

# The International Drinking Water Supply and Sanitation Decade

Review of regional  
and global data  
(as at 31 December 1983)



WORLD HEALTH ORGANIZATION  
GENEVA  
1986

*WHO Offset Publication No. 92*

WHO offset publications are intended to make generally available material that for economic, technical, or other reasons cannot be included in WHO's regular publications programme and would otherwise receive only limited distribution. They are usually reproduced by photo-offset from typescript, rather than by letterpress, and do not necessarily receive such detailed editorial revision as other WHO publications.

ISBN 92 4 170092 0

© World Health Organization 1986

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. For rights of reproduction or translation of WHO publications, in part or *in toto*, application should be made to the Office of Publications, World Health Organization, Geneva, Switzerland. The World Health Organization welcomes such applications.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

ISSN 0303-7878

PRINTED IN SWITZERLAND

85/6692 - Populaires - 4200

CONTENTS

|   | Page |
|---|------|
| INTRODUCTION .....                          | 3    |
| GLOBAL REVIEW: 1983 SITUATION .....         | 3    |
| 1. Socioeconomic and health situation ..... | 3    |
| 2. Targets and planning .....               | 4    |
| 3. Service levels .....                     | 4    |
| 4. Closing the gap .....                    | 5    |
| 5. Staff and training .....                 | 6    |
| 6. Financial resources .....                | 6    |
| 7. Constraints .....                        | 7    |
| 8. Decade approaches .....                  | 8    |
| SUMMARY TABLES - DATA BY WHO REGION .....   | 11   |
| PROGRESS FROM 1980 TO 1983 .....            | 28   |

## INTRODUCTION

During 1981 data were collected from countries on the status of water supply and sanitation services to determine the situation that existed on 31 December 1980 at the commencement of the International Drinking Water Supply and Sanitation Decade (IDWSSD). The information collected, which consisted of general demographic, economic, and health statistics and data on levels of service coverage and plans and targets for 1990, institutional infrastructure, human resources development, costs and sectoral investment, constraints and Decade approaches, was analysed and used to produce the baseline figures from which Decade progress could be assessed.<sup>1</sup>

A similar survey was carried out during 1984 to ascertain the status of water supply and sanitation services as at 31 December 1983, after three years of Decade implementation. This publication includes summaries of some of the data by WHO Region, together with comparisons of results on a global basis (global review) and some tentative conclusions. The numbering of the figures and tables in this book corresponds with that of the equivalent figure or table in the baseline data book published earlier.

### GLOBAL REVIEW: 1983 SITUATION

#### 1. Socioeconomic and health situation

The projected increases in population during the Decade in the countries surveyed, as assessed in 1983, were virtually the same as those projected in 1980, the most significant increases being in the urban areas of the developing countries. This rapid urbanization, which is seen in all regions, is one of the main factors to be taken into consideration in attempts to increase the proportion of the population in urban areas supplied with safe and adequate water and appropriate sanitation. During the period from 1984 to 1990, the most significant anticipated increase in urban population (51%) is in Africa, largely due to migration from rural areas. If the 51% population increase for Africa in seven years is compared with the 73% increase in ten years forecast in 1980, it can be seen that the assessment of the situation has not changed significantly.

In all WHO Regions, except for Africa and the Western Pacific, the level of service coverage is higher for urban water supply than for sanitation, with the biggest difference existing in South-East Asia. Only in the Western Pacific Region does the level of rural sanitation services appear to be higher than that of rural water supply. The general low level of service coverage, particularly as regards sanitation in the rural areas, is surely a major contributing factor to the unsatisfactory health situation as illustrated by the indicators presented in Table A.1. Out of 26 African countries reporting, 20 have infant mortality rates of over 100 per 1000; in South-East Asia, four countries out of nine reported similarly high figures. As far as waterborne diseases are concerned, 10 countries out of 13 in Africa reported an incidence of over 1000 per 100 000; only two countries in South-East Asia provided figures and both reported an incidence higher than 1000 per 100 000. In the Americas and the Eastern Mediterranean, 50% of countries reported a high incidence of waterborne diseases and in the Western Pacific the percentage was about 60%.

The general health status of a country and/or region is also reflected in the life expectancy, and here the situation is usually worse in the least developed countries (LDCs). For example in Africa, in 16 out of 26 countries the life expectancy at birth was 50 years or less, and of the 16 countries, 12 were LDCs. In the Eastern Mediterranean, six countries out of 12 reported a life expectancy of less than 50 years. Of these six countries, five were LDCs. In the Region of the Americas, no country reported a life expectancy of less than 50 years.

---

<sup>1</sup> The International Drinking Water Supply and Sanitation Decade: Review of national baseline data, Geneva, World Health Organization, 1984 (WHO Offset Publication No 85).

The seriousness of waterborne diseases for the LDCs is demonstrated by the fact that of the 27 that provided data, 20 reported a life expectancy of less than 50 years, and 22 reported an infant mortality rate of over 100 per 1 000.

## 2. Targets and planning

Of the 94 countries that provided data on their sector targets, 76 (81%) indicated that they had Decade plans or that such plans were under preparation. In most cases these plans covered all four subsectors - urban water supply, urban sanitation, rural water supply, and rural sanitation - but in some cases they concentrated on particular subsectors.

It is interesting to note that a significant number of countries have reduced their Decade targets from those reported in 1980 (Table A.2). This has been done in many cases because the early Decade programme implementation experience had shown the original goals to be too ambitious. Despite this concession to reality, most countries still have very ambitious Decade targets and, in the light of progress made during the Decade's first three years, it is clear that significant programme acceleration will be required in all but a very limited number of cases. For the 10 African countries that provided data, programmes will need to be accelerated by a factor in the range from just over 1.0 to 20.6, with most countries requiring acceleration by a factor of 3. In the Americas, the range was narrower, being from 1.1 to 7.9, with a median figure of approximately 4. In South-East Asia, acceleration by a factor ranging from 1.1 to 3.4 will be required, while in the Western Pacific and Africa the factor is in the range from 1.0 to 21.4. Globally, the median value for the programme acceleration factor appears to be around 2.7.

## 3. Service levels

Table A.3 shows the service situation in 1983 as reported by 92 countries (two reporting countries did not provide data on 1983 coverage levels). These values are also presented graphically in Fig. A.1 together with comparable data for 1970, 1975 and 1980. Within the limitations of the data, the general conclusions that can be drawn are:

- Three urban residents out of four had access to a safe water supply and about 80% of these were served by a house connection. Although the overall level of service coverage remained about the same as in 1980, there appears to be a significant increase in the proportion of the population served by house connections.
- A little over half of urban residents had access to adequate sanitation - a slight increase over the situation as assessed at the start of the Decade, with, again, a move toward service upgrading: one in three of those with a sewer connection as opposed to one in five in 1980.
- Two rural dwellers out of five had access to a safe and adequate water supply as compared with one in three in 1980. In relation to the Decade philosophy of concentrating on the unserved poor, this is probably the most significant achievement of the Decade so far in global terms.
- One rural dweller out of seven had access to appropriate sanitation. Although there has been a slight improvement since 1980, this is the subsector where least progress has been made and where most has to be done in the future.

The levels of service in 1983 are presented in Table A.3.1 together with previous data collected in 1970, 1975, and 1980. The inconsistencies in the figures referred to in the 1980 baseline report appear to have been resolved to some extent between 1980 and 1983. This supports the belief that the changes in methods of monitoring between 1970 and 1975 and between 1975 and 1980 were responsible for these problems. With the standardization of approach introduced in 1980, this deficiency appears to have been reduced.

It is hoped that the continued application of this approach will lead to the development of a system to monitor the Decade effectively, which will continue to be used as a global sectoral monitoring system after 1990.

#### 4. Closing the gap

As stated earlier, the attainment of the targets that countries have set themselves will require an enormous effort, programme acceleration of the order of 2.7-fold being required; in the case of several countries an even greater effort will be necessary. In fact, because of programme slippage during the three years since 1980, the rate of programme implementation will now need to be even greater than forecast at the start of the Decade.

As shown in Table A.4.1.1 and Fig. A.2, for the 54 selected countries, representing 58% of the global urban population,<sup>1</sup> that provided information for both urban water supply levels of service and 1990 targets, the 1990 coverage target is 89% (a 4% reduction from the target quoted in 1980). Thus, 184 million extra urban residents will have to be supplied in these countries by 1990 in addition to the 333 million (72%) already served in 1983. Differences in the levels of services in 1983 vary from 55% in Africa to 86% in the Americas and the Eastern Mediterranean. However, in all cases, the 1990 targets are over 80%, with countries in the Eastern Mediterranean striving for almost total coverage. In global terms, this indicates that around 335 million urban residents will have to be served with water by 1990 to meet national targets.

