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1981-1990

# The International Drinking Water Supply and Sanitation Decade

Review of Mid-Decade Progress  
(as at December 1985)

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**The International  
Drinking Water Supply  
and Sanitation Decade**

1981-1990

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## PREFACE

This document presents data on the water supply and sanitation services in the six regions of the World Health Organization in December 1985, the mid-point of the **International Drinking Water Supply and Sanitation Decade**. It is based on information provided by 111 countries, 17 more than the previous survey of 1983. It reports the trends and progress achieved during the first half of the **IDWSSD** and identifies the necessary tasks for the remaining years until the end of 1990 for the achievement of national Decade aspirations.

The document should be read in conjunction with WHO publication (out of series), *The International Drinking Water Supply and Sanitation Decade - Review of National Progress (as at December 1983)*. And also with the WHO Offset Publication No. 85, *International Drinking Water Supply and Sanitation Decade - Review of National Baseline Data (as at December 1980)*.

The fact that so much information could be collected so quickly after the 31 December 1985 assessment date represents a considerable achievement on the part of the individual countries, and is a clear indication of worldwide interest in the Decade. But, as stated in the previous two publications, collection and collation of data on water supply and sanitation services poses many difficulties. This is due to the diversity of the ministries, agencies and local authorities with responsibility for services and also the general lack of central sectoral information collection in the countries.

As a result, information is dispersed and often of a type required more for individual plant and systems operating needs rather than for sector assessment and planning at national level. Data presented in this report therefore contain gaps, and certain assumptions and extrapolations have had to be made.

Definitions also pose problems since no universal criteria exist dealing with, for example, adequate and safe water supply and appropriate sanitation, or for urban and rural populations. In fact it might not be appropriate for standard definitions to be applied, since perceptions can be country specific. Classifying urban and rural populations on the basis of size, for example, can be confusing since small communities in relatively developed countries can have all the necessary features for urban classification. A larger community in another country may lack these and be truly rural in nature.

This report represents as full a picture as possible of the status of water supply and sanitation services nationally, regionally and globally as well as the developments that have taken place during the five year period 1981-85. It has been made possible by the efforts in collecting and collating dispersed information by the governments reporting to WHO. Staff members of the United Nations and its specialized agencies, particularly the WHO country and regional offices and the Resident Representatives of the United Nations Development Programme, have made major contributions to this document.



## GLOBAL REVIEW

### 1. Socio-economic and health situation

During the first half of the IDWSSD population trends have been much as anticipated from the outset.

In the second half of the Decade the African region's anticipated 17% population growth will be 2% greater than the Eastern Mediterranean region's and 2-7% more than in the South-East Asia, the Western Pacific, and the American region (excluding the United States and Canada). In all these regions urban growth is likely to be two to three times faster than in rural areas. In the same period urban growth in the European region will be four times greater than rural, but the total increase will be just 3% and these countries are anyway economically better able to cope.

Basic indicators show that health is generally improving, with the proportion of countries reporting life expectancy of less than 50 years dropping from 29% to 23%, and those reporting infant mortality of over 100 per 1,000 live births down from 33% to 28%. Water-borne diseases in over 1% of the population was noted by 23% of countries, 9% less than before. These appear to be encouraging signs, but they should be treated with caution since the drops could be attributed to differences in the countries' reporting techniques. And if Europe is excluded from the analysis the values for the three indicators for 1985 would all be 3% worse.

Nevertheless, these are real improvements made despite the general low levels of access to safe water and sanitation. The number of countries (excluding Europe) reporting more than half their populations without access to safe, adequate water supplies was 38%, and without appropriate sanitation the figure was 46%. The corresponding values for the end of 1980, the Decade start, were 45% and 47%.

### 2. Targets and planning

The momentum created by the establishment of the IDWSSD has been maintained and, as a result, the attention being directed to the sector by national authorities is more than in the last Decade. Countries reporting that they had established, or were reviewing or preparing Decade programmes increased from 67% in 1980 to 72% at the mid-point. And, more significantly, the proportion of LDCs with such plans rose from 67% to 79%.

Experience of the Decade's first half has led countries to trim their plans, so that by 1985 fewer were aiming for 100% coverage in the sub-sectors. The proportion of countries looking for 100% urban water supply coverage fell from 48% to 40%, while those with similar hopes for urban sanitation dropped 7% to 26%. Plans for 100% coverage of rural water also fell from 21% to 15%. Table A.2 shows only regions with mainly developing countries.

At the same time the gap between the importance attached to the sub-sectors appears to be narrowing. In 1985 there were 2.8 times more countries aiming at 100% urban water supply coverage than those with 100% urban sanitation targets.

Five years earlier there were four times as many. The preferences for rural water compared to rural sanitation, and urban water versus rural sanitation have both fallen by similar proportions.

### **3. 1985 (mid-Decade) service levels**

The most encouraging sign so far is the big (9%) increase in the number of rural dwellers with access to safe, adequate water supplies. As many as 183 million more rural residents were served in the five years, pushing the proportion up to 42%. In urban areas the figures are less dramatic, with the proportion of population served remaining virtually static, at about 75%. However, in 1985 three quarters of town dwellers were served through house connections as opposed to two thirds in 1980.

In the first half of the Decade, sanitation facilities were laid on for more urban dwellers, 59% of whom were served in 1985, compared to 50% at the Decade start. Less encouraging were the reports on rural sanitation, which continues to receive less attention. The apparent 3% increase bringing rural coverage to 16% has meant that only 63 million additional people have been reached.

All these increases in water and sanitation coverage have been achieved in the face of rising demand from rapidly growing populations. The number of town and city dwellers grew by 168 million, or 24%, during the first half of the Decade, and these were joined by a further 117 million new rural residents. Table A.3 shows coverage levels for urban and rural water supply and sanitation in all six WHO regions.

### **4. Closing the gap**

By combining national targets to obtain a global view it is clear that the second half of the Decade will provide governments with formidable tasks to achieve their goals. These call for more than doubling the implementation rates of urban water achieved in the first half and raising the rate for rural sanitation by a factor of five (excluding China). See tables A.3, A.4.1.1, A.4.1.2, A.4.2.1, A.4.2.3.

Rural sanitation is by far the most difficult challenge, since efforts of the first half of the Decade raised the level of coverage by just 3% to serve an additional 63 million people. To raise coverage to the modest goal of 31% means reaching a further 328 million country dwellers. The gap to be closed in the other sub-sectors during the second half is smaller, but the difficulty in serving such huge numbers of new users should not be underestimated. See table A.3.2.4.

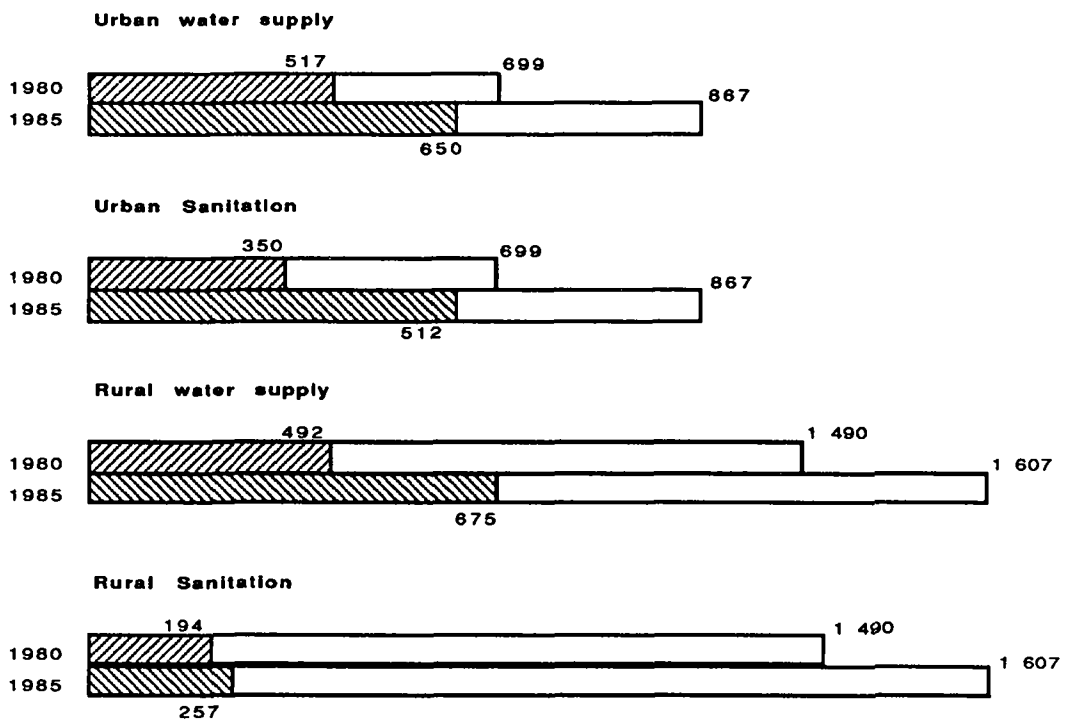
By the Decade's end, another 285 million urban dwellers are planned to be served with safe water supplies raising coverage to 87.3% (excluding China). To increase rural water supplies coverage to a more modest goal of 61% means satisfying the needs of 367 million additional people. At the same time a similar number of new town and city dwellers will have to be provided with sanitation to reach the target coverage of 78%.

Targets in each sub-sector for the rest of the Decade show regional variations which are most pronounced for rural sanitation and least for urban water



supplies. The Eastern Mediterranean region has the highest ambitions for urban water with a target 98% coverage, 8% more than the American region and 9% better than the Western Pacific, Africa and South East Asia have a similar target of 84% (table A.4.1.1). Rural water supply targets range from under 65% in South East Asia to almost 47% in Africa, while targets for rural sanitation vary from 60% in the Western Pacific to only 22% in the Eastern Mediterranean. Western Pacific takes the lead in urban sanitation with a target coverage of 95%, followed by Africa at 82%, only 3% ahead of the American region, with South East Asia and Eastern Mediterranean at 75% and 74% respectively.

**Figure 1: Comparison of levels of service coverage 1980-1985 (developing countries)**



There are obvious attempts to match water supply and sanitation particularly in rural targets for Africa, the Americas and the Western Pacific. For urban areas, Africa maintains a balance and the Western Pacific shows 6% less coverage in water supply than in sanitation. The gaps then reverse and widen in urban areas, with the Americas' 11% and Eastern Mediterranean's 24%. But the imbalance is

most pronounced in rural plans for South East Asia and the Eastern Mediterranean where water supply targets are about 2.5 times those for sanitation.

The regions look ahead to the Decade's end with different track records from the first half. For urban water supply, Africa appears to have made good progress by raising the level of coverage from 66% to 78%, although the figures are distorted by the absence of Algerian and Nigerian statistics at the start. Progress in the Americas and Eastern Mediterranean has been more modest with 6% rises, while South East Asia just managed to keep ahead of population growth by 1%. But Western Pacific appears to have suffered a 6% reduction in coverage down to 75%.

Progress in rural water supply has been less impressive and the apparent 2% drop in level of coverage in the Eastern Mediterranean is a cause of worry. However, South East Asia's 16% increase and the America's 5% are encouraging signs of commitment to the rural poor, as is Africa's 3% rise.

Urban sanitation also showed regional variations with Africa and the Americas seeing substantial 19% and 23% growths respectively. The Eastern Mediterranean has indicated 11% progress, while South East Asia increased coverage by 3%. Western Pacific already enjoys high coverage levels of almost 95% and reported only a marginal growth in the first half period.

Progress in providing rural sanitation has been more uniform, but also very modest. The Americas appear to have increased service coverage by 7% compared with Africa's 5% which was 1% better than South East Asia, with the Western Pacific and Eastern Mediterranean at 3% and 2% respectively.

## **5. Staff and training**

There are wide differences among the regions concerning levels of staffing for sector needs. The European and Western Pacific regions report approximately 1,250 personnel required to serve 1 million people while the Americas report 500, the Eastern Mediterranean around 800, Africa and South East Asia around 225. Data on this subject were scarce, but suggest that Africa needs to augment its staffing levels by almost 15%, the Americas by 36% and the least developed countries by 31%. Table A.5 presents information compiled with limited data.

## **6. Financial resources**

Analysis of costs of providing water and sanitation services of various types in rural and urban settings linked to government sector plans up to 1990 (table 6.7) suggests that over US\$86,497 million of new investment will be required for the Decade's second half. This figure is dwarfed by the original estimates which costed the whole Decade at US\$300,000 million to US\$600,000 million.

Per capita unit costs of providing services generally continued to increase despite the development of less expensive technologies (tables 6.1 to 6.6). The median costs of urban water supplies through house connections appear to have risen 16% between 1980 and 1985. However, there were a number of examples of cost reductions during the first five years, notably in the East Mediterranean where town sewers, individual urban sanitation facilities and rural sanitation all became cheaper.

**Table 6.1: Unit Costs for Urban Water Supply by House Connections**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	100	106	6
Americas	125	160	28
South East Asia	55	60	9
Eastern Mediterranean	250	290	16
Western Pacific	80	96	20
Least developed countries	100	121	21

**Table 6.2: Unit Costs of Urban Water Supply through Standposts**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	46	55	20
Americas	62	81	31
South East Asia (a)	-	35	-
Eastern Mediterranean	102	75	26
Western Pacific	20	42	110
Least developed countries	40	60	50

(a) No 1980 values given for South East Asia since only one country reported.

**Table 6.3: Unit Costs of Urban Sanitation by Sewer Connections**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	150	150	0
Americas	165	150	-9
South East Asia	63	80.5	28
Eastern Mediterranean	530	480	-9
Western Pacific	220	444	101
Least developed countries	150	150	0

**Table 6.4: Unit Costs of Urban Sanitation through Individual Household Systems**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	53	116	119
Americas	62	80	29
South East Asia	15	20	33
Eastern Mediterranean	365	345	- 5
Western Pacific	50	73	46
Least developed countries	52	120	131

**Table 6.5: Unit Costs of Rural Water Supply**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	32	40	25
Americas	88	83	- 6
South East Asia	18	14.5	-19
Eastern Mediterranean	112	123	10
Western Pacific	26	44	69
Least developed countries	29	36	24

**Table 6.6: Unit Costs for Rural Sanitation**

<i>Region</i>	<i>Unit per capita cost US\$ (median)</i>		<i>Increase %</i>
	<i>1980</i>	<i>1985</i>	
Africa	15	25	67
Americas	30	40	33
South East Asia	9	14.5	61
Eastern Mediterranean	100	70	-30
Western Pacific	5	12	140
Least developed countries	18	25	39

**Table 6.7: Estimated Capital Investment Cost of Attaining National Decade Targets by the end of 1980**

<i>Region</i>	<i>Urban water supply</i>	<i>Urban sanitation</i>	<i>Rural water supply</i>	<i>Rural sanitation</i>	<i>Total</i>
Africa	2,930.2	4,765.0	2,911.2	2,301.3	12,907.7
Americas	8,625.7	8,293.8	2,257.6	807.2	19,984.3
South East Asia	5,530.6	5,234.2	2,827.4	2,405.3	15,997.5
Eastern Mediterranean	11,065.3	13,158.8	6,035.6	1,824.2	32,083.9
Western Pacific	1,998.2	1,624.0	1,576.5	324.7	5,523.4
<b>Total</b>	<b>30,150.0</b>	<b>33,075.8</b>	<b>15,608.3</b>	<b>7,662.7</b>	<b>86,496.8</b>

**Table 6.8: Proportion of Sector Investment from External Sources**

<i>Region</i>	<i>Median Values for External Investment</i>		
	<i>1980</i>	<i>1983</i>	<i>1985</i>
<i>% from external sources</i>	<i>%</i>	<i>%</i>	<i>%</i>
Africa	48.5	83.0	75
Americas	24.9	40.0	33.5
South East Asia	49.0	47.0	61
Eastern Mediterranean	-	45.0	17.5
Western Pacific	73.0	62.5	51.5
Least Developed Countries	-	-	77

**Table 6.9: External Capital Investment 1986-1990**

<i>Region</i>	<i>Total capital investment</i>	<i>Proportion from external sources</i>	<i>Total external capital investment</i>
	<i>US\$ x 10<sup>6</sup></i>	<i>%</i>	<i>US\$ x 10<sup>6</sup></i>
Africa	12,907.7	75	9,680.8
Americas	19,984.3	33.5	6,694.7
South East Asia	15,997.4	61	9,758.4
Eastern Mediterranean	32,083.9	17.5	5,614.7
Western Pacific	5,523.4	51.5	2,447.7
<b>Total</b>	<b>86,496.8</b>	<b>39.5</b>	<b>34,196.3</b>

There is a clear need for increased spending rates in all regions to meet national targets, although the figures now seem less daunting since governments have trimmed their ambitions as the result of experience gained during the first half of the Decade.

The proportion of spending derived from external sources varies regionally, with Africa having a median value in 1985 of 75%, having climbed to 83% two years earlier. The Eastern Mediterranean had the smallest foreign investment requirement of 17.5%. If present proportioning of funding continues, external sources will probably account for about the 40% of the global water supply and sanitation investment up to 1990. Again Africa will have the greatest need depending on foreign sources for 75% of its investment plans, amounting to about \$9 681 million.

To increase internal funding, there has been a significant growth in the number of countries with average tariffs equal to or higher than costs of production. This indicates a general move towards creating an economically stronger sector, except in the poorer regions, including Africa and the least developed countries, where the trend is reversed. The median value for average tariffs per cubic metre of water in 1985 ranged from US\$0.14 in South East Asia to US\$0.38 in the Americas. Five years earlier the range was US\$0.12 to US\$0.28.

## **7. Constraints**

Funding was described globally as the most serious Decade constraint (table A.8) except in the Western Pacific region which identified the lack of trained professional and sub-professional personnel as a more serious obstacle. The next most serious constraint was inadequate cost recovery frameworks, closely followed by insufficient trained professionals, unsatisfactory operation and maintenance, and shortage of sub-professionals.

The five least serious constraints were listed as lack of planning and design criteria, inappropriate technology, lack of definite government policy, non-involvement of the community, and import restrictions. Little change has occurred in the order of perceived constraints except that there are signs that the importance of cost recovery has become more fully appreciated, while inappropriate technology is seen as less of a constraint.

**Table 7.1: Comparison of Most Serious and Least Serious Constraints to Sector Programme Implementation**

<i>Order of seriousness of constraint</i>	<i>1980</i>	<i>1985</i>
1	Funding limitations	Funding limitations
2	Lack of trained professional personnel	Inadequate cost recovery
3	Lack of trained sub-professional personnel	Lack of trained professional personnel
4	Inadequate operation and maintenance	Inadequate operation and maintenance
5	Poor logistic support	Lack of trained sub-professional personnel
...	...	...
...	...	...
13	Inappropriate technology	Import restrictions
14	Insufficient knowledge of water resources	Non-involvement of community
15	Inadequate water resources	Lack of government policy
16	Lack of government policy	Inappropriate technology
17	Import restrictions	Lack of planning and design criteria

## **8. Decade approaches**

Table A.9 presents information on the number of countries applying Decade approaches focusing on the urban poor, community participation, health education, promotion of women and the integration of water supply and sanitation activities with primary health care programmes in rural areas.

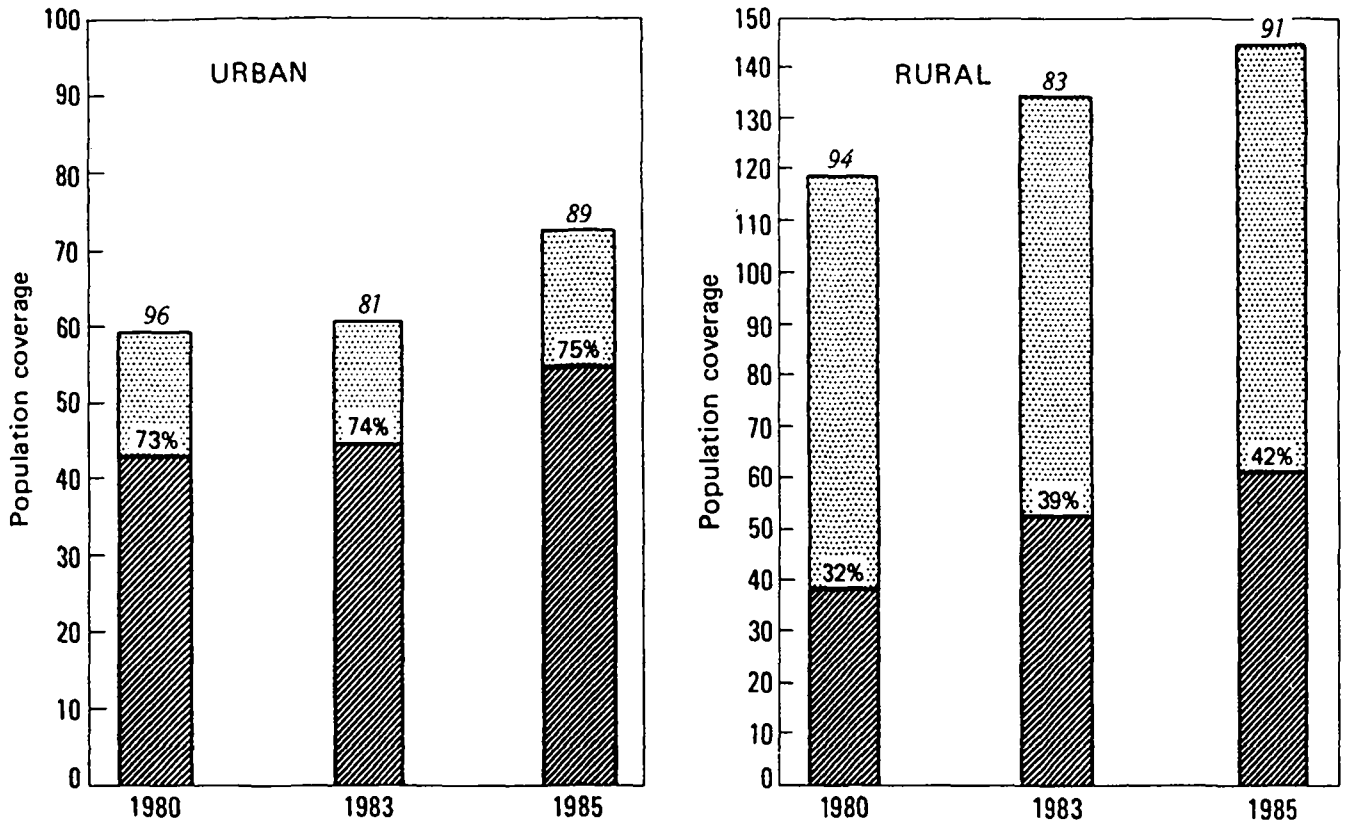
Twenty four percent of reporting developing countries indicated programmes catering for the urban poor, while 36% reported health education as a component of primary school education. These compare well with corresponding values of 23% and 35% in 1980.

Between 1980 and 1985 there was a growth from 29% to 37% of countries reporting community participation in rural water programme planning with similar increases in construction and operation.

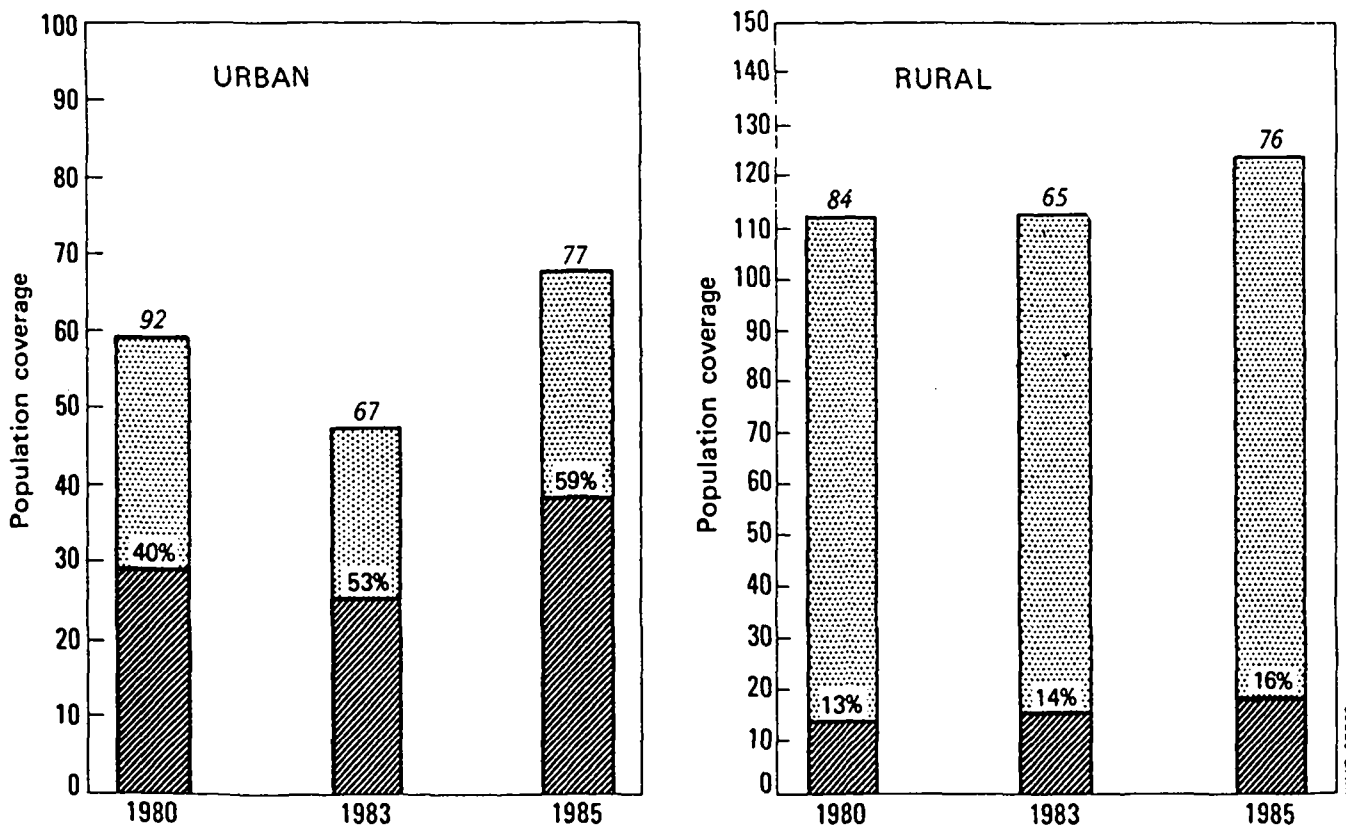
Of the reporting countries 43% noted programmes with the specific aim of promoting women's participation, and 43% reported water supply and sanitation programmes in rural areas run as integral components of primary health care schemes.

Fig. A.1 GLOBAL

**POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>**  
**WATER SUPPLY**



**SANITATION**



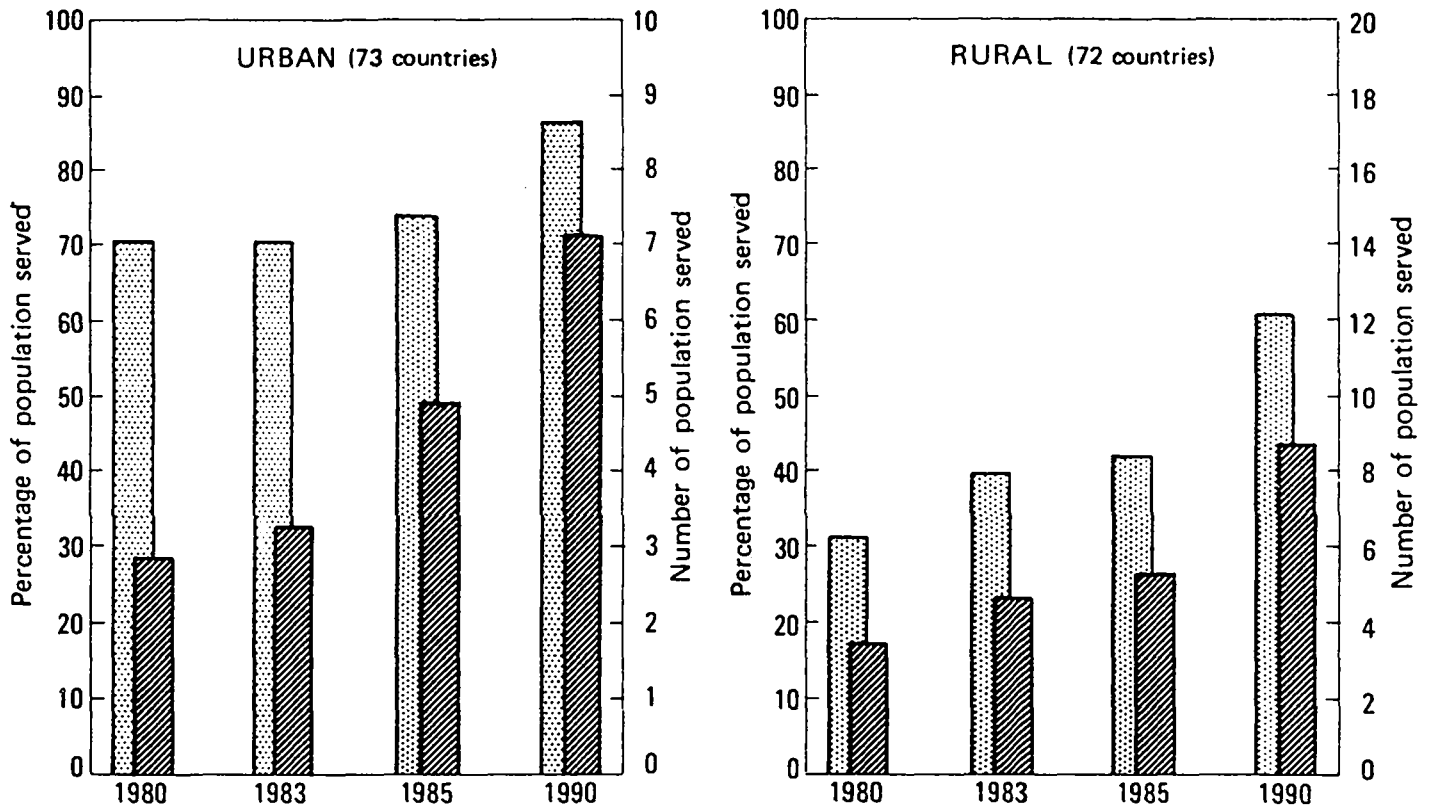
25 No. of countries reporting  
 Total population (x 10 million)  
 Population covered (x 10 million)

<sup>a</sup> See Tables A.3.2.1 to A.3.2.4.

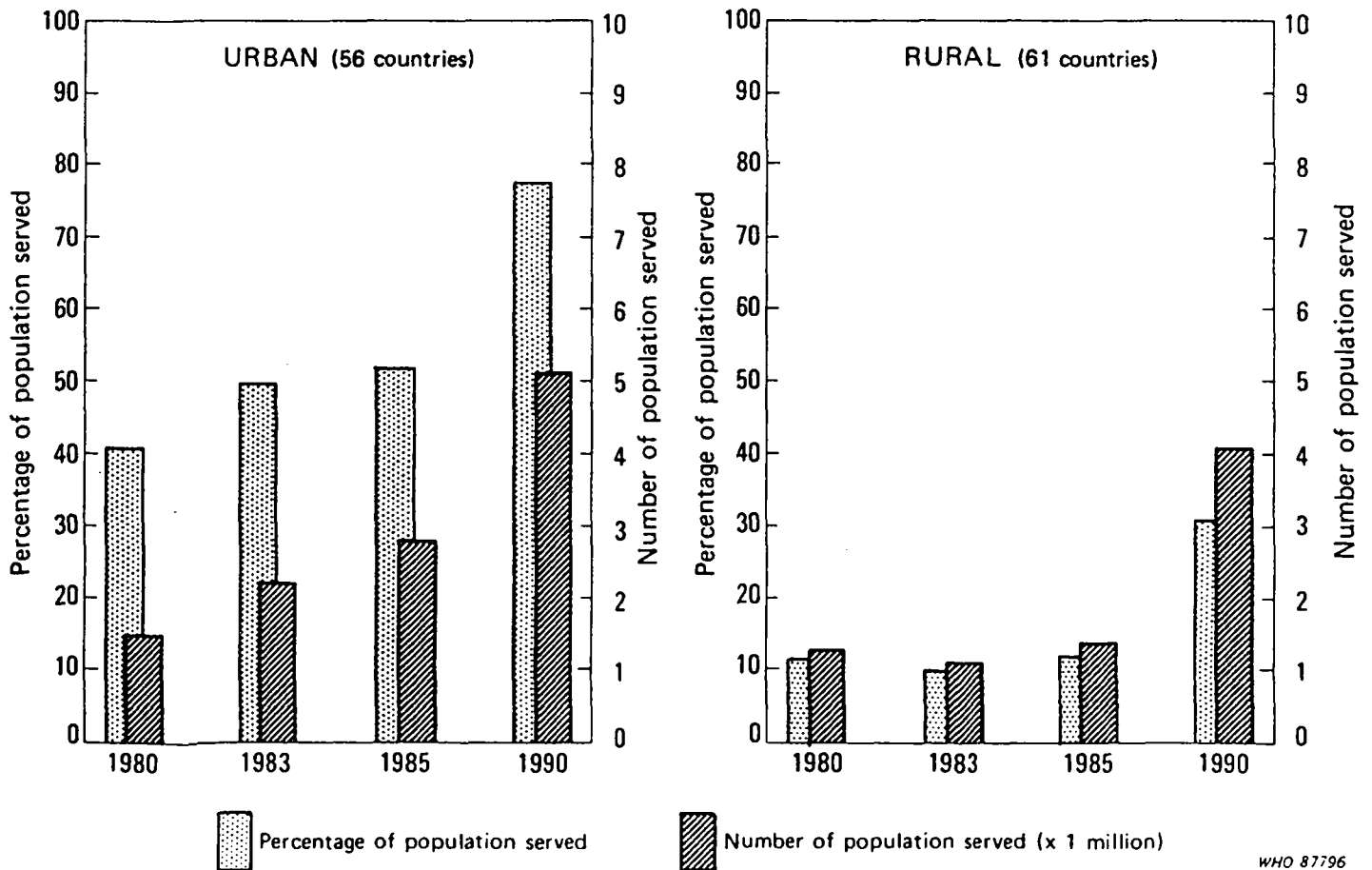


**Fig. A.2 GLOBAL**  
**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION**  
**IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



Percentage of population served

Number of population served (x 1 million)

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

TABLE A.1 - GLOBAL

## BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH

Region	Number of countries/ territories/ reporting	Estimated population increase 1985-1990			Number of LDCs <sup>a</sup>	Fresh water resources		Life expectancy under 50 years	Number of countries with				
		Total	Urban	Rural		Very limited	Not well known		Infant mortality over 100 per 1 000 live births	Waterborne diseases in over 1% of population *	50% or more population lacking safe water	50% or more population lacking adequate sanitation	
		(%)	(%)	(%)									
Africa	36	17	34	11	20	5	10	19	23	11	20	21	
Americas	26	11	17	0	1	6	7	0	1	8	5	7	
South-East Asia	9	10	21	8	4	2	1	1	3	2	6	7	
Europe	14	3	4	1	0	1	0	0	0	0	0	0	
Eastern Mediterranean	12	15	25	9	4	6	5	5	4	2	5	6	
Western Pacific	14	13	15	8	3	6	4	1	0	3	1	3	
<b>Total</b>	<b>111</b>	<b>11</b>	<b>17</b>	<b>6</b>	<b>32</b>	<b>26</b>	<b>27</b>	<b>26</b>	<b>31</b>	<b>26</b>	<b>37</b>	<b>44</b>	
<b>%</b>	<b>76</b>				<b>80</b>	<b>23</b>	<b>24</b>	<b>23</b>	<b>28</b>	<b>23</b>	<b>33</b>	<b>40</b>	

<sup>a</sup> LDCs = least-developed countries.

