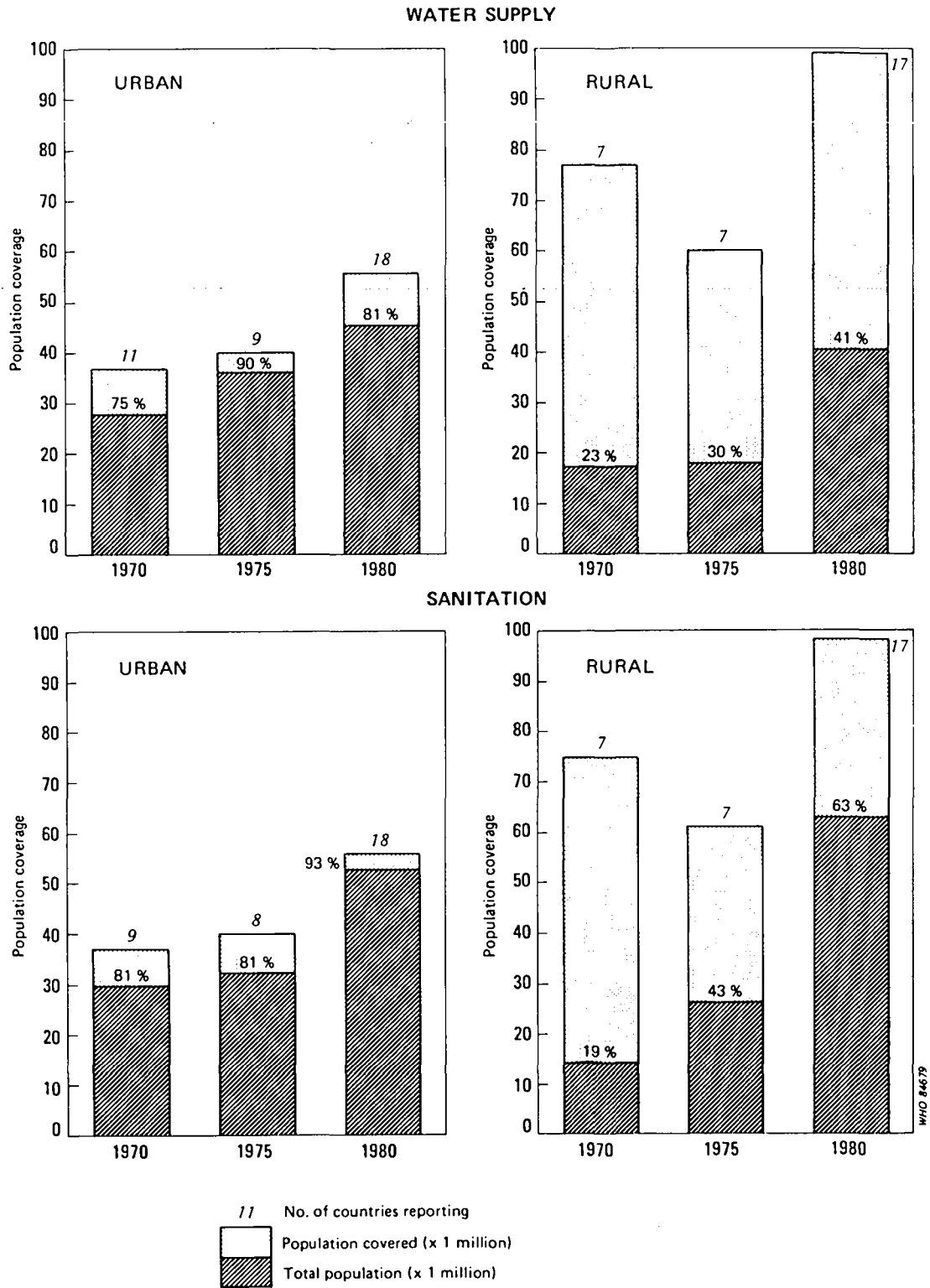
Every country or area except Singapore and Macao showed funding as a sector development constraint, and every country or territory except Hong Kong, Singapore, Tuvalu and Viet Nam, showed inadequate cost recovery as a constraint.

^a except Australia, China, Japan and New Zealand.

6.5 Decade approaches

Information on Decade-oriented activities was received from 13 countries and is recorded in Table 6.9 and compared with other regions in Table A.9. Responding countries rated 5% to 10% of their urban populations as poor. In Macao, 40% of the urban poor benefited during 1980 from water supply and sanitation improvements. Rural communities in nine countries participated in planning and building water supply and sanitation improvements, and rural communities in eight countries participated in operating their water and sanitation systems. Primary school children in seven countries received instruction in the hygienic use of clean water and the disposal of excreta and household wastes. Most countries considered the lack of health education and community participation as constraints to sector development, but only Fiji, Macao, Papua New Guinea, Solomon Islands, Tuvalu, Vanuatu and Viet Nam considered one or the other a severe constraint.