Similar information for urban sanitation is presented in Table A.4.1.2 and again in Fig. A.2. In this case, information was available for 47 selected countries representing 55% of the global urban population.<sup>1</sup> Here, if targets are to be reached, an additional 200 million urban residents will have to be provided with adequate sanitation facilities in these countries alone. The aim is to increase coverage from the 1983 level of 50% to 75%. The targets for urban sanitation remain almost the same as those calculated for selected countries in 1980; however, some changes have taken place in individual regions. The targets for urban sanitation are lower than those for urban water supply in all regions except Africa.

In Table A.4.2.1, the values for service coverage in 1983 and targets for 1990 for rural water supply are presented for a total of 60 countries, which account for 75% of the total rural population of developing countries globally.<sup>1</sup> To increase the coverage from the 40% level recorded in 1983 to 85%, the target in 1990, an additional 646 million rural residents in these countries alone will have to be served and 72% of these are in South-East Asia. The countries of the Western Pacific Region have indicated a 1990 target of 100% service coverage, which will involve more than doubling of the present number of people served, while Africa looks for a more modest increase of 37%, bringing the 1990 target to 59%. This example clearly indicates the wide difference that exists between regions with regard to both current coverage and 1990 targets. Projected into global terms, this indicates that to meet national targets around 860 million rural residents have to be provided with water services by 1990.

Table A.4.2.2 presents the corresponding information on 1983 levels of coverage and 1990 targets for rural sanitation in 43 selected countries representing 67% of the global rural population of developing countries.<sup>1</sup> The overall global target for rural sanitation is the lowest of the four subsectors at 33%, which is consistent with the present level of coverage of only 10%. However, to reach this relatively low target means that an additional 287 million rural dwellers will have to be provided with appropriate sanitation facilities in these 43 countries. This means in fact that more people have to be reached by rural sanitation than is the case for urban water or urban sanitation where targets of 75% and 84% coverage have been set. Projected into global terms, around 430 million rural residents have to be provided with sanitation facilities by 1990 to meet national targets.

---

<sup>1</sup> This refers to the total population of developing countries/territories in the WHO Regions (excluding China).

The countries providing data on the 1983 status of water supply and sanitation services and their targets for 1990 for all subsectors - urban water supply, urban sanitation, rural water supply, and rural sanitation - in fact contain between 55% and 75% of the population of the developing world, excluding China in all cases, so the data should be reasonably representative. If the trends identified are correct, there has been a slight tendency since 1980 in all regions to reduce the targets in all subsectors, with the biggest reduction being in rural sanitation, where the tendency at the start of the Decade was to aim for too high levels of coverage. This analysis indicates also that in global terms the number of people to be served as a proportion of those currently served has been reduced since the start of the Decade in all subsectors except rural sanitation. This can be interpreted as an indication of progress towards Decade goals in the three subsectors concerned during the three years even though the apparent improvement in the situation is in part due to the reduction of targets.

#### 5. Staff and training

Table A.5 shows that the present level of staffing of the agencies responsible for providing water supply and sanitation services varies greatly from country to country, and there are marked regional variations. In Africa, the Eastern Mediterranean, and South-East Asia the levels of staffing are comparable, with median values of staff per million of population being 259, 446 and 147, respectively. In the Western Pacific Region the value of 1 696 is very high partly because of the need to provide services to remote and often small island communities. The Region of the Americas reports a value of 685.

The estimates of the increases in staff per million of population that will be required to meet the needs of 1990 are also similar for Africa and South-East Asia, being 118 and 120, respectively. The Western Pacific Region foresees no need for extra staff but here it is reported that improved levels of training, education and skills of staff are required. In the Americas, only a minimal increase of 6% in staffing levels is considered necessary, although here again an improvement in the calibre of staff is considered to be important.

In global terms, these figures indicate a total requirement of about one quarter of a million additional staff, without allowing for attrition, and in all areas, even those indicating sufficient staff, the serious need remains to improve their performance through appropriate training. Nearly three-quarters of this number of staff will be required in the South-East Asia Region.

#### 6. Financial resources

Table A.6 presents a summary of the median values for the unit capital costs of providing new water supply and sanitation systems for each region, together with the median values for the average cost of water production and tariffs. The values in the table have been compiled on the basis of the information received from individual countries.

The individual country values for unit costs show a large variation, and for this reason median rather than average values are used. Variations among the regions are not so marked, being, for example, in the range of US\$ 61 - 275 for urban water through house connections, US\$ 50 - 120 for urban water through standposts and US\$ 9 - 38 for rural sanitation.

The median values for all countries taken together were: urban water supply by house connections US\$ 120; urban water supply through standpost US\$ 68; urban sewerage US\$ 160; urban sanitation other than sewerage US\$ 100; rural water supply US\$ 49; and rural sanitation US\$ 30.

Taking the average value for urban and rural water supply and sanitation, and based on the estimates of the numbers of additional people to be served to attain national Decade goals, it now appears that the capital investment in construction alone will need to be about US\$ 200 billion. On the basis of current plans, 66% of this will be spent on the urban areas.

As new systems are commissioned, the need to provide financial resources for operation and maintenance will increase. This is an additional recurrent burden which has to be recognized in financial planning for the sector in order to ensure the success of the Decade programmes.

Financial self-reliance of the sector is being promoted, and this should increase the flow of funds and enable investment to be increased and operational efficiency to be improved. The main means of achieving self-reliance is by charging a tariff for water that at least covers the production costs. This approach is apparently being taken by an increasing number of countries; 33% of LDCs providing data on both tariff and water production costs indicated that the former were higher; this compares with 31% in 1980. An increasing number of countries also reported the introduction of progressive tariff systems so that the wealthier high consumers would contribute more.

There is a clear need for programme implementation rates of investment to be increased in almost all countries if national Decade goals are to be attained. The regional median value for the rate of increase of national programmes is in the relatively narrow range of 1.8- to 4.1-fold, with the value for the LDCs being 2.7. Only one country reported that it was implementing a programme which, if maintained, would enable Decade goals to be reached without any acceleration, while it appears that one country in the African Region will have to increase the rate of programme implementation 20.6-fold to attain its own targets. Here, it is worth remembering that it is nationally-established targets that are under consideration and not total coverage.

The proportion of funds originating from external resources varies greatly among countries, there being, however, a clear correlation between the proportion of external funds and the level of development of the country; as would be expected, the amount of external funds was higher in the least developed countries. For example, in Africa, the proportion of external funding ranged from 10% to 92%, with most of the LDCs obtaining between 80% and 92% from outside agencies. The median values for the proportion of external funding was 84, 40, 42, 47 and 66 for Africa, the Americas, Eastern Mediterranean, South-East Asia and the Western Pacific, respectively. In the case of the Western Pacific Region, three of the small island countries/territories indicated a 100% reliance on external funding. It may be concluded from this analysis that the success of the Decade programmes in the LDCs is more dependent on the commitment of the donor agencies; and as one progresses up the scale of development, Decade success will depend more on national funding.

## 7. Constraints

Globally, the most highly-ranked constraint was shortage of funds. Although important everywhere, funding was not the highest-ranked constraint in all regions. In Africa and South-East Asia the lack of funds was the single most important obstacle to the attainment of their Decade targets and this result may have been expected. In the Eastern Mediterranean Region fund limitation was ranked highest equal with inadequate water resources. This result is perhaps unexpected, but it arises because few of the oil-rich states provided data on investments, while most of the LDCs of the region did.

In the Western Pacific Region funding limitation was also given as a major constraint, second only to lack of sub-professional trained personnel (skilled artisans and tradesmen). In the Americas, the first-ranked constraint was listed as inadequacy of the cost-recovery framework, which is, of course, closely related to the availability of funds. In the case of the Americas, lack of funding was cited as the second-ranked constraint, with lack of trained personnel, both sub-professional and professional, third in order of importance.

Globally, the second-ranked order constraint was identified as lack of sub-professional personnel, with a shortage of professional staff being ranked as the third most important constraint, together with operation and maintenance deficiencies. In fact, lack of appropriate personnel and inadequate operation and maintenance are interdependent. In Africa, operation and maintenance problems were considered more important than personnel shortages, while in the Americas the reverse was true.