\* Only 14 countries in AFRO responded.

\* Only 15 countries in AMRO responded.

\* Only 5 countries in EMRO responded.

\* Only 2 countries in SEARO responded.

\* Only 6 countries in WPRO responded.

TABLE A.2 - GLOBAL

COVERAGE TARGETS AND DECADE PLANS

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	12	6	3	2	10	
Americas	8	7	3	2	5	5	17
South-East Asia	2	2	2	1	2	5	9
Eastern Mediterranean	9	5	3	1	4	5	9
Western Pacific	7	5	3	3	2	1	8
<b>Total</b>	<b>38</b>	<b>25</b>	<b>14</b>	<b>9</b>	<b>23</b>	<b>30</b>	<b>68</b>
<b>%</b>	<b>40</b>	<b>26</b>	<b>15</b>	<b>9</b>	<b>24</b>	<b>32</b>	<b>72</b>

<sup>a</sup> Countries reporting 95% coverage target or over.

TABLE A.3 - GLOBAL

1985 LEVELS OF SERVICE (populations in thousands; with percentages shown in brackets)

Region	No. of reporting countries/ territories	Population			Population with drinking-water				Population with sanitation			
		Total	Urban	Rural	Total	Urban		Rural	Total	Urban		Rural
						By H.C. <sup>a</sup>	By P.S. <sup>b</sup>			By S.C. <sup>c</sup>	By other means	
Africa	36	376 569	98 032 (26)	278 537 (74)	74 336 (78)	17 351 (33)	17 686 (33)	68 096 (25)	37 305 (73)	4 614 (12)	21 461 (59)	33 855 (25)
Americas	26	371 173	254 014 (68)	117 159 (32)	165 086 (84)	169 512 (71)	25 073 (13)	55 437 (47)	172 433 (79)	99 532 (41)	83 749 (38)	30 808 (27)
South-East Asia	9	1 151 848	301 097 (26)	850 751 (74)	194 307 (65)	5 887 -	4 452 -	402 718 (47)	100 205 (33)	1 579 <sup>1</sup> -	8 170 <sup>1</sup> -	82 105 (10)
Europe	13	297 198	205 647 (65)	91 551 (35)	204 451 (99)	190 608 (98)	4 455 (2)	73 813 (84)	149 074 (92)	126 388 (84)	13 683 (9)	36 719 (69)
Eastern Mediterranean	12	181 405	63 790 (35)	117 615 (65)	56 838 (89)	28 764 (78)	5 793 (16)	32 550 (28)	36 997 (68)	17 985 (49)	11 215 (41)	8 571 (9)
Western Pacific	13	178 343	70 795 (40)	107 549 (60)	52 790 (75)	40 503 (70)	3 325 (6)	51 312 (48)	54 170 (94)	6 691 (12)	47 480 (82)	39 749 (66)
<b>Total</b>	<b>109</b>	<b>2 556 536</b>	<b>993 375 (39)</b>	<b>1 563 162 (61)</b>	<b>747 808 (80)</b>	<b>452 625 (74)</b>	<b>60 784 (11)</b>	<b>683 926 (44)</b>	<b>550 184 (65)</b>	<b>256 789 (46)</b>	<b>185 758 (36)</b>	<b>231 807 (18)</b>
<b>Total (excluding Europe)</b>	<b>96</b>	<b>2 259 338</b>	<b>787 728 (34)</b>	<b>1 471 611 (66)</b>	<b>543 357 (75)</b>	<b>262 017 (65)</b>	<b>56 329 (15)</b>	<b>610 113 (42)</b>	<b>401 110 (59)</b>	<b>130 401 (34)</b>	<b>172 075 (46)</b>	<b>195 088 (16)</b>

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

<sup>1</sup> No percentages given since most countries provided no breakdown.

TABLE A.3.1 - GLOBAL

## TOTAL POPULATION INCLUDED IN REPLIES TO EACH SUB-SECTOR BY REGION AND GLOBALLY

Region	Population with drinking-water				Population with sanitation			
	Urban			Rural	Urban			Rural
	Total	By H.C. <sup>a</sup>	By P.S. <sup>b</sup>		Total	By S.C. <sup>c</sup>	By other	
Africa	95 738	52 983	52 983	276 538	50 927	39 928	33 986	135 945
Americas	195 747	239 845	195 747	117 076	219 433	239 838	219 433	115 511
South-East Asia	300 929	30 354	30 354	850 751	300 929	31 704	31 704	850 751
Europe	205 647	195 331	195 331	87 778	162 558	149 810	149 810	53 269
Eastern Mediterranean	63 790	36 890	36 890	117 615	54 114	36 890	27 214	95 585
Western Pacific	70 795	57 991	57 991	107 549	57 991	57 991	57 991	60 404
<b>Total</b>	<b>932 646</b>	<b>613 394</b>	<b>569 296</b>	<b>1 556 307</b>	<b>845 952</b>	<b>555 861</b>	<b>520 138</b>	<b>1 311 465</b>
<b>Total (excluding Europe)</b>	<b>727 999</b>	<b>418 063</b>	<b>373 965</b>	<b>1 468 529</b>	<b>683 394</b>	<b>406 051</b>	<b>370 328</b>	<b>1 258 196</b>

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

**Note:** For calculating percentage coverage it is not possible to use the total urban and rural population figures for the countries responding to the questionnaire since all countries did not provide information on all sectors and sub-sectors. Percentage coverage has to be calculated therefore individually for each sub-sector using the appropriate population totals.

TABLE A.3.2 - GLOBAL

PERCENTAGE COVERAGE IN 1975, 1980, 1983 AND 1985

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 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
	1985	33	33	12	59	108	25	25	100
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
	1985	71	13	41	39	95	47	27	57
South-East Asia	1970		46 <sup>a</sup>		33 <sup>a</sup>	72	8	4	50
	1975		63 <sup>a</sup>		31 <sup>a</sup>	49	17	4	24
	1980		64 <sup>a</sup>		30 <sup>a</sup>	47	31	6	19
	1983		66 <sup>a</sup>		31 <sup>a</sup>	47	43	7	16
	1985		65 <sup>a</sup>		33 <sup>a</sup>	51	47	10	21
Europe	1970	47	21	31	12	63	45	5	11
	1975	67	14	21	17	47	63	18	29
	1980	62	34	10 <sup>b</sup>	46 <sup>b</sup>	58	62	84 <sup>b</sup>	-
	1983	-	-	-	-	-	-	-	-
	1985	98	2	84	9	93	84	69	82
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
	1983	68	28	41	47	92	26	7	27
	1985	78	16	49	41	96	28	9	32
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
	1985	70	6	12	82	124	48	66	138

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

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

Source: 1970 and 1975 data from World Health Statistics report, Vol.29, No.10 (1976). 1980, The Review of National Baseline Data, WHO, Geneva.

For 1980, International Drinking Water Supply and Sanitation Decade; Review of National Baseline Data (as at December 1980), WHO Offset Publication No. 85, WHO, Geneva 1984.

TABLE A.3.2.1 - GLOBAL

## COMPARISON OF COVERAGE AS OF 1975, 1980, 1983 AND 1985 - URBAN WATER SUPPLY

Region	1975			1980			1983			1985			No. of countries reporting			
	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	1975	1980	1983	1985
Africa	21 971	14 940	68	20 788	13 723	66	62 191	37 914	61	95 738	74 336	78	20	21	24	35
Americas	181 130	146 715	81	218 109	169 302	78	213 172	182 088	85	195 748	165 086	84	25	21	21	23
South-East Asia	201 500	127 600	63	232 601	148 834	64	252 999	166 521	66	300 929	194 307	65	7	9	8	8
Eastern Mediterranean	57 840	46 272	80	65 498	54 117	83	43 524	37 206	85	63 790	56 838	89	15	12	10	12
Western Pacific	40 040	36 036	90	55 768	45 446	81	34 235	23 947	70	70 739	52 790	75	9	18	18	11
<b>Total</b>	<b>502 481</b>	<b>371 563</b>	<b>74</b>	<b>592 764</b>	<b>431 422</b>	<b>73</b>	<b>606 121</b>	<b>447 676</b>	<b>74</b>	<b>726 944</b>	<b>543 357</b>	<b>75</b>	<b>76</b>	<b>81</b>	<b>81</b>	<b>89</b>

Source: For 1975, World Health Statistics Report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.  
For 1980, International Drinking Water Supply and Sanitation Decade; Review of National Baseline Data (as at December 1980), WHO Offset Publication No. 85, WHO, Geneva 1984.  
For 1983, International Drinking Water Supply and Sanitation Decade; Review of National Progress (as at December 1983), non-series publication, WHO, Geneva 1986.

TABLE A.3.2.2 - GLOBAL

COMPARISON OF COVERAGE AS OF 1975, 1980, 1983 AND 1985 - URBAN SANITATION

Region	1975			1980			1983			1985			No. of countries reporting			
	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	Urban pop. (000)	Urban coverage (000)	%	1975	1980	1983	1985
Africa	20 179	15 134	75	20 788	11 214	54	23 183	15 755	68	50 927	37 305	73	16	20	17	26
Americas	59 929	47 943	80	218 109	122 822	56	136 938	109 089	80	219 433	172 433	79	17	21	19	22
South-East Asia	201 500	62 500	31	232 601	70 075	30	249 649	77 963	31	300 929	100 205	33	7	8	7	8
Eastern Mediterranean	54 451	34 304	63	63 608	36 052	57	39 605	25 447	64	54 114	36 997	68	12	11	8	11
Western Pacific	39 838	32 269	81	55 688	51 905	93	29 021	23 355	80	57 991	54 287	94	8	18	16	11
<b>Total</b>	<b>375 897</b>	<b>192 150</b>	<b>51</b>	<b>590 794</b>	<b>292 068</b>	<b>49</b>	<b>478 396</b>	<b>251 609</b>	<b>53</b>	<b>683 394</b>	<b>401 227</b>	<b>59</b>	<b>60</b>	<b>78</b>	<b>67</b>	<b>77</b>

Source: For 1975, World Health Statistics Report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.  
 For 1980, International Drinking Water Supply and Sanitation Decade; Review of National Baseline Data (as at December 1980), WHO Offset Publication No. 85, WHO, Geneva 1984.  
 For 1983, International Drinking Water Supply and Sanitation Decade; Review of National Progress (as at December 1983), non-series publication, WHO, Geneva 1986.



TABLE A.3.2.3 - GLOBAL

## COMPARISON OF COVERAGE AS OF 1975, 1980, 1983 AND 1985 - RURAL WATER SUPPLY

Region	1975			1980			1983			1985			No. of countries reporting			
	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	1975	1980	1983	1985
Africa	97 890	20 557	21	82 935	17 981	22	202 190	52 372	26	275 538	68 096	25	19	20	23	34
Americas	74 131	23 722	32	115 289	48 628	42	111 949	44 358	40	117 076	55 437	47	23	20	22	24
South-East Asia	727 000	123 900	17	787 360	241 664	31	822 889	356 721	43	850 751	402 718	47	7	9	9	9
Eastern Mediterranean	149 781	23 965	16	115 109	34 532	30	90 619	23 614	26	117 615	32 550	28	13	12	9	12
Western Pacific	60 153	18 046	30	98 656	40 075	41	108 671	48 871	45	107 549	51 312	48	7	17	20	12
<b>Total</b>	<b>1 108 955</b>	<b>210 190</b>	<b>19</b>	<b>1 199 349</b>	<b>382 880</b>	<b>32</b>	<b>1 336 318</b>	<b>525 936</b>	<b>39</b>	<b>1 468 529</b>	<b>610 113</b>	<b>42</b>	<b>69</b>	<b>78</b>	<b>83</b>	<b>91</b>

**Source:** For 1975, World Health Statistics Report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.  
For 1980, International Drinking Water Supply and Sanitation Decade; Review of National Baseline Data (as at December 1980), WHO Offset Publication No. 85, WHO, Geneva 1984.  
For 1983, International Drinking Water Supply and Sanitation Decade; Review of National Progress (as at December 1983), non-series publication, WHO, Geneva 1986.

TABLE A.3.2.4 - GLOBAL

## COMPARISON OF COVERAGE AS OF 1975, 1980, 1983 AND 1985 - RURAL SANITATION

Region	1975			1980			1983			1985			No. of countries reporting			
	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	Rural pop. (000)	Rural coverage (000)	%	1975	1980	1983	1985
Africa	94 604	26 498	28	74 335	14 787	20	111 021	27 782	25	135 945	33 855	25	17	18	18	26
America	63 592	15 898	25	73 268	14 675	20	80 582	14 815	18	115 511	30 808	27	21	16	18	20
South-East Asia	727 000	27 800	4	787 360	49 431	6	809 570	57 834	7	850 751	82 105	10	7	8	7	9
Eastern Mediterranean	146 536	20 515	14	92 412	6 315	7	70 920	5 037	7	95 585	8 571	9	11	9	6	10
Western Pacific	60 672	26 089	43	98 226	62 221	63	93 490	53 318	57	60 404	39 749	66	7	17	17	11
<b>Total</b>	<b>1 092 404</b>	<b>116 800</b>	<b>11</b>	<b>1 125 601</b>	<b>147 429</b>	<b>13</b>	<b>1 165 583</b>	<b>158 786</b>	<b>14</b>	<b>1 258 196</b>	<b>195 088</b>	<b>15</b>	<b>63</b>	<b>68</b>	<b>66</b>	<b>76</b>

Source: For 1975, World Health Statistics Report, Vol. 29, No. 10 (1976), except for SEARO countries which provided corrected figures.  
 For 1980, International Drinking Water Supply and Sanitation Decade; Review of National Baseline Data (as at December 1980), WHO Offset Publication No. 85, WHO, Geneva 1984.  
 For 1983, International Drinking Water Supply and Sanitation Decade; Review of National Progress (as at December 1983), non-series publication, WHO, Geneva 1986.

TABLE A.4.1.1 - GLOBAL

## PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1985-1990) - URBAN WATER SUPPLY

Region	No. of countries selected <sup>a</sup>	% of total Regional urban population <sup>b</sup>	Urban population (million) <sup>a</sup>		Urban coverage				Additional beneficiaries (million)	Ratio <sup>c</sup>
			1985	1990	1985		1990			
					No. (million) <sup>a</sup>	(%)	No. (million) <sup>a</sup>	(%)		
Africa	26	50.4	57.4	69.8	39.8	69.3	58.6	83.9	18.8	0.5
Americas	19	68.3	189.1	231.1	160.3	84.8	208.6	90.3	48.3	0.3
South-East Asia	8	99.0	300.9	368.0	194.3	64.6	307.4	83.5	113.1	0.6
Eastern Mediterranean	11	47.4	63.5	79.5	56.7	89.3	77.8	97.8	21.1	0.4
Western Pacific	9	74.6	52.5	62.2	38.5	73.4	55.2	88.8	16.7	0.4
<b>Total</b>	<b>73</b>	<b>76.5</b>	<b>633.4</b>	<b>810.7</b>	<b>489.6</b>	<b>73.8</b>	<b>707.6</b>	<b>87.3</b>	<b>218.0</b>	<b>0.4</b>

<sup>a</sup> For those countries that provided the necessary data for 1985 coverage and 1990 targets.

<sup>b</sup> Based on the 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 1985.

TABLE A.4.1.2 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1985-1990) - URBAN SANITATION

Region	No. of countries selected <sup>a</sup>	% of total Regional urban population <sup>b</sup>	Urban population (million) <sup>a</sup>		Urban coverage				Additional beneficiaries (million)	Ratio <sup>c</sup>
			1985	1990	1985		1990			
					No. (million) <sup>a</sup>	(%)	No. (million) <sup>a</sup>	(%)		
Africa	19	35.7	40.7	50.1	28.6	70.4	41.1	82.0	12.5	0.4
Americas	15	33.9	94.0	112.0	68.8	73.3	88.3	78.9	19.5	0.3
South-East Asia	8	99.0	300.9	368.0	100.2	33.3	275.2	74.8	175.0	1.7
Eastern Mediterranean	6	35.3	47.3	59.8	31.8	67.2	44.2	74.0	12.4	0.4
Western Pacific	8	82.3	57.9	68.7	54.1	93.4	65.2	94.9	11.1	0.2
<b>Total</b>	<b>56</b>	<b>62.4</b>	<b>540.8</b>	<b>658.7</b>	<b>283.4</b>	<b>52.4</b>	<b>514.1</b>	<b>78.1</b>	<b>231.5</b>	<b>0.8</b>

<sup>a</sup> For those countries that provided the necessary data for 1985 coverage and 1990 targets.

<sup>b</sup> Based on the 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 1985.

TABLE A.4.2.1 - GLOBAL

PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1985-1990) - RURAL WATER SUPPLY

Region	No. of countries selected <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>
			1985	1990	1985		1990			
					No. (millions) <sup>a</sup>	(%)	No. (millions) <sup>a</sup>	(%)		
Africa	25	58.7	170.5	192.2	41.3	24.2	89.3	46.5	48.0	1.2
Americas	19	60.9	77.3	83.1	29.4	38.1	42.1	50.7	12.7	0.4
South-East Asia	9	99.0	850.8	979.8	402.7	47.3	634.2	64.7	231.5	0.6
Eastern Mediterranean	11	66.9	117.5	129.4	32.5	27.7	77.3	59.7	44.8	1.4
Western Pacific	8	40.9	50.2	50.8	25.1	50.0	32.1	63.2	6.9	0.3
<b>Total</b>	<b>72</b>	<b>78.8</b>	<b>1 266.3</b>	<b>1 435.3</b>	<b>531.1</b>	<b>41.9</b>	<b>875.0</b>	<b>61.0</b>	<b>343.9</b>	<b>0.6</b>

<sup>a</sup> For those countries that provided the necessary data for 1985 coverage and 1990 targets.

<sup>b</sup> Based on the 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 1985.

TABLE A.4.2.2 - GLOBAL

## PROJECTED NEW POPULATION COVERAGE FOR SELECTED COUNTRIES (1985-1990) - RURAL SANITATION.

Region	No. of countries selected <sup>a</sup>	% of total Regional rural population <sup>b</sup>	Rural population (million) <sup>a</sup>		Rural coverage				Additional beneficiaries (million)	Ratio <sup>c</sup>
			1985	1990	1985		1990			
					No. (million) <sup>a</sup>	(%)	No. (million) <sup>a</sup>	(%)		
Africa	21	38.7	112.2	125.5	22.1	19.7	65.3	52.0	43.1	1.9
Americas	16	55.3	70.1	75.9	12.5	17.9	32.4	42.7	19.9	1.6
South-East Asia	9	99.0	850.8	979.8	82.1	9.7	267.5	27.3	185.4	2.3
Eastern Mediterranean	8	52.4	92.0	104.2	8.0	8.7	22.5	21.6	14.5	1.8
Western Pacific	7	29.6	36.3	38.7	19.8	54.3	23.1	59.5	3.4	0.2
<b>Total</b>	<b>61</b>	<b>72.3</b>	<b>1 161.4</b>	<b>1 324.1</b>	<b>144.5</b>	<b>12.4</b>	<b>410.7</b>	<b>31.0</b>	<b>266.2</b>	<b>1.8</b>

<sup>a</sup> For those countries that provided the necessary data for 1985 coverage and 1990 targets.

<sup>b</sup> Based on the 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 1985.

TABLE A.5 - GLOBAL

STAFF AND TRAINING

Region	Total staff employed per million population median of national figures - 1985	Ultimate projected staff per million population - 1990
Africa	224	258
Americas	480	655
South-East Asia	238	-
Europe	1 309	-
Eastern Mediterranean	790	-
Western Pacific	1 182	-
LDCs <sup>a</sup>	57	85

<sup>a</sup> LDCs = Least-developed countries.

TABLE A.6 - GLOBAL

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

Region	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 costs	With progressive tariff
Africa	106	55	150	116	40	25	0.50	0.29	22.22	60.00
Americas	160	81	150	80	83	40	0.19	0.38	60.00	78.95
South-East Asia	60	35	80.5	20	14.5	14.5	0.15	0.14	16.67	85.71
Eastern Mediterranean	290	75	480	345	123	70	0.14	0.40	16.67	54.55
Western Pacific	96	42	444	73	44	12	0.22	0.22	85.71	37.50
LDCs <sup>a</sup>	121	60	150	120	36	25	0.34	0.28	18.75	29.13

<sup>a</sup> LDCs = Least-developed countries.



TABLE A.7 - GLOBAL

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

Region	Multiplication factor		
	Minimum	Median	Maximum
Africa	0.87	3.19	22.35
Americas	0.84	1.60	18.50
South-East Asia	1.89	2.19	5.63
Eastern Mediterranean	0.89	1.13	1.50
Western Pacific	0.82	1.17	13.03
LDCs <sup>a</sup>	1.13	2.18	11.73

<sup>a</sup> LDCs = Least-developed countries.

TABLE A.8 - GLOBAL  
RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	32	31	15	173
Inadequate cost-recovery framework	27	27	15	150
Insufficiency of trained personnel (professional)	20	30	26	146
Operation and maintenance	22	31	16	144
Insufficiency of trained personnel (sub. prof.)	15	32	29	138
Logistics	15	26	25	122
Insufficient health education efforts	7	28	30	107
Inadequate or out-moded legal framework	7	26	31	104
Inappropriate institutional framework	12	21	26	104
Intermittent water services	11	21	24	99
Insufficient knowledge of water resources	7	20	37	98
Inadequate water resources	10	15	35	95
Import restrictions	15	13	19	90
Non-involvement of community	2	18	41	83
Lack of definite government policy for sector	3	15	39	78
Inappropriate technology	3	17	31	74
Lack of planning and design criteria	4	12	33	69

<sup>a</sup> Number of reporting countries = 87

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

**TABLE A.9 - GLOBAL**  
**GLOBAL APPROACHES DURING 1985**

Region	Number of countries						With programmes being implemented to promote the increased participation of women	With rural programmes implemented as integral components of Primary Health Care
	Reporting improved services for urban poor	Where rural communities participated in improvements to water supply and sanitation facilities is reported			Where primary school children received health education is reported			
		Planning	Building	Operation				
Africa	8	12	14	14	10	22	18	
Americas	9	9	12	12	9	9	9	
South-East Asia	3	7	8	8	6	6	6	
Eastern Mediterranean	3	2	2	2	4	1	3	
Western Pacific	2	6	7	6	6	4	6	
<b>Total</b>	<b>25</b>	<b>36</b>	<b>43</b>	<b>42</b>	<b>35</b>	<b>42</b>	<b>42</b>	
<b>%</b>	<b>24</b>	<b>37</b>	<b>44</b>	<b>43</b>	<b>36</b>	<b>43</b>	<b>43</b>	



## REGIONAL REVIEWS

### 1. AFRICAN REGION

#### 1.1 Socio-economic and health situation

Of the region's 44 developing countries, 36 submitted reports on the status of water supply and sanitation at the end of 1985, representing about 90% of the total regional population. The 1985 sample included 10 more countries than in 1983 and 14 more than those participating in the 1980 baseline survey.

During the first half of the Decade regional population rose approximately 17%, with urban areas growing by 34% largely due to migration from the country. Rural population grew by 11%.

Health conditions in 1985 remained much as in 1980 with the region suffering the consequences of poor water supply and sanitation. Over half the population in 20 out of 34 reporting countries were without adequate safe water supplies, and in 21 out of 27 more than half were without appropriate sanitation. But there was still a marked increase from two countries out of 21 to 12 out of 31 reporting life expectancy of over 50 years. Most countries, however, reported life expectancies similar to those 5 years previously. The median value of infant mortality rate dropped from 126 to 119 per 1,000 live births but it is not clear how much of this can be attributed to primary health education. Eight countries out of 14 reported over 5% of their population affected with water-borne diseases compared with 5 out of 14 in 1980.

Economically too the region has suffered, with the median value for per capita gross national product among reporting countries actually falling in real terms, although rising in cash value from US\$260 to US\$290.

#### 1.2 Targets and planning

##### Water supply

Overall, 109.2 million people should be served with water supplies in the second Decade half, bringing the level of service coverage up to 58%, 18% more than at mid-Decade. This means more than doubling the implementation rate achieved up to 1985 with most of the effort directed at rural areas.

Progress in urban areas has been impressive and the programmes appear to be on target. In the first five years a total of 33.34 million urban residents, representing a 12% rise, were served with safe adequate water supplies and a further 36.40 million will have to be supplied to meet 1990 targets and achieve 84% coverage (See table 1.4.1.1).

In rural areas the targets are more ambitious. To reach the goal of 46% coverage by 1990 would mean supplying an extra 72.8 million people in the second half of the Decade, while the first half achieved only 17.5 million. (See table 1.4.2.1).

**Table 1.2.1: Urban Water Supply Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	84.83	114.52	149.68
Estimated % service coverage	66	78	84
Estimated population served or to be served (millions)	55.99	89.33	125.73

**Table 1.2.2: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	261.36	300.0	321.25
Estimated % service coverage	22	25	46
Estimated population served or to be served (millions)	57.50	75.00	147.78

**Table 1.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population estimate (millions)	346.19	414.52	470.93
Estimated population served or to be served (millions)	113.49	164.33	273.51
Estimated % service coverage	33	40	58

### Sanitation

Overall, during the first half of the Decade service coverage rose by 10% to 38% and during the second half it will have to rise by another 24% to provide sanitation to 131.19 million additional people of which nearly three quarters live in the country. This means more than doubling the implementation rate achieved up to 1985.

Progress in urban areas has been good, although the figures could have been distorted by the inclusion in 1985 of Algeria and Nigeria, absent from the baseline document of 1980. In the first five years coverage jumped from an estimated 54% to an impressive 73% brought about mainly by concentrating on non-sewered systems.

Up to 1990 Africa has to provide urban sanitation for another 39.14 million people, a little over the 37.79 million reached in the first half, to raise coverage to 82%. That will still leave 27 million people without sanitation (See table 1.4.1.2).

In rural areas an estimated 22.73 million people acquired sanitation. During the second half of the Decade another 92.05 million will have to be served, raising coverage from 20% in 1980 to 52% in 1990. Great efforts will have to be made to keep rural programmes on schedule.

**Table 1.2.4: Urban Sanitation Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	84.83	114.52	149.68
Estimated % service coverage	54	73	82
Estimated population served or to be served (millions)	45.81	83.60	122.74

**Table 1.2.5: Rural Sanitation Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	261.36	300.0	321.25
Estimated % service coverage	20	25	52
Estimated population served or to be served (millions)	52.27	75.00	167.05

**Table 1.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population estimate (millions)	346.19	414.52	470.93
Estimated population served or to be served (millions)	98.08	158.60	289.79
Estimated % service coverage	28	38	62

Reduced sample

Tables 1.10.1-1.10.4 provide information on levels of coverage in the four main sectors of those countries responding in both 1985 and 1980, and offer a means of direct comparison.

With this reduced sample urban water supply coverage appears to have risen by 11% and not 12%, as indicated by the full reports, raising coverage to 76% as opposed to 78%. Analysis of rural water by contrast shows a reduced sample growth of 9% to 30% rather than the more modest 3% up to 25% of the full sample.

In the case of urban sanitation, the reduced sample increase of 7% to 61% contrasts with the 19% full sample figure taking coverage to 73%. The change appears to have been caused by the inclusion in 1985 of populous nations with relatively high levels of coverage. Analysis of rural sanitation with both samples results in almost identical results.

### **1.3 Staffing and training**

Lack of professional personnel dropped in order of importance as a Decade constraint from second to fourth place, and shortage of sub-professionals fell from fifth to sixth place between 1980 and 1985. But still at mid-Decade 20 out of 25 countries considered lack of professionals to be a very severe or severe constraint, while 18 out of 27 said the same of sub-professionals.

Figures on staffing were seldom complete, but they suggested that the median value for staff per million population was 224 in 1985 compared to 268 five years earlier (table A.5). The earlier figure included community based workers not counted in 1985, and if these are removed the value drops to 155. Of the 30 reporting countries 25 employed community based workers, with Lesotho quoting a ratio of workers to population of 4:1000 while Zimbabwe reported 1:1000.

Of the 17 countries reporting that they had established training budgets for water supply and sanitation, 10 indicated that the amount was insufficient. Twelve countries had not set up any budgets.

### **1.4 Financial resources**

Funding limitations followed by inadequate means of cost recovery were identified as the region's most serious constraints during the first half of Decade, and in the remaining five years Africa will need to obtain a median of 75% of the estimated US\$12,908 million sector investment from external sources. Throughout the region, investment will have to be stepped up in the second five year period by factors ranging from 1.39 to 22.35. Of the nine countries responding, only Mozambique said investment was on target.

Internal financial resources remain scarce and there is still no possibility of covering sector development costs with tariffs. However, of the 18 countries providing details on cost recovery, three reported tariffs greater than production costs, and Ghana reported that they were equal. At the same time, 13 countries reported progressive water tariff systems; another had such a system in some areas only; and Zimbabwe provided free water to rural populations.



**Table 1.4.1: Median Values for Per Capita Costs of Water Supply and Sanitation Systems, 1980 and 1985 (Median per capita costs US\$)**

	<i>Urban Water</i>		<i>Rural Water</i>		<i>Urban Sanitation</i>		<i>Rural Sanitation</i>
	<i>House Connection</i>	<i>Standpost</i>			<i>Sewer Connection</i>	<i>Other means</i>	
1980	100	46	32		150	53	15
1985	106	55	40		150	116	25

Per capita costs of urban water supply varied widely from US\$41 for house connections in Zaire to US\$580 in the Seychelles, and from US\$6 to US\$150 for standposts in other countries (excluding Burundi's US\$1000). But median values were comparable to those five years earlier, being US\$106 for house connections and rising from US\$46 to US\$55 for standposts (see table 1.6).

Similar variations were reported for rural water, urban sanitation and rural sanitation, but median values generally were in line with those in 1980. These rose from US\$32 to US\$40 per capita for rural water, remained constant at US\$150 for urban sewer connections and for rural sanitation rose from US\$15 to US\$25. There appeared to be a marked rise from US\$53 to US\$116 for individual means of urban sanitation such as cesspits. To cut costs up to 1990 there appears to be scope for reducing design criteria since reports suggest that the larger systems are being over-designed (table 1.11). In 20 cases out of 31 actual consumption in urban areas was significantly below design values, with median per capita values of 63 litres/day, 37 litres/day less than the design figure. And 21 out 30 countries said the same of rural water supply where the corresponding median values were 26 litres/day and 6.5 litres/day.

### **1.5 Decade approaches**

Decade approaches refer to programme orientation towards rural and urban poor, support to investment programmes through health education, integration of water supply and sanitation with other elements of primary health care, and the fuller involvement of women. Information was scarce and appear in tables 1.5 to 1.9.

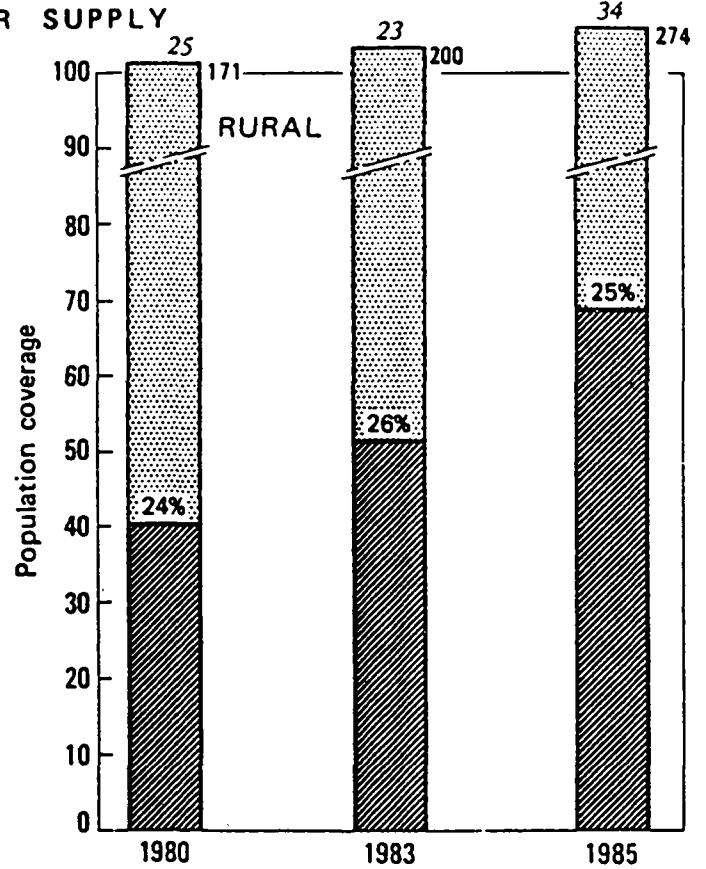
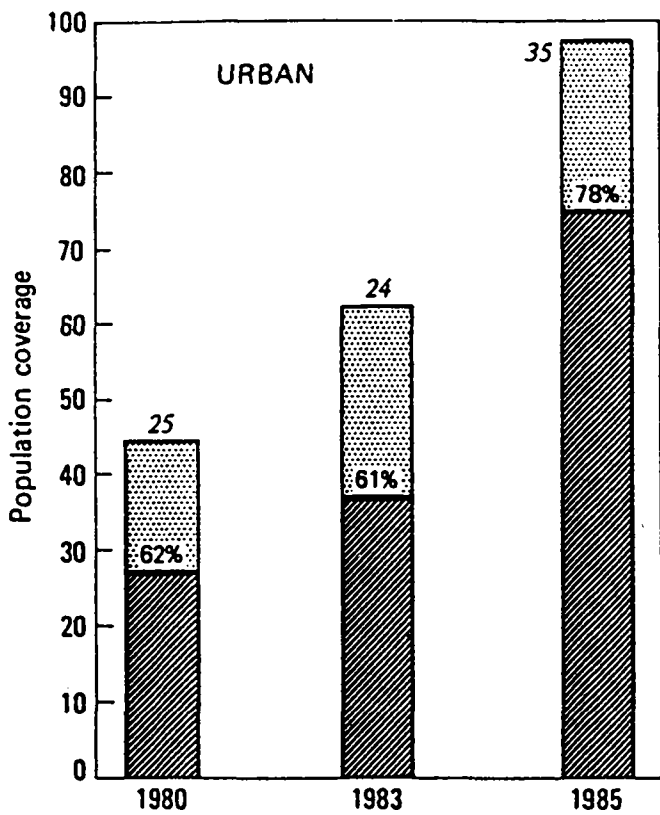
Community based workers were employed in the provision of water supply and sanitation in 25 of the 30 reporting countries, while eight countries reported programmes aimed at the urban poor. Interest in community participation varied considerably among the 14 reporting countries. In Benin the community appears to be left out of planning but contributes 90% of the construction and operation effort. In Mali, Sierra Leone, Gambia and Swaziland, the community is involved totally in all three activities. In the other eight cases participation tended to be stronger in operation rather than planning. Involvement of women in rural areas is clearly being treated seriously with 22 of the 25 responding countries running such programmes.