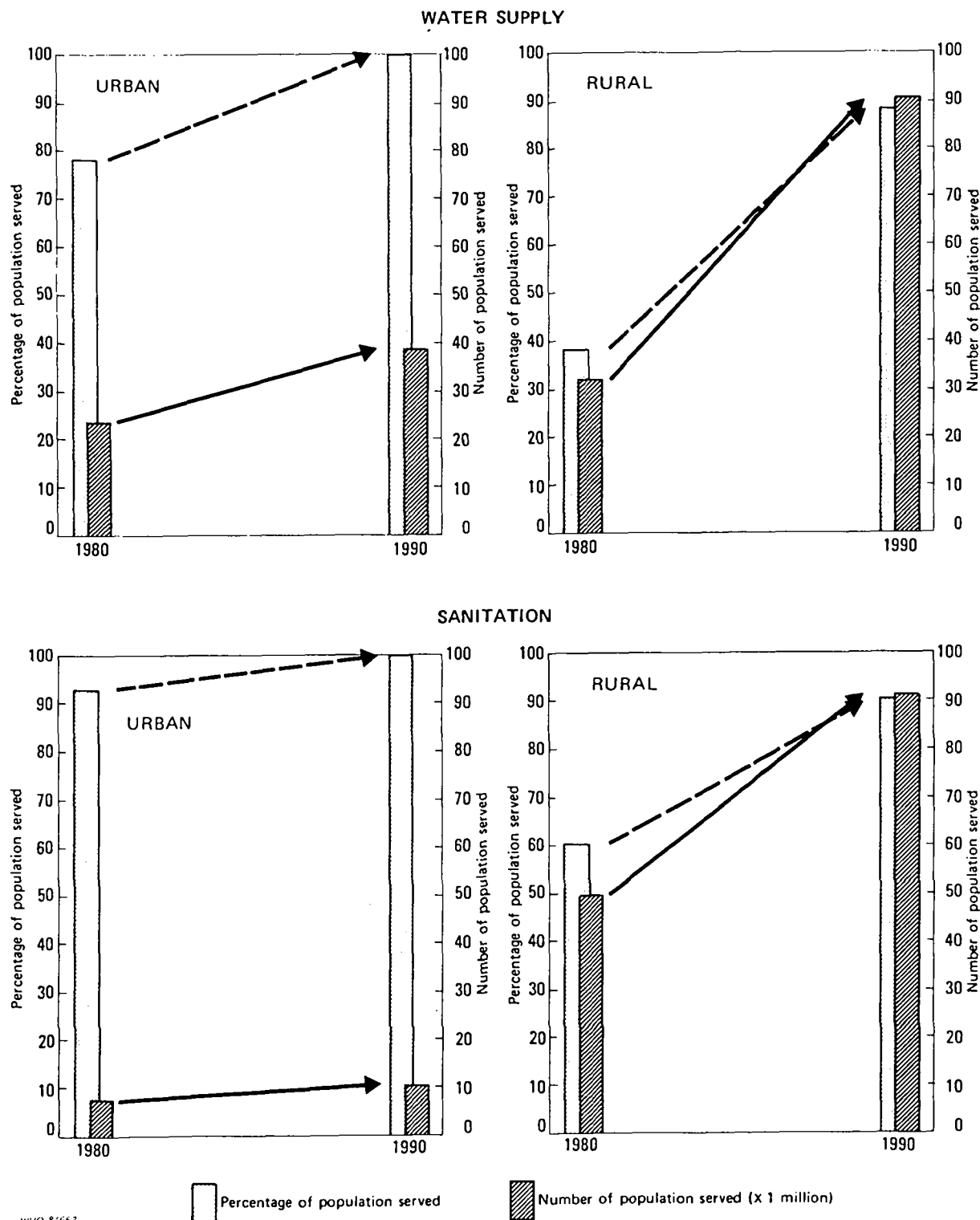
Fig. 6.1 WESTERN PACIFIC REGION
POPULATION COVERAGE IN 1970, 1975 AND 1980^a



^a See Tables A.3.2 to A.3.5 and Section 6.2.

Fig. 6.2 WESTERN PACIFIC REGION

DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN SELECTED COUNTRIES COMPARED WITH EXISTING COVERAGE IN 1980^a



WHO 84667

^a See Tables 6.4.1.1, 6.4.1.2, 6.4.2.1 and 6.4.2.2 and Section 6.2.

TABLE 6.1 WESTERN PACIFIC REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH (1980)

Country / Territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1000 live births	Waterborne diseases: cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Viet Nam	53 000	2.2	100	60	35	956	...	...
Philippines	47 914	2.6	693	62	66	974	49	28
Republic of Korea	38 100	1.6	1 620	65	32	...	22	0
Malaysia	13 430	1.6	1 316	69	32	2 000	37	30
Hong Kong	5 095	1.2	4 000	72	10	54	0	7
Papua New Guinea	3 007	2.4	490	52	73	...	84	86
Singapore	2 414	1.2	1 200	...	...	10	0	20
Fiji	638	2.1	1 514	70	28	...	23	30
Macao	323	2.8	1 500	65	18	42	0	1
Solomon Islands	224	3.4	471	54	52	...	73	83
Brunei	185	3.5	10 680	66	18	391	2	...
Samoa ^a	155	2.8	350	63	40	...	5	16
New Caledonia	138	1.8	7 150	69	27	1 200	48	20
Vanuatu	118	2.8	629	...	45	...	45	27
Pacific Islands, Trust Terr.	117	2.5	910	...	29	940	62	74
Tonga	97.8	1.4	450	...	30	2 900	26	5
Kiribati	55.0	1.2	725	...	...	1 080	36	18
American Samoa	32.0	2.5	2 060	...	18	...	0	3
Cook Islands	18.5		917	...	32	27 000	90	21
Tuvalu	7.35		554	59	38	14 560	...	14

^a Classified as a Least Developed Country (LDC) and as a Most Seriously Affected Country (MSA).

TABLE 6.2 WESTERN PACIFIC REGION

COVERAGE TARGETS (% of population) (1990) AND DECADE PLANS

Country / Territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Stand posts	Sewer connection	By other means			
Viet Nam	30	50	30	30	80	90	1981
Philippines	96	4	...	...	100	95	1982
Republic of Korea	...	...	...	...	...	...	1981
Malaysia	100	0	48	52	83	66	in preparation
Hong Kong	96	4	...	...	97	...	none
Papua New Guinea	...	...	...	...	...	...	none
Singapore	100	0	100	...	rural population		1980
Fiji	90	10	59	25	85	86	1980
Macao	100	0	98	2	100	100	1980
Solomon Islands	100 ^a			100 ^a	98	72	1979
Brunei	...	...	...	...	...	...	none
Samoa	100	0	100	0	100	100	1981
New Caledonia	100	0		100 ^a	95	...	none
Vanuatu	100	0	...	...	99	99	1982
Pacific Islands, Tr. Terr.	90	...	80	20	65	49	in preparation
Tonga	97	...	...	...	95	...	none
Kiribati	...	...	...	...	71	95	in preparation
American Samoa	100	0	...	...	100	...	none
Cook Islands	100	0	67	33	100	100	none
Tuvalu	...	...	...	...	...	...	none

^a No breakdown given.