In the Eastern Mediterranean Region personnel shortage was the third most serious constraint, and poor operation and maintenance the fourth, while inappropriate institutional arrangements was considered more serious than both. In South-East Asia operation and maintenance difficulties were considered more serious than personnel shortages, while in the Western Pacific Region and the Region of the Americas personnel deficiencies were considered more serious than operational problems.

It is clear that the three most important constraints in all regions were lack of funds, insufficient personnel, and inadequate operation and maintenance, although their relative importance varied in different regions.

The constraints perceived as being least important of the 17 considered were lack of appropriate technologies, lack of planning and design criteria, and lack of definite government policy for the sector.

#### 8. Decade approaches<sup>1</sup>

In the baseline document<sup>2</sup>, it was reported that Decade-oriented activities had been initiated. These were (a) programmes directed towards the poorer sectors of the community; (b) community involvement and participation; and (c) health education - all essential elements of the primary health care approach to WHO's goal of health for all by the year 2000.

Indications are that these approaches are being strengthened, although in 1983 only 20% of countries indicated a definite policy of providing services to the urban poor as opposed to 23% in 1980. There has been, however, a marked increase in the percentage of countries reporting community participation in the planning, construction, and operation of rural systems.

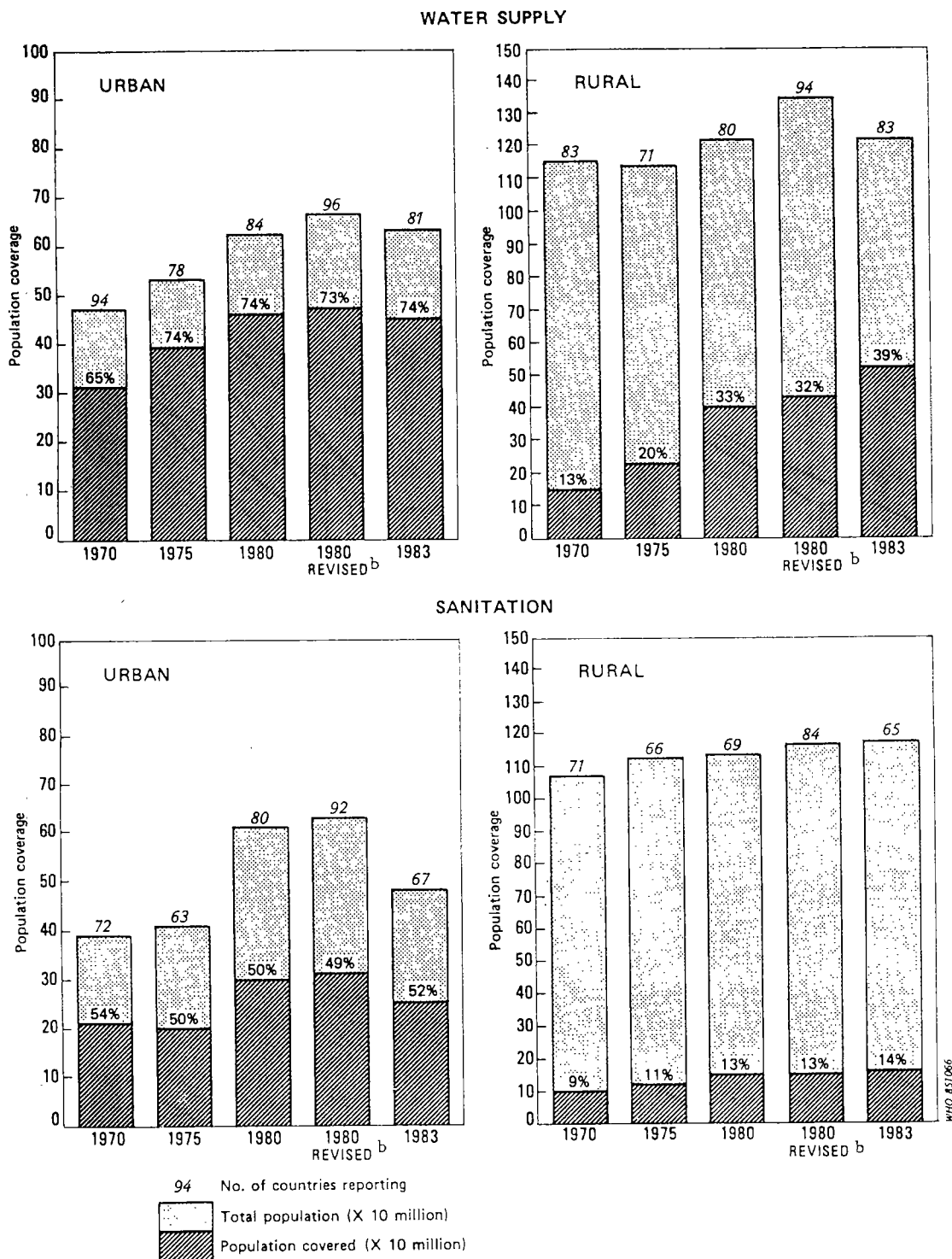
Health education continues to be a set component of primary school education in around 35-36% of the countries responding to WHO's information collection exercise.

---

<sup>1</sup> In this report, the term Decade approaches is used to mean the implementation of national programmes in accordance with the recommendations of the Mar del Plata Plan of Action, priority being given to programmes for the rural and urban underserved, to the application of self-reliant and self-sustaining programmes, the use of socially relevant systems, the participation of the community in all stages of development, the complementarity of sanitation with water supply, and the association of water supply and sanitation with health and other sector programmes.

<sup>2</sup> The International Drinking Water Supply and Sanitation Decade: Review of national baseline data, Geneva, World Health Organization, 1984 (WHO Offset Publication No. 85).

FIG. A.1 - GLOBAL  
POPULATION COVERAGE IN 1970, 1975, 1980 AND 1983<sup>a</sup>

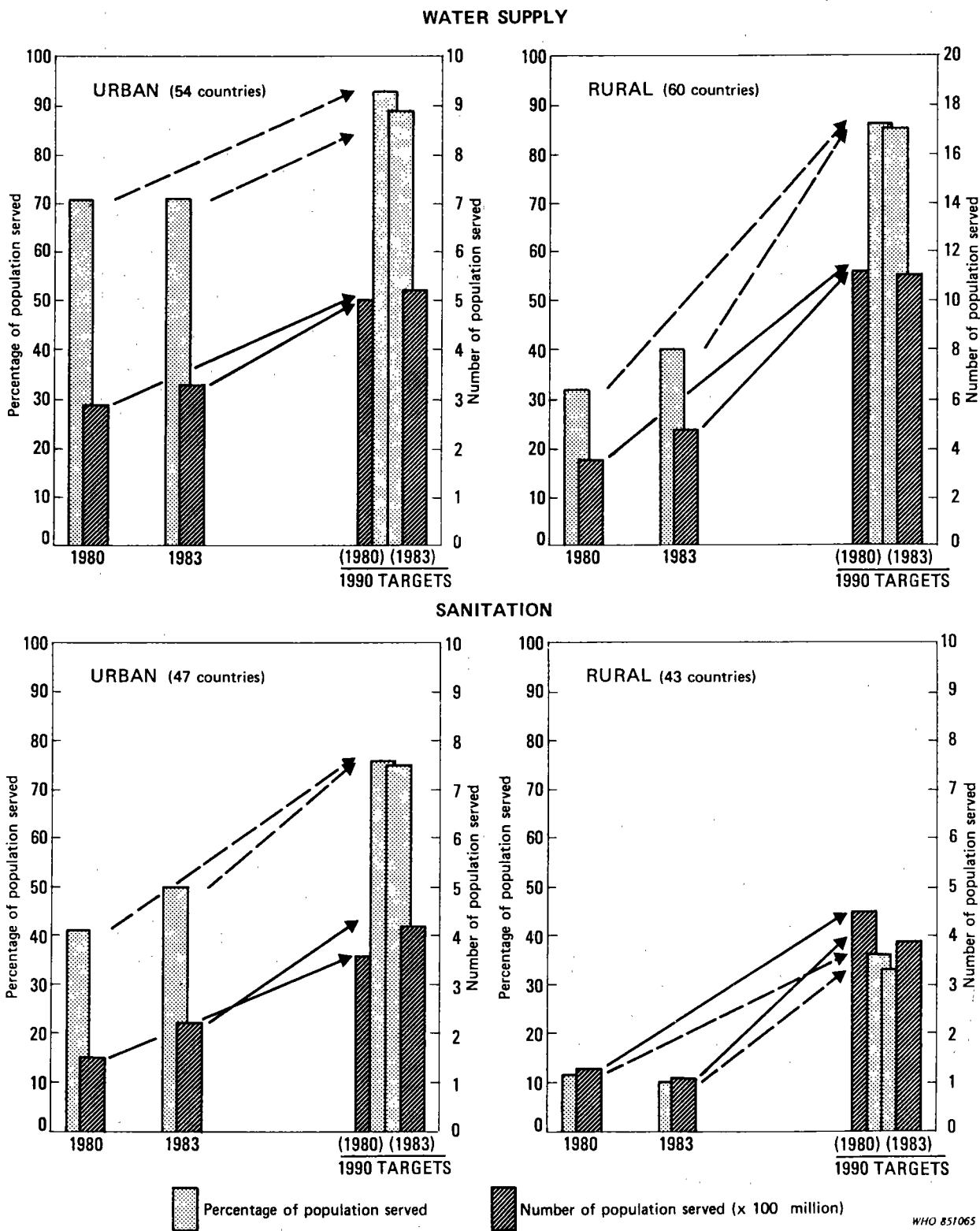


<sup>a</sup> See Table A.3.2.1 and Section A.3.