More disappointing was the fact that only 18 of 25 countries reported water supply and sanitation programmes being implemented within the framework of the overall primary health care initiatives.

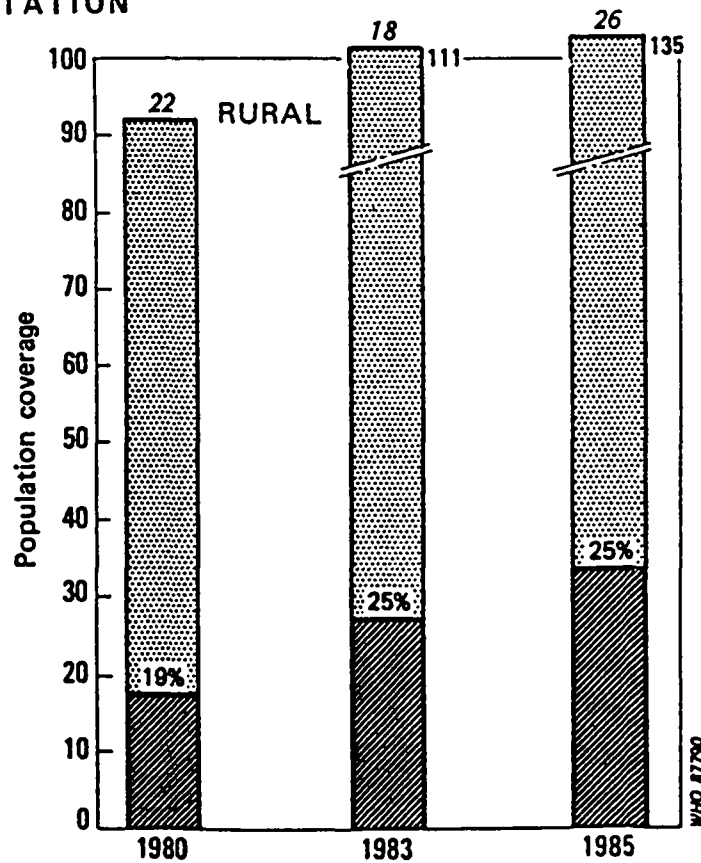
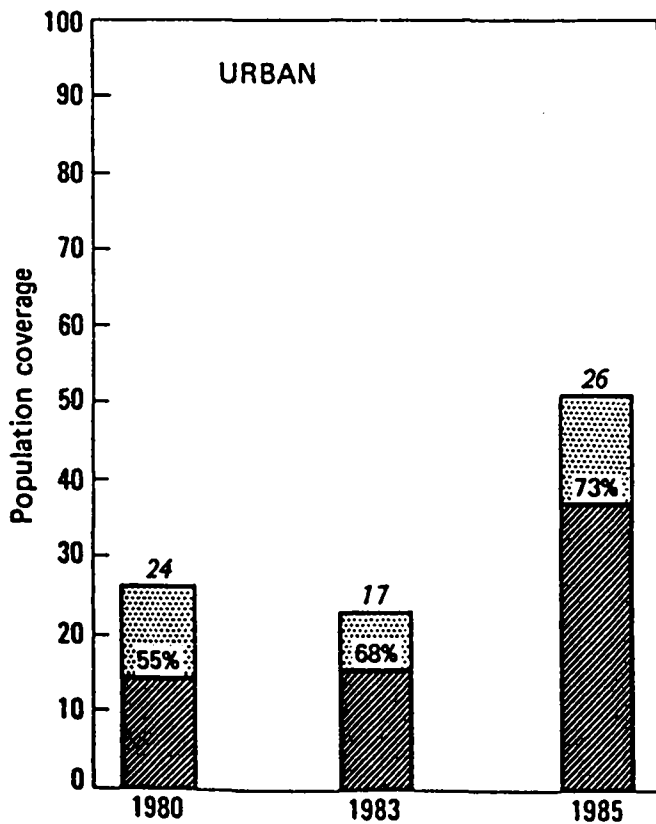
Fig. 1.1 AFRICAN REGION

POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>

WATER SUPPLY



SANITATION



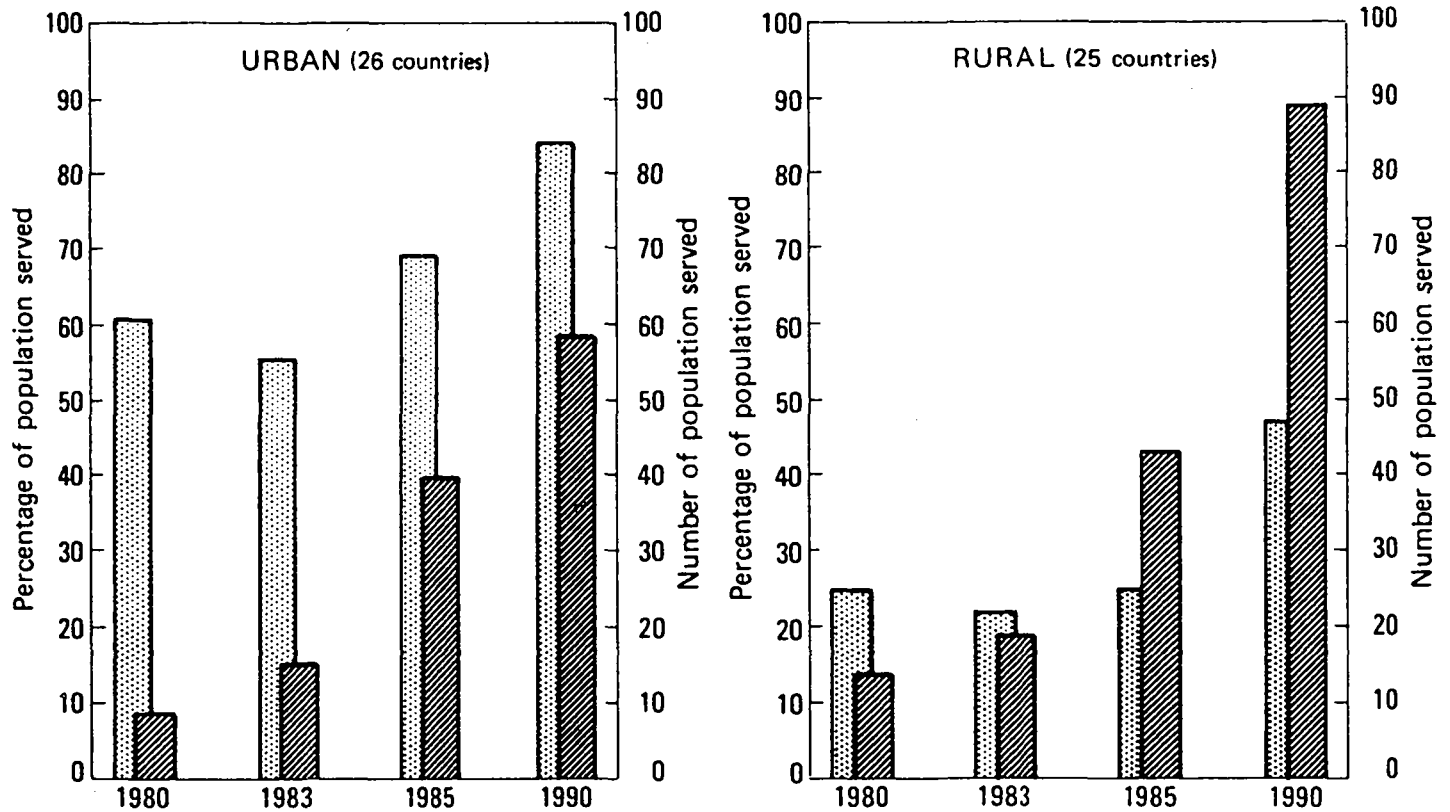
25 No. of countries reporting  
 Total population (x 1 million)  
 Population covered (x 1 million)

<sup>a</sup> See Tables A.3.2.1 to A.3.2.4.

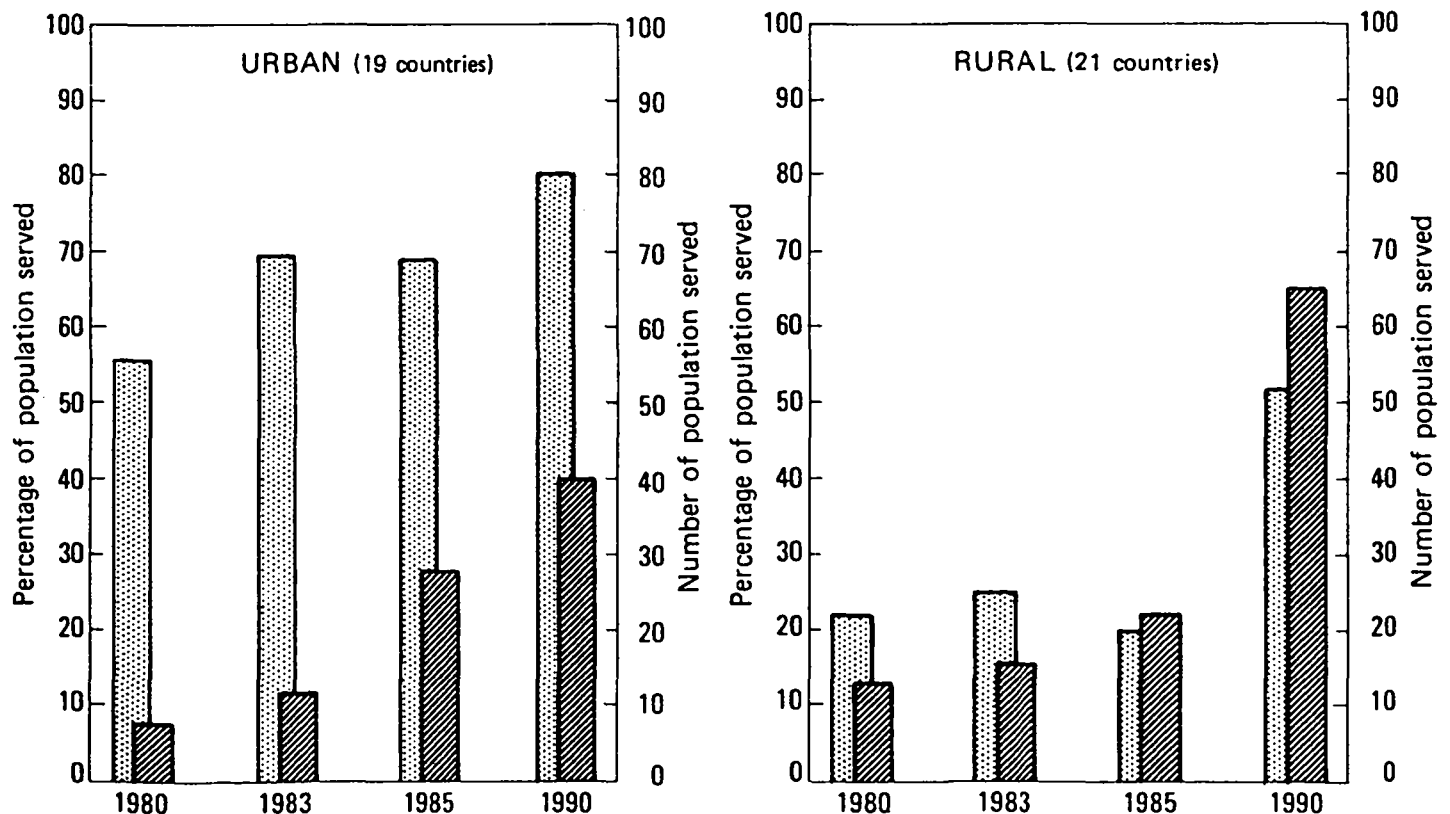
Fig. 1.2 AFRICAN REGION

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



Percentage of population served
 
 Number of population served (x 1 million)

<sup>a</sup>See Tables 1.4.1.1, 1.4.1.2, 1.4.2.1 and 1.4.2.2.

TABLE 1.1 - AFRICAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Waterborne disease cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Nigeria	97 090	2.8	-	65	170	28	-	-
Ethiopia*	44 517	2.9	140	46	144	-	86	-
Zaire	30 500	2.7	271	50	106	-	67	-
Algeria	22 583	-	-	-	-	-	25	84
Tanzania, Rep. of*	21 940	3.2	197	51	103	-	51	36
Uganda*	14 680	2.8	220	53	-	-	79	70
Ghana	12 387	2.6	420	53	120	-	44	70
Mozambique	13 810	2.6	-	-	-	-	86	80
Cameroon	10 000	2.6	-	-	-	-	70	69
Madagascar	9 986	2.8	232	49	69	6 900	69	87
Zimbabwe	8 581	3.7	-	-	-	-	-	-
Angola	8 573	2.4	560	41	107	3 607	69	81
Mali*	7 914	2.6	142	40	150	80 000	83	79
Malawi*	7 059	3.3	140	45	151	-	45	-
Burkina Faso*	7 014	2.7	185	38	167	5 007	36	88
Zambia	6 720	3.3	373	51	105	-	42	46
Senegal	6 500	-	-	-	-	-	45	65
Rwanda*	6 331	3.7	280	49	115	2 872	51	44
Niger	6 115	2.8	258	44	158	-	54	-
Guinea*	5 780	2.3	310	49	160	-	80	-
Burundi*	4 782	2.6	230	47	127	20 000	74	42
Benin*	3 825	2.6	320	46	106	-	44	60
Sierra Leone*	3 700	2.3	200	47	225	-	74	75
Togo*	3 068	2.8	300	46	90	-	43	85
Central African Republic*	2 673	2.5	-	48	190	452	96	-
Liberia	2 182	3.4	-	56	119	11 800	44	97
Mauritania*	1 888	2.9	363	44	137	17 942	14	97
Lesotho*	1 496	2.3	484	51	130	31	65	85
Botswana*	1 088	3.7	749	56	68	-	46	58
Mauritius	998	1.4	1 020	68	24	-	0	0
Guinea Bissau*	880	2.2	150	40	200	3 500	79	79
Gambia*	749	3.4	241	44	120	-	59	-
Swaziland	650	3.5	810	48	105	-	78	64
Cape Verde*	337	2.1	317	62	66	5 070	37	82
Sao Tome & Principe*	108	2.3	362	64	62	6 000	86	98
Seychelles	65	0.8	2 250	68	18	-	11	1

\* Least-developed country.

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	Standpost	Sewer connection	By other means			
Nigeria	89	-	-	-	37	-	1984
Ethiopia*	-	-	-	-	16	6	-
Zaire	59	11	-	40	35	35	-
Algeria		90 <sup>a</sup>		88 <sup>a</sup>	65	60	-
Uganda* <sup>b</sup>		80 <sup>a</sup>		85 <sup>a</sup>	40	50	1984
Ghana	42	58	3	67	77	30	1985
Mozambique	22	62	21	67	68	58	1983
Cameroon	46	23	6	94	100	100	-
Madagascar	15	60	-	-	23	-	No
Zimbabwe	-	-	-	-	52	38	1986
Angola	70	30	18	30	30	30	No
Mali*	30	18	1	93	36	30	1984
Malawi*	62	18	11	59	67	-	Under preparation
Burkina Faso*	49	51	0	46	65	85	1982
Zambia	53	32	46	39	65	60	1983 updated
Senegal	43	50	27	67	67	-	1985
Rwanda*	45	45	0	85	70	75	1984
Niger*	-	-	-	-	-	-	1985
Guinea*	7	4	3	-	9	0	1980
Burundi*	57	39	40	60	90	70	1984
Benin*	60	40	0	80	80	50	1986
Sierra Leone*	-	-	-	-	-	-	1981
Togo*	15	85	3	37	99	80	1984
Central African Republic*	100	0	100	0	50	50	1982
Liberia	35	18	49	51	100	17	Under preparation
Mauritania*	99	-	43	-	59	-	1983
Lesotho*	59	41	16	70	60	45	1983
Botswana*	34	58	-	-	-	-	-
Mauritius	-	-	-	-	-	-	No
Guinea Bissau*	16	5	-	28	35	24	No
Swaziland	100	0	40	60	50	35	Under modification
Cape Verde*	47	53	22	40	76	73	Partial
Sao Tome & Principe*	38	51	62	15	73	91	1985
Seychelles	95	5	90	10	90	100	Partial

\* Least-developed country.

<sup>a</sup> No breakdown given.<sup>b</sup> 1985 targets.

TABLE 1.3 - AFRICAN REGION

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water				Sanitation			Rural
				Total	By H.C. <sup>a</sup>	By P.S. <sup>b</sup>	Rural	Total	By S.C. <sup>c</sup>	By other	
Nigeria	97 090	25 675 (26)	71 415 (74)	25 675 (100)	-	-	14 300 (20)	-	-	-	-
Ethiopia*	44 517	4 175 (9)	40 342 (91)	2 873 (69)	431 (10)	2 442 (59)	3 567 (9)	4 007 (96)	307 (7)	3 700 (89)	-
Zaire	30 500	11 600 (38)	18 900 (62)	6 000 (52)	5 000 (43)	1 000 (9)	4 000 (21)	-	-	-	1 750 (9)
Algeria	22 583	15 047 (67)	7 536 (33)	12 790 (85)	-	-	4 145 (55)	12 038 (80)	-	-	3 014 (40)
Tanzania, Rep. of*	21 940	3 510 (16)	18 430 (84)	3 155 (90)	1 950 (56)	1 205 (34)	7 700 (42)	3 264 (93)	421 (12)	2 843 (81)	10 689 (58)
Uganda*	14 680	1 894 (13)	12 786 (87)	700 (37)	-	-	2 350 (18)	600 (32)	-	-	3 836 (30)
Ghana	12 387	3 956 (32)	8 431 (68)	3 679 (93)	1 626 (41)	2 053 (52)	3 314 (39)	2 394 (61)	160 (4)	2 234 (57)	1 363 (16)
Cameroon	10 000	3 000 (30)	7 000 (70)	1 290 (43)	300 (10)	990 (33)	1 680 (24)	3 000 (100)	100 (3)	2 900 (97)	100 (1)
Mozambique	13 810	2 500 (18)	11 310 (82)	950 (38)	400 (16)	550 (22)	1 000 (9)	1 330 (53)	280 (11)	1 050 (42)	1 400 (12)
Madagascar	9 986	2 197 (22)	7 789 (78)	1 789 (81)	379 (17)	1 410 (64)	1 342 (17)	-	1 212 (55)	-	-
Zimbabwe	8 581	2 294 (27)	6 287 (73)	-	-	-	2 043 (32)	-	-	-	943 (15)
Angola	8 573	1 972 (23)	6 601 (77)	1 714 (87)	394 (20)	1 320 (67)	978 (15)	571 (29)	256 (13)	315 (16)	1 056 (16)
Mali*	7 914	1 589 (20)	6 325 (80)	728 (46)	238 (15)	490 (31)	633 (10)	1 434 (90)	10 (1)	1 424 (89)	190 (3)
Malawi*	7 059	847 (12)	6 212 (88)	818 (97)	620 (73)	198 (24)	3 099 (50)	-	-	-	-
Burkina Faso*	7 014	1 093 (16)	5 921 (84)	465 (43)	230 (21)	235 (22)	4 060 (69)	482 (44)	0 (0)	482 (44)	350 (6)
Zambia	6 720	3 243 (48)	3 477 (52)	2 468 (76)	1 424 (44)	1 044 (32)	1 441 (41)	2 468 (76)	814 (25)	1 654 (51)	1 166 (34)
Senegal	6 500	2 600 (40)	3 900 (60)	2 050 (79)	850 (33)	1 200 (46)	1 500 (38)	2 260 (87)	360 (14)	1 900 (73)	-
Rwanda*	6 331	253 (4)	6 078 (96)	200 (79)	120 (47)	80 (32)	2 888 (48)	195 (77)	0 (0)	195 (77)	3 367 (55)

Niger <sup>a</sup>	6 115	991 (16)	5 124 (84)	349 (35)	247 (25)	102 (10)	2 494 (49)	-	0 (0)	-	-
Guinea <sup>a</sup>	5 780	1 579 (27)	4 201 (73)	642 (41)	410 (26)	232 (15)	514 (12)	-	145 (9)	-	-
Burundi <sup>a</sup>	4 782	310 (6)	4 472 (94)	304 (98)	204 (66)	100 (32)	950 (21)	260 (84)	20 (7)	240 (77)	2 500 (56)
Benin <sup>a</sup>	3 825	1 874 (49)	1 951 (51)	1 499 (80)	843 (45)	656 (35)	663 (34)	1 124 (58)	0 (0)	1 124 (58)	390 (20)
Sierra Leone <sup>a</sup>	3 700	1 110 (30)	2 590 (70)	755 (68)	231 (21)	524 (47)	189 (7)	667 (60)	7 (1)	660 (59)	259 (10)
Togo <sup>a</sup>	3 068	819 (27)	2 249 (73)	819 (100)	154 (19)	665 (81)	918 (41)	250 (31)	0 (0)	250 (31)	209 (9)
Central African Rep. <sup>a</sup>	2 673	908 (34)	1 765 (66)	119 (13)	61 (7)	58 (6)	-	-	-	-	-
Liberia	2 181	875 (40)	1 306 (60)	875 (100)	397 (45)	478 (55)	303 (23)	-	50 (6)	-	24 (2)
Mauritania <sup>a</sup>	1 888	654 (35)	1 234 (65)	475 (73)	100 (15)	375 (58)	-	53 (8)	18 (3)	35 (5)	-
Lesotho <sup>a</sup>	1 496	187 (13)	1 309 (87)	121 (65)	65 (35)	56 (30)	396 (30)	41 (22)	22 (12)	19 (10)	181 (14)
Botswana <sup>a</sup>	1 088	227 (21)	861 (79)	190 (84)	76 (33)	114 (51)	393 (46)	211 (93)	125 (55)	86 (38)	245 (28)
Mauritius	998	429 (43)	569 (57)	429 (100)	429 (100)	0 (0)	569 (100)	429 (100)	250 (58)	179 (42)	490 (86)
Guinea Bissau <sup>a</sup>	880	190 (22)	690 (78)	33 (17)	24 (13)	9 (4)	150 (22)	55 (29)	2 (1)	53 (28)	127 (18)
Gambia <sup>a</sup>	749	139 (19)	610 (81)	135 (97)	-	-	306 (50)	-	-	-	-
Swaziland	650	98 (15)	553 (85)	98 (100)	84 (86)	14 (14)	40 (7)	98 (100)	32 (33)	66 (67)	138 (25)
Cape Verde <sup>a</sup>	337	135 (40)	202 (60)	112 (83)	33 (24)	79 (59)	101 (50)	43 (32)	18 (13)	25 (19)	18 (9)
Sao Tome & Principe <sup>a</sup>	108	36 (34)	72 (66)	12 (33)	10 (27)	2 (6)	33 (45)	6 (18)	3 (9)	3 (9)	11 (15)
Seychelles	65	26 (40)	39 (60)	26 (100)	21 (81)	5 (19)	37 (95)	26 (100)	2 (8)	24 (92)	39 (99)
<b>Total</b>	<b>376 569</b>	<b>98 032 (26)</b>	<b>278 537 (74)</b>	<b>74 336 (78)</b>	<b>17 351 (33)</b>	<b>17 686 (33)</b>	<b>68 096 (25)</b>	<b>37 305 (73)</b>	<b>4 614 (12)</b>	<b>21 461 (59)</b>	<b>33 855 (25)</b>

\* Least-developed country.

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 1.4 - AFRICAN REGION

PRESENT (1985 - 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	Standpost	Sewer connection	Other means			
Ethiopia*	4 175	431	2 442	307	3 700	40 342	3 567	-
	5 129	1 000	-	-	-	46 315	7 262	3 000
Zaire	11 600	5 000	1 000	-	-	18 900	4 000	1 750
	13 500	8 000	1 500	-	5 400	21 400	7 500	7 500
Algeria	15 047	12 790 <sup>a</sup>		12 039 <sup>a</sup>		7 536	4 145	3 014
	19 149	17 234 <sup>a</sup>		16 755 <sup>a</sup>		7 797	5 068	4 678
Uganda*	1 894	700 <sup>a</sup>		600 <sup>a</sup>		12 786	2 350	3 836
	1 970	1 576 <sup>a</sup>		1 675 <sup>a</sup>		15 000	6 000	7 500
Ghana	3 956	1 626	2 053	160	2 234	8 431	3 314	1 363
	4 631	1 945	2 686	162	3 080	9 606	7 413	2 882
Cameroon	3 000	300	990	100	2 900	7 000	1 680	100
	3 500	1 600	800	200	3 300	8 000	8 000	8 000
Mozambique	2 500	400	550	280	1 050	11 310	1 000	1 400
	2 891	650	1 790	610	1 850	12 981	8 787	7 478
Madagascar	2 197	1 789 <sup>a</sup>		-	-	7 789	1 342	-
	2 502	1 895 <sup>a</sup>		-	-	8 911	2 005	-
Zimbabwe	2 294	-	-	-	-	6 287	2 043	943
	2 950	-	-	-	-	7 290	3 792	2 777
Angola	1 972	394	1 320	256	315	6 601	978	1 056
	2 993	2 095	898	538	898	6 985	2 095	2 095
Mali*	1 589	238	490	10	1 424	6 325	633	190
	1 882	565	339	19	1 750	7 080	2 549	2 124
Malawi*	847	620	198	-	-	6 212	3 099	-
	1 259	776	232	140	740	7 030	4 687	-
Burkina Faso*	1 093	230	235	0	482	5 921	4 060	350
	1 305	645	660	0	595	6 292	4 060	5 360
Zambia	3 243	1 424	1 044	814	1 654	3 477	1 441	1 166
	4 215	2 252	1 352	1 948	1 656	3 317	2 171	2 000
Senegal	2 600	850	1 200	360	1 900	3 900	1 500	-
	3 000	1 300	1 500	800	2 000	4 500	3 000	-



Rwanda*	253	120	80	0	195	6 078	2 888	3 367
	411	185	185	0	349	6 852	4 797	5 139
Burundi*	310	204	100	20	240	4 472	950	2 500
	351	206	137	140	211	4 918	4 425	3 442
Benin*	1 874	843	656	0	1 124	1 951	663	390
	2 118	1 271	847	0	1 694	2 204	1 763	1 102
Togo*	819	154	665	0	250	2 249	918	209
	1 046	156	886	33	383	2 568	2 552	2 054
Central African Republic*	908	61	58	-	-	1 765	-	-
	962	962	0	962	0	1 870	935	935
Liberia	875	397	418	50	-	1 306	303	24
	1 030	361	188	-	-	-	-	260
Lesotho*	187	65	56	22	19	1 309	396	181
	244	144	100	60	172	1 432	864	644
Botswana*	227	76	110	125	86	861	393	245
	293	105	171	-	-	1 014	-	-
Guinea Bissau*	190	24	9	2	53	690	150	127
	229	36	12	2	65	752	260	180
Swaziland	98	86	12	32	66	553	40	138
	112	112	0	40	60	636	50	35
Cape Verde*	100	30	63	14	25	202	95	18
	130	90	40	72	-	254	150	152
Sao Tome & Principe*	36	10	22	3	3	72	33	11
	47	18	24	29	7	72	53	66
Seychelles	26	21	5	2	24	39	37	39
	30	29	1	27	3	45	41	45

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 1.4.1.1 - AFRICAN REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban Population (000)		WATER SUPPLY Population Covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Zaire	11 600	13 500	6 000	52	9 500	70
Algeria	15 047	19 190	12 790	85	17 234	90
Uganda*	1 894	1 970	700	37	1 576	80
Ghana	3 956	4 631	3 679	93	4 631	100
Mozambique	2 500	2 891	950	38	2 440	84
Madagascar	2 197	2 502	1 789	81	1 895	76
Cameroon	3 000	3 500	1 290	43	2 400	69
Angola	1 972	2 993	1 714	87	2 993	100
Mali*	1 589	1 882	728	46	904	48
Malawi*	847	1 259	818	97	1 008	80
Burkina Faso*	1 093	1 305	465	43	1 305	100
Zambia	3 243	4 215	2 468	76	3 604	86
Senegal	2 600	3 000	2 050	79	2 800	93
Rwanda*	253	411	200	79	370	90
Burundi*	310	351	304	98	343	98
Benin*	1 874	2 118	1 499	80	2 118	100
Togo*	819	1 046	819	100	1 042	100
Central African Republic*	908	962	119	13	962	100
Liberia	875	1 030	815	93	549	53
Lesotho*	187	244	121	65	244	100
Botswana*	227	293	190	84	276	94
Guinea Bissau*	190	229	33	17	48	21
Swaziland	98	112	98	100	112	100
Cape Verde	100	130	93	93	130	100
Sao Tome & Principe*	36	47	32	89	42	89
Seychelles	26	30	26	100	30	100
<b>Total</b>	<b>57 441</b>	<b>69 800</b>	<b>39 790</b>	<b>69</b>	<b>58 556</b>	<b>84</b>

\* Least-developed country.

TABLE 1.4.1.2. - AFRICAN REGION  
DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban Population (000)		SANITATION Population Covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Algeria	15 047	19 149	12 038	80	16 755	87
Uganda*	1 894	1 970	600	32	1 675	85
Ghana	3 956	4 631	2 394	61	3 242	70
Mozambique	2 500	2 891	1 330	53	2 460	85
Cameroon	3 000	3 500	3 000	100	3 500	100
Angola	1 972	2 993	571	29	1 436	48
Mali*	1 589	1 882	1 434	90	1 769	94
Zambia	3 243	4 215	2 468	76	3 604	86
Senegal	2 600	3 000	2 260	87	2 800	93
Rwanda*	253	411	195	77	349	85
Burundi*	310	351	260	84	351	100
Benin*	1 874	2 118	1 124	60	1 694	80
Togo*	819	1 046	250	31	416	40
Lesotho*	187	244	41	22	232	95
Burkina Faso*	1 093	1 305	482	44	595	46
Guinea Bissau*	190	229	55	29	67	29
Swaziland	98	112	98	100	100	89
Sao Tome & Principe*	36	47	6	17	36	77
Seychelles	26	30	26	100	30	100
<b>Total</b>	<b>40 687</b>	<b>50 124</b>	<b>28 632</b>	<b>70</b>	<b>41 111</b>	<b>82</b>

\* Least-developed country.

**TABLE 1.4.2.1 - AFRICAN REGION**  
**DECADE TARGETS FOR RURAL WATER SUPPLY**

Country/ territory	Rural Population (000)		WATER SUPPLY Population Covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Zaire	18 900	21 400	4 000	21	7 500	35
Algeria	7 536	7 797	4 145	55	5 068	65
Ethiopia*	40 342	46 315	3 567	9	7 262	16
Uganda*	12 786	15 000	2 350	18	6 000	40
Ghana	8 431	9 606	3 314	39	7 413	77
Angola	6 601	6 985	978	15	2 095	30
Mozambique	11 310	12 981	1 000	9	8 787	68
Madagascar	7 789	8 911	1 342	17	2 005	23
Cameroon	7 000	8 000	1 680	24	8 000	100
Zimbabwe	6 287	7 290	2 043	32	3 792	52
Mali*	6 325	7 080	633	40	2 549	44
Malawi*	6 212	7 030	3 099	50	4 687	67
Burkina Faso*	5 921	6 292	4 060	69	4 060	65
Zambia	3 477	3 317	1 441	41	2 171	65
Senegal	3 900	4 500	1 500	38	3 000	67
Rwanda*	6 078	6 852	2 888	48	4 797	70
Burundi*	4 472	4 918	950	21	4 425	90
Benin*	1 951	2 204	663	34	1 763	80
Togo*	2 249	2 568	918	41	2 552	99
Lesotho*	1 309	1 432	396	30	864	60
Cape Verde*	237	254	95	40	150	59
Guinea Bissau*	690	752	150	22	260	35
Swaziland	553	636	40	7	50	8
Sao Tome & Principe*	72	72	33	46	53	74
Seychelles	39	45	37	95	41	91
<b>Total</b>	<b>170 467</b>	<b>192 237</b>	<b>41 322</b>	<b>24</b>	<b>89 344</b>	<b>46</b>

\* Least-developed country.

TABLE 1.4.2.2 - AFRICAN REGION

## DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural Population (000)		SANITATION Population Covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Zaire	18 900	21 400	1 750	9	7 500	35
Algeria	7 536	7 797	3 014	40	4 678	60
Uganda*	12 786	15 000	3 836	30	7 500	50
Ghana	8 431	9 606	1 363	16	2 882	30
Mozambique	11 310	12 981	1 400	12	7 478	58
Cameroon	7 000	8 000	100	1	8 000	100
Zimbabwe	6 287	7 290	943	15	2 777	38
Angola	6 601	6 985	1 056	16	2 095	30
Mali*	6 325	7 080	190	3	2 124	30
Burkina Faso*	5 921	6 292	350	6	5 360	85
Zambia	3 477	3 317	1 166	34	2 000	60
Rwanda*	6 078	6 852	3 367	55	5 139	75
Burundi*	4 472	4 918	2 500	56	3 442	70
Benin*	1 951	2 204	390	20	1 102	50
Togo*	2 249	2 568	209	9	2 054	80
Lesotho*	1 309	1 432	181	14	644	45
Cape Verde*	237	254	18	8	152	60
Guinea Bissau*	690	752	127	18	180	24
Swaziland	553	636	138	25	35	66
Sao Tome & Principe*	72	72	11	15	66	92
Seychelles	39	45	39	100	45	100
<b>Total</b>	<b>112 224</b>	<b>125 481</b>	<b>22 148</b>	<b>20</b>	<b>65 253</b>	<b>52</b>

\* Least-developed country.