TABLE 6.3 WESTERN PACIFIC REGION

1980 LEVELS OF SERVICE (Populations in thousands; percentages shown in brackets)

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Urban		Rural		Urban		Rural	
				Total	by H.C. ^a	by P.S. ^b	Total	by S.C. ^c	by other	Total	by S.C. ^c	by other
Viet Nam	53 000	10 600 (20)	42 400 (80)	...	...	...	13 600 (32)	...	...	...	23 500 (55)
Philippines	47 914	17 392 (36)	30 552 (64)	11 315 (65)	9 303 (53)	2 012 (12)	13 034 (43)	14 161 (81)	206 (1)	13 955 (80)	20 486 (67)
Republic of Korea	38 100	25 400 (67)	12 700 (33)	21 800 (86)	21 800 (86)	0	7 800 (61)	25 400 (100)	2 200 (9)	23 200 (91)	12 700 (100)
Malaysia	13 436	4 595 (34)	8 841 (66)	4 130 (90)	4 130 (90)	...	4 370 (49)	4 595 (100)	700 (15)	3 895 (85)	4 850 (55)
Hong Kong	5 095	4 719 (93)	376 (7)	4 719 (100)	4 534 (96)	185 (4)	357 (95)	4 719 (100)	3 775 (80)	944 (20)	...
Papua New Guinea	3 007	372 (12)	2 635 (88)	206 (55)	179 (48)	27 (7)	264 (10)	356 (96)	156 (42)	200 (54)	75 (3)
Singapore	2 414	2 414 (100)	0	2 414 (100)	2 402 (100)	12 (0)	0	1 936 (80)	1 936 (80)	...	0
Fiji	638	244 (38)	394 (62)	229 (94)	171 (70)	58 (24)	260 (66)	208 (85)	67 (27)	141 (58)	236 (60)
Macao	323	313 (97)	10 (3)	313 (100)	280 (89)	33 (11)	10 (100)	313 (100)	250 (80)	63 (20)	6 (60)
Solomon Islands	224	22 (10)	202 (90)	20 (91)	...	...	40 (20)	18 (82)	...	...	20 (10)
Brunei	185	109 (59)	76 (41)	109 (100)	109 (100)	0	72 (95)	...	...	...	...
Samoa	155	35 (23)	120 (77)	34 (97)	34 (97)	0	113 (94)	30 (86)	0	30 (86)	100 (83)

New Caledonia	138	58 (42)	80 (58)	58 (100)	58 (100)	...	14 (18)	58 (100)	44 (76)	14 (24)	52 (65)
Vanuatu	118	20 (17)	98 (83)	13 (65)	9 (45)	4 (20)	52 (53)	19 (95)	0	19 (95)	67 (68)
Pacific Islands, Trust Terr.	117	36 (31)	81 (69)	25 (69)	25 (69)	0	19 (23)	27 (75)	6 (17)	21 (58)	4 (5)
Tonga	98	29 (29)	69 (71)	25 (86)	25 (86)	0	48 (70)	28 (97)	0	28 (97)	65 (94)
Kiribati	55	15 (27)	40 (73)	14 (93)	8 (53)	6 (40)	10 (25)	13 (87)	10 (67)	3 (20)	32 (80)
American Samoa	32	20 (63)	12 (37)	20 (100)	20 (100)	0	12 (100)	20 (100)	9 (45)	11 (55)	11 (92)
Cook Islands	19	2 (10)	17 (90)	2 (100)	2 (100)	0	...	2 (100)	0	2 (100)	13 (76)
Tuvalu	7	2 (29)	5 (71)	...	...	...	...	2 (100)	0	2 (100)	4 (80)
Totals	165 075	66 397 (40)	98 678 (60)	45 446 (81)	43 089 (77)	2 337 (4)	40 075 (41)	51 905 (93)	9 359 (17)	42 528 (76)	62 221 (63)

^a H.C. = house connection.

^b P.S. = public standpost.

^c S.C. = sewer connection.

TABLE 6.4 WESTERN PACIFIC REGION

PRESENT (1980 - top line) AND PROJECTED (1990 - bottom line) POPULATION COVERAGE (in thousands)

Country / Territory	Urban population	Water Supply		Sanitation		Rural population	Safe water	Adequate sanitation
		House connection	Stand-post	Sewer connection	Other means			
Viet Nam	10 600	...	...	...	...	42 400	13 600	23 500
	13 200	3 960	6 600	3 960	3 960	52 800	42 240	47 520
Philippines	17 392	9 303	2 012	206	13 955	30 522	13 034	20 486
	21 950	21 000	950	...	...	38 515	38 515	36 590
Republic of Korea	25 400	21 800	...	2 200	23 200	12 700	7 800	12 700

Malaysia	4 595	4 130	...	700	3 895	8 841	4 370	4 850
	6 620	6 620	0	3 150	3 470	9 130	7 580	5 985
Hong Kong	4 719	4 534	185	3 775	944	376	357	...
	5 678	5 456	222	...	...	452	437	...
Papua New Guinea	372	179	27	156	200	2 635	264	75
	800	...	...	...	...	3 000	...	...
Singapore	2 414	2 402	12	1 936	...	0	0	0
	2 710	2 710	0	2 710	...	0	0	0
Fiji	244	171	58	67	141	394	260	236
	321	290	31	190	79	462	393	396
Macao	313	280	33	250	63	10	10	6
	418	418	0	410	8	8	8	8
Solomon Islands	22		20 ^a		20 ^a	202	40	20
	32		32		32	276	270	200
Brunei	109	109	0	...	...	76	72	...
	142	...	...	...	...	107	...	...
Samoa	35	34	...	0	30	120	113	100
	40	40	0	40	0	130	130	130
New Caledonia	58	58	0	44	14	80	14	52
	70	70	0		70 ^a	97	92	...
Vanuatu	20	9	4	0	19	98	52	67
	26	26	0	...	...	129	128	128

Pacific Islands, Tr. Terr.	36	25	...	6	21	81	19	4
	71	64	...	57	14	83	54	41
Tonga	29	25	...	0	28	69	48	65
	33	32	...	...	...	77	73	...
Kiribati	15	8	6	10	3	40	10	32
	20	...	...	...	...	42	20	40
American Samoa	20	20	0	9	11	12	12	11
	28	28	0	...	...	11	11	...
Cook Islands	2	2	0	0	2	17	...	13
	3	3	0	2	1	15	15	15
Tuvalu	2	...	...	0	2	5	...	4
	3	...	...	...	...	8	...	...