<sup>b</sup> The 1980 revised values are based on the original 1980 (baseline) date supplemented by additional information received in 1984.

FIG. A.2 - GLOBAL

DECADE TARGETS (FOR 1990) ESTABLISHED IN 1980 AND 1983 FOR URBAN AND RURAL WATER SUPPLY AND SANITATION IN SELECTED COUNTRIES COMPARED WITH LEVELS OF COVERAGE IN THE SAME YEARS<sup>a</sup>



<sup>a</sup> See Tables A.4.1.1, A.4.1.2, A.4.2.1 and A.4.2.2 and Section 4.

TABLE A.1 - GLOBAL

## BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH

| WHO Region            | No. of reporting countries/ territories | Estimated population increase 1980-1981 |           |           | No. of LDC countries<br>LDC <sup>a</sup> | Number of countries with |                |                                |  |  |   |  |  |
|-----------------------|---|---|-----------|-----------|--|--------------------------|----------------|--------------------------------|--|--|---|--|--|
|                       |   | Total (%)                               | Urban (%) | Rural (%) |  | 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                | 26                                      | 22                                      | 38        | 18        | 15                                       | 0                        | 5              | 16                             | 20   | 10 <sup>b</sup>                              | 19  | 14   |  |
| Americas              | 25                                      | 20                                      | 25        | 10        | 1  | 6                        | 6              | 0                              | 2  | 10 <sup>b</sup>                              | 4   | 7  |  |
| South-East Asia       | 9                                       | 14                                      | 22        | 12        | 4  | 1                        | 0              | 2                              | 4  | 2 <sup>b</sup>                               | 6   | 7  |  |
| Europe                | 0                                       | -                                       | -         | -         | -  | -                        | -              | -                              | -  | -  | -   | -  |  |
| Eastern Mediterranean | 12                                      | 22                                      | 28        | 19        | 5  | 5                        | 3              | 6                              | 6  | 3 <sup>b</sup>                               | 5   | 5  |  |
| Western Pacific       | 22                                      | 14                                      | 18        | 11        | 2  | 4                        | 0              | 1                              | 1  | 7 <sup>b</sup>                               | 6   | 7  |  |
| TOTALS                | 94                                      |   |           |           | 27                                       | 16                       | 14             | 25                             | 33   | 32   | 40  | 40   |  |
| % (1983)              |   |   |           |           |  | 17                       | 15             | 27                             | 35   | 34   | 43  | 43   |  |
| % (1980)              |   |   |           |           |  | 18                       | 21             | 29                             | 33   | 32   | 45  | 47   |  |

<sup>a</sup> LDC = Least developed country.

<sup>b</sup> Only 13 countries in AFRO responded.  
Only 20 countries in AMRO responded.  
Only 2 countries in SEARO responded.  
Only 6 countries in EMRO responded.  
Only 12 countries in WPRO responded.

TABLE A.2 - GLOBAL  
COVERAGE TARGETS AND DECADE PLANS

| WHO Region            | No. of countries with total coverage targets <sup>a</sup> |                  |                    |                  | 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                | 7   | 3                | 2                  | 1                | 3  | 3          | 22   |
| Americas              | 9   | 6                | 3                  | 2                | 7  | 9          | 21   |
| South-East Asia       | 4   | 2                | 2                  | 2                | 1  | 5          | 9  |
| Europe                | -   | -                | -                  | -                | -  | -          | -  |
| Eastern Mediterranean | 7   | 3                | 3                  | 2                | 3  | 4          | 8  |
| Western Pacific       | 4   | 3                | 3                  | 2                | 1  | 2          | 16   |
| <b>TOTALS</b>         | 31  | 17               | 13                 | 9                | 15   | 23         | 76   |
| % (1983)              | 33  | 18               | 14                 | 10               | 16   | 24         | 81   |
| % (1980)              | 48  | 33               | 21                 | 8                | 9  | 23         | 67   |
| <b>LDCs</b>           | 9   | 5                | 2                  | 3                | 5  | 9          | 22   |
| % (1983)              | 33  | 19               | 7                  | 11               | 19   | 33         | 81   |
| % (1980)              | 42  | 31               | 22                 | 6                | 22   | 34         | 71   |

<sup>a</sup> Coverage over 95% considered total average.

TABLE A.3 - GLOBAL

1983 LEVELS OF SERVICE (populations in thousands; percentages shown in brackets)

| WHO Region            | No. of reporting countries/territories | Population with drinking-water |                 |                   |                    |                      |                      |                 | Population with sanitation |          |         |                 |
|-----------------------|--|--------------------------------|-----------------|-------------------|--------------------|----------------------|----------------------|-----------------|----------------------------|----------|---------|-----------------|
|                       |  | Population                     |                 |                   | Urban <sup>a</sup> |                      |                      | Rural           | Urban <sup>a</sup>         |          |         | Rural           |
|                       |  | Total                          | Urban           | Rural             | Total              | by H.C. <sup>b</sup> | by P.S. <sup>c</sup> | Total           | by S.C. <sup>d</sup>       | by other | Total   |                 |
| Africa                | 26                                     | 270 965                        | 65 481<br>(24)  | 205 484<br>(76)   | 37 914<br>(61)     | 21 152               | 17 424               | 52 372<br>(26)  | 15 755<br>(68)             | 4 877    | 18 535  | 27 782<br>(25)  |
| Americas              | 24                                     | 367 525                        | 246 098<br>(67) | 121 427<br>(33)   | 182 088<br>(85)    | 170 397              | 25 680               | 44 358<br>(40)  | 109 089<br>(80)            | 96 671   | 4 3 183 | 14 815<br>(18)  |
| South-East Asia       | 9                                      | 1 076 049                      | 253 160<br>(24) | 822 889<br>(76)   | 166 521<br>(66)    | 4 525                | 2 610                | 356 721<br>(43) | 77 963<br>(31)             | 854      | 4 509   | 57 834<br>(7)   |
| Europe                |  | ...                            | ...             | ...               | ...                | ...                  | ...                  | ...             | ...                        | ...      | ...     | ...             |
| Eastern Mediterranean | 12                                     | 139 813                        | 45 396<br>(32)  | 94 417<br>(68)    | 37 206<br>(86)     | 12 350               | 5 044                | 23 614<br>(26)  | 25 447<br>(64)             | 5 281    | 6 616   | 5 037<br>(7)    |
| Western Pacific       | 21                                     | 180 804                        | 72 127<br>(40)  | 108 677<br>(60)   | 23 947<br>(70)     | 18 503               | 5 422                | 48 871<br>(45)  | 23 355<br>(80)             | 3 968    | 19 457  | 53 318<br>(57)  |
| TOTALS                | 92                                     | 2 035 156                      | 682 262<br>(34) | 1 352 894<br>(66) | 447 676<br>(74)    | 226 927              | 56 180               | 525 936<br>(39) | 251 609<br>(52)            | 111 651  | 92 300  | 158 786<br>(14) |

a Coverage for urban water by H.C. and by P.S. does not necessarily add up to the value for total coverage since all countries did not report the breakdown. The sample countries were not always the same. Same comment for urban sanitation.

b H.C. = house connection.

c P.S. = public standpost.

d S.C. = sewer connection.