TABLE 1.5 - AFRICAN REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsman Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
Nigeria	- -	- -	- -	- -	- -	- -	Yes	-
Ethiopia*	85 -	108 -	- -	104 -	132 -	10 -	Yes	Yes/No
Zaire	600 708	900 950	- -	5 500 6 000	- -	230 219	Yes	Yes/-
Uganda*	- -	- -	- -	- -	- -	- -	Yes	No
Ghana	128 -	423 -	2 261 -	1 469 -	2 866 -	578 -	Yes	Yes/No
Mozambique	12 -	58 -	30 -	336 -	- -	32 -	Yes	Yes/-
Madagascar	27 -	236 -	727 -	240 -	975 -	224 -	Yes	Yes/-
Cameroon	- -	- -	- -	- -	- -	- -	No	No
Zimbabwe	25 -	665 -	102 -	5 -	- -	93 -	Yes	Yes/No
Angola	- -	209 -	722 -	245 -	- -	137 -	Yes	No
Mali*	38 -	201 -	77 -	60 -	- -	48 -	Yes	No
Malawi*	63 68	380 500	2 000 3 000	180 195	- -	372 454	-	Yes/No
Burkina Faso*	58 -	56 -	32 -	43 -	70 -	37 -	Yes	Yes/-
Zambia*	14 19	560 797	1 400 1 631	232 232	4 037 4 037	929 999	Yes	Yes/No
Senegal	- -	- -	- -	- -	- -	- -	Yes	Yes/-

Rwanda*	40	132	70	30	-	43	Yes	No
	-	-	-	-	-	-		
Niger*	28	120	66	-	-	35	Yes	No
	-	-	-	-	-	-		
Burundi*	26	70	55	30	-	38	Yes	Yes/-
	40	105	85	50	-	53		
Benin*	30	42	248	72	-	102	Yes	No
	55	80	500	150	-	182		
Sierra Leone*	5	350	750	170	-	-	No	No
	-	-	-	-	-	-		
Togo*	-	-	-	-	-	-	Yes	-
	-	-	-	-	-	-		
Central African Rep.*	-	385	-	-	-	-	Yes	-
	-	-	-	-	-	-		
Liberia	12	332	88	589	-	-	Yes	Yes/No
	-	-	-	-	-	-		
Mauritania*	8	43	409	28	-	395	Yes	No
	-	-	-	-	-	-		
Botswana*	2	20	140	60	230	1 991	-	-
	-	-	-	-	-	-		
Mauritius	7	227	617	217	786	1 858	No	Yes/No
	-	-	-	-	-	-		
Guinea Bissau*	4	240	30	277	-	626	Yes	No
	-	-	-	-	-	-		
Gambia*	-	-	-	-	-	-	Yes	Yes/No
	-	-	-	-	-	-		
Cape Verde*	-	-	-	-	-	-	No	No
	-	-	-	-	-	-		
Lesotho*	13	99	367	115	-	397	Yes	Yes/No
	-	-	-	-	-	-		
Swaziland	0	59	0	0	9	105	Yes	Yes/No
	-	-	-	-	-	-		
Sao Tome & Principe*	1	7	70	7	-	785	No	No
	1	9	60	20	-	754		
Seychelles	3	22	169	65	45	4 659	-	Yes/-
	-	-	-	-	-	-		

\* Least-developed country.

TABLE 1.6 - AFRICAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction				Operation				
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
	House connection	Standpost	Sewer connection	Other means					
Nigeria	85	28	-	-	18	-	-	-	-
Ethiopia*	-	-	44	116	24	-	-	0.48	No
Zaire	41	38	-	-	8	3	0.22	0.27	Yes
Tanzania, Rep. of*	85	60	-	-	60	35	-	0.17	No
Uganda*		210 <sup>a</sup>		300 <sup>a</sup>	40	25	-	0.17	No
Ghana	100	80	200	60	30	100	0.35	0.35	Yes
Madagascar	121	15	-	37	42	-	0.17	0.21	Yes
Cameroon	150	150	-	-	80	-	2.00	0.60	Yes
Zimbabwe	-	-	-	-	42	20	-	-	No/rural free
Angola	100	40	110	40	30	10	0.15	0.10	No
Mali*	100	14	120	50	50	8	0.33	0.22	No
Malawi*	-	-	-	-	-	-	0.60	0.20	Yes
Zambia	204-565	90	314-403	163	90	45	1.05	0.30	In some areas
Rwanda*	165	55	-	385	23	18-25	0.40	0.43	Yes
Niger*	-	-	-	-	50	-	-	-	-
Burundi*	150	1 000	150	200	20	100	0.35	0.28	No
Benin*	88	-	-	-	-	-	-	-	-
Sierra Leone*	112	78	-	150	35	30	0.90	0.30	Yes
Togo*	-	-	-	142	23	-	0.66	0.33	Yes
Central African Rep.*	183	6	-	-	-	-	-	0.41	-
Liberia	113	-	125	40	15	10	-	-	Yes
Mauritania*	-	-	-	-	50	-	-	-	No
Lesotho*	275	140	300	40	25	25	0.76	0.30	No
Botswana*	83	44	230	185	-	40	0.75	0.54	Yes
Mauritius	50	-	-	-	50	-	0.29	0.23	Yes
Guinea Bissau*		160 <sup>a</sup>		300 <sup>a</sup>	110	60	0.06	0.04	No
Cape Verde*	-	-	-	-	-	-	4.65	1.08	-
Swaziland	-	-	-	-	40	2	-	0.16	Yes
Sao Tome & Principe*	63	31	150	120	40	20	-	0.05	No
Seychelles	580	60	355	100	600	100	0.60	0.50	Yes

\* Least-developed country.

<sup>a</sup> No breakdown given.



TABLE 1.7 - AFRICAN REGION  
COST PROJECTIONS COMPARED WITH 1981-85 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ million	Sector investments (1981-85)			Acceleration in investment needed (fold)
		Total US\$ million	Percentage of total development investment	External US\$ million (%)	
Ethiopia*	-	-	4.30	-	-
Zaire	573	46	18.00	26.72 (59)	6.29
Mozambique	130	76	-	46.40 (61)	0.87
Madagascar	65	10	0.92	6.84 (67)	3.19
Angola	412	107	-	11.62 (11)	1.92
Mali*	272	23	6.00	22.04 (95)	11.73
Malawi*	-	19	3.10	- (77)	-
Zambia	840	78	6.00	62.00 (79)	5.38
Senegal	1 027	23	8.27	20.11 (88)	22.35
Rwanda*	-	-	-	- (66)	-
Niger*	-	-	7.30	-	-
Burundi*	-	42	9.40	35.06 (83)	-
Sierra Leone*	-	29	-	23.35 (81)	-
Togo*	-	11	-	7.84 (74)	-
Central African Rep.*	-	-	2.12	-	-
Liberia	148	28	-	21.04 (75)	2.63
Lesotho*	114	41	10.50	34.25 (83)	1.39
Botswana*	-	39	-	23.56 (60)	-
Sao Tome & Principe *	11	-	-	-	-

\* Least-developed country.

**TABLE 1.8 - AFRICAN REGION**  
**RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>**

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	12	14	3	67
Inadequate cost-recovery framework	13	8	5	60
Operation and maintenance	14	6	5	59
Insufficiency of trained personnel (professional)	11	9	5	56
Logistics	10	8	9	55
Insufficiency of trained personnel (sub-professional)	6	12	9	51
Inadequate or out-moded legal framework	3	13	9	44
Inappropriate institutional framework	7	8	6	43
Import restrictions	8	4	7	39
Intermittent water service	7	4	9	38
Insufficient knowledge of water resources	3	7	16	39
Insufficient health education efforts	5	8	8	39
Lack of definite government policy for sector	3	8	11	36
Inadequate water resources	3	2	17	30
Inappropriate technology	3	6	12	33
Non-involvement of communities	1	7	14	31
Lack of planning and design criteria	2	6	11	29
Lack of source protection <sup>c</sup>		1		
Drought <sup>d</sup>			1	

<sup>a</sup> Number of reporting countries: 30.

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

<sup>c</sup> Botswana.

<sup>d</sup> Zimbabwe.

TABLE 1.9 - AFRICAN REGION

DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (%)	Promotion of women's participa- tion (Yes/No)	Water supply and sanitation in rural areas as part of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
Nigeria	-	-	-	-	-	-	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Ethiopia*	-	-	-	-	-	-	-	Yes	Yes
Zaire	-	-	-	-	-	-	-	Yes	Yes
Tanzania, Rep. of*	-	-	-	1	25	2	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Uganda*	-	-	-	-	-	-	-	Yes	Yes
Ghana	-	-	-	10	60	30	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Cameroon	-	20	<1	<1	10	10	-	No	No
Madagascar	-	-	-	0	8	50	20	Yes <sup>a</sup>	Yes <sup>a</sup>
Zimbabwe	6	3	0	40	80	50	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Angola	-	-	-	70	70	70	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Mali*	-	-	-	100	100	100	80	Yes <sup>a</sup>	Yes <sup>a</sup>
Malawi*	680	-	-	-	-	-	-	Yes	Yes
Burkina Faso*	635	36	-	-	-	-	-	Yes	No
Zambia	1 907	2	-	-	-	-	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Rwanda*	-	-	-	-	-	-	100	Yes	No
Niger*	-	-	-	-	-	-	-	Yes	No
Benin*	-	-	-	0	90	90	20	Yes <sup>a</sup>	Yes <sup>a</sup>
Sierra Leone*	1 100	1	-	100	100	100	15	Yes	No
Togo*	-	-	-	15	1	70	-	-	Yes <sup>a</sup>
Liberia	220	-	-	-	-	-	-	Yes <sup>a</sup>	-
Mauritania*	98	2	-	<5	15	40	18	No	No
Lesotho*	-	-	-	-	-	-	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Mauritius	30	100	-	-	-	-	-	-	-
Guinea Bissau*	-	-	-	90	55	30	0	Yes <sup>a</sup>	Yes <sup>a</sup>
Gambia*	120	0	-	100	100	100	Almost all	Yes <sup>a</sup>	Yes <sup>a</sup>
Swaziland*	45	50	-	100	100	100	100	No	-
Cape Verde*	-	0	-	-	-	-	0	-	No
Sao Tome & Principe*	-	-	-	-	-	-	35	Yes <sup>a</sup>	Yes <sup>a</sup>
Seychelles	0	-	-	-	-	-	100	-	-

\* Least-developed country.

<sup>a</sup> Associated with specific projects.

TABLE 1.10.1 - AFRICAN REGION

## URBAN WATER SUPPLY SERVICES (1980-1985)

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Ghana	4 164	3 956	3 015	72	3 679	93
Madagascar	1 720	2 197	1 380	80	1 789	81
Angola	1 200	1 972	1 020	85	1 714	87
Mali*	1 210	1 589	451	37	728	46
Malawi*	576	847	443	77	818	97
Senegal	1 810	2 600	1 400	77	2 050	79
Niger*	701	991	286	41	349	35
Rwanda*	233	253	112	48	200	79
Guinea*	1 117	1 579	769	69	642	41
Burundi*	219	310	197	90	304	98
Benin*	1 580	1 874	413	26	1 499	80
Sierra Leone*	923	1 110	462	50	755	68
Togo*	700	819	490	70	819	100
Mauritania*	354	654	283	80	475	73
Lesotho*	150	187	55	37	121	65
Mauritius	410	429	410	100	429	100
Guinea Bissau*	159	190	29	18	33	17
Gambia*	110	139	94	85	135	97
Cape Verde*	108	135	108	100	112	83
<b>Total</b>	<b>17 444</b>	<b>21 831</b>	<b>11 417</b>	<b>65</b>	<b>16 651</b>	<b>76</b>

\* Least-developed country.

TABLE 1.10.2 - AFRICAN REGION

URBAN SANITATION SERVICES (1980-1985)

Country/ territory	Urban population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Ghana	4 164	3 956	1 940	47	2 394	61
Angola	1 200	1 972	480	40	571	29
Mali*	1 210	1 589	955	79	1 434	90
Senegal	1 810	2 600	1 810	100	2 260	87
Rwanda*	233	253	140	60	195	77
Burundi*	219	310	88	40	260	84
Benin*	1 580	1 874	760	48	1 124	58
Sierra Leone*	923	1 110	284	31	667	60
Togo*	700	819	170	24	250	31
Mauritania*	354	654	18	5	53	8
Lesotho*	150	187	20	13	41	22
Mauritius	410	429	410	100	429	100
Guinea Bissau*	159	190	34	21	55	29
Cape Verde*	108	135	37	34	43	32
<b>Total</b>	<b>13 220</b>	<b>16 078</b>	<b>7 146</b>	<b>54</b>	<b>9 776</b>	<b>61</b>

\* Least-developed country.

TABLE 1.10.3 - AFRICAN REGION  
RURAL WATER SUPPLY SERVICES (1980-1985)

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Ghana	7 409	8 431	2 439	33	3 314	39
Madagascar	7 020	7 789	500	7	1 342	17
Angola	6 700	6 601	670	10	978	15
Mali*	5 994	6 325	8	0	633	10
Malawi*	5 431	6 212	1 995	37	3 099	50
Senegal	3 918	3 900	980	25	1 500	38
Rwanda*	4 952	6 078	2 700	55	2 888	48
Niger*	4 833	5 124	1 547	32	2 494	49
Guinea*	3 900	4 201	90	2	514	12
Burundi*	3 993	4 472	799	20	950	21
Benin*	1 960	1 951	300	15	663	34
Sierra Leone*	2 238	2 590	45	2	189	7
Togo*	1 800	2 249	565	31	918	41
Lesotho*	1 150	1 309	126	11	396	30
Mauritius	547	569	536	98	569	100
Guinea Bissau*	635	690	49	8	150	22
Cape Verde*	188	202	40	21	101	50
<b>Total</b>	<b>62 668</b>	<b>68 693</b>	<b>13 389</b>	<b>21</b>	<b>20 698</b>	<b>30</b>

\* Least-developed country.

TABLE 1.10.4 - AFRICAN REGION

RURAL SANITATION SERVICES (1980-1985)

Country/ territory	Rural population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Ghana	7 409	8 431	1 226	17	1 363	16
Angola	6 700	6 601	1 000	15	1 056	16
Mali*	5 994	6 325	6	0	190	3
Rwanda*	4 952	6 078	2 500	50	3 367	55
Burundi*	3 995	4 472	1 393	35	2 500	56
Benin*	1 960	1 951	80	4	390	20
Sierra Leone*	2 238	2 590	134	6	259	10
Togo*	1 800	2 249	180	10	209	9
Lesotho*	1 150	1 309	162	14	181	14
Mauritius	547	569	492	90	490	86
Guinea Bissau*	635	690	81	13	127	18
Cape Verde*	188	202	19	10	18	9
<b>Total</b>	<b>37 566</b>	<b>41 467</b>	<b>7 273</b>	<b>19</b>	<b>10 150</b>	<b>24</b>

\* Least-developed country.

TABLE 1.11 - AFRICAN REGION

WATER CONSUMPTION  
(Year 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban 1/c/d	Rural 1/c/d	Urban 1/c/d	Rural 1/c/d
Nigeria	120	60	63	25
Ethiopia*	30-60	15-20	30-60	15-20
Zaire	50	30	55	7
Tanzania, Rep. of*	130	25	130	25
Uganda*	150	40	80	15
Ghana	100	23	45	5
Mozambique	150	40	120	30
Cameroon	150	60	150	25
Madagascar	65	30	45	20
Zimbabwe	35-40	15	25	10
Angola	150	30	100	20
Mali*	60	40	50	15
Malawi*	50-300	27	50-300	10-27
Burkina Faso*	50-120	10-25	50-75	10-25
Zambia	250-300	30	310	30
Senegal	80	20	42	15
Rwanda*	60	10	15	8
Niger*	75	25	45	20
Burundi*	200	60	150	40
Benin*	40	10	60	20
Sierra Leone*	100	10-25	27-100	10
Togo*	30-80	20	39	7
Central African Rep.*	49	25	45	-
Liberia	26-250	19	26-250	19
Mauritania	50	20	25	15
Lesotho*	-	10-30	-	-
Botswana*	-	30	-	30
Mauritius	200-225	125-150	200	125
Guinea Bissau*	120	40	120	40
Gambia*	-	30	39	-
Swaziland*	200	25	200	10
Cape Verde*	50	25	30	-
Sao Tome & Principe*	60	30	170	20
Seychelles	195	140	180	135

\* Least-developed country.



## **2. AMERICAN REGION**

### **2.1 Socio-economic and health situation**

Of the region's countries, 26 submitted reports on the status of water supply and sanitation at the end of 1985, representing 92% of the population. Approximately one fifth of the region's countries failed to submit reports. The 1985 sample included one more country than in 1983 and five more than those participating in the baseline survey. Table 2.1 presents information on the socio-economic and health conditions in the region.

Health conditions remained much as in 1980 with unsatisfactory water supply and sanitation contributing to the poor health existing in many of the region's countries. Over half the population were without access to adequate and safe water in five reporting countries, and without adequate sanitation in seven. Life expectancy in all countries exceeded 50 years, passed 60 years in all but three, and was over 70 years in five, the same situation as in 1980.

The median value for infant mortality rate in countries excluding Haiti dropped from 60 to 35 per 1,000 live births. Haiti still reported a rate of over 100, while Peru and Guyana have reduced the rate to below that level since 1980. Five countries out of 15 reported over 5% of their populations affected by water-borne diseases compared to three out of 10 in 1980.

Economically no overall change was indicated, although in some cases devaluation reduced international purchasing power of national currencies. Per capita gross national product ranged from US\$320 in Haiti to US\$13,000 in the Cayman Islands, with a median value of US\$1,143 compared to US\$1,100 in 1980.

### **2.2 Targets and planning**

#### **Water supply**

Overall, 85.47 million additional people will have to be served with water supplies in the second half of the Decade, providing 11% more coverage than in 1985. This compares with 57.36 million achieved in the first half to give a 6% coverage increase, and seems to be well within the region's capability. However a shift in emphasis to rural areas is called for.

In urban areas much of the increase in coverage was probably achieved by using standposts in urban fringe and other poor areas. In the first five years of the Decade a total of 49.97 million additional residents representing a 6% rise in coverage, were served with safe and adequate water supplies, and a further 58.27 will have to be supplied by 1990 to reach 90% coverage. See table 2.4.1.1.

In rural areas the targets presented by the 1985 sample amount to a modest 51% compared to 67% set by a different grouping of reporting countries at the Decade start. During the first five years 7.39 million additional people were provided with water supplies and these will have to be joined by a further 27.20 million by 1990 to reach the higher 67% target.

**Table 2.2.1: Urban Water Supply Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	234.17	276.93	323.21
Estimated % service coverage	78	84	90
Estimated population served or to be served (millions)	182.65	232.62	290.89

**Table 2.2.2: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	124.38	126.87	129.60
Estimated % service coverage	42	47	67*
Estimated population served or to be served (millions)	52.24	59.63	86.83

\* 1980 target used.

**Table 2.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population (millions)	358.55	403.80	452.81
Estimated population served or to be served (millions)	234.89	292.25	377.72
Estimated % service coverage	66	72	83

### Sanitation

Overall, in the first half of the Decade service coverage rose from 50% to 63% and during the second half will have to rise by another 13% to provide sanitation to an additional 92.30 million people. This means stepping up the implementation rate achieved in the first half by a factor of 1.3.

Prospects for urban areas in Latin America and the Caribbean seem good since the projected 11% increase by 1990 is the same as that achieved during the period 1981-85. Having already provided a service to an additional 59.53 million people in the first five years, partly using low cost technology, it should be possible to extend this to a further 72.12 million in the second half. The original target coverage for 1990 was 90%.

In rural areas an estimated 13.11 million people acquired sanitation in the first five years. During the second half another 20.18 million will have to be served raising coverage from an estimated 17% in 1980 to 42% in 1990 (table 4.4.2.2.). This appears to be well within the region's ability and considering that 75.17 million people will still be left without sanitation there are grounds for re-assessing some country programmes.

**Table 2.2.4: Urban Sanitation Services Coverage**

	1980	1985	1990
Urban population (millions)	234.17	276.93	323.21
Estimated % service coverage	68 *	79	90 **
Estimated population served or to be served (millions)	159.24	218.77	290.89

\* Brazil excluded from original calculations in WHO Offset Publication 85

\*\* Target established in 1980 used, since the target calculated on the basis of the 1985 figure has already been attained.

**Table 2.2.5: Rural Sanitation Services Coverage**

	1980	1985	1990
Rural population (millions)	124.38	126.87	129.60
Estimated % service coverage	17 *	27	42
Estimated population served or to be served (millions)	21.14	34.25	54.43

\* Adjusted value

**Table 2.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population (millions)	358.55	403.80	452.81
Estimated population served or to be served (millions)	180.38	253.02	345.32
Estimated % service coverage	50	63	76

Reduced sample

Tables 2.10.1-2.10.4 provide information on levels of coverage in the four main

sectors of those countries responding in 1985 and 1980 and offer a means of direct comparison.

With this reduced sample urban water supply coverage appears to have risen by 8% and not 6%, as indicated by the full sample reports. In both cases, coverage was raised to 84%. Analysis of rural water shows a reduced sample growth of 11% to 50% rather than 5% growth to 47% coverage from the full sample.

In the case of urban sanitation the reduced sample increase of 10% to 74% contrasted with 11% from the full sample taking coverage to 79%. Analysis of rural sanitation using the reduced sample indicates no change in the 22% level of coverage, while the full sample provides a more optimistic picture with a rise from 17% to 27%.

### **2.3 Staffing and training**

Shortage of trained professionals and sub-professionals ranked fourth and fifth as Decade constraints but most countries said this was only a minor hindrance (table 2.8).

Staffing levels varied considerably and ranged from 34 per million people in Venezuela, not counting unskilled workers, to 2,875 in Suriname. The median value was 480, which was less than the 590 for 1980 and 685 calculated in 1983. Only four countries projected staffing levels up to 1990 and of these all expected increases except Mexico, which envisaged an 8% reduction. Fifteen out of 19 countries were using community based workers (table 2.5).

Of the 13 countries reporting special budgets for training in the water and sanitation sector, eight considered the funds to be inadequate. Seven countries reported no budget provisions.

### **2.4 Financial resources**

The Americas do not rely heavily on external finance, though the median of 34% excludes Haiti and Guatemala whose respective requirements are 94% and 74%.

Tariff systems, allowing water supply systems to be economically viable, appear to be fairly widespread. Nine of 15 countries report that they more than covered their costs in this way. Of 19 countries providing information on tariff structures 15 said progressive systems operated nationally, or in places.

Cost of completing the Decade in line with targets set by governments has been roughly estimated to be US\$19,984 million. Four of the 13 countries giving information on total investment appeared to be implementing programmes which, if maintained, would reach the targets. Another five had to increase investment in the second half by under 80%, while Guatemala is looking for an eighteen-fold increase in spending.

Unit costs for construction varied widely around the region with one of the greatest disparities being in the urban sanitation sector. In the Cayman Islands, costs are as high as US\$2,500, possibly because of difficult ground conditions, while in the Peru they fall to US\$74. Median costs generally rose between 1980 and

1985 with the biggest increase being in piped urban water, climbing from US\$125 to US\$160, while urban sanitation through sewer house connections fell US\$15 to US\$150 and rural water dropped to US\$83 from US\$88.

To cut costs up to 1990 there appears to be scope in reducing design criteria for major projects which seem to have been over-designed. Out of 20 countries providing information on urban water use, 14 indicated actual consumption to be significantly lower than system capacity with the average being 200 litres/day instead of the designed 230 litres/day.

**Table 2.4.1: Median Values for Per Capita Costs of Water Supply and Sanitation Systems, 1980 and 1985 (median per capita costs US\$)**

	Urban Water		Rural Water	Urban Sanitation		Rural Sanitation
	House Connection	Standpost		Sewer Connection	Other means	
1980	125	62	88	165	62	30
1985	160	81	83	150	80	40

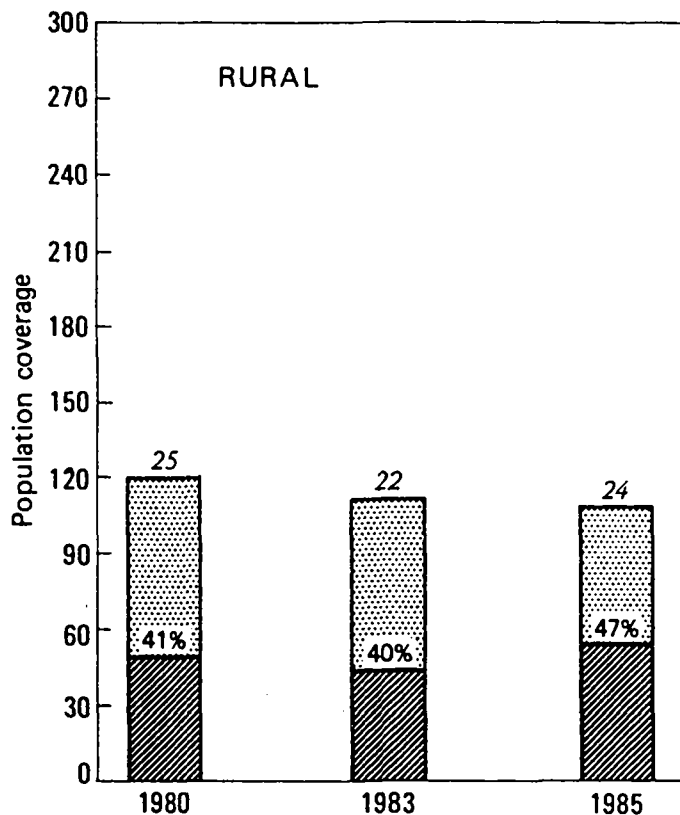
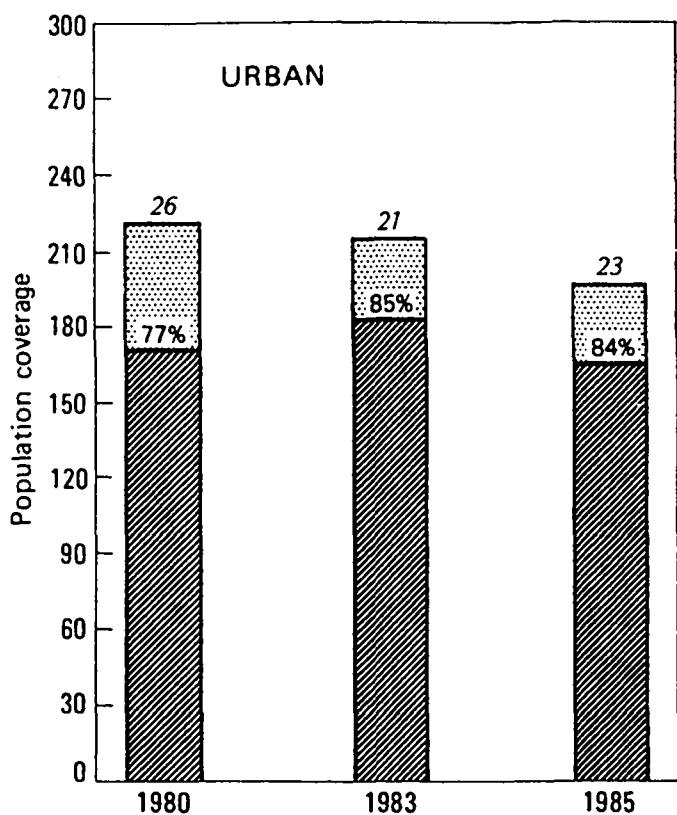
## 2.5 Decade approaches

Decade approaches refer to programme orientation towards rural and urban poor, support to investment programmes through health education, integration of water supply and sanitation with other elements of primary health care, and the fuller involvement of women (table 2.9). The Americas appear to be adopting these approaches and although benefits of this will become obvious in time, there is still much work to be done in expanding the efforts. Only four responding countries took community participation fully to the planning stage, another five did the same to some degree, but a further two failed to involve the communities in planning, construction or operation (table 2.9). In terms of women's involvement only nine countries reported positive policies, while the rest had no programmes nor plans to initiate any.

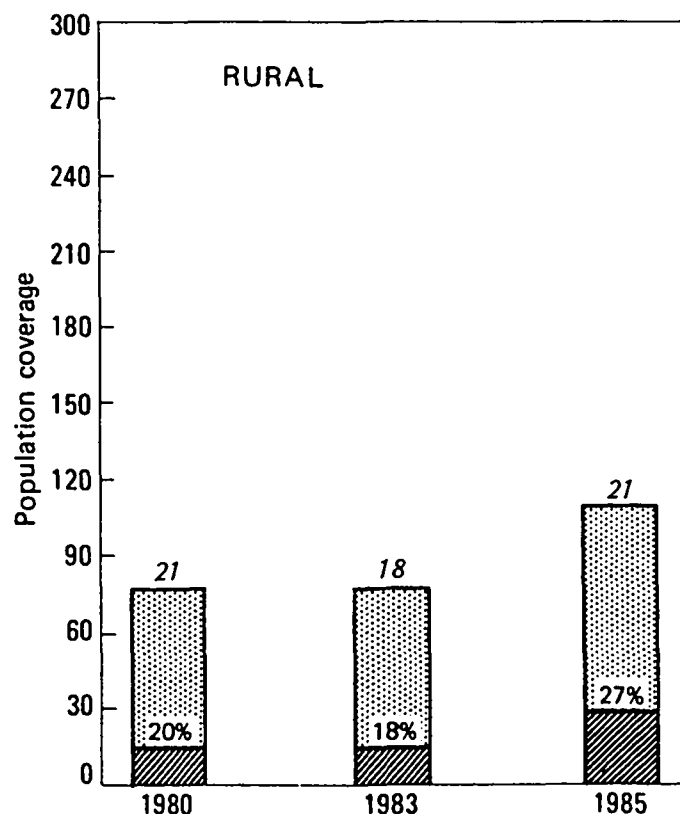
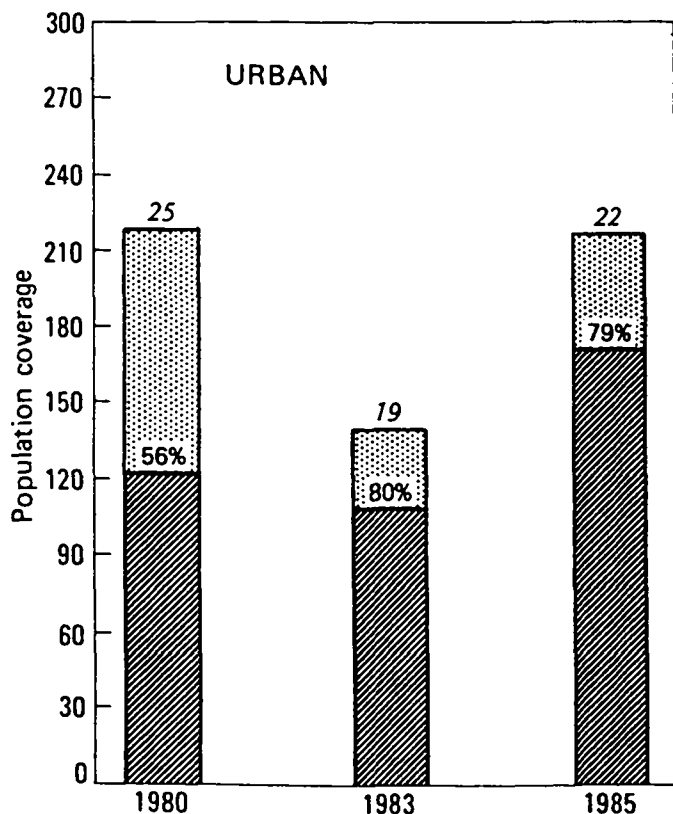
Only nine countries reported taking health education to school children, of which five said the topic was part of normal curricula. Similarly nine countries reported integrating water and sanitation with primary health care as part of a multi-sector approaches. Seven indicated that the sector was still developed in isolation. Eight countries said they ran programmes aimed at the urban poor with Costa Rica indicating that 90% of those so classed had benefited.