^a No breakdown given.

Table 6.4.1.1 WESTERN PACIFIC REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/Territory	Urban population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Philippines	17 392	21 950	11 315	65	21 950	100
Malaysia	4 595	6 620	4 130	90	6 620	100
Hong Kong	4 719	5 678	4 719	100	5 678	100
Singapore	2 414	2 710	2 414	100	2 710	100
Fiji	244	321	229	94	321	100
Macao	313	418	313	100	418	100
Solomon Islands	22	32	20	91	32	100
Samoa	35	40	34	97	40	100
New Caledonia	58	70	58	100	70	100
Vanuatu	20	26	13	65	26	100
American Samoa	20	28	20	100	28	100
Cook Islands	2	3	2	100	3	100
Total	29 834	37 896	23 267	78	37 896	100
Additional people to be covered by 1990					14 629	
Ratio of additional people to be served by 1990 to number served in 1980					0.63:1	

Table 6.4.1.2 WESTERN PACIFIC REGION

DECADE TARGETS FOR URBAN SANITATION

Country/Territory	Urban population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Malaysia	4 595	6 620	4 595	100	6 620	100
Singapore	2 414	2 710	1 936	80	2 710	100
Fiji	244	321	208	85	269	84
Macao	313	418	313	100	418	100
Solomon Islands	22	32	18	82	32	100
Samoa	35	40	30	86	40	100
New Caledonia	58	70	58	100	70	100
Pacific Islands, Tr. Terr.	36	71	27	75	71	100
Cook Islands	2	3	2	100	3	100
Total	7 719	10 285	7 187	93	10 233	100
Additional people to be covered by 1990					3 046	
Ratio of additional people to be served by 1990 to number served in 1980					0.42:1	

Table 6.4.2.1 WESTERN PACIFIC REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/Territory	Rural population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Viet Nam	42 400	52 800	13 600	32	42 240	80
Philippines	30 552	38 515	13 034	43	38 515	100
Malaysia	8 841	9 130	4 370	49	7 580	83
Hong Kong	376	452	357	95	437	97
Fiji	394	462	260	66	393	85
Macao	10	8	10	100	8	100
Solomon Islands	202	276	40	20	270	98
Samoa	120	130	113	94	130	100
New Caledonia	80	97	14	18	92	95
Vanuatu	98	129	52	53	128	99
Pacific Islands, Tr. Terr.	81	83	19	23	54	65
Tonga	69	77	48	70	73	95
Kiribati	40	42	10	25	30	71
American Samoa	12	11	12	100	11	100
Total	83 275	102 212	31 939	38	89 961	88
Additional people to be covered by 1990					58 022	
Ratio of additional people to be served by 1990 to number served in 1980					1.82:1	

Table 6.4.2.2 WESTERN PACIFIC REGION

DECADE TARGETS FOR RURAL SANITATION

Country/Territory	Rural population (000)		Population covered			
	1980	1990	1980		1990	
			No. (000)	%	No. (000)	%
Viet Nam	42 400	52 800	23 500	55	47 520	90
Philippines	30 552	38 515	20 486	67	36 590	95
Malaysia	8 841	9 130	4 850	55	5 985	66
Fiji	394	462	236	60	396	86
Macao	10	8	6	60	8	100
Solomon Islands	202	276	20	10	200	72
Samoa	120	130	100	83	130	100
Vanuatu	98	129	67	68	128	99
Pacific Islands, Tr. Terr.	81	83	4	5	41	49
Kiribati	40	42	32	80	40	95
Cook Islands	17	15	13	76	15	100
Total	82 755	101 590	49 314	60	91 053	90
Additional people to be covered by 1990					41 739	
Ratio of additional people to be served in 1990 to number served in 1980					0.85:1	

TABLE 6.5 WESTERN PACIFIC REGION

STAFF RESOURCES (top line) AND PROJECTED TRAINEES (bottom line)

Country/ Territory	Planning and management	Technical	Craftsmen, artisanal	Administration, clerical	Community- based	Totals per million population
Viet Nam	45	460	15	...	8 849	177
	65	600	45	...	10 000	202
Philippines	112	3 538	25	4 973	500	191
	214	615	421	5 511	79 342	1 797
Republic of Korea	...	...	...	...	...	...

Malaysia	...	...	...	...	...	...

Hong Kong	...	...	...	...	...	...

Papua New Guinea	15	60	145	70	...	96

Singapore	32	678	900	153	...	730
	...	100	...	...	...	...
Fiji	14	98	158	...	25	462

Macao	5	10	30	...	...	139

Solomon Islands	5	28	80	40	...	683
	2	15	50	10	...	344
Brunei	...	...	...	...	...	...

Samoa	1	20	30	6	...	368
	2	20	20	20	20	529
New Caledonia	3	10	15	10	...	275

Vanuatu	1	...	3	1	...	42

Pacific Islands, Trust Terr.	2	35	30	24	50	1 205
	4	19	24	...	40	744
Tonga	6	68	27	16	7	1 265
	9	160	220	211	10	6 224
Kiribati	1	6	2	...	17	473

American Samoa	3	15	38	14	...	2 188
	4	10	...	...	...	438
Cook Islands	2	5	13	1	...	1 105
	...	8	10	...	6	1 263
Tuvalu	2	2	16	1	...	3 000

TABLE 6.6 WESTERN PACIFIC REGION

UNIT COSTS OF CONSTRUCTION (US \$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m³)