TABLE A.3.1 - GLOBAL  
PERCENTAGE COVERAGE IN 1970, 1975, 1980 and 1983

| WHO Region                   | Year | Urban water supply  |                | Urban sanitation    |                 | Urban sanitation<br>as percentage of<br>urban water supply | Rural<br>water<br>supply | Rural<br>sanitation | Rural sanitation as<br>percentage of rural<br>water supply |
|------------------------------|------|---------------------|----------------|---------------------|-----------------|--|--------------------------|---------------------|--|
|                              |      | House<br>connection | Stand-<br>post | Sewer<br>connection | Others          |  |                          |                     |  |
| Africa                       | 1970 | 33                  | 33             | 8                   | 39              | 71   | 13                       | 23                  | 177  |
|                              | 1975 | 37                  | 31             | 15                  | 60              | 110  | 21                       | 28                  | 133  |
|                              | 1980 | 29                  | 31             | 11                  | 43              | 85   | 22                       | 20                  | 91   |
|                              | 1983 | 33                  | 28             | 17                  | 40              | 93   | 26                       | 25                  | 96   |
| 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   |
|                              | 1983 | 74                  | 12             | 42                  | 32              | 86   | 40                       | 18                  | 45   |
| South East-Asia <sup>a</sup> | 1970 | 46 <sup>b</sup>     |                |                     | 33 <sup>b</sup> | 72   | 8                        | 4                   | 50   |
|                              | 1975 | 63 <sup>b</sup>     |                |                     | 31 <sup>b</sup> | 49   | 17                       | 4                   | 24   |
|                              | 1980 | 64 <sup>b</sup>     |                |                     | 30 <sup>b</sup> | 47   | 31                       | 6                   | 19   |
|                              | 1983 | 66 <sup>b</sup>     |                |                     | 31 <sup>b</sup> | 47   | 43                       | 7                   | 16   |
| Europe                       | 1970 | 47                  | 21             | 31                  | 12              | 63   | 45                       | 5                   | 11   |
|                              | 1975 | 67                  | 14             | 21                  | 17              | 47   | 63                       | 18                  | 29   |
|                              | 1980 | 62                  | 34             | 10 <sup>a</sup>     | 46 <sup>a</sup> | 58   | 62                       | 84 <sup>a</sup>     | -  |
|                              | 1983 | -                   | -              | -                   | -               | -  | -                        | -                   | -  |
| Eastern<br>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   |
|                              | 1983 | 68                  | 28             | 41                  | 47              | 92   | 26                       | 7                   | 27   |
| 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  |
|                              | 1983 | 54                  | 16             | 14                  | 67              | 116  | 45                       | 57                  | 127  |

Source: 1970 and 1975 data from World health statistics report, Vol. 29, No. 10 (1976).

<sup>a</sup> Data from only one country.

<sup>b</sup> Most countries did not provide separate data so combined figures were given.

TABLE A.3.2.1 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975, 1980 AND 1983 - URBAN WATER SUPPLY

| WHO Region               | 1970                |                         |    | 1975                |                         |    | 1980                |                         |    | 1983                |                         |    | Number of countries reporting |      |      |      |
|--------------------------|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|-------------------------------|------|------|------|
|                          | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | 1970                          | 1975 | 1980 | 1983 |
| Africa                   | 20 823              | 13 743                  | 66 | 21 971              | 14 940                  | 68 | 20 788              | 13 723                  | 66 | 62 191              | 37 914                  | 61 | 28                            | 20   | 21   | 24   |
| Americas                 | 157 261             | 119 518                 | 76 | 181 130             | 146 715                 | 81 | 218 109             | 169 302                 | 78 | 213 172             | 182 088                 | 85 | 25                            | 25   | 21   | 21   |
| South-East Asia          | 165 400             | 76 800                  | 46 | 201 500             | 127 600                 | 63 | 232 601             | 148 834                 | 64 | 252 999             | 166 521                 | 66 | 7                             | 7    | 9    | 8    |
| Europe                   | 26 224              | 17 832                  | 68 | 24 667              | 19 980                  | 81 | 28 303              | 27 258                  | 96 | -                   | -                       | -  | 3                             | 2    | 3    | 0    |
| Eastern<br>Mediterranean | 67 039              | 52 961                  | 79 | 57 840              | 46 272                  | 80 | 65 498              | 54 117                  | 83 | 43 524              | 37 206                  | 86 | 20                            | 15   | 12   | 10   |
| Western Pacific          | 37 177              | 27 883                  | 75 | 40 040              | 36 036                  | 90 | 55 768              | 45 446                  | 81 | 34 235              | 23 947                  | 70 | 11                            | 9    | 18   | 18   |
| TOTAL                    | 473 924             | 308 737                 | 65 | 527 148             | 391 543                 | 74 | 621 067             | 458 680                 | 74 | 606 121             | 447 676                 | 74 | 94                            | 78   | 84   | 81   |

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.



TABLE A.3.2.2 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975, 1980 AND 1983 - URBAN SANITATION

| WHO Region               | 1970                |                         |    | 1975                |                         |    | 1980                |                         |    | 1983                |                         |    | Number of countries reporting |      |      |      |
|--------------------------|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|-------------------------------|------|------|------|
|                          | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | Urban pop.<br>(000) | Urban coverage<br>(000) | %  | 1970                          | 1975 | 1980 | 1983 |
| Africa                   | 19 021              | 8 940                   | 47 | 20 179              | 15 134                  | 75 | 20 788              | 11 214                  | 54 | 23 183              | 15 755                  | 68 | 22                            | 16   | 20   | 17   |
| Americas                 | 115 854             | 88 049                  | 76 | 59 929              | 47 943                  | 80 | 218 109             | 122 822                 | 56 | 136 938             | 109 089                 | 80 | 19                            | 17   | 21   | 19   |
| South-East Asia          | 165 400             | 54 100                  | 33 | 201 500             | 62 500                  | 31 | 232 601             | 70 075                  | 30 | 249 649             | 77 963                  | 31 | 7                             | 7    | 8    | 7    |
| Europe                   | 12 598              | 5 417                   | 43 | 24 945              | 9 479                   | 38 | 19 884              | 11 239                  | 57 | -                   | -                       | -  | 3                             | 3    | 2    | 0    |
| Eastern<br>Mediterranean | 44 642              | 27 678                  | 62 | 54 451              | 34 304                  | 63 | 63 608              | 36 052                  | 57 | 39 605              | 25 447                  | 64 | 12                            | 12   | 11   | 8    |
| Western Pacific          | 36 878              | 29 871                  | 81 | 39 838              | 32 269                  | 81 | 55 688              | 51 905                  | 93 | 29 021              | 23 355                  | 80 | 9                             | 8    | 18   | 16   |
| TOTAL                    | 394 393             | 214 055                 | 54 | 400 842             | 201 629                 | 50 | 610 678             | 303 307                 | 50 | 478 396             | 251 609                 | 53 | 72                            | 63   | 80   | 67   |

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.

TABLE A.3.2.3 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975, 1980 AND 1983 - RURAL WATER SUPPLY

| WHO Region               | 1970                |                         |    | 1975                |                         |    | 1980                |                         |    | 1983                |                         |    | Number of countries reporting |      |      |      |
|--------------------------|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|-------------------------------|------|------|------|
|                          | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | 1970                          | 1975 | 1980 | 1983 |
| Africa                   | 97 731              | 12 705                  | 13 | 97 890              | 20 557                  | 21 | 82 935              | 17 981                  | 22 | 202 190             | 52 372                  | 26 | 24                            | 19   | 20   | 23   |
| Americas                 | 119 521             | 28 685                  | 24 | 74 131              | 23 722                  | 32 | 115 289             | 48 628                  | 42 | 111 949             | 44 358                  | 40 | 25                            | 23   | 20   | 22   |
| South-East Asia          | 653 000             | 49 400                  | 8  | 727 000             | 123 900                 | 17 | 787 360             | 241 664                 | 31 | 822 889             | 356 721                 | 43 | 7                             | 7    | 9    | 9    |
| Europe                   | 32 044              | 14 420                  | 45 | 32 032              | 20 180                  | 63 | 25 172              | 15 580                  | 62 | -                   | -                       | -  | 2                             | 2    | 2    | 0    |
| Eastern<br>Mediterranean | 168 432             | 32 002                  | 19 | 149 781             | 23 965                  | 16 | 115 109             | 34 532                  | 30 | 90 619              | 23 614                  | 26 | 18                            | 13   | 12   | 9    |
| Western Pacific          | 76 970              | 17 703                  | 23 | 60 153              | 18 046                  | 30 | 98 656              | 40 075                  | 41 | 108 671             | 48 871                  | 45 | 7                             | 7    | 17   | 20   |
| TOTAL                    | 1 147 698           | 154 915                 | 13 | 1 140 987           | 230 370                 | 20 | 1 224 521           | 398 460                 | 33 | 1 336 318           | 525 936                 | 39 | 83                            | 71   | 80   | 83   |

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.