**Fig. 2.1 REGION OF THE AMERICAS**  
**POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



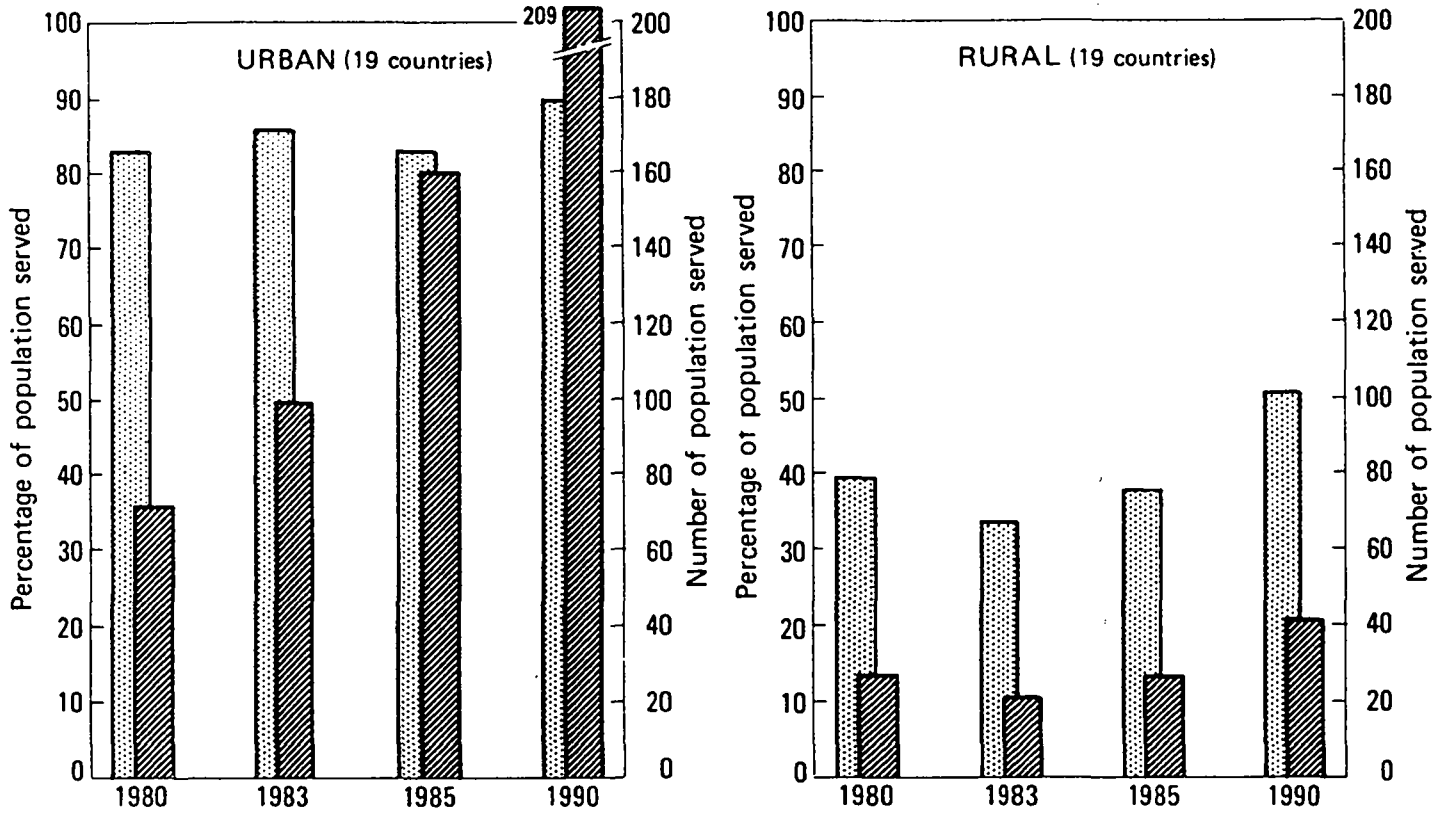
25 No. of countries reporting  
 (Dotted pattern) Total population (x 1 million)  
 (Hatched pattern) Population covered (x 1 million)

<sup>a</sup> See Tables A.3.2.1 to A.3.2.4.

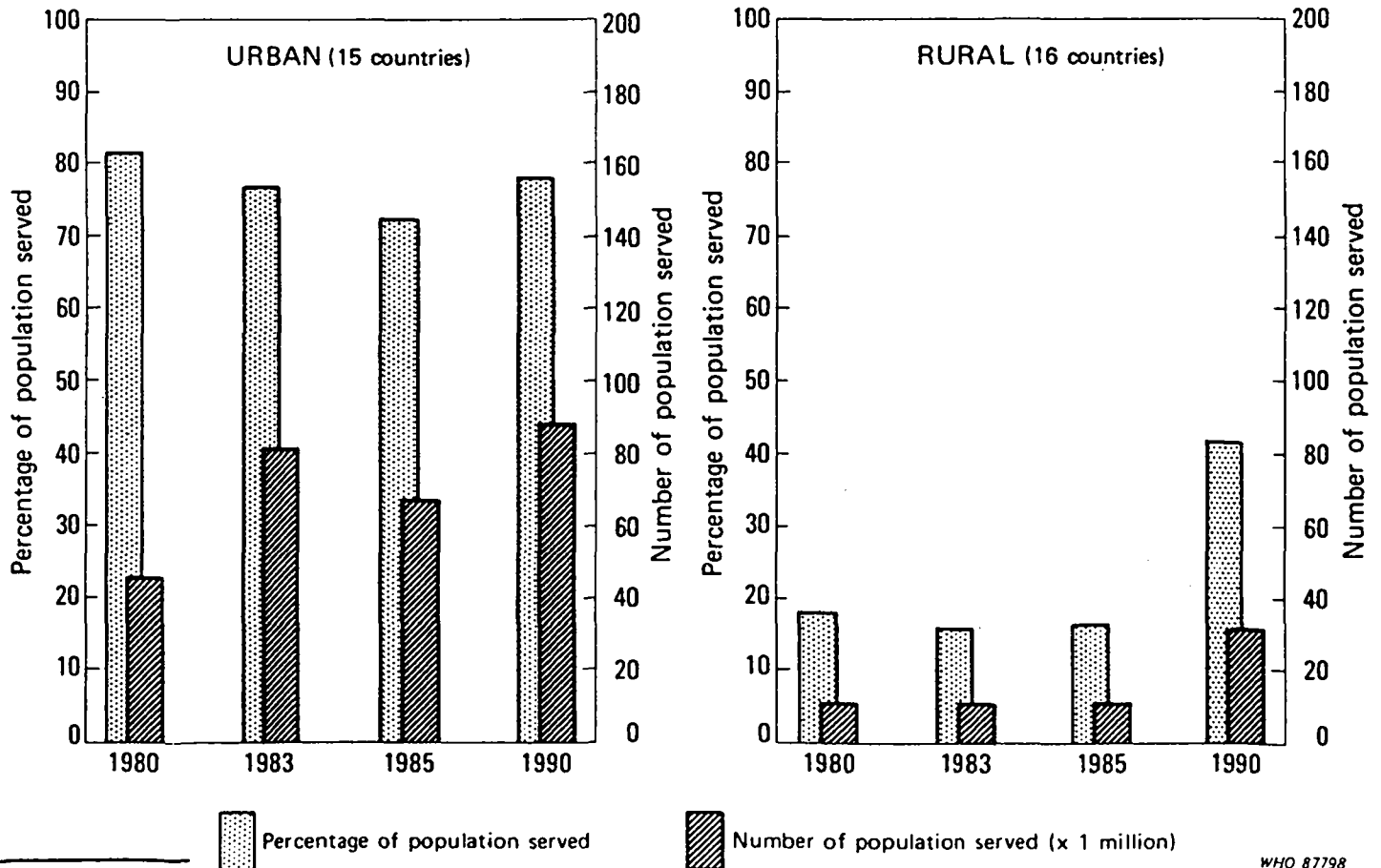
Fig. 2.2 REGION OF THE AMERICAS

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



<sup>a</sup> See Tables 2.4.1.1, 2.4.1.2, 2.4.2.1 and 2.4.2.2.

TABLE 2.1 - AMERICAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capital (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Waterborne disease cases per 100 000	Population without safe water (%)	Population without safe sanitation (%)
Brazil	127 942	2.4	-	64	57	-	-	-
Mexico	77 900	2.1	1 095	69	32	6 566	30	51
Argentina	26 525	1.5	1 929	-	-	-	46	31
Colombia	27 476	2.0	1 112	63	57	8 000	-	-
Peru	19 698	2.6	585	59	99	900	48	53
Venezuela	17 317	2.7	1 118	70	36	4	-	-
Chile	12 172	1.7	2 408	68	20	186	14	15
Ecuador	9 378	2.9	724	64	45	6 162	43	46
Guatemala	7 963	2.9	1 535	61	65	672	42	46
Bolivia	6 429	2.8	-	53	-	-	57	79
Dominican Republic	6 243	-	-	-	-	-	-	-
Haiti*	5 269	1.4	320	54	125	50 000	62	79
El Salvador	4 773	1.9	1 143	60	65	10 250	39	46
Honduras	4 372	3.4	733	62	80	4 462	55	72
Paraguay	3 681	2.9	1 526	65	30	1 146	78	51
Nicaragua	3 272	3.4	-	-	-	-	52	-
Costa Rica	2 463	2.5	1 262	74	19	8	7	5
Panama	2 141	2.2	898	71	26	-	20	19
Trinidad & Tobago	1 176	1.6	-	67	19	-	2	1
Guyana	817	1.1	-	-	41	634	18	90
Suriname	402	3.0	-	66	34	-	3	0
Barbados	253	0.2	4 889	73	-	-	1	-
Bahamas	231	1.9	7 556	-	22	683	-	-
Belize	162	3.0	-	-	-	-	34	15
Cayman Islands	21	4.0	13 000	75	11	1 841	-	-
Turks & Caicos	9	-	-	-	32	-	31	-

\* Least-developed country.



TABLE 2.2 - AMERICAN REGION

## COVERAGE TARGETS (% of population) (1990) AND DECADE PLAN

Country/ territory	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Status of Decade plan preparation
	House connection	Standpost	Sewer connection	By other means			
Brazil	90	-	65	-	-	-	Partial (urban water)
Mexico	86	5	70	3	51	26	1982
Colombia	81	-	60	-	40	25	Under preparation
Peru	63	20	59	22	54	53	-
Chile	100	0	82	-	85	-	Under preparation
Ecuador	82	3	70	15	50	50	1984
Guatemala	75	19	57	36	60	60	1983
Bolivia	75	5	36	9	29	16	1981
Haiti*	-	-	15	-	60	60	1982
El Salvador	77	16	77	23	75	75	1982
Honduras	90	-	75	3	90	80	1983
Paraguay	67	2	34	62	12	76	1983
Costa Rica	98	2	75	25	85	95	Targets/yes plan under preparation
Panama	100	0	85	15	25	63	1984
Guyana	100	0	17	80	95	95	1985
Suriname	100	0	10	67	100	8	No
Barbados	98	1	25	-	100	-	Under preparation
Belize	95	5	90	10	-	-	1985
Cayman Islands	50	50	-	100	-	-	Under preparation

\* Least-developed country.

TABLE 2.3 - AMERICAN REGION

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking water				Sanitation			
				Total	Urban		Rural	Total	Urban		Rural
					by H.C. <sup>a</sup>	by P.S. <sup>b</sup>			by S.C. <sup>c</sup>	by other	
Brazil	127 942	92 621 (72)	35 321 (28)	82 809 (89)	79 900 (86)	2 909 (3)	25 094 (71)	79 247 (86)	33 458 (36)	45 789 (49)	14 589 (41)
Mexico	77 900	53 100 (68)	24 800 (32)	41 988 (79)	25 629 (48)	16 359 (31)	12 542 (51)	37 407 (70)	23 284 (44)	14 123 (27)	763 (3)
Argentina	30 564	25 566 (84)	4 998 (16)	- -	15 600 (61)	- -	860 (17)	19 300 (75)	8 300 (32)	11 000 (43)	1 750 (35)
Colombia	26 525	18 532 (70)	7 993 (30)	- -	13 899 (75)	- -	1 599 (20)	- -	10 193 (55)	- -	959 (12)
Peru	19 698	12 546 (64)	7 152 (36)	9 148 (73)	7 618 (61)	1 530 (12)	1 196 (17)	8 408 (67)	6 203 (49)	2 205 (18)	891 (12)
Venezuela	17 317	14 169 (82)	3 147 (18)	- -	- -	- -	2 518 (80)	- -	- -	- -	50 (2)
Chile	12 172	10 190 (84)	1 982 (16)	9 953 (98)	9 541 (94)	412 (4)	577 (29)	10 190 (100)	7 619 (75)	2 571 (25)	85 (4)
Ecuador	9 378	4 881 (52)	4 497 (48)	3 935 (81)	3 710 (76)	225 (5)	1 412 (31)	3 763 (77)	3 075 (63)	688 (14)	1 318 (29)
Guatemala	7 963	3 047 (38)	4 917 (62)	2 724 (89)	1 928 (63)	796 (26)	1 903 (39)	2 231 (73)	1 522 (50)	709 (23)	2 050 (42)
Bolivia	6 429	3 068 (48)	3 361 (52)	2 506 (82)	1 365 (44)	1 141 (37)	920 (27)	1 555 (51)	951 (31)	604 (20)	746 (22)
Dominican Republic	6 243	3 245 (52)	2 998 (48)	2 363 (73)	1 886 (58)	477 (15)	734 (24)	2 325 (72)	700 (22)	1 625 (50)	1 776 (59)
Haiti*	5 269	1 405 (27)	3 864 (73)	826 (59)	447 (32)	379 (27)	1 166 (30)	592 (42)	0 (0)	592 (42)	515 (13)
El Salvador	4 773	2 383 (50)	2 390 (50)	1 624 (68)	1 512 (63)	112 (5)	956 (40)	1 939 (81)	1 201 (50)	738 (31)	1 033 (43)
Honduras	4 372	1 737 (40)	2 635 (60)	804 (46)	546 (31)	258 (15)	1 186 (45)	348 (20)	331 (19)	17 (1)	899 (34)
Paraguay	3 681	1 295 (35)	2 386 (65)	625 (48)	590 (46)	35 (3)	182 (8)	851 (66)	381 (29)	470 (36)	945 (40)
Nicaragua	3 272	1 873 (57)	1 399 (43)	1 426 (76)	1 301 (69)	126 (7)	152 (11)	- -	655 (35)	- -	- -

Costa Rica	2 463	1 478 (60)	985 (40)	1 478 (100)	1 448 (98)	30 (2)	808 (82)	1 478 (100)	542 (37)	936 (63)	867 (88)
Panama	2 141	1 085 (51)	1 056 (49)	1 085 (100)	1 035 (95)	50 (5)	670 (63)	1 085 (100)	790 (73)	295 (27)	645 (61)
Trinidad & Tobago	1 176	800 (68)	376 (32)	800 (100)	672 (84)	128 (16)	358 (95)	800 (100)	212 (26)	588 (74)	358 (95)
Guyana	817	401 (49)	416 (51)	401 (100)	365 (91)	36 (9)	270 (65)	401 (100)	67 (17)	334 (83)	333 (80)
Suriname	402	242 (60)	160 (40)	242 (100)	240 (100)	2 (0)	150 (94)	242 (100)	6 (2)	236 (98)	160 (100)
Barbados	253	89 (35)	164 (65)	89 (100)	87 (98)	2 (2)	163 (99)	42 (47)	18 (20)	24 (27)	-
Bahamas	231	148 (64)	83 (36)	148 (100)	122 (82)	26 (18)	-	148 (100)	18 (12)	130 (88)	-
Belize	162	86 (53)	76 (47)	86 (100)	63 (73)	23 (27)	20 (27)	61 (71)	6 (7)	55 (64)	76 (100)
Cayman Islands	21	21 (100)	0 (0)	21 (98)	4 (20)	17 (78)	-	20 (96)	0 (0)	20 (96)	-
Turks & Caicos	9	7 (80)	2 (20)	6 (87)	5 (72)	1 (15)	1 (68)	-	-	-	-
<b>Total</b>	<b>371 173</b>	<b>254 014 (68)</b>	<b>117 159 (32)</b>	<b>165 086 (84)</b>	<b>169 512 (71)</b>	<b>25 073 (13)</b>	<b>55 437 (47)</b>	<b>172 433 (79)</b>	<b>99 532 (41)</b>	<b>83 749 (39)</b>	<b>30 808 (27)</b>

\* Least-developed country.

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 2.4 - AMERICAN REGION

PRESENT (1985-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	Standpost	Sewer connection	Other means			
Brazil	92 621	79 900	2 909	33 458	45 789	35 321	25 094	14 589
	116 566	104 909	-	75 768	-	35 396	-	-
Mexico	53 100	25 629	16 359	23 284	14 123	24 800	12 542	763
	63 962	55 007	3 400	44 773	2 200	26 319	13 300	6 857
Argentina	25 566	15 600	-	8 300	11 000	4 998	860	1 750
	27 744	22 195	-	19 421	-	5 135	1 090	-
Colombia	18 532	13 899	-	10 193	-	7 993	1 599	959
	19 196	15 549	-	11 518	-	8 280	3 312	2 070
Peru	12 546	7 618	1 530	6 203	2 205	7 152	1 196	891
	14 865	9 345	2 994	8 724	3 341	7 467	4 056	3 962
Venezuela	14 169	-	-	-	-	3 147	2 518	50
	16 576	-	-	-	-	3 159	1 116	690
Chile	10 190	9 541	412	7 619	2 571	1 982	920	85
	11 230	11 230	0	9 208	2 011	1 900	-	-
Ecuador	4 881	3 710	225	3 075	688	4 497	1 412	1 318
	5 977	4 889	191	4 178	903	4 805	2 402	2 402
Guatemala	3 047	1 928	796	1 522	709	4 917	956	2 050
	3 676	2 741	683	2 108	1 316	5 521	3 312	3 313
Bolivia	3 068	1 365	1 141	951	604	3 361	920	746
	3 763	2 830	204	1 366	337	3 636	1 062	569
Haiti*	1 405	447	379	0	592	3 864	1 166	515
	1 713	-	-	-	-	4 061	2 450	2 450
El Salvador	2 383	1 512	112	1 201	738	2 390	1 308	1 033
	2 524	1 938	393	1 938	-	3 473	2 605	2 605
Honduras	1 737	546	258	331	17	2 635	1 186	899
	2 237	2 013	0	1 678	67	2 868	2 581	2 294
Paraguay	1 295	590	35	381	470	2 386	182	945
	1 651	1 110	38	565	1 029	2 426	299	1 945
Costa Rica	1 478	1 448	30	542	936	985	808	867
	1 681	1 647	34	1 261	420	1 120	952	1 064
Panama	1 085	1 035	50	790	295	1 056	670	645
	1 176	1 176	0	1 000	176	1 200	305	750

Trinidad & Tobago	800	672	128	212	588	376	358	358
	908	763	145	240	668	881	839	837
Guyana	401	365	36	67	334	416	270	333
	412	412	0	70	330	428	407	407
Suriname	242	240	2	6	236	160	150	160
	300	300	0	30	200	250	240	200
Barbados	89	87	2	18	24	164	163	-
	89	88	1	22	-	166	165	-
Belize	86	63	23	6	55	76	20	76
	99	94	5	89	10	79		-
Cayman Islands	21	4	17	0	20	0	0	0
	25	13	13	0	25	0	0	-
Turks & Caicos	7	5	1	-	-	2	1	-
	8	6	2	-	-	2	-	-

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\* Least-developed country.

TABLE 2.4.1.1 - AMERICAN REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Brazil	92 621	116 566	82 809	89	104 909	90
Mexico	53 100	63 962	41 988	79	58 407	91
Peru	12 546	14 865	9 148	73	12 339	83
Chile	10 190	11 230	9 953	98	11 230	100
Ecuador	4 881	5 977	3 935	81	5 080	85
Guatemala	3 047	3 676	2 724	89	3 424	93
Bolivia	3 068	3 763	2 506	82	3 034	81
El Salvador	2 383	2 524	1 624	68	2 331	92
Honduras	1 737	2 237	804	46	2 013	90
Paraguay	1 295	1 651	625	48	1 148	70
Costa Rica	1 478	1 681	1 478	100	1 681	100
Panama	1 085	1 176	1 085	100	1 176	100
Trinidad & Tobago	800	908	800	100	908	100
Guyana	401	412	401	100	412	100
Suriname	242	300	242	100	300	100
Barbados	89	89	89	100	89	99
Belize	86	99	86	100	99	100
Cayman Islands	21	25	21	98	25	100
Turks & Caicos	7	8	6	87	8	100
<b>Total</b>	<b>189 076</b>	<b>231 149</b>	<b>160 323</b>	<b>85</b>	<b>208 614</b>	<b>90</b>

TABLE 2.4.1.2 - AMERICAN REGION  
DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Mexico	53 100	63 962	37 407	70	46 973	73
Peru	12 546	14 865	8 408	67	12 065	81
Chile	10 190	11 230	10 190	100	11 230	100
Ecuador	4 881	5 977	3 763	77	5 081	85
Guatemala	3 047	3 676	2 231	73	3 424	93
Bolivia	3 068	3 763	1 555	51	1 703	45
Honduras	1 737	2 237	348	20	1 745	78
Paraguay	1 295	1 651	851	66	1 594	97
Costa Rica	1 478	1 681	1 478	100	1 681	100
Panama	1 085	1 176	1 085	100	1 176	100
Trinidad & Tobago	800	908	800	100	908	100
Guyana	401	412	401	100	400	97
Suriname	242	300	242	100	230	77
Belize	86	99	61	71	99	100
Cayman Islands	21	25	20	96	25	100
<b>Total</b>	<b>93 976</b>	<b>111 962</b>	<b>68 840</b>	<b>73</b>	<b>88 333</b>	<b>79</b>

TABLE 2.4.2.1 - AMERICAN REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Mexico	24 800	26 319	12 542	51	13 300	51
Argentina	4 998	5 135	860	17	1 090	21
Colombia	7 993	8 280	1 599	20	3 312	40
Peru	7 152	7 467	1 196	17	4 056	54
Venezuela	3 147	2 518	80	3	1 116	35
Chile	1 982	1 900	577	29	1 615	85
Ecuador	4 497	4 805	1 412	31	2 402	50
Guatemala	4 917	5 521	1 903	39	3 313	60
Bolivia	3 361	3 636	920	27	1 062	29
Haiti*	3 864	4 061	1 166	30	2 450	60
El Salvador	2 390	3 473	956	40	2 605	75
Honduras	2 635	2 868	1 186	45	2 581	90
Paraguay	2 386	2 426	182	8	299	12
Costa Rica	985	1 120	808	82	952	85
Panama	1 056	1 200	670	63	305	25
Trinidad & Tobago	376	881	358	95	837	95
Guyana	416	428	270	65	407	95
Suriname	160	250	150	94	240	96
Barbados	164	166	163	99	165	100
<b>Total</b>	<b>77 280</b>	<b>83 095</b>	<b>29 435</b>	<b>38</b>	<b>42 106</b>	<b>51</b>

\* Least-developed country.



TABLE 2.4.2.2 - AMERICAN REGION

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Mexico	24 800	26 319	763	3	6 857	26
Colombia	7 993	8 280	959	12	2 070	25
Peru	7 152	7 467	891	12	3 962	53
Venezuela	3 147	3 159	50	2	690	22
Ecuador	4 497	4 805	1 318	29	2 402	50
Guatemala	4 917	5 521	2 050	42	3 313	60
Bolivia	3 361	3 636	746	22	569	16
Haiti*	3 864	4 061	515	13	2 450	60
El Salvador	2 390	3 473	1 033	43	2 605	75
Honduras	2 635	2 868	899	34	2 294	80
Paraguay	2 386	2 426	945	40	1 945	80
Costa Rica	985	1 120	867	88	1 064	95
Panama	1 056	1 200	645	61	750	63
Trinidad and Tobago	376	881	358	95	837	95
Guyana	416	428	333	80	407	95
Suriname	160	250	160	100	200	8
<b>Total</b>	<b>70 136</b>	<b>75 894</b>	<b>12 532</b>	<b>18</b>	<b>32 415</b>	<b>42</b>

\* Least-developed country.

TABLE 2.5 - AMERICAN REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
Mexico	1 255 1 569	10 046 10 046	- -	11 251 14 064	35 064 35 064	740 679	Yes	Yes/No
Colombia	1 300 -	3 600 -	5 900 -	2 400 -	- -	480 -	Yes	Yes/No
Peru	370 -	1 154 -	3 732 -	2 787 -	401 -	429 -	Yes	Yes/No
Venezuela	26 -	145 -	330 -	86 -	- -	34 -	No	Yes/Yes
Chile	276 -	1 351 -	2 313 -	1 499 -	- -	447 -	Yes	Yes/Yes
Ecuador	17 26	359 559	20 31	320 498	156 243	93 125	Yes	Yes/No
Guatemala	119 -	402 -	1 295 -	376 -	0 -	275 -	Yes	No
Bolivia	114 -	265 -	1 073 -	370 -	- -	283 -	-	No
Haiti*	24 28	284 309	140 400	185 223	- -	120 166	Yes	No
El Salvador	55 -	248 -	981 -	714 -	1 157 -	661 -	Yes	No
Honduras	14 16	122 127	900 1 400	273 350	- -	299 547	-	-
Paraguay	28 -	440 -	304 -	510 -	720 -	599 -	Yes	No
Nicaragua	27 -	767 -	1 041 -	660 -	- -	763 -	Yes	Yes/No
Costa Rica	55 -	525 -	370 -	712 -	- -	675 -	Yes	Yes/-
Panama	207 -	322 -	876 -	770 -	223 -	1 120 -	No	Yes/No
Guyana	10 -	60 -	520 -	90 -	900 -	1 934 -	No	Yes/-

Suriname	12 15	300 300	360 360	160 160	325 325	2 875 -	Yes	No
Barbados	3 -	38 -	207 -	67 -	445 -	300 -	Yes	Yes/No
Bahamas	47 -	38 -	168 -	39 -	30 -	1 394 -	No	Yes/Yes
Cayman Islands	1 -	13 -	2 -	3 -	1 -	94 -	Yes	Yes/No
Turks & Caicos	2 -	1 -	4 -	2 -	15 -	2 768 -	Yes	No

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\* Least-developed country.

TABLE 2.6 - AMERICAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction				Operation				
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
	House connection	Standpost	Sewer connection	Other means					
Brazil	100	-	120	-	-	-	-	-	-
Mexico	81	81	109	108	81	110	1.50	0.12	Yes
Argentina	180	50	200	170	200	-	-	-	-
Peru	72	20	74	20	29	27	0.12	-	Some areas
Venezuela	-	-	-	-	1 350	-	-	-	-
Chile	165	-	150	40	-	-	0.12	0.08	Yes
Ecuador	195	85	218	100	128	149	0.09	1.81	Yes
Guatemala	160	44	100	80	34	15	-	0.11	No
Bolivia	100	96	120	40	50	40	-	-	Some areas
Haiti*	145	48	200	25	36	15	0.18	0.28-1.00	Yes
El Salvador	162	63	81	25	60	10	0.30	0.20	No
Honduras	319	-	146	-	53	18	0.20	0.26	Yes
Paraguay	126	-	127	522	124	56	0.52	0.43	Yes
Nicaragua	-	-	-	-	-	-	0.14	0.38	Yes
Costa Rica	94	-	106	24	65	-	0.17	0.07	Yes
Panama	125	-	235	-	80	15	0.07	0.29	Yes
Trinidad & Tobago	385	330	880	440	451	110	-	-	Yes(industry)
Guyana	120	100	1 000	200	120	100	0.08	0.03	Some areas
Suriname	525	195	150	50	85	50	0.60	0.80	Some areas
Barbados	150	50	1 202	-	125	-	0.34	0.68	No
Bahamas	350	260	1 232	365	-	-	0.37	1.10	Yes
Cayman Islands	400	-	2 500	-	-	-	2.75	3.30	-
Turks & Caicos	1 500	-	-	-	150	-	-	5.50	No

\* Least-developed country.

TABLE 2.7 - AMERICAN REGION

COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ millions	Sector investments (1981-1985)			Acceleration in investment needed (fold)
		Total US\$ millions	Percentage of total development investment	External US\$ millions (%)	
Brazil	11	3	-	0.60 (18)	1.60
Argentina	150	-	0.58	- (48)	-
Colombia	1 770	900	5.00	300.00 (33)	0.98
Peru	774	119	2.20	54.06 (46)	-
Ecuador	1 389	395	-	9.00 (1)	1.76
Guatemala	599	16	0.01	11.97 (74)	18.50
Bolivia	295	-	-	- -	-
Haiti*	143	8	4.00	7.64 (94)	8.81
El Salvador	276	76	-	- -	1.80
Honduras	491	44	-	19.44 (44)	5.53
Paraguay	167	95	-	54.40 (57)	0.88
Uruguay	-	-	-	- -	-
Nicaragua	157	54	2.73	20.26 (34)	1.45
Costa Rica	217	66	-	18.75 (28)	1.64
Guyana	21	13	-	6.45 (51)	0.84
Suriname	-	39	9.50	11.21 (29)	-
Barbados	-	13	-	5.56 (43)	-
Bahamas	39	20	-	4.60 (23)	0.98
Cayman Islands	13	1	-	0.27 (19)	4.69

\* Least-developed country.

**TABLE 2.8 - AMERICAN REGION**  
**RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>**

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	8	9	3	45
Inadequate cost-recovery framework	8	7	5	43
Operation and maintenance	3	10	6	35
Insufficiency of trained personnel (professional)	2	8	12	34
Insufficiency of trained personnel (sub-professional)	3	6	13	34
Insufficient health education efforts	1	8	11	30
Intermittent water service	2	8	7	29
Logistics	2	7	8	28
Inappropriate institutional framework	2	7	7	27
Import restrictions	5	5	3	28
Inadequate or out-moded legal framework	2	3	13	25
Insufficient knowledge of water resources	1	6	10	25
Lack of definite government policy for sector	0	3	14	20
Inadequate water resources	1	5	8	21
Non-involvement of communities	1	2	14	21
Inappropriate technology	0	5	9	19
Lack of planning and design criteria	1	3	9	18
Insufficient construction capacity	1			

<sup>a</sup> Number of reporting countries: 24.

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

TABLE 2.9 - AMERICAN REGION

## DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education	Promotion of women's participation (Yes/No)	Water supply and sanitation in rural areas as part of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
Mexico	-	-	-	-	-	-	-	Yes	Yes
Argentina	5 317	50	-	4	7	86	-	No	No
Colombia	-	-	-	100	100	100	-	Yes	Yes
Peru	31	-	-	-	-	-	-	No	No
Venezuela	-	-	-	0	0	0	-	-	-
Ecuador	941	4	-	-	40	40	-	Yes	Yes
Guatemala	-	-	-	100	100	100	-	Yes	Yes
Bolivia	-	-	-	20	70	10	-	No	No
Haiti*	65	16	-	70	30	15	15	Yes	No
El Salvador	28	20	-	16	10	65	10	No	Yes
Paraguay	57	8	-	100	100	100	1	Yes	Yes
Nicaragua	-	-	-	-	-	-	-	-	-
Costa Rica	25	90	-	-	78	100	-	Yes	Yes
Panama	-	-	-	100	100	100	-	No	No
Trinidad & Tobago	-	-	-	-	-	-	100	-	-
Guyana	62	0	-	0	60	60	100	Yes	No
Suriname	20	75	-	50	10	1	-	Yes	-
Barbados	-	-	-	-	-	-	100	-	-
Bahamas	44	-	-	-	-	-	100	-	No
Cayman Islands	-	-	-	-	-	-	100	No	Yes
Turks & Caicos	2	22	-	0	0	0	51	No	Yes

\* Least-developed country.

TABLE 2.10.1 - AMERICAN REGION

URBAN WATER SUPPLY SERVICES (1980-1985)

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No.(000)	%	No.(000)	%
Brazil	80 470	92 621	64 600	80	82 809	89
Mexico	43 400	53 100	27 600	64	41 988	79
Peru	10 925	12 546	7 407	68	9 148	73
Chile	9 071	10 190	9 071	100	9 953	98
Ecuador	3 700	4 881	3 028	82	3 935	81
Guatemala	2 690	3 047	2 403	89	2 724	89
Bolivia	2 488	3 068	1 728	69	2 506	82
Dominican Republic	2 752	3 245	2 330	85	2 363	73
El Salvador	1 902	2 383	1 281	67	1 624	68
Honduras	1 563	1 737	782	50	804	46
Paraguay	1 148	1 295	448	39	625	48
Nicaragua	1 459	1 873	1 330	91	1 426	76
Costa Rica	1 096	1 478	1 096	100	1 478	100
Panama	900	1 085	900	100	1 085	100
Trinidad & Tobago	700	800	700	100	800	100
Guyana	247	401	247	100	401	100
Cayman Islands	17	21	17	100	21	98
<b>Total</b>	<b>164 528</b>	<b>193 771</b>	<b>124 968</b>	<b>76</b>	<b>163 690</b>	<b>84</b>



TABLE 2.10.2 - AMERICAN REGION

URBAN SANITATION SERVICES (1980-1985)

Country/ territory	Urban population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Mexico	43 400	53 100	22 200	51	37 407	70
Argentina	23 113	25 566	20 544	89	19 300	75
Peru	10 925	12 546	6 242	57	8 408	67
Chile	9 071	10 190	9 015	99	10 190	100
Ecuador	3 700	4 881	1 443	39	3 763	77
Guatemala	2 690	3 047	1 215	45	2 231	73
Bolivia	2 488	3 068	916	37	1 555	51
Dominican Republic	2 752	3 245	691	25	2 325	72
El Salvador	1 902	2 383	1 524	80	1 939	81
Honduras	1 563	1 737	766	49	348	20
Paraguay	1 148	1 295	1 091	95	851	66
Costa Rica	1 096	1 478	1 019	93	1 478	100
Panama	900	1 085	556	62	1 085	100
Trinidad & Tobago	700	800	665	95	800	100
Guyana	247	401	247	100	401	100
Cayman Islands	17	21	16	94	20	96
<b>Total</b>	<b>105 712</b>	<b>124 843</b>	<b>68 150</b>	<b>64</b>	<b>92 101</b>	<b>74</b>

TABLE 2.10.3 - AMERICAN REGION

RURAL WATER SUPPLY SERVICES (1980-1985)

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No.(000)	%	No.(000)	%
Brazil	38 620	35 321	19 600	51	25 094	71
Mexico	24 000	24 800	10 300	43	12 542	51
Argentina	4 751	4 998	787	17	860	17
Peru	5 887	7 152	1 210	21	1 196	17
Venezuela	4 019	3 147	2 010	50	2 518	80
Chile	2 128	1 982	355	17	577	29
Ecuador	4 654	4 497	745	16	1 412	31
Guatemala	4 570	4 917	828	18	1 903	39
Bolivia	3 111	3 361	316	10	920	27
Dominican Republic	2 679	2 998	897	33	734	24
El Salvador	2 637	2 390	1 049	40	956	40
Honduras	2 530	2 635	1 012	40	1 186	45
Paraguay	1 914	2 386	192	10	182	8
Nicaragua	1 273	1 399	125	10	152	11
Costa Rica	1 117	985	761	68	808	82
Panama	925	1 056	602	65	670	63
Trinidad & Tobago	396	376	370	93	358	95
Guyana	578	416	347	60	270	65
<b>Total</b>	<b>105 789</b>	<b>104 816</b>	<b>41 506</b>	<b>39</b>	<b>52 338</b>	<b>50</b>

TABLE 2.10.4 - AMERICAN REGION  
RURAL SANITATION SERVICES (1980-1985)

Country/ territory	Rural population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Mexico	24 000	24 800	2 800	12	763	3
Argentina	4 751	4 998	1 532	32	1 750	35
Peru	5 887	7 152	24	0	891	12
Venezuela	4 019	3 147	2 814	70	50	2
Ecuador	4 654	4 497	651	14	1 318	29
Guatemala	4 570	4 917	920	20	2 050	42
Bolivia	3 111	3 361	116	4	746	22
Dominican Republic	2 679	2 998	110	4	1 776	59
El Salvador	2 637	2 390	688	26	1 033	43
Honduras	2 530	2 635	658	26	899	34
Paraguay	1 914	2 386	1 703	89	945	40
Costa Rica	1 117	985	916	82	867	88
Panama	925	1 056	261	28	645	61
Trinidad & Tobago	396	376	350	88	358	95
Guyana	578	416	462	80	333	80
<b>Total</b>	<b>63 768</b>	<b>66 114</b>	<b>14 005</b>	<b>22</b>	<b>14 424</b>	<b>22</b>

TABLE 2.11 - AMERICAN REGION

WATER CONSUMPTION  
(Year 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban l/c/d	Rural l/c/d	Urban l/c/d	Rural l/c/d
Mexico	350	150	270	60
Argentina	350	180	450	160
Colombia	150	100	120	90
Peru	170	40	250	50
Venezuela	-	200	-	130
Chile	200	100	180	60
Ecuador	120-250	50-80	187	60
Guatemala	150-225	40-100	150-225	40-100
Bolivia	150	80	100	50
Haiti*	100	30	55	20
El Salvador	225	100	170	80
Honduras	150	75	150	80
Paraguay	320	130	350	120
Costa Rica	250	150	200	100-125
Panama	300	150	277	184
Guyana	400	400	240	180
Suriname	125	100	115	100
Barbados	455	273	245	163
Bahamas	250	136	227	91
Cayman Islands	220	-	200	-
Turks & Caicos	45	45	25	20

\* Least-developed country.