Country/ Territory	Construction				Operation				
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariffs
	House connection	Stand- post	Sewer connection	Other means					
Viet Nam	...	...	...	...	...	...	...	...	...
Philippines	45	19	...	27	8	3	0.09	0.17	yes
Republic of Korea	70	...	134	12	9	2	0.14	0.15	yes
Malaysia	12	...	275	200	12	3	0.16	0.25	no
Hong Kong	...	...	...	...	...	...	...	...	...
Papua New Guinea	150	...	220	60	20	10	0.50	0.10	some
Singapore	8	...	90	140	No rural population		0.16	0.21	yes
Fiji	277	233	230	175	48	34	0.54	0.19	yes
Macao	20	...	25	10	50	...	0.18	0.28	no
Solomon Islands	100	...	70	30	20	2	0.36	0.30	some
Brunei	240	...	...	...	...	...	0.44	0.11	no
Samoa	...	...	...	...	...	...	...	...	...
New Caledonia	340	...	...	...	...	...	0.10	0.18	yes
Vanuatu	...	...	...	...	50	5	0.19	0.31	no
Pacific Islands, Trust Terr.	409	...	883	312	146	375	0.18	0.07	some
Tonga	28	...	...	69	23	13	0.18	0.19	yes
Kiribati	60	20	10	12	30	2	...	...	...
American Samoa	1 000	...	1 500	100	...	...	0.11	0.17	no
Cook Islands	80	...	...	40	60	10	...	...	no
Tuvalu	...	...	...	...	...	...	...	...	...
Medians	80	20	177	60	26	6	0.18	0.19	

TABLE 6.7 WESTERN PACIFIC REGION

COST PROJECTIONS COMPARED WITH 1980 SECTOR INVESTMENTS

Country/ Territory	Estimated cost to reach country Decade targets US\$ million	1980 sector investments			Rate of investment needed (times 1980 investments)
		Total US\$ million	Percentage of total development investment	External US\$ million	
Viet Nam	...	...	...	...
Philippines	5 898	100.9	11	53.5	5.8
Republic of Korea	2 663 ^a	204	2.3	13.9	1.3 ^a
Malaysia	...	...	0.7	...	
Hong Kong	407 ^a	...	...	...
Papua New Guinea	...	26.6	16	...	
Singapore	711	...	...	...
Fiji	141	...	35	...	
Macao	134	...	...	...
Solomon Islands	13	0.4	...	0.3	3:3
Brunei	250 ^a	...	...	...
Samoa	34.5	.637	...	0.45	5.4
New Caledonia	45 ^a	...	...	...
Vanuatu	5.9 ^a	...	...	...
Pacific Islands, Trust Terr.	107.5	6.82	20	6.82	1.6
Tonga	4.41	...	...	...
Kiribati	33 ^a	9.0	...	7.0	0.4 (i.e. no acceleration)
American Samoa	21 ^a	...	...	...
Cook Islands	1.45	...	...	...
Tuvalu	...	...	...	...

^a These figures are underestimates because either not all sub-sectors were included or projections for the late years of the Decade were not made.

TABLE 6.8 WESTERN PACIFIC REGION

RANKING AND FREQUENCY OF CONSTRAINTS^a

Constraints	No. of countries indicating constraint			Ranking index ^b
	Very severe	Severe	Moderate	
Insufficiency of trained personnel (sub-professional)	2	9	8	32
Insufficiency of trained personnel (professional)	3	7	8	31
Funding limitations	3	6	9	30
Operation and maintenance	2	8	7	29
Inadequate cost-recovery framework	3	6	7	28
Logistics	2	6	8	26
Insufficient health education efforts	3	3	11	26
Non-involvement of communities	2	2	12	22
Lack of planning and design criteria	2	2	11	21
Inappropriate institutional framework	0	5	10	20
Inadequate water resources	1	3	9	18
Intermittent water service	1	2	11	18
Lack of definite government policy for sector	1	2	10	17
Inadequate or outmoded legal framework	2	3	5	17
Insufficient knowledge of water resources	0	1	12	14
Inappropriate technology	1	1	8	13
Import restrictions	1	1	4	9

^a Number of reporting countries/territories: 20.

^b Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE 6.9 WESTERN PACIFIC REGION

DECADE APPROACHES DURING 1980

Country / Territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (000)
	Total urban poor popula- tion	Population affected by improvements	Urban water development funds used	Planning	Building	Operating	
	(000)	(%)	(%)				
Viet Nam
Philippines	12 966	12 966	12 966	8 147
Republic of Korea	1 220	...	...	4 366	4 366	4 366	5 600
Malaysia	2 048
Hong Kong
Papua New Guinea	100	100	...	300
Singapore
Fiji	25	...	...	69	69	936	...
Macao	2	40 ^a	...	...	...	...	...
Solomon Islands	2	...	...	50	50	50	...
Brunei	4.5
Samoa	25	15	...	...
New Caledonia
Vanuatu
Pacific Islands, Trust Terr.	85	85	65	31
Tonga	70	...
Kiribati	12	4	3	...
American Samoa
Cook Islands	5	13	10	1.5
Tuvalu

^a This probably refers to the situation prevailing in 1980, rather than to improvements realized during 1980.

CONCLUSIONS

The Decade baseline data received from 87 countries or territories and presented in the preceding pages of this review show clearly:

- That all countries treat the provision of drinking water and the disposal of human excreta and other domestic wastes as public concerns - hence social rights - and that most countries are planning to extend significantly the public responsibility and public action for improving community water supplies and community wastes disposal.

- That to reach the goals they have set for themselves many countries must more than double their 1980 coverage levels in some or all sub-sectors, and virtually all countries must accelerate their rate of investment, including external funds, by as much as 2 - 4 or more times.

- That the concept of safe and adequate drinking-water supply and excreta disposal may have different interpretations in different regions and countries. In setting targets, countries may wish to assign more accurate boundaries to safety and adequacy if their health objectives are to be met.

- That unit costs of construction show variations wider than can be reasonably accounted for and that consequently some countries should keep more complete records of past expenditures in order to make more accurate projections of the investments required to meet the targets they have set for themselves.

- That more than half the countries probably need to raise their tariffs in order to cover current operating costs and that progressive tariffs, although widespread, may not have been used effectively to subsidize poor consumers.

- That national agencies' staffing patterns are extremely varied and that basic staffing needs may in fact have to be better defined than they are at present, particularly with respect to differences between the needs in urban and rural areas.

- That service to the urban poor is being undertaken but is not clearly defined and as yet affects relatively few, while other Decade approaches including health education of primary school children and the involvement of community leaders and residents in planning and improving their own facilities are being introduced in about one-third of the countries.

- That the same constraints to sector development recognized as most important in 1970 - funding and trained personnel - remain most important today.