TABLE A.3.2.4 - GLOBAL

COMPARISON OF COVERAGE AS OF 1970, 1975, 1980 AND 1983 - RURAL SANITATION

| WHO Region               | 1970                |                         |    | 1975                |                         |    | 1980                |                         |    | 1983                |                         |    | Number of countries reporting |      |      |      |
|--------------------------|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|---------------------|-------------------------|----|-------------------------------|------|------|------|
|                          | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | Rural pop.<br>(000) | Rural coverage<br>(000) | %  | 1970                          | 1975 | 1980 | 1983 |
| Africa                   | 80 417              | 18 496                  | 23 | 94 604              | 26 498                  | 28 | 74 335              | 14 787                  | 20 | 111 021             | 27 782                  | 25 | 20                            | 17   | 18   | 18   |
| Americas                 | 112 596             | 27 023                  | 24 | 63 592              | 15 898                  | 25 | 73 268              | 14 675                  | 20 | 80 582              | 14 815                  | 18 | 24                            | 21   | 16   | 18   |
| South-East Asia          | 653 000             | 23 100                  | 4  | 727 000             | 27 800                  | 4  | 787 360             | 49 431                  | 6  | 809 570             | 57 834                  | 7  | 7                             | 7    | 8    | 7    |
| Europe                   | 18 160              | 908                     | 5  | 31 794              | 5 273                   | 18 | 80                  | 67                      | 84 | -                   | -                       | -  | -                             | -    | -    | 0    |
| Eastern<br>Mediterranean | 130 150             | 15 618                  | 12 | 146 536             | 20 515                  | 14 | 92 412              | 6 315                   | 7  | 70 920              | 5 037                   | 7  | 10                            | 11   | 9    | 6    |
| Western Pacific          | 74 816              | 14 215                  | 19 | 60 672              | 26 089                  | 43 | 98 226              | 62 221                  | 63 | 93 490              | 53 318                  | 57 | 7                             | 7    | 17   | 17   |
| TOTAL                    | 1 069 139           | 99 360                  | 9  | 1 124 198           | 122 523                 | 11 | 1 225 681           | 147 496                 | 13 | 1 165 583           | 158 786                 | 14 | 71                            | 66   | 69   | 66   |

Source: For 1970 and 1975, World health statistics report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.

TABLE A.4.1.1 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1983-1990)<sup>a</sup> - URBAN WATER SUPPLY

| WHO Region            | No. of selected countries <sup>a</sup> | % of total Regional urban population <sup>b</sup> | Urban population (millions) <sup>a</sup> |            | Urban coverage              |           |                             |           | Additional beneficiaries (millions) | Ratio <sup>c</sup> |
|-----------------------|--|---|--|------------|-----------------------------|-----------|-----------------------------|-----------|-------------------------------------|--------------------|
|                       |  |   | 1983                                     | 1990       | 1983                        |           | 1990 target                 |           |                                     |                    |
|                       |  |   |  |            | No. (millions) <sup>a</sup> | (%)       | No. (millions) <sup>a</sup> | (%)       |                                     |                    |
| Africa                | 12                                     | 26  | 27                                       | 42         | 15                          | 55        | 35                          | 84        | 20                                  | 1.33               |
| Americas              | 15                                     | 46  | 116                                      | 143        | 100                         | 86        | 124                         | 86        | 24                                  | 0.24               |
| South-East Asia       | 8                                      | 99  | 253                                      | 309        | 167                         | 66        | 276                         | 89        | 109                                 | 0.65               |
| Europe                | -                                      | -   | -  | -          | -                           | -         | -                           | -         | -                                   | -                  |
| Eastern Mediterranean | 9                                      | 35  | 43                                       | 56         | 37                          | 86        | 55                          | 99        | 18                                  | 0.49               |
| Western Pacific       | 10                                     | 36  | 24                                       | 31         | 14                          | 58        | 27                          | 87        | 13                                  | 0.93               |
| <b>TOTAL</b>          | <b>54</b>                              | <b>58</b>   | <b>463</b>                               | <b>581</b> | <b>333</b>                  | <b>72</b> | <b>517</b>                  | <b>89</b> | <b>184</b>                          | <b>0.55</b>        |

<sup>a</sup> For those countries that provided the necessary data for 1983 coverage and 1990 targets.

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

<sup>c</sup> Ratio of additional people to be served by 1990 to number served in 1983.

TABLE A.4.1.2 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1984 - 1990)<sup>a</sup> - URBAN SANITATION

| WHO Region            | No. of selected countries <sup>a</sup> | % of total Regional urban population <sup>b</sup> | Urban population (millions) <sup>a</sup> |            | Urban coverage              |           |                             |           | Additional beneficiaries (millions) | Ratio <sup>c</sup> |
|-----------------------|--|---|--|------------|-----------------------------|-----------|-----------------------------|-----------|-------------------------------------|--------------------|
|                       |  |   | 1983                                     | 1990       | 1983                        |           | 1990 target                 |           |                                     |                    |
|                       |  |   |  |            | No. (millions) <sup>a</sup> | (%)       | No. (millions) <sup>a</sup> | (%)       |                                     |                    |
| Africa                | 10                                     | 17  | 17                                       | 24         | 12                          | 70        | 21                          | 86        | 09                                  | 0.75               |
| Americas              | 14                                     | 42  | 106                                      | 139        | 82                          | 77        | 110                         | 80        | 28                                  | 0.34               |
| South-East Asia       | 7                                      | 99  | 250                                      | 305        | 78                          | 31        | 224                         | 73        | 146                                 | 1.87               |
| Europe                | -                                      | -   | -  | -          | -                           | -         | -                           | -         | -                                   | -                  |
| Eastern Mediterranean | 7                                      | 32  | 39                                       | 50         | 25                          | 64        | 36                          | 72        | 11                                  | 0.44               |
| Western Pacific       | 9                                      | 44  | 29                                       | 37         | 23                          | 80        | 28                          | 77        | 5                                   | 0.22               |
| <b>TOTAL</b>          | <b>47</b>                              | <b>55</b>   | <b>441</b>                               | <b>555</b> | <b>220</b>                  | <b>50</b> | <b>419</b>                  | <b>75</b> | <b>199</b>                          | <b>0.90</b>        |

<sup>a</sup> For those countries that provided the necessary data for 1983 coverage and 1990 targets.

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

<sup>c</sup> Ratio of additional people to be served by 1990 to number served in 1983.

TABLE A.4.2.1 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1984 -1990)<sup>a</sup> - RURAL WATER SUPPLY

| WHO Region            | No. of selected countries <sup>a</sup> | % of total Regional rural population <sup>b</sup> | Rural population (millions) <sup>a</sup> |       | Rural coverage              |     |                             |     | Additional beneficiaries (millions) | Ratio <sup>c</sup> |
|-----------------------|--|---|--|-------|-----------------------------|-----|-----------------------------|-----|-------------------------------------|--------------------|
|                       |  |   | 1983                                     | 1990  | 1983                        |     | 1990 target                 |     |                                     |                    |
|                       |  |   |  |       | No. (millions) <sup>a</sup> | (%) | No. (millions) <sup>a</sup> | (%) |                                     |                    |
| Africa                | 13                                     | 31  | 86                                       | 101   | 19                          | 22  | 60                          | 59  | 41                                  | 2.16               |
| Americas              | 15                                     | 51  | 64                                       | 70    | 22                          | 34  | 38                          | 54  | 16                                  | 0.73               |
| South-East Asia       | 9                                      | 95  | 823                                      | 921   | 357                         | 43  | 825                         | 90  | 468                                 | 1.31               |
| Europe                | -                                      | -   | -  | -     | -                           | -   | -                           | -   | -                                   | -                  |
| Eastern Mediterranean | 7                                      | 51  | 86                                       | 103   | 23                          | 26  | 73                          | 70  | 50                                  | 2.17               |
| Western Pacific       | 16                                     | 90  | 108                                      | 120   | 49                          | 45  | 120                         | 100 | 71                                  | 1.45               |
| TOTAL                 | 60                                     | 75  | 1 167                                    | 1 315 | 470                         | 40  | 1 116                       | 85  | 646                                 | 1.37               |

<sup>a</sup> For those countries that provided the necessary data for 1983 coverage and 1990 targets.