### **3. SOUTH EAST ASIA REGION**

#### **3.1 Socio-economic and health situation**

Of the region's 11 countries the same nine submitted reports in 1980, 1983 and 1985, making the region the best studied and most suitable for identifying trends.

During the first half of the Decade the region's population increased by 110 million people, or 10%, with the largest increase of 21% taking place in urban areas as the result of migration. Rural growth was 8%. Median annual growth rate in 1985 was 2.2%, 0.1% less than in 1983.

The high proportion of population without adequate water and sanitation facilities was a major factor contributing to poor health standards. The median value for the proportion of population without water was 61%, lower by 4% than in 1980, and without sanitation was 75%, better by 9% than before.

Life expectancy reports ranged from 46 to 69 years compared to 42 to 66 in 1980. Infant mortality also improved in the first half of the Decade from a range of 27 to 153 per 1,000 live births to 12 to 140. Only Burma and Sri Lanka reported incidences of water-borne diseases both in 1985 and 1980, but there appears to have been an improvement, with the average dropping from 1,294 to 996 per 100,000 people.

Economically the region became stronger during the first five years, with median gross national product rising from US\$190 in 1980 to US\$340. National GNPs ranged from US\$136 to US\$729.

#### **3.2 Targets and planning**

##### **Water supply**

Overall, an additional 307.2 million people will have to be served with water supplies in the second half of the Decade, 18% more than in 1985, to take the coverage level to 70%. This means increasing the implementation rate above that achieved up to 1985 by a factor of 1.5.

Progress in urban areas appears to have been slow with coverage increasing by just 1% to 65% in the first five years, but this was achieved in the face of a 21% rise in the populations of towns and cities. The number of additional people served was 36.67 million. To raise coverage to the 1990 target of 84% means serving another 112.3 million people and that means speeding up implementation by a factor of 3.06 (table 3.4.1.1).

In rural areas, where the poor and unserved appear to have been given priority, progress has been more encouraging. Coverage rose from 31% to 47% in 1985 to include 162.04 million additional people. For the second half of the Decade, another 194.99 million people will have to be served to achieve the target coverage of 65%, representing an acceleration of the implementation rate by a factor of 1.2.

**Table 3.2.1: Urban Water Supply Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	248.51	301.10	366.63
Estimated % service coverage	64	65	84
Estimated population served or to be served (millions)	159.05	195.72	307.97

**Table 3.2.2: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	828.64	891.31	944.47
Estimated % service coverage	31	47	65
Estimated population served or to be served (millions)	256.88	418.92	613.91

**Table 3.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population (millions)	1,077.39	1,192.41	1,311.10
Estimated population served or to be served (millions)	415.93	614.64	921.88
Estimated % service coverage	39	52	70

### Sanitation

Overall, in the first half of the Decade an additional 64.40 million people were provided with adequate sanitation raising coverage to 16%. In the second half another 341.31 million inhabitants will have to be served to reach the target coverage of 40%.

Growth in urban sanitation just managed to exceed that of the population with coverage moving from 30% to 33%, serving an additional 24.81 million people. A tremendous effort will be necessary to further raise coverage to 75% by the Decade's end to serve another 175.61 million inhabitants. This goal appears to be unrealistic and perhaps there is a need for national revision of programmes (table 3.4.1.2)

Rural sanitation has also made modest progress with coverage rising from 6% to 10% in the first five years serving 39.41 million extra people. This effort will

have to be increased more than four times to reach another 165.88 million people and attain the 27% target for 1990.

**Table 3.2.4: Urban Sanitation Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	248.51	301.10	366.63
Estimated % service coverage	30	33	75
Estimated population served or to be served (millions)	74.55	99.36	274.97

**Table 3.2.5: Rural Sanitation Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	828.64	891.31	944.47
Estimated % service coverage	6	10	27
Estimated population served or to be served (millions)	49.72	89.13	255.01

**Table 3.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population (millions)	1,077.39	1,192.41	1,311.10
Estimated population served or to be served (millions)	124.27	188.67	529.98
Estimated % service coverage	12	16	40

### **3.3 Staffing and training**

Shortage of sub-professionals and professionals ranked fourth and sixth in order of constraints facing governments in Decade implementation (table 3.8).

Median value for staff per million inhabitants in 1985 was 238, and although India reported a level of 392, its government planned to raise the figure to 476, which represents approximately 65,000 new workers.

South East Asia was the only region in which all reporting countries ran sector training budgets, but with the exception of Thailand and Bhutan all said available funds were inadequate.

Similarly all but two of the countries, Nepal and Sri Lanka indicated that community based workers were used in the water and sanitation sector.

### **Financial resources**

Funding limitations and cost recovery were described as the region's greatest obstacles in attaining Decade goals, and increased investment by factors ranging from 1.89 to 5.63 with a median value of 2.19 would be needed for the second half of the Decade. Reaching targets set for 1990 is likely to demand about US\$15,997 million of new investment.

Of the seven countries giving information on sector needs all said they had allocated less than was necessary during the first five years. Bangladesh allocated just 18%, while Thailand managed 53%. Reliance on external funding sources for the sector varied from 7% in Indonesia to 90% in Nepal with a median value of 61%.

Of the six countries reporting on tariffs only Thailand said it covered the cost of water production. Progressive water tariffs, charging more for larger consumers, were in operation in all six reporting countries, though the Maldives. India, Bangladesh and Burma operated such schemes only in some areas.

Unit costs for water and sanitation varied widely around the region. Urban water supply through house connections ranged from US\$45 in India to Sri Lanka's US\$170, while town standpost costs went from US\$25 in Bhutan to US\$100 in the Maldives (table 3.6). As with all regions, urban sewerage was the most expensive service with unit costs reaching US\$400 in Sri Lanka while in the rural areas sanitation costs ranged from US\$4 in Burma to US\$25 in Sri Lanka. Median cost for urban water supply house connections was US\$60 and US\$35 for standposts, while rural costs dropped to US\$14.5, the same as for rural sanitation. Median values for town sewer connections was US\$80.5 and US\$20 for other forms of sanitation.

To cut costs, there appear to be possibilities in reducing the scope of urban projects for which there was evidence of overdesign, with Bangladesh reporting design capacities 56% higher than actual use. Median value for per capita urban water consumption was 125 litres/day, 17.2% less than design levels, while in the country consumption of 52.5 litres/day outstripped design capacities by 10.5% (table 3.11).

### **3.5 Decade approaches**

Decade approaches refer to programme orientation towards rural and urban poor, support to investment programmes through health education, integration of water supply and sanitation with other elements of primary health care, and the fuller involvement of women.

Bangladesh and Burma reported programmes aimed at the urban poor, along with India, 40% of whose population so classified was said to be benefiting in this way.



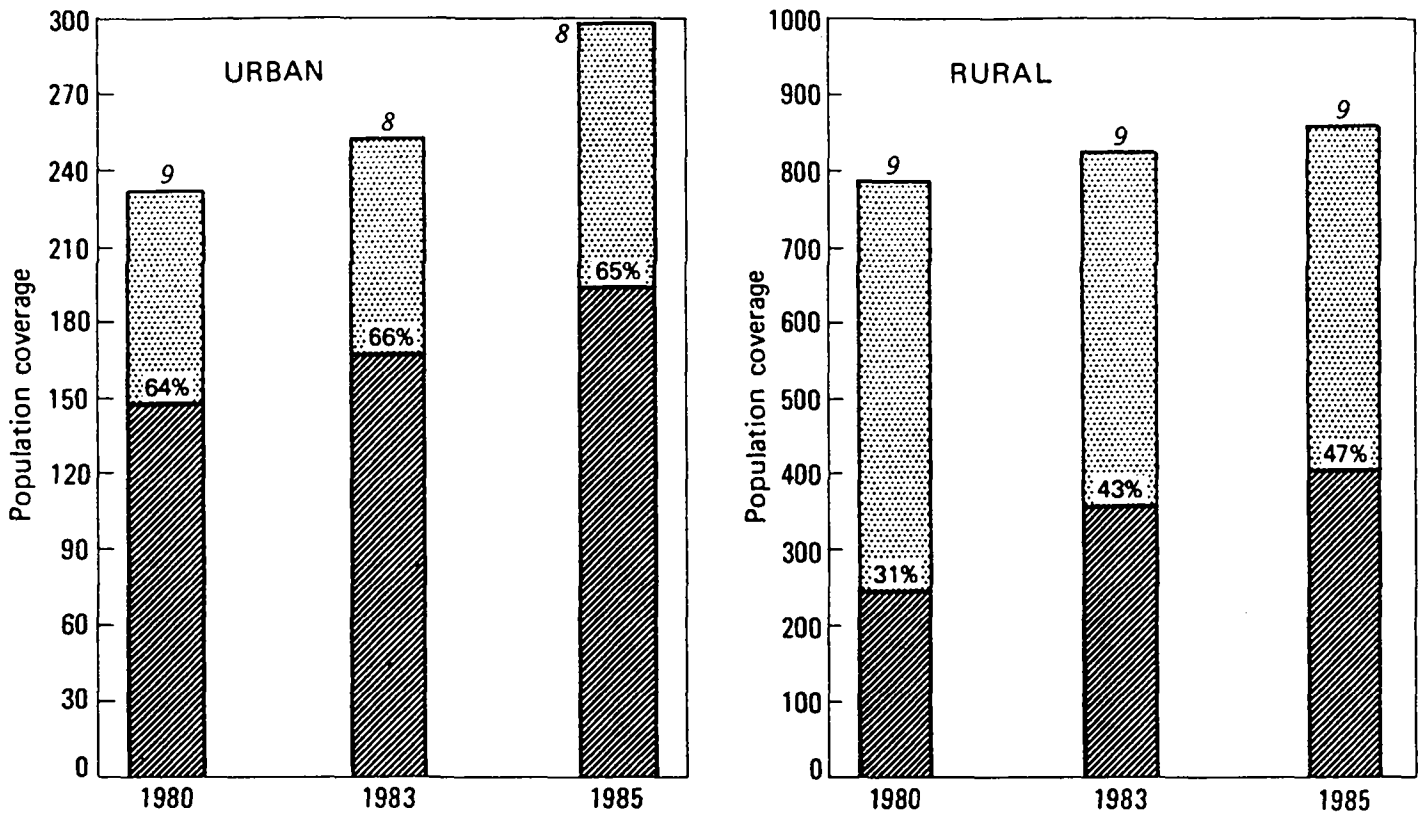
Only Thailand and Bhutan reported involving communities in all stages of project development, while Maldives reported 100% participation in construction and operation and only 30% in planning. Median values for community involvement in the eight reporting countries in planning, construction and operation were 47.5%, 57.5% and 45% respectively.

All primary school children were reported to receive health education related to water and sanitation as part of their normal curricula in Nepal, Thailand, Sri Lanka and the Maldives. India estimated that 72% of children had such benefits and Burma reported 32%.

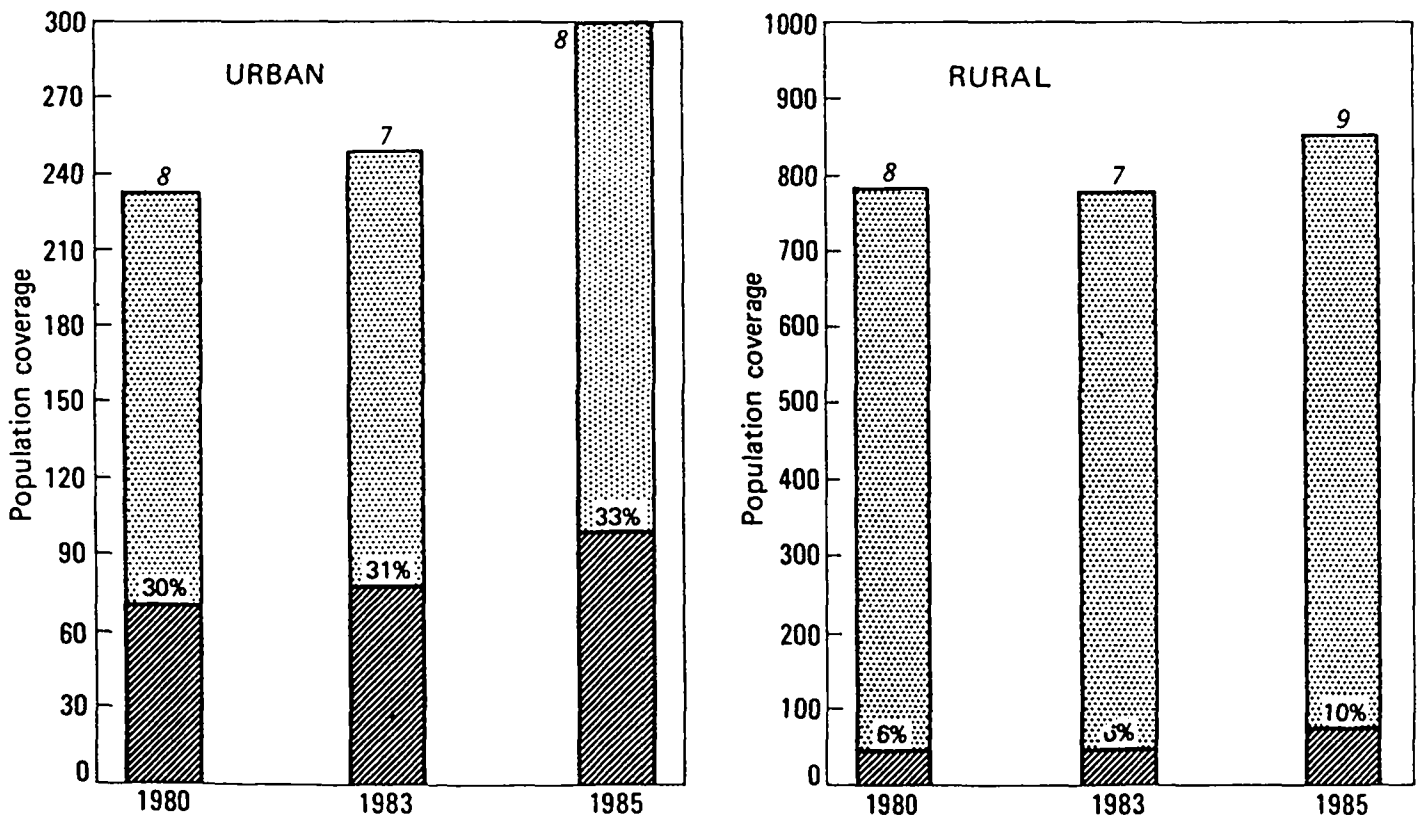
Programmes to increase women's involvement were reported in six countries and a seventh, Sri Lanka said a pilot scheme was being introduced.

Only Nepal indicated that water and sanitation programmes were not integrated with primary health schemes. Other countries said integration took place to some degree.

**Fig. 3.1 SOUTH-EAST ASIA REGION**  
**POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>**  
**WATER SUPPLY**



**SANITATION**



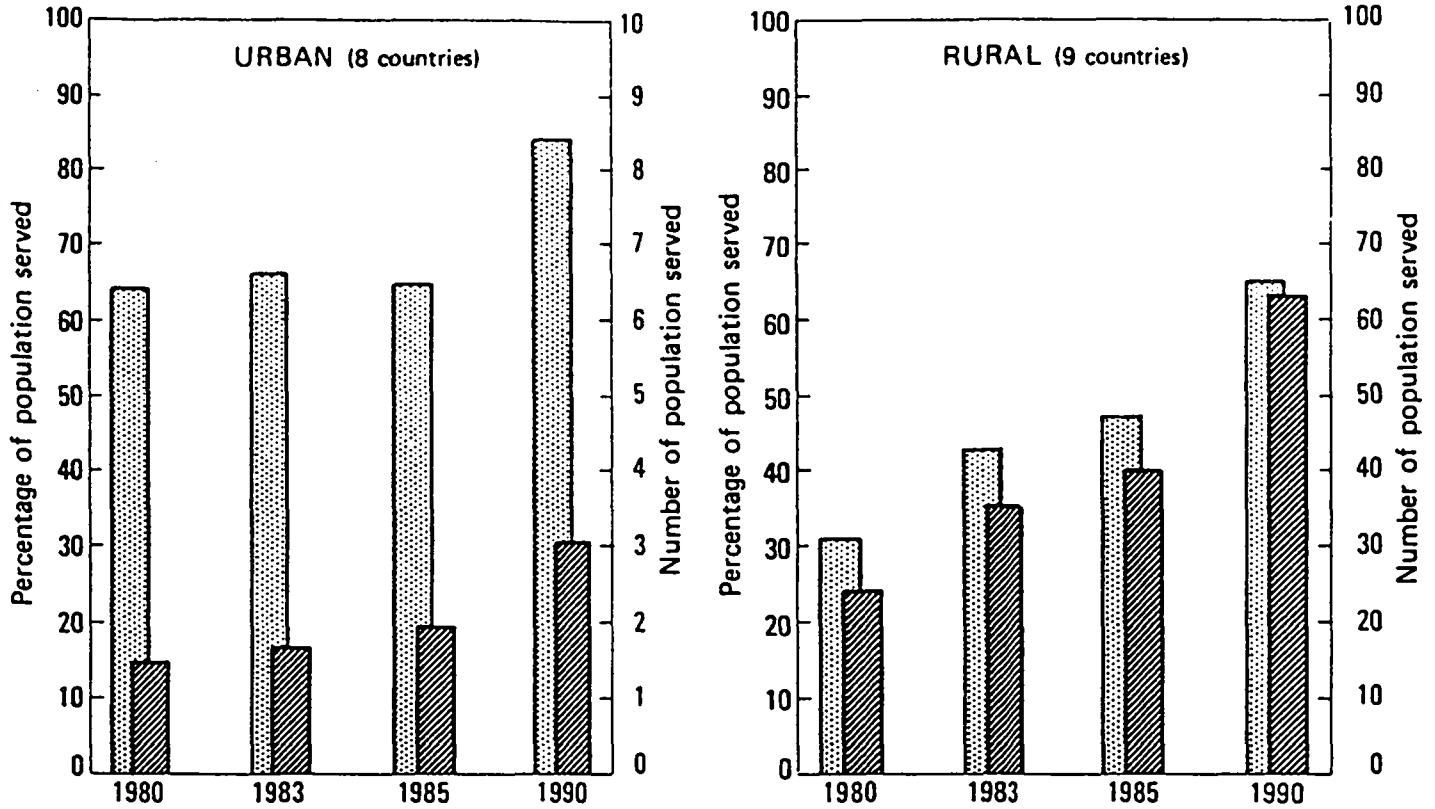
25 No. of countries reporting  
 Total population (x 1 million)  
 Population covered (x 1 million)

<sup>a</sup> See Tables A.3.2.1 to A.3.2.4.

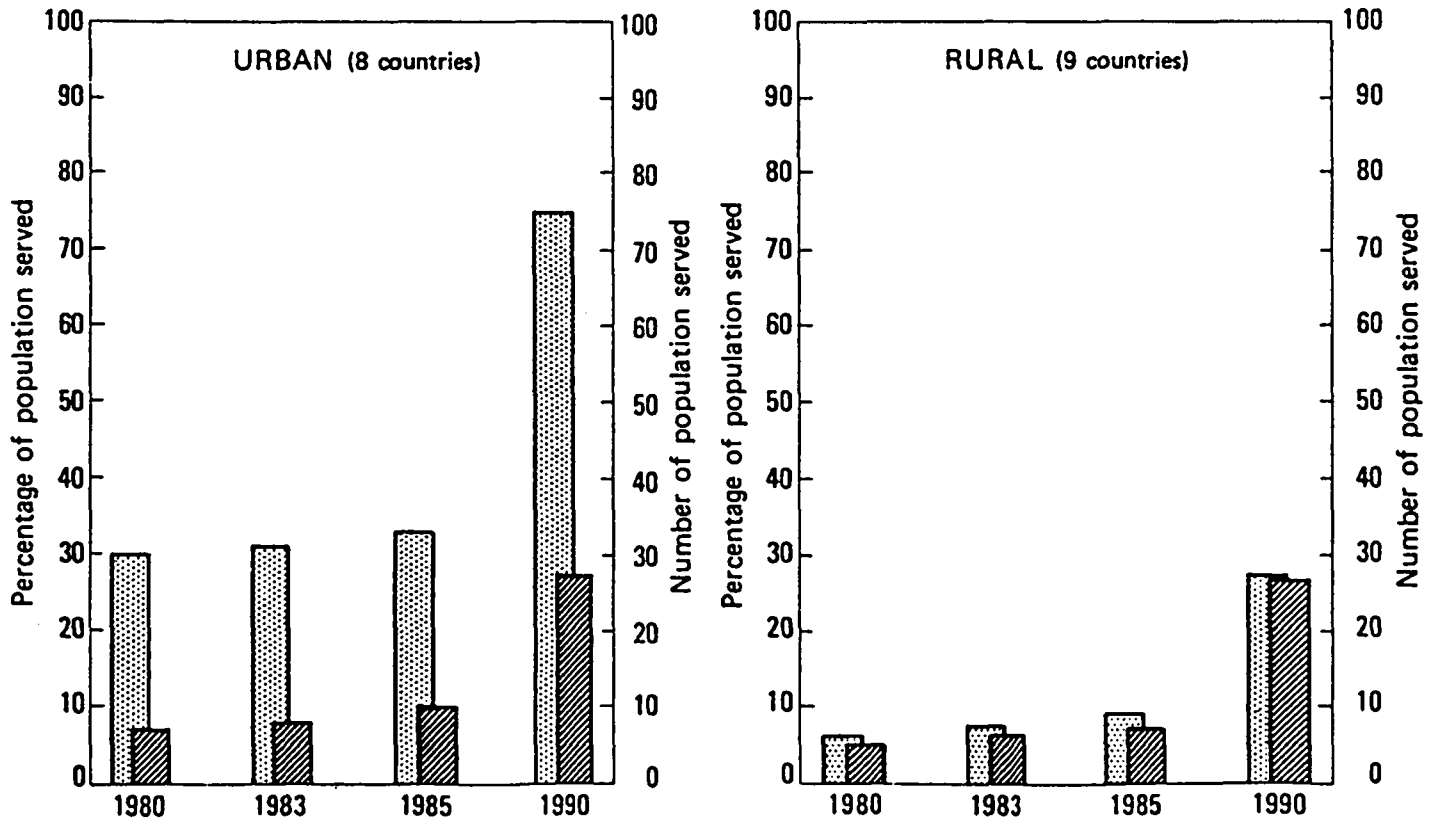
Fig. 3.2 SOUTH-EAST ASIA REGION

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION**  
**IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE**<sup>a</sup>

**WATER SUPPLY**



**SANITATION**



 Percentage of population served       Number of population served (x 1 million)

<sup>a</sup> See Tables 3.4.1.1, 3.4.1.2, 3.4.2.1 and 3.4.2.2.

TABLE 3.1 - SOUTH-EAST ASIA REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Waterborne diseases cases per 100 000	Population without safe water (%)	Population without sanitation (%)
India	763 930	2.7	-	54	114	-	46	88
Indonesia	165 000	2.2	586	56	90	-	61	64
Bangladesh*	100 000	2.2	136	54	121	-	56	93
Thailand	51 796	1.7	729	63	12	-	36	46
Burma	37 115	2.0	188	63	45	968	73	76
Nepal*	16 680	2.7	165	52	140	-	72	98
Sri Lanka	15 860	1.2	340	69	32	1 024	60	56
Bhutan*	1 286	1.7	-	46	-	-	-	-
Maldives*	181	3.2	524	52	63	-	76	73

\* Least-developed country.

TABLE 3.2 - SOUTH-EAST ASIA REGION

1985 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	Standpost	Sewer connection	By other means			
India		93 <sup>b</sup>		83 <sup>b</sup>	65	22	1983
Indonesia		76 <sup>b</sup>		60 <sup>b</sup>	60	40	1982
Bangladesh*	24	8	5	31	6	11	1986
Thailand		67 <sup>b</sup>		83 <sup>b</sup>	95	75	1984
Burma		54 <sup>b</sup>		71 <sup>b</sup>	57	52	1982
Nepal*		94 <sup>b</sup>	17	10	67	13	1980
Sri Lanka		100 <sup>b</sup>		100 <sup>b</sup>	50	100	1980
Bhutan** <sup>a</sup>	100	0	10	-	100	60	1984
Maldives*	0	92	100	0	80	40	1985 (Rev.)

\* Least-developed country.

<sup>a</sup> 1992 target date.

<sup>b</sup> No breakdown given.

TABLE 3.3 - SOUTH-EAST ASIA REGION

1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water				Sanitation			
				Urban		Rural	Urban		Rural		
				Total	By H.C. <sup>a</sup>		By P.S. <sup>b</sup>	Total		By S.C. <sup>c</sup>	By other
India	763 930	196 947 (26)	566 983 (74)	150 048 (76)	-	-	284 917 (50)	61 054 (31)	-	-	11 340 (2)
Indonesia	165 000	59 400 (36)	105 600 (64)	25 770 (43)	-	-	37 800 (36)	19 403 (33)	-	-	39 600 (38)
Bangladesh*	100 000	18 000 (18)	82 000 (82)	4 324 (24)	3 300 (18)	1 024 (6)	39 858 (49)	4 350 (24)	800 (4)	3 550 (20)	2 460 (3)
Thailand	51 796	12 878 (25)	38 918 (75)	7 200 (56)	-	-	25 700 (66)	10 000 (78)	-	-	18 000 (46)
Burma	37 115	8 908 (24)	28 207 (76)	3 206 (36)	1 719 (19)	1 487 (17)	6 807 (24)	2 913 (33)	266 (3)	2 647 (30)	5 837 (21)
Nepal*	16 680	1 350 (8)	15 330 (92)	950 (70)	-	-	3 783 (25)	232 (17)	218 (16)	14 (1)	26 (<1)
Sri Lanka	15 860	3 400 (21)	12 460 (79)	2 782 (82)	868 (26)	1 914 (56)	3 620 (29)	2 208 (65)	258 (8)	1 950 (57)	4 840 (39)
Bhutan*	1 286	168 (13)	1 118 (87)	-	-	-	217 (19)	-	-	-	0 (0)
Maldives*	181	46 (25)	135 (75)	27 (58)	0 (0)	27 (58)	16 (12)	46 (100)	37 (80)	9 (20)	2 (2)
<b>Total</b>	<b>1 151 848</b>	<b>301 097 (26)</b>	<b>850 751 (74)</b>	<b>194 307 (65)</b>	<b>5 887 (-)</b>	<b>4 452 (-)</b>	<b>402 718 (47)</b>	<b>100 205 (33)</b>	<b>1 579 (-)</b>	<b>8 170 (-)</b>	<b>82 105 (10)</b>

\* Least-developed country.

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 3.4 - SOUTH-EAST ASIA REGION

PRESENT (1985-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	Standpost	Sewer connection	Other means			
India	196 947	150 048 <sup>a</sup>		61 054 <sup>a</sup>		566 983	284 917	11 340
	243 004	225 994 <sup>a</sup>		200 863 <sup>a</sup>		673 360	437 684	148 139
Indonesia	59 400	25 770 <sup>a</sup>		19 403 <sup>a</sup>		105 600	37 800	39 600
	70 000	53 000 <sup>a</sup>		42 000 <sup>a</sup>		113 000	68 000	45 000
Bangladesh*	18 000	3 300	1 024	800	3 550	82 000	39 858	2 460
	25 000	5 950	1 920	1 300	7 700	88 000	51 970	9 933
Thailand	12 878	7 000 <sup>a</sup>		10 000 <sup>a</sup>		38 918	25 700	18 000
	14 400	9 600 <sup>a</sup>		12 000 <sup>a</sup>		42 000	39 900	31 500
Burma	8 908	1 719	1 487	266	2 647	28 207	6 807	5 837
	9 907		5 340 <sup>a</sup>		6 990 <sup>a</sup>	31 013	17 619	16 045
Nepal*	1 350	950 <sup>a</sup>		218	14	15 330	3 783	26
	1 864	1 147 <sup>a</sup>		214	127	17 159	10 757	2 250
Sri Lanka	3 400	868	1 914	258	1 950	12 460	3 620	4 840
	3 800		3 800 <sup>a</sup>		3 000 <sup>a</sup>	13 800	6 900	13 800
Bhutan*	168	-	-	-	-	1 118	217	0
	193	193	0	193	0	1 287	1 287	772
Maldives*	46	0	27	37	9	135	16	2
	64	0	59	64	0	151	121	60

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 3.4.1.1 - SOUTH-EAST ASIA REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
India	196 947	243 004	150 048	76	225 994	93
Indonesia	59 400	70 000	25 770	43	53 000	76
Bangladesh*	18 000	25 000	4 324	24	7 870	31
Thailand	12 878	14 400	7 200	56	9 600	67
Burma	8 908	9 907	3 206	36	5 340	54
Nepal*	1 350	1 864	950	70	1 750	94
Sri Lanka*	3 400	3 800	2 782	82	3 800	100
Maldives*	46	64	27	58	59	92
<b>Total</b>	<b>300 929</b>	<b>368 039</b>	<b>194 307</b>	<b>65</b>	<b>307 413</b>	<b>84</b>

\* Least-developed country.



TABLE 3.4.1.2 - SOUTH-EAST ASIA REGION

DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
India	196 947	243 004	61 054	31	200 863	83
Indonesia	59 400	70 000	19 403	33	42 000	60
Bangladesh*	18 000	25 000	4 350	24	9 000	36
Thailand	12 878	14 400	10 000	78	12 000	83
Burma	8 908	9 907	2 913	33	6 990	71
Nepal*	1 350	1 864	232	17	510	27
Sri Lanka*	3 400	3 800	2 208	65	3 800	100
Maldives*	46	64	46	100	64	100
<b>Total</b>	<b>300 929</b>	<b>368 039</b>	<b>100 206</b>	<b>33</b>	<b>275 227</b>	<b>75</b>

\* Least-developed country.

TABLE 3.4.2.1 SOUTH-EAST ASIA REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
India	566 983	673 360	284 917	50	4 37 684	65
Indonesia	105 600	113 000	37 800	36	68 000	60
Bangladesh*	82 000	88 000	39 858	49	51 970	59
Thailand	38 918	42 000	25 700	66	39 900	95
Burma	28 207	31 013	6 807	24	17 619	57
Nepal*	15 330	17 159	3 783	25	10 757	63
Sri Lanka	12 460	13 800	3 620	29	6 900	50
Bhutan*	1 118	1 287	217	19	1 287	100
Maldives*	135	151	16	12	121	80
<b>Total</b>	<b>850 751</b>	<b>979 770</b>	<b>4 02 718</b>	<b>47</b>	<b>634 238</b>	<b>65</b>

\* Least-developed country.

TABLE 3.4.2.2 - SOUTH-EAST ASIA REGION

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
India	556 983	673 360	11 340	2	148 139	22
Indonesia	105 600	113 000	39 600	38	45 000	40
Bangladesh*	82 000	88 000	2 460	3	9 933	11
Thailand	38 918	42 000	18 000	46	31 500	75
Burma	28 207	31 013	5 837	21	16 045	52
Nepal*	15 330	17 159	26	0	2 250	13
Sri Lanka	12 460	13 800	4 840	39	13 800	100
Bhutan <sup>a</sup>	1 118	1 287	0	0	772	60
Maldives*	135	151	2	2	60	40
<b>Total</b>	<b>850 751</b>	<b>979 770</b>	<b>82 105</b>	<b>10</b>	<b>267 500</b>	<b>27</b>

\* Least-developed country.

<sup>a</sup> 1992 target

TABLE 3.5 - SOUTH-EAST ASIA REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
India	51 165 <sup>a</sup> 100 023 <sup>a</sup>		72 560 132 777	33 834 46 393	141 813 156 659	392 476	Yes	Yes/No
Indonesia	- -	- -	- -	- -	- -	139 <sup>b</sup> 431	Yes	Yes/No
Bangladesh*	115 -	2 158 -	2 212 -	2 979 -	- -	75 -	Yes	Yes/No
Thailand	- -	- -	- -	- -	- -	246 -	Yes	Yes/Yes
Burma	9 -	978 -	1 454 -	108 -	71 -	69 -	Yes	Yes/No
Nepal*	15 -	496 -	925 -	- -	- -	- -	No	Yes/No
Sri Lanka	310 -	538 -	1 842 -	528 -	556 -	238 -	No	Yes/No
Bhutan*	5 -	11 -	51 -	6 -	- -	57 -	Yes	Yes/Yes
Maldives*	6 -	18 -	8 -	32 -	6 -	386 -	Yes	Yes/No

\* Least-developed country.

<sup>a</sup> No breakdown given.

<sup>b</sup> Without urban sanitation.