- That, finally, compared with all responding countries, the least developed and most seriously affected countries probably need a greater share of available external aid for the sector since their basic indicators of need (infant mortality rates, waterborne disease incidence, and lack of safe water and sanitation) are significantly higher and their resources for coping with the need (fresh-water, trained staff and current investment capital) are significantly lower.

At a time of worldwide economic stringency few governments will be able to accelerate financial investments to the extent indicated. They must therefore consider lowering their coverage targets or find ways of reducing costs and other major constraints. Lowering coverage targets will in most cases be undesirable politically and in all cases it will be undesirable from a public health standpoint. Hence attention should be focused on constraint removal, with the main objective being to decrease unit costs for both constructing and operating sector facilities.

When appropriate, countries should therefore concentrate efforts on actions that have the effect of reducing costs, such as using low-cost and appropriate technology, community involvement and institutional support; this should be accompanied by a firm political will to implement the water supply and sanitation plans.

The major constraints to sector development have been the subject of much study in the past few years by governments and by international organizations, and certain guidelines are emerging that national programme managers need to be aware of, especially since they affect cost control and personnel control.

First, technology choices related to local environmental and cultural conditions and capable of progressive upgrading may enhance effectiveness and significantly reduce initial costs; new systems and extensions to old systems, urban and rural, should be carefully designed consistent with good engineering practice to protect the health of the most people at the lowest initial cost, and programmes and projects must be put in hand at an early date - after appropriate consultation with communities concerning technology choices - for inclusion in the Decade plans of the government and external agencies.

Second, individual citizens everywhere, at all levels of education and in all walks of life, are fundamentally interested in protecting their own health and that of their families and communities; they should be informed about the health hazards of unhygienic use of water and disposal of wastes, and should be encouraged, and as appropriate trained, to assume household and community responsibilities for removing these hazards. Such individuals, whether manual labourers, technicians or of professional status, comprise an important and largely untapped resource for accomplishing Decade work.

Third, decentralizing both agency activity and responsibility for planning, building and operating water supply and wastes disposal services adds to the efficiency and the quality of these services because workers, being close to the users, must give their technical assistance to solving real problems; this principle should guide intersectoral work at the periphery (e.g., water supply from agricultural schemes, agricultural use of composted domestic and animal wastes, etc.) and should underlie the training and job descriptions for all agencies' staff and local government staff concerned with improving community water supplies and sanitation.

ANNEX 1

THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

SECTOR DIGEST FORMS

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 1: GENERAL INFORMATION

Area	_____	Km ²
Total population	_____	
Annual rate of population growth	_____	%
Ratio urban population to total population	_____	%
Ratio rural population to total population	_____	%
Per capita GNP	_____	US Dollars
Annual per capita GNP growth	_____	%
Life expectancy at birth	_____	Years
Infant mortality rate (0 to 1 year old)	_____	Deaths per 1000 live births
Incidence of waterborne diseases	_____	Cases per 100,000 people
Literacy rate - Population over 15 years of age who can read and write over adult population	_____	%
Duration of current national development plan	_____	Years
Current plan ends in year	_____	
Total investment budget for plan period	_____	Million US\$
of which external investment equals	_____	Million US\$
Exchange rate	1 US Dollar = _____	National currency units

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 2: DECADE PLANNING

1. Have Decade targets been established ?

- yes
partially
no

2. Has a Drinking Water Supply and Sanitation Decade Plan been prepared or is in the process of preparation ?

- Completed date _____
being prepared expected date _____
not being prepared of completion _____

3. Form 2 for the 1980 survey shows total urban and rural populations which should have services at the end of the Decade and/or of medium-term planning periods.

- Have these projections since changed? yes
no

4. If yes, please enter the new projections below:

SERVED POPULATIONS IN 1000s	DECADE TARGETS	INTERMEDIATE TARGETS
	END 1990	END _____ ¹
Urban water by private connexion by standpost		
Rural water with resonable access		
Urban sanitation by sewer connexion through pit privies, septic tanks		
Rural sanitation with adequate facilities		

ESTIMATED POPULATION IN 1000s

	End 1990	End _____ ¹
Urban		
Rural		

¹ Specify year

NOTE ON FORM 2 - DECADE PLANNING

The establishment of targets and the preparation of plans to meet the targets can be an important element for the success of the Decade.

- Question 1. The answer "partially" indicates that targets have not been set for all sub-sectors or that more work needs to be done to specify levels of service.
- Question 2. Only the projections which differ from those given in the 1980 survey should be indicated.
- Question 4. Figures for total population which will have services should be given, not just for the additional populations to be provided with services. Definition of reasonable access and adequate sanitation, as given on Form 3.

Intermediate targets are those mentioned in the current or proposed socioeconomic development plan, the completion year of which should be indicated.

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 3: COVERAGE AND LEVELS OF SERVICE

	Population in thousands as at	
	31 Dec '80	31 Dec '83
1. <u>Estimated population</u>		
Urban	<input type="text"/>	<input type="text"/>
Rural	<input type="text"/>	<input type="text"/>
Total	<input type="text"/>	<input type="text"/>
2. <u>Population served with water</u>		
(a) Urban population served by house connexions	<input type="text"/>	<input type="text"/>
(b) Urban population without house connexions but with reasonable access to public standposts	<input type="text"/>	<input type="text"/>
(c) Rural population with reasonable access to safe water	<input type="text"/>	<input type="text"/>
3. <u>Population served with excreta disposal facilities</u>		
(a) Urban population served by connexions to public sewers	<input type="text"/>	<input type="text"/>
(b) Urban population served by household systems (pit privies, pour-flush latrines, septic tanks, communal toilets, etc.)	<input type="text"/>	<input type="text"/>
(c) Rural population with adequate disposal such as pit privies, pour-flush latrines, etc.	<input type="text"/>	<input type="text"/>

Source of information :

NOTE ON FORM 3 - COVERAGE AND LEVELS OF SERVICE

Up-dating of this form provides information on countrywide progress towards the national Decade targets. The following criteria are suggested :

Urban and rural : National definitions should be used.

Reasonable access : In a town a distance of not farther than 200 metres from a house to a public standpost may be considered as reasonable access. In rural areas reasonable access implies that the housewife does not have to spend a disproportionate part of the day in fetching water for the family's needs.