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

<sup>c</sup> Ratio of additional people to be served by 1990 to number served in 1983.

TABLE A.4.2.2 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1984 -1990)<sup>a</sup> - RURAL SANITATION

| WHO Region            | No. of selected countries <sup>a</sup> | % of total Regional rural population <sup>b</sup> | Rural population (millions) <sup>a</sup> |              | Rural coverage              |           |                             |           | Additional beneficiaries (millions) | Ratio <sup>c</sup> |
|-----------------------|--|---|--|--------------|-----------------------------|-----------|-----------------------------|-----------|-------------------------------------|--------------------|
|                       |  |   | 1983                                     | 1990         | 1983                        |           | 1990 target                 |           |                                     |                    |
|                       |  |   |  |              | No. (millions) <sup>a</sup> | (%)       | No. (millions) <sup>a</sup> | (%)       |                                     |                    |
| Africa                | 10                                     | 22  | 62                                       | 75           | 16                          | 26        | 44                          | 58        | 28                                  | 1.75               |
| Americas              | 12                                     | 55  | 70                                       | 77           | 11                          | 16        | 30                          | 39        | 19                                  | 1.73               |
| South-East Asia       | 7                                      | 94  | 810                                      | 906          | 58                          | 7         | 270                         | 30        | 212                                 | 3.66               |
| Europe                | -                                      | -   | -  | -            | -                           | -         | -                           | -         | -                                   | -                  |
| Eastern Mediterranean | 5                                      | 41  | 69                                       | 84           | 5                           | 7         | 14                          | 16        | 9                                   | 1.80               |
| Western Pacific       | 9                                      | 24  | 38                                       | 42           | 15                          | 40        | 34                          | 81        | 19                                  | 1.27               |
| <b>TOTAL</b>          | <b>43</b>                              | <b>67</b>   | <b>1 049</b>                             | <b>1 184</b> | <b>105</b>                  | <b>10</b> | <b>392</b>                  | <b>33</b> | <b>287</b>                          | <b>2.73</b>        |

<sup>a</sup> Figures are for reporting countries.

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

<sup>c</sup> Ratio of additional people to be served by 1990 to number served in 1983.

TABLE A.5 - GLOBAL

## STAFF AND TRAINEES

| Region/<br>grouping      | Total staff employed per<br>million population,<br>median of national figures<br>1983<br>(1980) | Total projected trainees per<br>million population,<br>median of national figures<br>1983-1990<br>(1980-1990) | Ultimate projected<br>staff per<br>million population<br>1990<br>(1990) |
|--------------------------|---|---|---|
| Africa                   | 259<br>(268)  | 118<br>(374)  | 377<br>(642)  |
| Americas                 | 685<br>(590)  | 38<br>(618)   | 723<br>(1 208)  |
| South-East Asia          | 147<br>(25)   | 120<br>(77)   | 267<br>(102)  |
| Europe                   | -<br>(2 709)  | -<br>(9)  | -<br>(2 718)  |
| Eastern<br>Mediterranean | 446<br>(750)  | -<br>(163)  | 409<br>(913)  |
| Western Pacific          | 1 696<br>(407)  | -<br>(636)  | 1 113<br>(1 103)  |
| LDCs <sup>a</sup>        | 250<br>(229)  | 76<br>(302)   | 326<br>(531)  |

<sup>a</sup> LDC = Least developed country.



TABLE A.6 - GLOBAL

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>):  
 MEDIAN VALUES OF NATIONAL AVERAGES <sup>a</sup>

| Region/grouping       | Construction       |              |                  |              |                    |                  | Operation             |                      |   |                         |
|-----------------------|--------------------|--------------|------------------|--------------|--------------------|------------------|-----------------------|----------------------|---|-------------------------|
|                       | Urban water supply |              | Urban sanitation |              | Rural water supply | Rural sanitation | Average cost of water | Average water tariff | % of countries                            |                         |
|                       | House connection   | Stand-post   | Sewer connection | Other means  |                    |                  |                       |                      | Where average tariff exceeds average cost | With progressive tariff |
| Africa                | 100<br>(100)       | 68<br>(46)   | 160<br>(150)     | 160<br>(53)  | 40<br>(32)         | 30<br>(15)       | 0.50<br>(0.40)        | 0.23<br>(0.25)       | 6<br>(27)                                 | 64<br>(50)              |
| Americas              | 120<br>(125)       | 50<br>(62)   | 150<br>(165)     | 40<br>(62)   | 88<br>(88)         | 38<br>(30)       | 0.11<br>(0.20)        | 0.19<br>(0.21)       | 78<br>(27)                                | 95<br>(76)              |
| South-East Asia       | 61<br>(55)         | 59<br>(4)    | 115<br>(63)      | 21<br>(15)   | 14<br>(18)         | 9<br>(9)         | 0.16<br>(0.10)        | 0.10<br>(0.12)       | 17<br>(0)                                 | 75<br>(88)              |
| Europe                | -                  | -            | -                | -            | -                  | -                | -                     | -                    | -   | -                       |
| Eastern Mediterranean | 275<br>(250)       | 120<br>(102) | 400<br>(530)     | 275<br>(365) | 142<br>(112)       | 30<br>(100)      | 0.40<br>(0.80)        | 0.33<br>(0.13)       | 56<br>(0)                                 | 80<br>(60)              |
| Western Pacific       | 194<br>(80)        | 100<br>(20)  | 290<br>(220)     | 100<br>(50)  | 49<br>(26)         | 13<br>(5)        | 0.32<br>(0.16)        | 0.25<br>(0.19)       | 46<br>(64)                                | 53<br>(63)              |
| LDCs <sup>b</sup>     | 137<br>(100)       | 100<br>(40)  | 150<br>(150)     | 200<br>(52)  | 39<br>(29)         | 30<br>(18)       | 0.40<br>(0.40)        | 0.28<br>(0.30)       | 33<br>(31)                                | 63<br>(56)              |

<sup>a</sup> 1980 values are indicated in parentheses.

<sup>b</sup> LDC = Least developed country.

TABLE A.7 - GLOBAL

INCREASE IN INVESTMENT RATE NEEDED TO MEET DECADE TARGETS SET BY COUNTRIES<sup>a</sup>

| Region/Grouping                    | Multiplication factor |              |                 |
|------------------------------------|-----------------------|--------------|-----------------|
|                                    | Minimum               | Median       | Maximum         |
| Africa                             | 1.03<br>(1.3)         | 2.8<br>(4.3) | 20.6<br>(294.0) |
| Americas                           | 1.1<br>(1.2)          | 4.1<br>(2.6) | 7.9<br>(5.2)    |
| South-East Asia                    | 1.1<br>(3.2)          | 2.3<br>(4.2) | 3.4<br>(41.0)   |
| Europe                             | -                     | -            | -               |
| Eastern Mediterranean <sup>b</sup> | 0                     | 2.1<br>(2.9) | 9.3             |
| Western Pacific                    | 0<br>(0.3)            | 1.8<br>(1.5) | 21.4<br>(5.8)   |
| LDCs <sup>c</sup>                  | 0                     | 2.7          | 20.6            |

<sup>a</sup> 1980 values are indicated in parentheses.

<sup>b</sup> Data available for only three countries.

<sup>c</sup> LDC = Least developed country.