TABLE 3.6 - SOUTH-EAST ASIA REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
House connection	Stand- posts	Sewer connection	Other means						
India	45	35	45.5	32	32	21	0.08	0.05	Some areas
Indonesia	60	-	80	13	10-15	5-7	-	-	-
Bangladesh*	-	-	81	15	2	5	0.09	0.08	Some areas
Thailand	52	-	-	20	3-56	17	0.21	0.21	Yes
Burma	65-70	30-35	62-65	12-30	4-27	4-12	0.25	0.20	Some areas
Nepal*		60-88 <sup>a</sup>	118	23-58	2-48	12-17	0.09	0.07	Yes
Sri Lanka	170	90	400	35	14	25	0.25	0.20	Yes
Bhutan*	60	25	20	20	25	20	-	-	-
Maldives*	-	100	90	20	12	12	-	-	No

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 3.7 - SOUTH-EAST ASIA REGION

COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ millions	Sector investments (1981-1985)			Acceleration in investment needed (fold)
		Total US\$ millions	Percentage of total development investment	External US\$ million (%)	
India	15 963	2 169	-	-	3.68
Indonesia	-	716	15.00	48.3 (7)	-
Bangladesh*	1 157	103	0.19	51.2 (50)	5.63
Thailand	1 739 <sup>a</sup>	460 <sup>a</sup>	-	99.0 <sup>a</sup> (22)	1.89
Burma	512	81	4.14	56.6 (70)	3.18
Nepal*	270	62	-	56.1 (90)	2.17
Sri Lanka	921	211	5.70	110.6 (52)	2.18
Bhutan*	-	4	-	1.75 (44)	-
Maldives*	17	4	-	2.9 (75)	2.19

\* Least-developed country.

<sup>a</sup> Without urban sanitation

**TABLE 3.8 - SOUTH EAST ASIA REGION**

**RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>**

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	4	3	2	20
Inadequate cost-recovery framework	2	5	1	17
Operation and maintenance	1	6	1	16
Insufficiency of trained personnel (sub-professional)	1	5	2	15
Insufficient health education efforts	0	6	2	14
Insufficiency of trained personnel (professional)	1	4	3	14
Logistics	0	5	2	12
Non-involvement of communities	0	3	4	10
Intermittent water service	1	2	2	9
Inappropriate institutional framework	0	2	5	9
Inadequate water resources	1	1	3	8
Inadequate or out-moded legal framework	0	2	4	8
Insufficient knowledge of water resources	0	1	4	6
Import restrictions	0	1	2	4
Inappropriate technology	0	0	4	4
Lack of definite government policy for sector	0	0	3	3
Lack of planning and design criteria	0	0	3	3
Lack of information on sector <sup>c</sup>		1		
Attrition of staff <sup>d</sup>			1	

<sup>a</sup> No. of reporting countries: 9

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

<sup>c</sup> Thailand.

<sup>d</sup> Maldives.

TABLE 3.9 - SOUTH-EAST ASIA REGION

DECADE APPROACHES DURING (1981-1985)

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education	Promotion of women's participation (Yes/No)	Water supply and sanitation in rural areas as part of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
India	94 534	40	-	45	14	1	72	Yes <sup>a</sup>	Yes <sup>a</sup>
Indonesia	12 000	-	-	-	-	-	-	Yes <sup>b</sup>	Being planned
Bangladesh*	7 200	2	-	0	30	30	-	Yes <sup>b</sup>	Yes <sup>b</sup>
Thailand	-	-	-	100	100	100	100	Yes <sup>b</sup>	Yes
Burma	1 970	9	-	37	37	37	32	No	Yes <sup>b</sup>
Nepal*	-	-	-	50	50	50	100	Yes <sup>b</sup>	No
Sri Lanka	-	-	-	65	65	40	100	No	-
Bhutan*	-	-	-	100	100	100	-	No	Yes
Maldives*	-	-	-	30	100	100	100	Yes <sup>b</sup>	Yes

\* Least-developed country.

<sup>a</sup> In approximately 28% of reporting States.

<sup>b</sup> Associated with specific projects.



TABLE 3.10.1 - SOUTH-EAST ASIA REGION

URBAN WATER SUPPLY SERVICES (1980-1985)

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
India	148 000	196 947	115 000	78	150 048	76
Indonesia	50 500	59 400	17 700	35	25 770	43
Bangladesh*	10 000	18 000	2 600	26	4 324	24
Thailand	10 900	12 878	7 000	64	7 200	56
Burma	8 300	8 908	3 200	39	3 206	36
Nepal*	1 000	1 350	800	80	950	70
Sri Lanka	3 800	3 400	2 500	66	2 782	82
Maldives*	41	46	4	10	27	58
<b>Total</b>	<b>232 541</b>	<b>300 929</b>	<b>148 804</b>	<b>64</b>	<b>194 307</b>	<b>65</b>

\* Least-developed country.

TABLE 3.10.2 - SOUTH-EAST ASIA REGION

URBAN SANITATION SERVICES (1980-1985)

Country/ territory	Urban population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
India	148 000	196 947	40 000	27	61 054	31
Indonesia	50 500	59 400	14 600	29	19 403	33
Bangladesh*	10 000	18 000	2 100	21	4 350	24
Thailand	10 900	12 878	7 000	64	10 000	78
Burma	8 300	8 908	3 150	38	2 913	33
Nepal*	1 000	1 350	160	16	232	17
Sri Lanka	3 800	3 400	3 040	80	2 208	65
Maldives*	41	46	25	61	46	99
<b>Total</b>	<b>232 541</b>	<b>300 929</b>	<b>70 075</b>	<b>30</b>	<b>100 206</b>	<b>33</b>

\* Least-developed country.

TABLE 3.10.3 - SOUTH-EAST ASIA REGION

RURAL WATER SUPPLY (1980-1985)

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
India	524 000	566 983	162 000	31	284 917	50
Indonesia	97 000	105 600	18 000	19	37 800	36
Bangladesh*	80 000	82 000	32 000	40	39 858	49
Thailand	36 600	38 918	23 000	63	25 700	66
Burma	24 600	28 207	3 700	15	6 807	24
Nepal*	13 000	15 330	900	7	3 783	25
Sri Lanka	10 900	12 460	2 000	18	3 620	29
Bhutan*	1 140	1 118	60	5	217	19
Maldives*	120	135	4	3	16	12
<b>Total</b>	<b>787 360</b>	<b>850 751</b>	<b>241 664</b>	<b>31</b>	<b>402 718</b>	<b>47</b>

\* Least-developed country.

TABLE 3.10.4 - SOUTH-EAST ASIA REGION

RURAL SANITATION SERVICES (1980-1985)

Country/ territory	Rural population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
India	524 000	566 983	2 800	1	11 340	2
Indonesia	97 000	105 600	20 000	21	39 600	38
Bangladesh*	80 000	82 000	900	1	2 460	3
Thailand	36 600	38 918	15 000	41	18 000	46
Burma	24 600	28 207	3 700	15	5 837	21
Nepal*	13 000	15 330	1	0	26	0
Sri Lanka	10 900	12 460	6 900	63	0	0
Maldives*	120	135	1	1	2	1
<b>Total</b>	<b>786 220</b>	<b>849 633</b>	<b>49 302</b>	<b>6</b>	<b>77 265</b>	<b>9</b>

\* Least-developed country.

TABLE 3.11 - SOUTH-EAST ASIA REGION

WATER CONSUMPTION  
(Year 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban l/c/d	Rural l/c/d	Urban l/c/d	Rural l/c/d
India	152	43	107	40
Indonesia	45-120	30-60	150	60
Bangladesh*	180	50	115	30
Thailand	150	50-80	100-150	50-80
Burma	90-135	45-70	70-110	30-45
Nepal*	65-150	45	-	-
Sri Lanka	185	45-140	200	70-170
Bhutan*	-	45	-	45
Maldives*	10 <sup>a</sup>	2 <sup>a</sup>	175	175

\* Least-developed country.

<sup>a</sup> Rainwater for drinking and cooking only.



## **4. EUROPEAN REGION**

### **4.1 Socio-economic and health situation**

No information for developed countries has been received previously so no comparison between the situation at mid-Decade and at the Decade's start can be made. Fourteen of the region's 34 states, with a combined population of 297 million or 41% of the region's total (excluding the USSR), completed sector reports on the status of water supply and sanitation services at the end of 1985. These were reasonably divided between east and west, and north and south. Turkey, the only member state in the region that can be classified as a developing country did not report and the sample can therefore be considered as representative of the region.

Europe has a very low population growth rate in all reporting countries. Two countries, the German Democratic Republic and Hungary, have negative growth. Median annual growth rate is 0.4%. Unlike in other regions there are no large urban population increases.

No country reported life expectancy of less than 65 years and the average was 75. Infant mortality was also very low in all ten countries providing this information, ranging from 6 to 20 per 1,000 live births with a median value of 11. Only four countries provided information on water-borne diseases and of these only Spain reported significant levels. Even so, less than 5% of the population was affected.

Per capita gross national product ranged from US\$1,909 for Hungary to US\$23,120 for the United Kingdom. Median value was US\$5,437 (table 4.1).

### **4.2 Targets and planning**

#### **Water supply**

No information is available about the reporting countries at the start of the Decade. In 1985 a full 95% (458.87 million) of a total population of 482.51 million was supplied, though some countries have particular rural areas where water supply service level is well below the average for the region and where special efforts similar to those of the world's developing countries will have to be made. Target for 1990 is 99% supplying an estimated population of 493.76 million.

Eight countries presented information on urban water supply service coverage in 1985 and on targets for the end of the Decade (table 4.4.1.1). Coverages were 99% and 100% respectively. Six countries provided comparable information for rural areas (table 4.4.2.1). Average coverage in 1985 was 84% and this is planned to increase to 96% by 1990. Only the remote and difficult to serve populations have still to be reached and rural water supply coverage will only need to increase overall by 12% to reach national targets and by 16% to attain total coverage.

**Table 4.2.1: Urban Water Supply Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Urban population estimate (millions)	357.05	372.59	-
Estimated % service coverage	99	100	-
Estimated population served or to be served (millions)	353.48	372.59	19.11

**Table 4.2.2: Rural Water Supply Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Rural population estimate (millions)	125.46	126.22	-
Estimated % service coverage	84	96	-
Estimated population served or to be served (millions)	105.39	121.17	15.78

**Table 4.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Total population estimate (millions)	482.51	498.81	-
Estimated population served or to be served (millions)	458.87	493.76	34.89
Estimated % service coverage	95	99	-

### Sanitation

Overall, sanitation coverage was estimated to be 86% in 1985 serving a population of 415.06 million. An additional 77.44 million will need to be served to bring total coverage to 99% by 1990. Coverage in the seven countries providing information on urban sanitation was 100% for 1985, with the same figure predicted for 1990. However, an estimate of the level of coverage throughout all 13 reporting countries is 92%. Five countries provided information on rural sanitation coverage levels for 1985 and on targets for 1990; these were 80% and 95% respectively (table



4.4.2.2). However, an estimate of the level of coverage in 1985 throughout the 13 reporting countries was 69%.

For urban water supply and sanitation, only the increase in population between the end of 1985 and 1990 needs to be catered for. In the rural sub-sector, the population increase will be the main group to be served, together with additional coverage of 12% for water supply and 26% for sanitation.

**Table 4.2.4: Urban Sanitation Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Urban population estimate (millions)	357.05	372.59	-
Estimated % service coverage	92*	100	-
Estimated population served or to be served (millions)	328.49	372.59	44.10

**Table 4.2.5: Rural Sanitation Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Rural population estimate (millions)	125.46	126.22	-
Estimated % service coverage	69*	95	-
Estimated population served or to be served (millions)	86.57	119.91	33.34

\* Value taken from Table 4.3 using information from all 13 reporting countries

**Table 4.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1985	1990	<i>Population to be served 1985 to 1990</i>
Total population estimate (millions)	482.51	498.81	-
Estimated population served or to be served (millions)	415.06	492.50	77.44
Estimated % service coverage	86	99	-

#### 4.3 Staffing and training

Staffing levels varied from about 700 per million population in Belgium and Switzerland, to 1,161 in the United Kingdom and 3,851 in Hungary. The median value was 1,309. Four countries reported using community-based workers in rural areas.

All countries except Portugal reported having an established training budget for the sector. Insufficient professional or sub-professional staff was considered a severe constraint to Decade progress by only one of the countries in the region.

#### 4.4 Financial resources

Only two countries (Czechoslovakia and Portugal) provided estimates of funds/investments needed to attain Decade objectives. Of the seven countries reporting, only Portugal indicated that part of the sector financing came from external sources and in this instance the level was only 17%.

Unit costs reported for providing urban water through house connections varied widely, from US\$385 in the Netherlands to only US\$6 in the United Kingdom (presumably the cost of the connection alone). A likely typical value is US\$360. Czechoslovakia reported that the cost of a standpost supply for urban areas would be US\$242. Urban sanitation unit costs also varied, with an approximate average of US\$560.

Per capita costs for rural water supply provided by three countries ranged from US\$119 to US\$1,390, indicating that a piped supply is generally considered the acceptable standard. The average used for Decade cost calculation is US\$481. Information on rural sanitation costs shows that some countries consider individual as well as sewer systems. Switzerland, for example, estimated US\$62 while the Netherlands estimate of US\$1,154 per capita clearly suggests sewer systems. The average used for Decade cost calculation is US\$543.

The total cost of achieving Decade targets in the region is estimated at US\$57,277.29 million, though the data base for this estimate is scant. The costs break down as follows, and show that 50% of the total is required for urban sanitation:

Urban water	19.11 million x US\$360	US\$ 6,879.60
Rural water	15.78 million x US\$481.5	US\$ 7,598.07
Urban sanitation	44.10 million x US\$560	US\$24,696.00
Rural sanitation	33.34 million x US\$54	US\$18,103.62

This indicates that for Europe to raise its levels of service by a few per cent will require a cost approximately four and a half times that for Africa to attain its Decade goals and almost three times the costs for the developing countries of the Americas.

Only one country - Finland - indicated a tariff higher than the cost of producing water, so it would appear that water supply is subsidized in some of the world's most developed countries, a point which should be borne in mind when advocating cost-recovery in developing countries.

#### **4.5 Decade approaches**

High levels of service already achieved for water supply and sanitation make some Decade approaches clearly less relevant to this developed region. Scope for community participation is limited, except through established administrative and political procedures.

From the limited information provided it is interesting to see that three countries are implementing programmes intended to promote the involvement of women.

There are indications that even in the most developed countries where the need is least, the impact of the Decade has been felt and rural water supply and sanitation programmes are being implemented in several cases as components of the strategy for health for all through primary health care.

TABLE 4.1 - EUROPEAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Water disease per 100 000	Population without safe water (%)	Population without sanitation (%)
United Kingdom	56 000	0.2	23 120	73	12	0	0	0
France	55 173	0.4	-	75	8	-	0	-
Spain	38 602	0.6	4 256	-	-	4 942	2	28
Poland	37 114	0.9	-	75	18	-	11	23
Yugoslavia	22 425	-	-	-	-	-	26	-
German Dem. Rep.	16 640	-0.1	5 437	-	10	-	0	29
Czechoslovakia	15 503	0.3	3 783	71	14	-	0	0
Netherlands	14 500	-	-	-	-	-	0	-
Hungary	10 657	-0.2	1 909	70	20	7	1	0
Greece	10 168	-	-	-	-	-	-	-
Belgium	9 803	0.8	9 535	81	10	-	8	13
Portugal	9 316	0.1	2 097	80	17	13	42	48
Switzerland	6 505	0.4	14 764	76	8	-	0	-
Finland	4 960	0.4	10 531	75	6	-	2	0

TABLE 4.2 - EUROPEAN REGION

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

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			
United Kingdom	100	0	100	0	100	100	-
France	-	-	-	-	-	-	No
Spain	-	-	-	-	-	-	No
Poland	-	-	-	-	-	-	No
German Dem. Rep.	-	-	-	-	-	-	1981/1986
Czechoslovakia	90	10	80	20	100	100	1981
Netherlands	100	0	100	0	98	98	No
Hungary	86	14	84	16	91	80	1985/1986
Greece	-	-	-	-	-	-	Completed
Belgium	100	0	100	0	99	-	Under preparation
Portugal	100	0	100	0	80	80	1981/being revised
Switzerland	100	0	95	5	-	-	Yes
Finland	100	0	-	-	-	-	1981

TABLE 4.3 - EUROPEAN REGION

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water			Sanitation				
				Total	Urban By H.C. <sup>a</sup>	By P.S. <sup>b</sup>	Rural	Total	Urban By S.C. <sup>c</sup>	By other	Rural
United Kingdom	56 000	50 000 (89)	6 000 (11)	50 000 (100)	50 000 (100)	0 (0)	6 000 (100)	50 000 (100)	50 000 (100)	0 (0)	6 000 (100)
France	55 173	32 773 (59)	2 2400 (41)	32 773 (100)	32 773 (100)	0 (0)	22 400 (100)	- -	- -	- -	- -
Spain	38 602	35 350 (92)	3 252 (8)	35 350 (100)	35 350 (100)	0 (0)	2 650 (81)	25 654 (73)	21 806 (62)	3 848 (11)	2 231 (69)
Poland	37 114	22 333 (60)	14 781 (40)	22 333 (100)	19 698 (88)	2 635 (12)	10 790 (73)	22 333 (100)	17 866 (80)	4 467 (20)	6 208 (42)
Yugoslavia	22 425	10 316 (46)	12 109 (54)	9 388 (91)	- -	- -	7 319 (60)	- -	- -	- -	- -
German Dem. Rep.	16 640	12 748 (77)	3 892 (23)	12 748 (100)	12 684 (99)	64 (1)	3 892 (100)	9 003 (71)	- -	- -	2 748 (71)
Czechoslovakia	15 503	9 922 (64)	5 581 (36)	9 922 (100)	8 830 (89)	1 092 (11)	5 581 (100)	9 922 (100)	7 441 (75)	2 481 (25)	5 581 (100)
Netherlands	14 500	12 800 (88)	1 700 (12)	12 800 (100)	12 800 (100)	0 (0)	1 689 (99)	12 800 (100)	12 800 (100)	0 (0)	1 700 (100)
Hungary	10 657	6 008 (56)	4 649 (44)	6 000 (100)	5 500 (92)	500 (8)	4 550 (98)	6 008 (100)	4 800 (80)	1 208 (20)	4 550 (98)
Belgium	9 803	3 402 (35)	6 401 (65)	3 182 (94)	3 182 (94)	0 (0)	5 850 (91)	3 402 (100)	3 402 (100)	0 (0)	5 140 (80)
Portugal	9 316	4 328 (46)	4 988 (54)	4 328 (100)	4 328 (100)	0 (0)	1 097 (22)	4 328 (100)	3 030 (70)	1 298 (30)	549 (11)
Switzerland	6 505	2 732 (42)	3 773 (58)	2 732 (100)	2 732 (100)	0 (0)	- -	2 732 (100)	2 595 (95)	137 (5)	- -
Finland	4 960	2 935 (59)	2 025 (41)	2 895 (100)	2 731 (93)	164 (7)	1 995 (99)	2 892 (99)	2 648 (90)	244 (9)	2 012 (99)
<b>Total</b>	<b>297 198</b>	<b>205 647 (65)</b>	<b>91 551 (35)</b>	<b>204 451 (99)</b>	<b>190 608 (98)</b>	<b>4 455 (2)</b>	<b>73 813 (84)</b>	<b>149 074 (92)</b>	<b>126 388 (84)</b>	<b>13 683 (9)</b>	<b>36 719 (69)</b>

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 4.4 - EUROPEAN REGION

PRESENT (1985-top line) AND PROJECTED (1990-bottom line) POPULATION COVERAGE (in thousands)

Country/ territory	Urban population	Water supply		Sanitation		Rural sanitation	Safe water	Adequate sanitation
		House connection	Stand- post	Sewer connection	Other means			
United Kingdom	50 000	50 000	0	50 000	0	6 000	6 000	6 000
	52 000	52 000	0	52 000	0	6 000	6 000	6 000
Czechoslovakia	9 922	8 830	1 092	7 441	2 481	5 581	5 581	5 581
	10 305	9 275	1 030	8 244	2 061	5 309	5 309	5 309
Netherlands	12 800	12 800	0	12 800	0	1 689	1 700	1 700
	13 140	13 140	0	13 140	0	1 695	1 695	1 695
Hungary	6 008	5 500	500	4 800	1 208	4 649	4 550	4 550
	6 400	5 500	900	5 400	1 000	4 400	4 400	4 400
Belgium	3 402	3 182	0	3 402	0	6 401	5 850	5 140
	3 358	3 358	0	3 358	0	6 375	6 300	-
Portugal	4 328	4 328	0	3 030	1 298	4 988	1 097	549
	4 467	4 467	0	4 467	0	5 187	4 150	4 150
Switzerland	2 732	2 732	0	2 595	137	3 773	-	-
	2 700	2 700	0	2 565	135	3 900	-	-
Finland	2 935	2 731	164	2 648	244	2 025	1 995	2 012
	2 972	2 972	-	-	-	-	-	-

TABLE 4.4.1.1 - EUROPEAN REGION  
 DECADE TARGETS FOR URBAN WATER SUPPLY

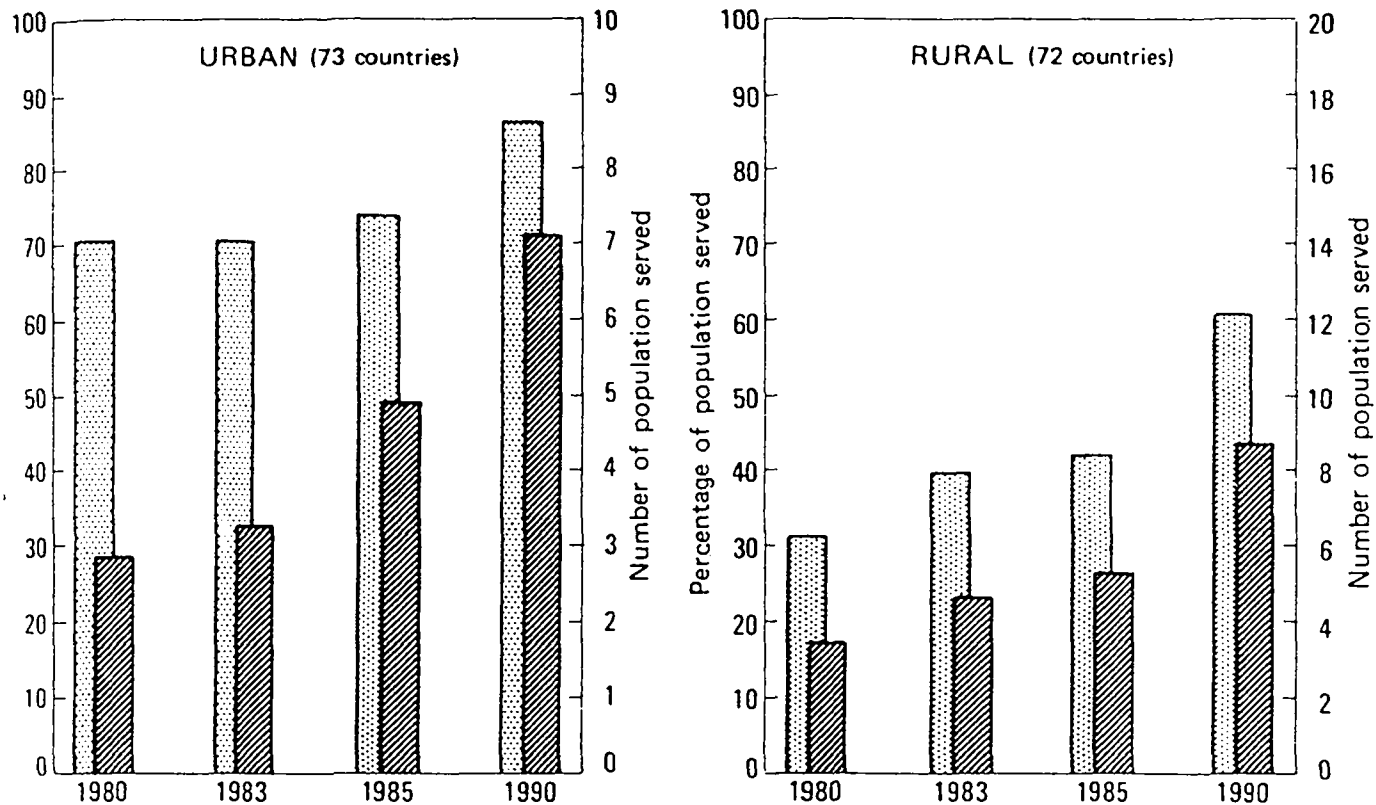
Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
United Kingdom	50 000	52 000	50 000	100	52 000	100
Czechoslovakia	9 922	10 305	9 922	100	10 305	100
Netherlands	12 800	13 140	12 800	100	13 140	100
Hungary	6 008	6 400	6 008	100	6 400	100
Belgium	3 402	3 358	3 182	94	3 358	100
Portugal	4 328	4 467	4 328	100	4 467	100
Switzerland	2 732	2 700	2 732	100	2 700	100
Finland	2 935	2 972	2 895	99	2 972	100
<b>Total</b>	<b>92 127</b>	<b>95 342</b>	<b>91 867</b>	<b>100</b>	<b>95 342</b>	<b>100</b>



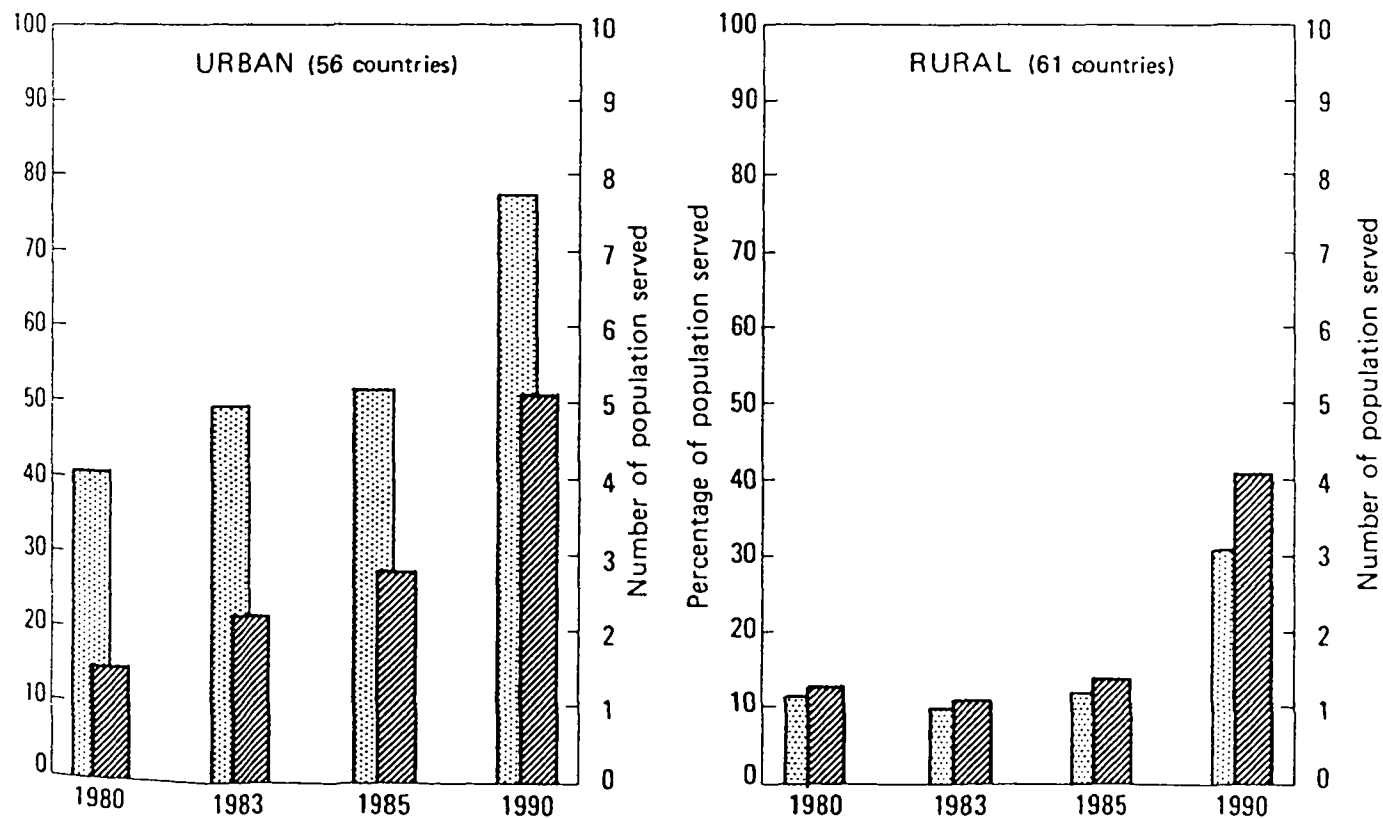
Fig. A.2 GLOBAL

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



Percentage of population served
 
 Number of population served (x 1 million)

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



TABLE 4.4.1.2 - EUROPEAN REGION

DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
United Kingdom	50 000	52 000	50 000	100	52 000	100
Czechoslovakia	9 922	10 305	9 922	100	10 305	100
Netherlands	12 800	13 140	12 800	100	13 140	100
Hungary	6 008	6 400	6 008	100	6 400	100
Belgium	3 402	3 358	3 402	100	3 358	100
Portugal	4 328	4 467	4 328	100	4 467	100
Switzerland	2 732	2 700	2 732	100	2 700	100
<b>Total</b>	<b>89 192</b>	<b>92 370</b>	<b>89 192</b>	<b>100</b>	<b>92 370</b>	<b>100</b>

TABLE 4.4.2.1 - EUROPEAN REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
United Kingdom	6 000	6 000	6 000	100	6 000	100
Czechoslovakia	5 581	5 309	5 581	100	5 309	100
Netherlands	1 700	1 695	1 689	99	1 695	100
Hungary	4 649	4 400	4 550	98	4 400	100
Belgium	6 401	6 375	5 850	91	6 300	99
Portugal	4 988	5 187	1 097	22	4 150	80
<b>Total</b>	<b>29 319</b>	<b>28 966</b>	<b>24 767</b>	<b>84</b>	<b>27 854</b>	<b>96</b>

TABLE 4.4.2.2 - EUROPEAN REGION

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	<u>Rural population (000)</u>		<u>SANITATION</u> <u>Population covered</u>			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
United Kingdom	6 000	6 000	6 000	100	6 000	100
Czechoslovakia	5 581	5 309	5 581	100	5 309	100
Netherlands	1 700	1 695	1 700	100	1 695	100
Hungary	4 649	4 400	4 550	98	4 400	100
Portugal	4 988	5 187	549	11	4 150	80
<b>Total</b>	<b>22 918</b>	<b>22 591</b>	<b>18 380</b>	<b>80</b>	<b>21 554</b>	<b>95</b>

TABLE 4.5 - EUROPEAN REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
United Kingdom	-	-	-	-	-	1 161	No	Yes/Yes
France	-	-	-	-	-	-	-	Yes/-
German Dem. Rep.	-	-	15 178	-	-	1 457	No	Yes/Yes
Czechoslovakia	-	-	21 604	-	-	2 142	Yes	Yes/-
Netherlands	-	-	-	-	-	-	Yes	Yes/-
Hungary	-	-	-	-	-	3 851	Yes	Yes/Yes
Greece	-	-	-	-	-	-	No	Yes/Yes
Belgium	100	4 362	-	2 893	-	750	-	-
Portugal	-	-	-	-	-	-	Yes	No
Switzerland	-	-	-	-	-	638 <sup>a</sup>	-	Yes/Yes

<sup>a</sup> Part-time staff accounted for as 50%.

TABLE 4.6 - EUROPEAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
	House connection	Standposts	Sewer connection	Other means					
United Kingdom	6	-	5 <sup>a</sup>		-	-	0.36	0.36	No
France	-	-	-	-	1 390	834	-	-	No
Spain	66	-	-	-	-	-	0.22	-	Certain areas
German Dem. Rep.	-	-	-	-	-	-	-	0.14	No
Czechoslovakia	363	242	357	238	119	122	0.40	0.35	Yes
Netherlands	385	-	769	-	385	1 154	0.48	0.48	No
Hungary	-	-	-	-	-	-	0.23	0.18	Certain areas
Greece	-	-	-	-	-	-	-	-	Certain areas
Belgium	-	-	-	-	-	-	-	0.34	Certain areas
Portugal	-	-	-	-	-	-	-	-	Certain areas
Switzerland	22	-	-	-	32	62	0.33	0.32	Certain areas
Finland	-	-	-	-	-	-	0.21	0.39	No

a No breakdown given.

TABLE 4.7 - EUROPEAN REGION

COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ million	Sector investments (1981-5)			Acceleration in investment needed (fold)
		Total US\$ million	Percentage of total development investment	External US\$ million (%)	
United Kingdom	-	4 000	0.2	0 (0)	-
Czechoslovakia	4 386	2 167	2.7	0 (0)	1
Hungary	-	-	4.7	- -	-
Belgium	-	143 305 <sup>a</sup>	-	0 (0)	-
Portugal	99	-	-	- (17)	-
Switzerland	-	3 189	-	- -	-
Finland	-	815	-	0 (0)	-

<sup>a</sup> Urban and rural water supply only.



TABLE 4.8 - EUROPEAN REGION  
RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	3	1	2	13
Inadequate water resources	-	1	5	7
Inadequate cost-recovery framework	-	2	1	5
Import restrictions	1	-	2	5
Operation and maintenance	-	1	3	5
Insufficiency of trained personnel (sub-professional)	-	1	3	5
Logistics	1	-	1	4
Intermittent water service	-	1	1	3
Insufficient knowledge of water resources	-	-	3	3
Lack of definite government policy for sector	-	1	1	3
Inappropriate technology	-	-	3	3
Insufficient health education efforts	-	1	-	2
Lack of planning and design criteria	-	1	-	2
Insufficiency of trained personnel (professional)	-	-	2	2
Non-involvement of communities	-	-	2	2
Inappropriate institutional framework	-	-	2	2
Inadequate or out-moded legal framework	-	-	2	2
Lack of laboratories <sup>c</sup>	-	1	-	2
Groundwater contamination <sup>d</sup>	-	-	1	1

<sup>a</sup> Number of reporting countries: 6.

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

<sup>c</sup> Greece.

<sup>d</sup> The Netherlands.

TABLE 4.9 - EUROPEAN REGION  
DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education (%)	Programmes to promote participation of women (Yes/No)	Are programmes integrated with other elements of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
United Kingdom	0	-	-	-	-	-	-	-	-
Spain	-	-	-	-	-	-	100	-	-
Poland	-	-	-	12	8	6	82	Yes <sup>b</sup>	Yes <sup>c</sup>
German Dem. Rep.	-	-	-	a	-	-	100	Yes	Yes
Czechoslovakia	0	0	0	24	14	12	100	Yes	Yes
Netherlands	-	-	-	-	-	-	-	No	Yes
Hungary	-	-	-	-	-	-	100	No	Yes
Belgium	-	-	-	100	100	100	-	No	No
Finland	-	-	-	-	-	-	100	No	No

<sup>a</sup> 100-200 thousand new connections provided per year through community action.