Safe : Includes treated surface waters, untreated but uncontaminated waters such as from protected springs, boreholes and sanitary wells. Other sources of doubtful quality should be considered unsafe and not included in the estimate of coverage.

Question 1. Only official figures and estimated projections from the national census should be given. In the footnote reference should be made to these official documents.

Questions 2. & 3. The best estimate for the whole country is required as at 31 December 1983. This should be based on statistical records for communities for which this information is available and estimated for other communities on the basis of sample surveys or by knowledgeable sources from the areas. Since this information forms the basis for planning and for plan revisions, an attempt should be made to be factual, so that the estimates are neither optimistic nor pessimistic.

The information on coverage reported for the 1980 survey should be entered again in the appropriate boxes to show the progress made between 1980 and 1983.

NOTE ON FORM 4 - INSTITUTIONAL RESPONSIBILITIES

Community water supply and sanitation are the responsibility of many agencies, some of which have a principal and others a subsidiary role. The identification of these roles assists in obtaining the overall managerial picture and in determining whether duplication of gaps exist which need correcting.

If there have been changes between 1980 and 1983, only the new agencies or the new functions of old agencies should be entered in the matrix table.

Under item 3 all agencies concerned should be listed and given a code letter which can then be used in the matrix of functions of item 4. Agencies should include Central Ministries (for instance planning, public works, health, etc.), Water and Sewerage Agencies, Municipalities, Village Councils, etc., and, where appropriate, State or Regional Bodies.

The contents of this form are important for Country Sector Digests but are not meant for processing and classifying in the central reporting system.

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 5 : MANPOWER AND TRAINING

1. Current situation and 1990 projections

Category	No. of filled positions end 1980	No. of filled positions end 1983	Expected total no. of positions end 1990*
- Planning and Management			
- Technical (all levels)			
- Craftsmen/ Artisanal			
- Administrative/ Clerical			
- Community Based			

*Total to include the positions already filled.

2. Are post requirements in 1990 :

- Known from plan with accurate projections ?
- Known from rough estimates ?
- Not known ?

NOTE ON FORM 5 - MANPOWER AND TRAINING

The availability of trained manpower in sufficient numbers is a critical factor for planning, managing and evaluating sector operations.

Country efforts in this programme area should be reviewed periodically against projections of needs made in the context of national plans, or on the basis of considered estimates.

The grouping of categories could follow the general pattern below :

PLANNING AND MANAGEMENT : Managers, planners, economists, chief engineers, principal chemists, etc.

TECHNICAL (all levels) : Engineers, economists, financial analysts, social scientists, chemists, biologists, hydrologists, hydro-geologists, health educators, sanitary inspectors, surveyors, draftsmen, plant operators, laboratory technicians, stores supervisors, drilling supervisors, etc.

CRAFTSMEN/ARTISANAL : Foremen, mechanics, electricians, masons, plumbers, pipe-layers, well drillers, etc.

ADMINISTRATIVE/CLERICAL : Personnel, accountants, auditors, meter readers, billing clerks, store-keepers, typists, etc.

COMMUNITY BASED : Primary health care workers, extension workers, sanitary aides, etc.

This form is simpler than the form used for the 1980 survey, as it requests information only on the number of positions filled and of the total positions envisaged in 1990. The latter figure represents the objective against which progress is measured. When available, the information on positions which were filled at the end of 1980 should also be entered, to show progress between 1980 and 1983.

NOTE ON FORM 6 - UNIT COSTS AND COSTS PROJECTIONS

An estimate of the order of magnitude of costs to meet the Decade targets is required for planning national budgetary allocations and proposing levels of external financial cooperation to be sought. These costs can then be compared with the figures of Form 7 "Investments and External Contributions" to determine whether the funding effort is keeping pace with the work proposed.

It was not envisaged to update this form after only three years. Unit costs reported in the 1980 survey, however, show variations wider than can be reasonably accounted for. Government officials are therefore requested to look again at records of past expenditures and provide cost estimates closer to the actual averages.

1. Unit Costs

The answers should provide a considered estimate of overall national average unit costs for broad categories of service in urban and rural areas. It is appreciated that unit costs cannot be estimated accurately in the absence of information disaggregated to appropriate levels.

2. Production costs and tariffs

2 (a) and (b) provide an estimate of the financial efficiency of the systems.

2 (c) - the existence of progressive tariffs in favour of small consumers is an indication of whether there is a social policy to provide service to as many people as possible.

3. Decade Cost Projections

The figures should include all construction costs for new systems and for the upgrading and extension of existing systems, as well as costs for project development.

Only the changes having occurred since the 1980 survey should be recorded in the table.

NOTE ON FORM 7 – INVESTMENTS AND EXTERNAL CONTRIBUTIONS

Updating of the form provides information on the flow of internal and external resources towards the sector.

The history of cooperation with external donors is important in matching country needs with external financial and technical resources.

For questions 1 to 3, all investments should include only funds actually expended not those approved or committed, during the periods under consideration. Total investments should include all costs borne by the country and met by external agencies for construction and improvement of facilities as well as for programme support such as studies, training of manpower, institutional strengthening, etc. National costs should include those at all levels of government and those borne by local communities which provide funds, labour and materials. External contributions from various international, multilateral and bilateral sources should include loans, grants, materials and other forms of aid for construction and support programmes.

NOTE ON FORM 8 - MAJOR CONSTRAINTS

The constraint factors listed may prevent an accelerated development of the sector. Crosses in the appropriate boxes will show whether these factors represent a very severe, a severe or a moderate impediment to the overall development of the entire sector.

Constraints are usually inter-dependent. However, it may be possible to determine the relative importance for some of them. Constraint ranking is subjective and will vary depending on the agency that makes the evaluation.

The purpose of ranking constraints is to intensify efforts to remove or reduce the most important ones. If the ranking changes appreciably at mid and end Decade, it means that a certain degree of success has been achieved in the constraint-reduction endeavour.

If changes occurred between 1980 and 1983, all constraints, including those not having changed, should be entered in the table to give a full picture of the situation at the end of 1983.

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE

SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 9: DECADE APPROACHES

1. Service to the under-privileged

(a) Estimated 1983 urban poor population (in thousands)

(b) What percentage of the urban poor was provided with new access to water and sanitation service during 1983?