TABLE A.8 - GLOBAL

RANKING AND FREQUENCY OF CONSTRAINTS, 1983 (NUMBER OF REPORTING COUNTRIES: 87)

| Constraints                                       | No. of countries indicating constraint |        |          | Ranking index <sup>a</sup> | 1983 Order of seriousness | Order of seriousness indicated in 1980 |
|---|--|--------|----------|----------------------------|---------------------------|--|
|   | Very severe                            | Severe | Moderate |                            |                           |  |
| Insufficiency of trained personnel (professional) | 15                                     | 25     | 28       | 123                        | 3=                        | 1=                                     |
| Funding limitations                               | 25                                     | 28     | 19       | 150                        | 1                         | 1=                                     |
| Insufficiency of trained personnel (sub-prof.)    | 14                                     | 30     | 28       | 130                        | 2                         | 2                                      |
| Operation and maintenance                         | 11                                     | 33     | 24       | 123                        | 3=                        | 3                                      |
| Logistics   | 12                                     | 30     | 24       | 118                        | 4                         | 4                                      |
| Inadequate cost-recovery framework                | 12                                     | 28     | 18       | 110                        | 5                         | 5                                      |
| Inappropriate institutional framework             | 7                                      | 19     | 34       | 93                         | 7                         | 6                                      |
| Insufficient health education efforts             | 7                                      | 24     | 29       | 98                         | 6                         | 7                                      |
| Intermittent water service                        | 4                                      | 23     | 29       | 87                         | 8                         | 8                                      |
| Lack of planning and design criteria              | 3                                      | 15     | 33       | 72                         | 14=                       | 9                                      |
| Non-involvement of communities                    | 3                                      | 21     | 32       | 83                         | 9=                        | 10=                                    |
| Inadequate or outmoded legal framework            | 6                                      | 14     | 31       | 77                         | 13                        | 10=                                    |
| Inappropriate technology                          | 1                                      | 15     | 36       | 69                         | 15=                       | 11                                     |
| Insufficient knowledge of water resources         | 4                                      | 11     | 45       | 79                         | 12                        | 12                                     |
| Inadequate water resources                        | 6                                      | 11     | 42       | 82                         | 10=                       | 13                                     |
| Lack of definite government policy for sector     | 4                                      | 14     | 32       | 72                         | 14=                       | 14                                     |
| Import restrictions                               | 11                                     | 11     | 25       | 80                         | 10=                       | 15                                     |

<sup>a</sup> Ranking index = (No. very severe x 3) + (No. severe x 2) + (No. moderate x 1).

TABLE A.9 - GLOBAL  
DECADE APPROACHES DURING 1983

| Region/<br>grouping      | Number of countries                                 |  |          |           |  |
|--------------------------|---|--|----------|-----------|--|
|                          | Reporting<br>improved<br>services for<br>urban poor | Where rural communities participated<br>in improvements to water supply and<br>sanitation facilities is reported |          |           | Where primary school<br>children received<br>health education<br>is reported |
|                          |   | Planning   | Building | Operating |  |
| Africa                   | 5   | 7  | 8        | 7         | 7  |
| Americas                 | 7   | 8  | 12       | 11        | 8  |
| South-East Asia          | 3   | 3  | 5        | 4         | 6  |
| Europe                   | -   | ...  | ...      | ...       | ...  |
| Eastern<br>Mediterranean | 2   | 3  | 3        | 3         | 3  |
| Western Pacific          | 2   | 9  | 10       | 9         | 10   |
| TOTALS                   | 19  | 30   | 38       | 34        | 34   |
| %                        | 20  | 34   | 40       | 36        | 36   |
| LDCs <sup>a</sup>        | 9   | 12   | 16       | 13        | 14   |
| %                        | 33  | 44   | 59       | 48        | 52   |

<sup>a</sup> LDC = Least developed country.

PROGRESS FROM 1980 TO 1983

Socioeconomic and health situation

Since 1980, there have been no major changes in the socioeconomic and health situations in the countries of the developing world - the proportions of countries reporting life expectancies of under 50 years, infant mortality rates of over 100 per 1000 live births and 50% or more of the population without adequate and safe water supply and appropriate sanitation, remaining about the same. This is only to be expected since three years is too short a period for such changes to be recordable.

Targets and plans

If the Decade targets established in 1983 (shown in Fig. A.2) are compared with those established in 1980 and presented in Offset Publication No. 85, it can be observed that there has been a noticeable reduction in these targets, showing that national authorities have become more realistic in the light of progress so far and the various programme implementation constraints; 15% fewer countries reported targets of 100% for urban water supply and sanitation; 7% fewer reported targets of 100% coverage for rural water supplies. However, more countries reported the establishment of national Decade plans: 81% in 1983 as opposed to 67% in 1980. These changes between 1980 and 1983 are also true for the LDCs.

Levels of service coverage

With regard to urban water supply, developments have managed to keep pace with the rapid increase in urban populations in most of the developing countries of the world. The maintenance of around 74% service coverage in the face of rapid urban expansion represents a monumental achievement on the part of most developing countries.

Rural water supply coverage has increased significantly since the start of the Decade with a 6-7% improvement in three years, reflecting the priority being given in most developing countries consistent with established Decade approaches.

In the area of urban sanitation a 2-3% increase in population coverage is indicated, and although this percentage is small, viewed in the light of rapid urbanization it represents a significant achievement and effort by governments.

Lack of progress is most serious in the field of rural sanitation, with the level of coverage having risen only by 1% to a level of 14%; thus a very low level of coverage persists. This represents a slight decrease in programme implementation rate as compared with the five years preceding the Decade.

The global situation does not reflect what is happening in the regions since considerable variations among them exist and progress has been uneven. The situation in the four subsectors by region is tabulated below.

SUMMARY OF APPARENT CHANGES IN LEVELS OF SERVICE COVERAGE (PERCENTAGES) FROM 1980 TO 1983

|       | <u>Water supply</u> |            | <u>Sanitation</u> |            |
|-------|---------------------|------------|-------------------|------------|
|       | urban<br>%          | rural<br>% | urban<br>%        | rural<br>% |
| AFRO  | - 1                 | + 2 to + 4 | + 13 to + 14      | + 5 to + 6 |
| AMRO  | + 7 to + 8          | - 1 to + 2 | + 24              | - 2        |
| SEARO | + 2                 | + 12       | + 1               | + 0        |
| EMRO  | + 3                 | - 4        | + 7 to + 8        | + 0 to + 1 |
| WPRO  | - 11                | + 4        | - 13              | - 4 to + 6 |

The variations among the regions are also seen in the country-by-country comparisons where so much depends on the effectiveness of the data collection and reporting system. Several countries have indicated that a significant effort is being made in the development of water supply and sanitation services and that their efforts have accelerated since 1980. In others the progress is real but less impressive, while in a few countries the Decade appears to have had no significant impact.

What is perhaps encouraging are the improvements almost everywhere in rural water supply coverage together with the steady improvements in rural sanitation in Africa. These reflect the Decade approach of concentrating on the poor and underserved. On the other hand, the apparent inability of all regions except Africa to tackle the problem of rural sanitation is a cause for major concern.

#### Staff and training

As far as manpower is concerned, the variation in the calculated indices is so large that it is difficult to detect any trends. Despite the fact that insufficient professional and sub-professional staff remain among the first three most serious constraints to Decade progress, the perceived needs for personnel have dropped in all regions except for South-East Asia. The need must clearly be for quality rather than number of staff.

#### Financial resources

Since the start of the Decade, the available data shows that the per capita unit costs of providing water supply and sanitation services remained the same in 1983 as in 1980. However, there would appear to be efforts to render the sector more financially self-sufficient through the introduction of tariffs that more than cover the production costs and also progressive tariffs to discourage wastage. This is particularly so in the Regions of the Americas and the Eastern Mediterranean.

As far as sectoral investments are concerned, estimates of the need to accelerate programmes in 1980 and 1983 indicate that for the countries reporting in Africa, progress has been good although the need to increase investment by around 3-fold still exists. In South-East Asia the trend is similar; however, a programme acceleration of approximately 2 1/2-fold is needed. In the Eastern Mediterranean the acceleration factor has been reduced from almost 3 in 1980 to just over 2 in 1983.

On the other hand, in the Americas and the Western Pacific the programmes appear to have fallen behind, since a 4-fold acceleration is now required compared with a need for a 2 1/2-fold acceleration in 1980 in the former region, and a 2-fold acceleration instead of 1 1/2-fold in the latter.

#### Constraints

The four most serious constraints to Decade progress identified by reporting governments in 1980 were funding limitations, insufficiency of trained professional personnel, insufficiency of trained sub-professional personnel, and operation and maintenance problems in that order. These were still the main constraints in 1983 with only the order of the two concerning personnel being reversed. Eradication of these problems will clearly be a priority for the years ahead.

#### Decade approaches

Efforts have continued during 1981, 1982 and 1983 to give priority to services for the poorer sectors of the community, to improve community participation, and to expand health education. And since insufficient utilization of these mechanisms has been identified as a medium-ranking constraint to Decade progress in both 1980 and 1983, it is clear that the efforts must be intensified in these areas.

Conclusions

It may be said that the Décade has had an impact but this has varied from subsector to subsector, country to country, and among the WHO Regions. In the light of the available data, many countries have to be congratulated on the progress made often in the face of adverse factors (economic situation, rapid population expansion, drought). However, in global terms, the efforts will have to be intensified in the years ahead.