 %

2. Community involvement

In 1983 how many villages participated actively in rural water supply and sanitation work

Number of participating villages

As percentage of total number of villages with on-going water/sanitation programmes

(a) during planning

 %

(b) during construction

 %

(c) in operation and maintenance

 %

3. Health education in school

During 1983 health education was given regularly

Number

% total number of primary schools

(a) in how many primary schools?

 %

(b) involving approximately how many children

% total number of primary school children

 %

4. Other approaches

NOTE ON FORM 9 - DECADE APPROACHES

Periodic updating of this form is envisaged, since in most countries the attainment of Decade targets depends to a large extent on the success of a number of measures frequently referred to as "Decade approaches". Simple monitoring indices have been worked out for three of them, namely: service to the under-privileged urban populations, community involvement and health education in schools. Monitoring indices could also be determined for other approaches such as the use of appropriate technology, the effectiveness of community based health education programmes, etc. In the meantime examples of other successful approaches could be provided in the appropriate space.

- Question 1 Covers mainly the extension of water supply by public standposts and the construction of communal toilets in urban fringe and slum areas.
- Question 2 The answer would include all the communities where a local committee, representative of the community, has been established to participate in planning, construction and operation and maintenance.
- Question 3 The answer would include all the primary schools where health education is given on a regular basis such as an hour per week, and includes an appropriate component on sanitary water and excreta disposal practices.

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 10: STATUS OF PROJECTS

1. For CONSTRUCTION work indicate in the table below the number, total cost and number of beneficiaries of projects which were completed and put into operation during the period January 1981-December 1983:

COMPLETED PROJECTS DURING 1981-1983				
	No. of projects	Beneficiaries in 1000	Cost 1000 US\$	
			Total	External
Urban water				
Rural water				
Urban sanitation				
Rural sanitation				

2. For SUPPORT activities indicate sector related projects which were implemented during the period January 1981 - December 1983:

Type of Support Projects	COMPLETED			STILL ON-GOING		
	No.	Cost 1 000 US\$		No.	Cost 1 000 US\$	
		Total	External		Total	External
1. Manpower Development and Training						
2. Community Participation and Health Education						
3. Management Studies						
4. Tariff Studies						
5. Others (specify)						

NOTE ON FORM 10 - STATUS OF PROJECTS.

This form is simpler than the form used for the 1980 survey, as it requests information only on completed construction projects and on completed or on-going (in other words already funded) support projects. Periodic updating will show whether there is progress in the number and reach of water supply and sanitation projects.

- Question 1 Under construction, all work should be included relative to carry-over of on-going projects, new systems and extension and upgrading of existing systems. These projects will often include some components for support activities. Costs and numbers of beneficiaries, if not exactly known, should be estimated fairly accurately.
- Question 2 Support activities are not necessarily related to construction (if they are, their cost is included under item 1 above) and aim at strengthening certain aspects of the water and sanitation programme.

INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE
SECTOR DIGEST FORMS

1983 UPDATE

Situation: December 1983

Country

FORM 11 : SOURCES OF INFORMATION

Major reports produced during the period
January 1981 - December 1983

Title of Report

Date of	
Field Mission	Report

NOTE ON FORM 11 - SOURCES OF INFORMATION

The review of documents containing sector information aids considerably in the planning and conduct of sector missions. The number of studies is also an indication of how much work is done or is planned in the sector.

Periodic updating is envisaged.

The types of reports/documents to be listed are :

- Basic documents such as census reports, published socioeconomic national development plans, UNDP country programmes, etc.
- Sector documents such as Decade Plans, Sector Studies, Rapid Assessments and reports for special purposes.
- Project reports in which overall sector information is given.

WHO publications may be obtained, direct or through booksellers, from:

- ALGERIA:** Société Nationale d'Édition et de Diffusion, 3 bd Zirout Youcef, ALGIERS
- ARGENTINA:** Carlos Hirsch SRL, Florida 165, Galerías Güemes, Escritorio 453/465, BUENOS AIRES
- AUSTRALIA:** Hunter Publications, 58a Gipps Street, COLLINGWOOD, VIC 3066 — Australian Government Publishing Service (*Mail order sales*), P.O. Box 84, CANBERRA A.C.T. 2600; *or over the counter from Australian Government Publishing Service Bookshops at:* 70 Alinga Street, CANBERRA CITY A.C.T. 2600; 294 Adelaide Street, BRISBANE, Queensland 4000; 347 Swanston Street, MELBOURNE, VIC 3000; 309 Pitt Street, SYDNEY, N.S.W. 2000; Mt Newman House, 200 St. George's Terrace, PERTH, WA 6000; Industry House, 12 Pirie Street, ADELAIDE, SA 5000; 156-162 Macquarie Street, HOBART, TAS 7000 — R. Hill & Son Ltd, 608 St. Kilda Road, MELBOURNE, VIC 3004; Lawson House, 10-12 Clark Street, CROW'S NEST, NSW 2065
- AUSTRIA:** Gerold & Co., Graben 31, 1011 VIENNA 1
- BANGLADESH:** The WHO Programme Coordinator, G.P.O. Box 250, DHAKA 5 — The Association of Voluntary Agencies, P.O. Box 5045, DHAKA 5
- BELGIUM:** *For books:* Office International de Librairie s.a., avenue Marnix 30, 1050 BRUSSELS. *For periodicals and subscriptions:* Office International des Périodiques, avenue Marnix 30, 1050 BRUSSELS — *Subscriptions to World Health only:* Jean de Lannoy, 202 avenue du Roi, 1060 BRUSSELS
- BHUTAN:** *see* India, WHO Regional Office
- BOTSWANA:** Botsalo Books (Pty) Ltd., P.O. Box 1532, GABORONE
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C/1/84

During the International Drinking Water Supply and Sanitation Decade (IDWSSD), international organizations and other external support agencies were requested by the United Nations General Assembly to intensify their cooperation with developing countries in planning, carrying out and monitoring water supply and sanitation programmes. This publication analyses the baseline situation at the beginning of the Decade from which progress in the provision of water supply and sanitation in countries will be assessed.