<sup>b</sup> Rural cooperatives.

<sup>c</sup> In some areas.

TABLE 4.11 - EUROPEAN REGION

WATER CONSUMPTION  
(Year 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban l/c/d	Rural l/c/d	Urban l/c/d	Rural l/c/d
United Kingdom	160	160	130	130
France	200	200	140	126
Spain	-	-	230	150
Poland	230	200	214	140
Czechoslovakia	395	300	385	290
Hungary	200	150	220	120
Greece	300	250	275	200
Portugal	160	80	92	23
Switzerland	-	-	475	500
Finland	325	225	296	241



## **5. EASTERN MEDITERRANEAN REGION**

### **5.1 Socio-economic and health situation**

Only 12 countries, just over half of those in the region supplied information for this survey. The 12 countries represent 59% of the region's total population. With Pakistan alone accounting for half the reporting countries' population, and the great diversity of social and economic conditions across the area, it would be dangerous to draw conclusions from this analysis.

During the first half of the Decade, the whole region's population grew by an estimated 15% — 25% in urban areas and 9% rural. Growth rates ranged from 1.2% in Cyprus to 3.2% in Saudi Arabia and Bahrain, with a median value of 3%. Over half the populations of five reporting countries had no access to safe and adequate water supplies, and in six countries more than half were without sanitation.

Life expectancy of 50 years or over was reported by five out of nine countries, compared with six out of 10 in 1980, and varied across the region from 41 years in Afghanistan to 75 years in Cyprus. The median value for infant mortality rate dropped to 91 per 1,000 live births from the 110 in 1980 and ranged from 12 in Cyprus to 200 in Djibouti. Water-borne diseases showed no appreciable change over the first half of the Decade, with two out of five countries reporting over 1,000 cases per 100,000 population compared to four out of eight in 1980.

Economic conditions vary widely across the region with Afghanistan reporting a 1985 gross national product of US\$163 while oil exporting nations enjoy wealth hundreds of times greater.

### **5.2 Targets and planning**

#### **Water supply**

Overall, 92.71 million additional people will have to be served with water supplies in the Decade's second half to reach a coverage level of 78%. This compares with the 46.97 million extra people reached in the first five years, raising coverage to 59% from the 1980 figure of 51%. That means doubling the rate of implementation of the first half Decade, and even then 80 million people will be left unserved.

In urban areas a high level of individual house connections of 83% of those served with water was reached, although it is not possible to say how this has changed since 1980 (table 5.4.1.1). In the first five years, service coverage rose 6% to 89% with the introduction of services for an additional 30.04 million consumers. Reaching another 43.64 million by 1990 to attain the 98% coverage target appears to be well within the region's capability.

In rural areas the Decade started with 30% coverage, or an estimated 48.4 million people served (table 5.4.2.1). By the mid point the coverage probably reached 37%, assuming that conditions in Egypt, which did not report for 1985, remained as before. That means that a higher priority must be given to the rural areas to reach another 49.07 million people needed for the 60% goal of 1990, representing almost a trebling of the implementation rate (table 5.2.2).

**Table 5.2.1: Urban Water Supply Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	106.75	133.30	165.59
Estimated % service coverage	83	89	98
Estimated population served or to be served (millions)	88.60	118.64	162.28

**Table 5.2.2: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	161.33	176.58	190.67
Estimated % service coverage	30	37*	60
Estimated population served or to be served (millions)	48.40	65.33	114.40

\* Adjusted to include Egypt

**Table 5.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population (millions)	268.08	309.88	356.26
Estimated population served or to be served (millions)	137.00	183.97	276.68
Estimated % service coverage	51	59	78

### Sanitation

Overall, coverage will have to increase by 12% to 46% by 1990 compared to 7% in the first half of the Decade. That would provide sanitation to an additional 57.96 million people as opposed to the 34.39 million of the first five years.

In urban areas the level of service coverage rose from 57% to 68% largely due to Pakistan increasing its sanitation by 9% to 51%. Much of the new sanitation is non-sewered with the proportion of sewers dropping in the first five years from 74% to 54%. Total number of additional people served was 29.79 million. To raise coverage to the target 74% by 1990 another 31.90 million will need to be catered for (table 5.4.1.2).

In rural areas coverage rose by just 2% or 4.6 million people to reach 9% in the first five years, and most of that took place in Pakistan. Another 26.06 million

people remain to be served in the second half in line with the 22% estimated target for 1990 (table 5.4.2.2). The required acceleration appears to be great, but actual numbers seem to be attainable with appropriate programme realignments.

**Table 5.2.4: Urban Sanitation Service Coverage**

	1980	1985	1990
Urban population (millions)	106.75	133.30	165.59
Estimated % service coverage	57	68	74
Estimated population served or to be served (millions)	60.85	90.64	122.54

**Table 5.2.5: Rural Sanitation Service Coverage**

	1980	1985	1990
Rural population (millions)	161.33	176.58	190.67
Estimated % service coverage	7	9	22
Estimated population served or to be served (millions)	11.29	15.89	41.95

**Table 5.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population (millions)	268.08	309.88	356.26
Estimated population served or to be served (millions)	72.14	106.53	164.49
Estimated % service coverage	27	34	46

Reduced sample

Only five countries reported on urban water supply in 1980 and 1985, and four on rural water. The reduced sample for sanitation was even smaller, with two countries reporting on the urban and rural situations. Fortunately the biggest country, Pakistan reported regularly.

The reduced sample showed that urban water coverage rose 9% to 85% instead of the 6% of the full sample, but rural water coverage grew by 7% to 26%.

The reduced sample increase in urban sanitation was 11% to 61%, as for the full sample, while rural sanitation appeared to improve faster by 4%, as opposed to 2%, to 7% (tables 5.10.1-5.10.4).

### **5.3 Staff and training**

Generally country responses to this section were small, but they indicated that the spread in total numbers of staff per million population appears to have widened in the first five years, with Afghanistan reporting just 61 and Bahrain 2,633.

At the same time only one of five countries reporting said they employed community based workers to operate rural systems. Three countries out of five reported they had budgetary provisions for training, but only Bahrain's was described as adequate.

### **5.4 Financial resources**

Funding limitations was cited as the most serious constraint to Decade progress, closely followed by lack of trained professional personnel (table 5.8). Little information was available on sector investment, with only three countries reporting. Bahrain's first half investment was above that required, while Afghanistan's was 13% under and Yemen Arab Republic's was 50% down.

Cost of the second five year period has been estimated at US\$32,084 million of which 76% will be required for urban targets.

External sources of finance played only a small part in sector investment in the first half for the oil rich nations, but Yemen Arab Republic and Tunisia reported 31% and 46% dependence on foreign funding respectively. For internal funding, only Djibouti of the six responding countries said tariffs were higher than production costs, while six out of 11 countries operated progressive tariffs favouring the poorer sections of the population.

Per capita costs of water supply and sanitation varied widely across the region, with Bahrain, relying heavily on desalination, reporting a figure of US\$1,725 for urban water house connections, vastly more than Morocco's US\$7.7 (table 5.6). Other services also showed sharp national variations, but the median computed values for urban water through house connections for 1985 was US\$290, US\$40 more than in 1980, while urban standposts dropped by US\$27 to US\$75. Median cost of rural water rose US\$11 to US\$123 in the same period.

Median unit cost of urban sewers fell US\$50 over the first five years from US\$530 to US\$480, while non-sewered systems fell from US\$365 to US\$345. Rural sanitation also appeared to become cheaper, dropping to US\$70 from the US\$100 level of 1980.

A possible means of cutting costs in the second half could come from trimming scope of new systems, which appear to have been over-designed in places. Seven countries provided information on urban water use, and of these five said that design capacities exceeded actual consumption, by up to 40% in the case of Saudi Arabia. By contrast, Bahrain reported difficulty in meeting demand.



**Table 5.4.1: Median Values for Per Capita Costs of Water Supply and Sanitation Systems, 1980 and 1985 (median per capita costs US\$)**

	<i>Urban Water</i>		<i>Rural Water</i>	<i>Urban Sanitation</i>		<i>Rural Sanitation</i>
	<i>House Connection</i>	<i>Standpost</i>		<i>Sewer Connection</i>	<i>Other means</i>	
1980	250	102	112	530	365	100
1985	290	75	123	480	345	70

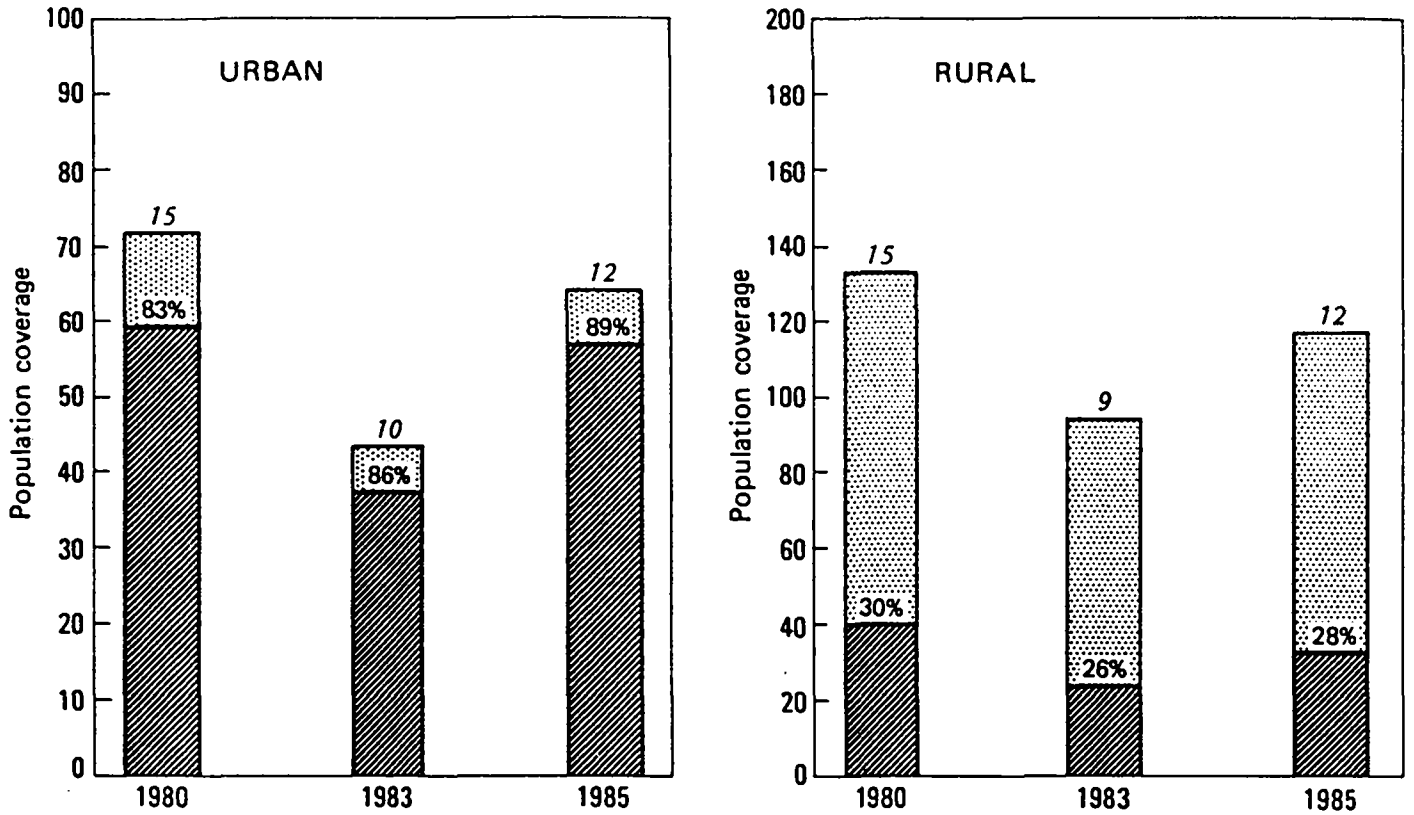
### **5.5 Decade approaches**

These refer to programme orientations towards rural and urban poor, support to investment programmes through health education, integration of water supply and sanitation with other elements of primary health care, and the fuller involvement of women. Little information was available (table 5.9), but Afghanistan, Tunisia and Yemen Arab Republic reported urban water development programmes specifically aimed at the poor, while Morocco, Afghanistan and Tunisia reported 100% of primary school children receiving health education related to water and sanitation.

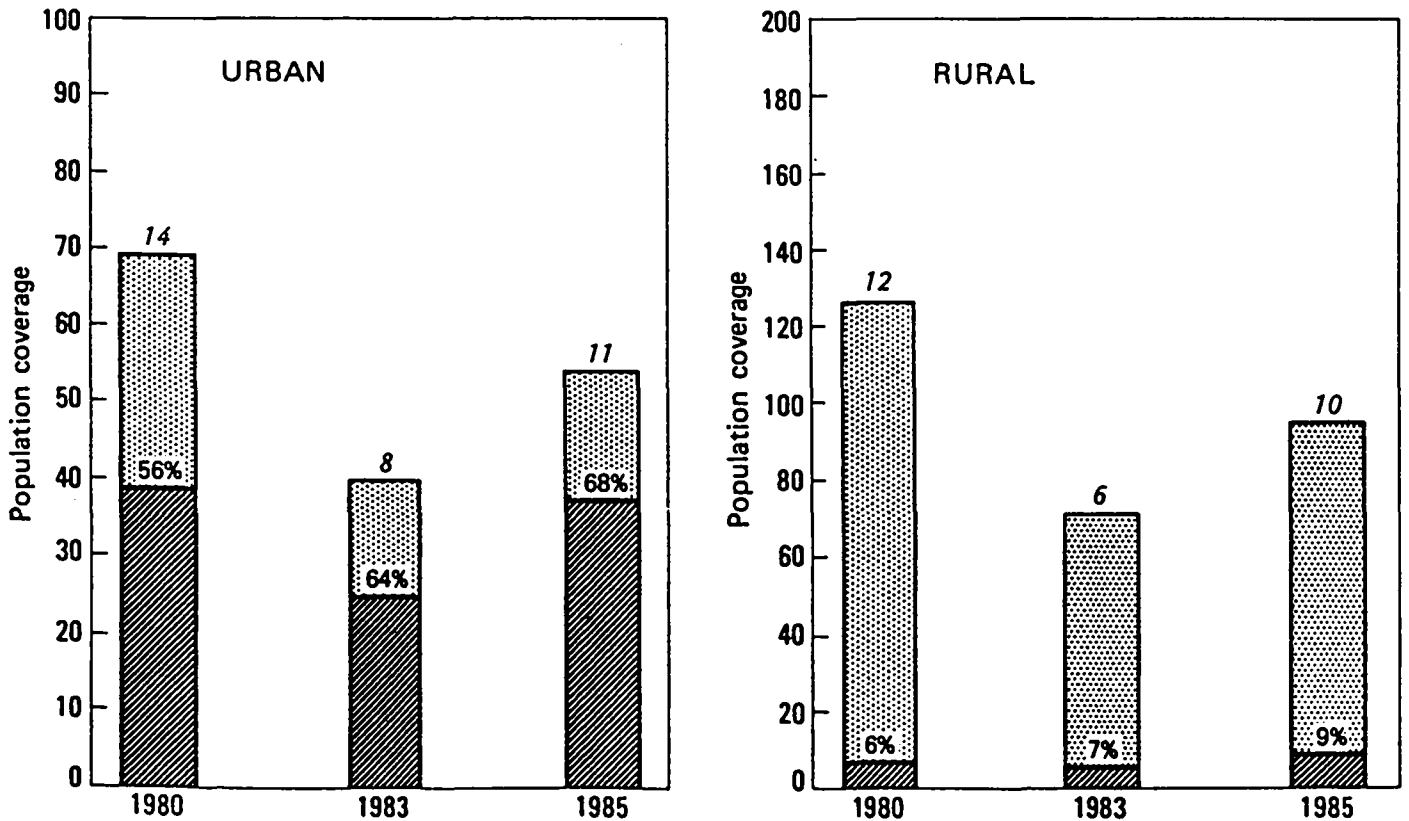
Morocco and Cyprus reported rural sector programmes being integrated with primary health care, but only Morocco ran a programme to promote women's involvement. Oman was alone in reporting use of community based workers in rural programmes (table 5.5).



**Fig. 5.1 EASTERN MEDITERRANEAN REGION**  
**POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



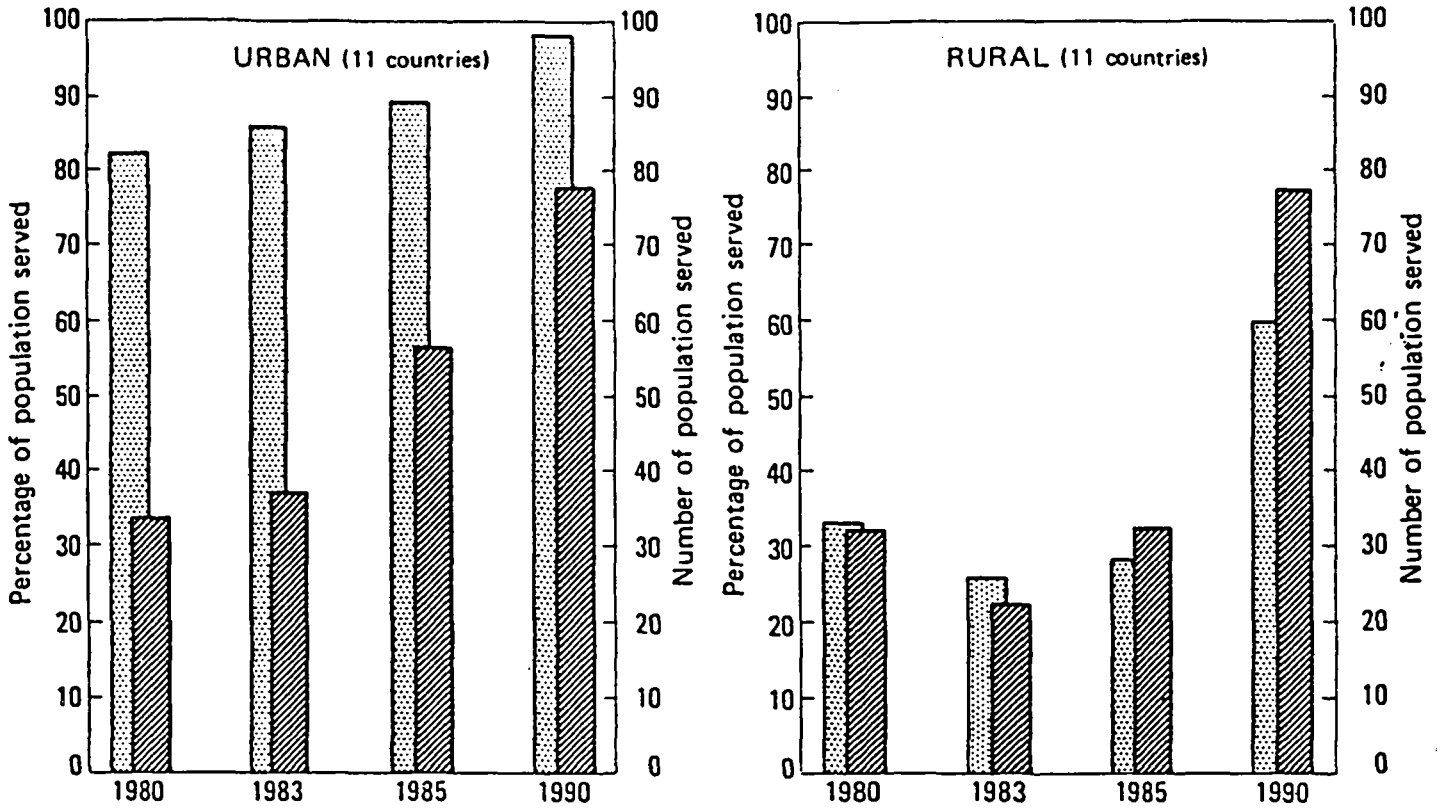
25 No. of countries reporting  
 Total population (x 1 million)  
 Population covered (x 1 million)

<sup>a</sup>See Tables A.3.2.1 to A.3.2.4.

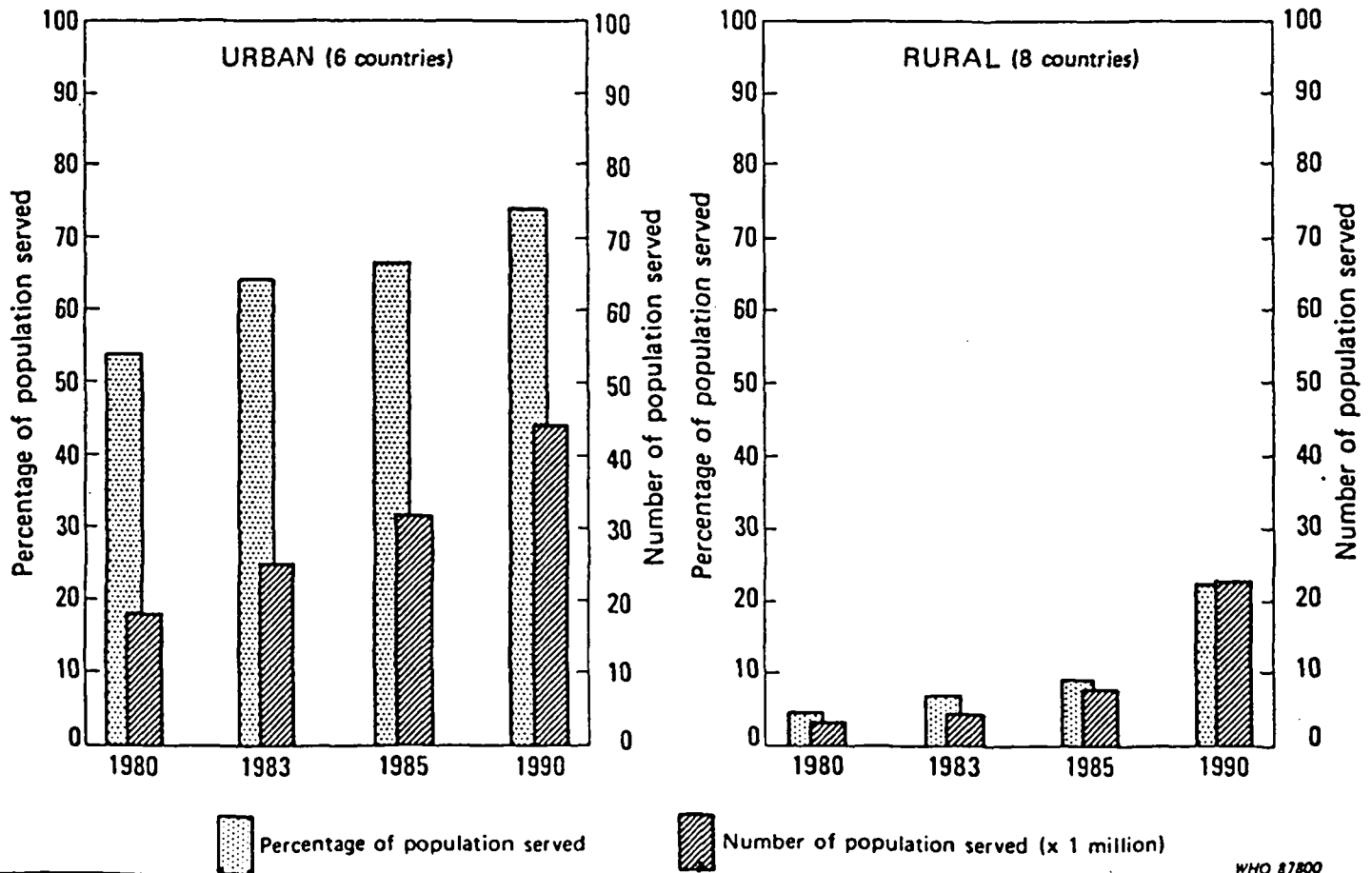
Fig. 5.2 EASTERN MEDITERRANEAN REGION

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE**<sup>a</sup>

**WATER SUPPLY**



**SANITATION**



Percentage of population served
  Number of population served (x 1 million)

<sup>a</sup> See Tables 5.4.1.1, 5.4.1.2, 5.4.2.1 and 5.4.2.2.

TABLE 5.1 - EASTERN MEDITERRANEAN REGION

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Waterborne disease cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Pakistan	93 800	3.0	390	55	80	315	57	81
Morocco	22 053	2.6	512	61	91	11	42	64
Afghanistan*	16 140	1.9	163	41	182	2 214	80	99
Iraq	15 600	3.1	2 964	-	-	-	16	31
Yemen Arab Republic*	9 274	2.6	471	42	174	3 784	65	92
Saudi Arabia	8 786	3.2	-	-	-	-	7	8
Tunisia	7 341	2.5	1 277	62	60	60	30	48
Somalia*	5 515	2.9	200	49	170	-	69	85
Oman	1 500	3.1	-	50	25	-	42	61
Cyprus	541	1.2	3 572	75	12	-	0	0
Djibouti*	430	3.0	276	48	200	-	57	38
Bahrain	425	3.2	-	-	-	-	20	0

\* Least-developed country.

**TABLE 5.2 - EASTERN MEDITERRANEAN REGION**  
**COVERAGE TARGETS (% of population) AND DECADE PLANS (1990)**

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	100 <sup>a</sup>				66	15	1980
Morocco	80	20	50	50	50	50	1985
Afghanistan*	31	25	1	4	32	-	1986
Iraq	100	0	41	59	80	25	Under preparation
Yemen Arab Republic*	69	31	42	58	50	-	Plan no/targets yes
Saudi Arabia	83	17	70	24	100	61	Plan no/targets yes
Tunisia	100	0	81	-	42	-	Plan preparation/ targets partial
Somalia*	36	43	12	55	55	25	Yes
Oman	100	0	80	15	60	40	No
Cyprus	100	0	27	73	100	100	No
Bahrain	100	0	-	-	100	-	1981

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 5.3 - EASTERN MEDITERRANEAN REGION

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service								
	Total	Urban	Rural	Drinking-water			Sanitation					
				Total	Urban By H.C. <sup>a</sup>	By S.P. <sup>b</sup>	Rural	Total	Urban By S.C. <sup>c</sup>	By other means	Rural	
Pakistan	93 800	26 900 (29)	66 900 (71)	22 282 (83)	-	-	18 094 (27)	13 800 (51)	-	-	-	4 020 (6)
Morocco	22 053	9 676 (44)	12 377 (56)	9 676 (100)	6 580 (68)	3 096 (32)	3 094 (25)	-	6 000 (62)	-	-	2 000 (16)
Afghanistan*	16 140	2 470 (15)	13 670 (85)	945 (38)	445 (18)	500 (20)	2 300 (17)	125 (5)	45 (2)	80 (3)	-	-
Iraq	15 600	10 200 (65)	5 400 (35)	10 200 (100)	10 200 (100)	0 (0)	2 920 (54)	10 200 (100)	4 000 (39)	6 200 (61)	620 (11)	-
Yemen Arab Rep.*	9 274	914 (10)	8 360 (90)	914 (100)	544 (60)	370 (40)	2 059 (25)	757 (83)	292 (32)	465 (51)	-	-
Saudi Arabia	8 786	7 029 (80)	1 757 (20)	7 000 (100)	6 000 (85)	1 000 (14)	1 200 (68)	7 029 (100)	5 000 (71)	2 029 (29)	575 (33)	-
Tunisia	7 341	3 877 (53)	3 464 (47)	3 877 (100)	3 513 (91)	364 (9)	1 090 (31)	3 254 (84)	2 099 (54)	1 158 (30)	552 (16)	-
Somalia*	5 515	1 379 (25)	4 136 (75)	793 (58)	396 (29)	397 (29)	920 (22)	600 (44)	0 (0)	600 (44)	212 (5)	-
Oman	1 500	340 (23)	1 160 (77)	306 (90)	275 (81)	31 (9)	568 (49)	299 (88)	268 (79)	31 (9)	290 (25)	-
Cyprus	541	344 (64)	198 (36)	344 (100)	344 (100)	0 (0)	198 (100)	344 (100)	50 (15)	294 (85)	198 (100)	-
Djibouti*	430	323 (75)	108 (25)	162 (50)	127 (39)	35 (11)	22 (20)	250 (78)	125 (39)	125 (39)	18 (17)	-
Bahrain	425	339 (80)	86 (20)	339 (100)	339 (100)	0 (0)	86 (100)	339 (100)	106 (31)	233 (69)	86 (100)	-
Total	181 405	63 790 (35)	117 615 (65)	56 838 (89)	28 764 (78)	5 793 (16)	32 550 (28)	36 997 (68)	17 985 (49)	11 215 (41)	8 571 (9)	-

\* Least-developed country.

<sup>a</sup> H.C. = House connections.<sup>b</sup> P.S. = Public standpost..<sup>c</sup> S.C. = Sewer connection.

TABLE 5.4 - EASTERN MEDITERRANEAN REGION

PRESENT (1985 - 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	26 900	22 282 <sup>a</sup>		13 800 <sup>a</sup>		66 900	18 094	4 020
	34 200	34 200 <sup>a</sup>		22 230 <sup>a</sup>		77 300	51 018	11 595
Morocco	9 676	6 580	3 096	6 000	-	12 377	3 094	2 000
	11 600	9 280	2 320	5 800	5 800	13 580	6 790	6 790
Afghanistan*	2 470	445	500	45	80	13 670	2 300	-
	3 199	987	800	47	139	12 800	4 100	-
Iraq	10 200	10 200	0	4 000	6 200	5 400	2 920	620
	12 191	12 191	0	5 000	7 191	6 000	4 800	1 500
Yemen Arab Rep.*	914	465	664	292	465	8 360	2 059	-
	1 295	900	395	540	755	9 154	4 577	-
Saudi Arabia	7 029	6 000	1 000	5 000	2 029	1 757	1 200	575
	9 346	7 772	1 574	6 519	2 278	940	940	575
Tunisia	3 877	3 513	364	2 099	1 158	3 464	1 090	552
	4 892	4 892	0	3 963	-	3 262	1 370	-
Somalia*	1 379	396	396	0	600	4 136	920	212
	1 588	564	689	188	877	4 763	2 631	1 210
Oman	340	275	31	268	31	1 160	568	290
	400	400	0	320	60	1 350	810	540
Cyprus	344	344	0	50	294	198	198	198
	376	376	0	100	276	197	197	197
Djibouti*	323	127	35	125	125	108	22	18
	405	-	-	-	-	30	-	-
Bahrain	339	339	0	106	233	86	86	86
	457	457	0	457	0	67	67	67

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 5.4.1.1 - EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban population (000)		WATER SUPPLY			
			Population covered		1990	
	1985	1990	1985 No. (000)	%	No. (000)	%
Pakistan	26 900	34 200	22 282	83	34 200	100
Morocco	9 676	11 600	9 676	100	11 600	100
Afghanistan*	2 470	3 199	945	38	1 787	56
Iraq	10 200	12 191	10 200	100	12 191	100
Yemen Arab Republic*	914	1 295	914	100	1 295	100
Saudi Arabia	7 029	9 346	7 000	100	9 346	100
Tunisia	3 877	4 892	3 877	100	4 892	100
Somalia*	1 379	1 588	793	58	1 253	79
Oman	340	400	306	90	400	100
Cyprus	344	376	344	100	376	100
Bahrain	339	457	339	100	457	100
<b>Total</b>	<b>63 468</b>	<b>79 544</b>	<b>56 676</b>	<b>90</b>	<b>77 797</b>	<b>98</b>

\* Least-developed country.



TABLE 5.4.1.2 - EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No.(000)	%	No.(000)	%
Pakistan	26 900	34 200	13 800	51	22 230	65
Afghanistan*	2 470	3 199	125	5	186	6
Iraq	10 200	12 191	10 200	100	12 191	100
Saudi Arabia	7 029	9 346	7 029	100	8 797	94
Oman	340	400	299	88	380	95
Bahrain	339	457	339	100	457	100
<b>Total</b>	<b>47 278</b>	<b>59 793</b>	<b>31 792</b>	<b>67</b>	<b>44 241</b>	<b>74</b>

\* Least-developed country.

TABLE 5.4.2.1 - EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No.(000)	%	No.(000)	%
Pakistan	66 900	77 300	18 094	27	51 018	66
Morocco	12 377	13 580	3 094	25	6 790	50
Afghanistan*	13 670	12 800	2 300	17	4 100	32
Iraq	5 400	6 000	2 920	54	4 800	80
Yemen Arab Republic*	8 360	9 154	2 059	25	4 577	50
Saudi Arabia	1 757	940	1 200	68	940	100
Tunisia	3 464	3 262	1 090	31	1 370	42
Somalia*	4 136	4 763	920	22	2 631	55
Oman	1 160	1 350	568	49	810	60
Cyprus	198	197	198	100	197	100
Bahrain	86	67	86	100	67	100
<b>Total</b>	<b>117 508</b>	<b>129 413</b>	<b>32 529</b>	<b>28</b>	<b>77 300</b>	<b>60</b>

\* Least-developed country.

TABLE 5.4.2.2 - EASTERN MEDITERRANEAN REGION

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural population (000)		SANITATION			
			Population covered		1990	
	1985	1990	1985 No.(000)	%	No.(000)	%
Pakistan	66 900	77 300	4 020	6	11 595	15
Iraq	5 400	6 000	620	11	1 500	25
Morocco	12 377	13 580	2 000	16	6 790	50
Saudi Arabia	1 757	940	575	33	575	61
Somalia*	4 136	4 763	212	5	1 210	25
Oman	1 160	1 350	290	25	540	40
Cyprus	198	197	198	100	197	100
Bahrain	86	67	86	100	67	100
<b>Total</b>	<b>92 014</b>	<b>104 197</b>	<b>8 001</b>	<b>9</b>	<b>22 474</b>	<b>22</b>

\* Least-developed country.

TABLE 5.5 - EASTERN MEDITERRANEAN REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
Afghanistan*	60 -	151 -	84 -	357 -	336 -	61 -	No	Yes (rural only)
Iraq	144 -	797 -	6 808 -	1 566 -	6 416 -	1 008 -	-	-
Yemen Arab Republic*	20 44	133 221	388 541	370 448	385 475	139 165	-	-
Tunisia	- -	- -	- -	- -	- -	572 <sup>a</sup> -	-	-
Oman	- -	- -	- -	- -	- -	- -	Yes	No <sup>b</sup>
Cyprus	18 -	70 -	360 -	16 -	800 -	2 336 -	No	No
Djibouti*	50 50	160 300	4 6	- -	- -	- -	No	Yes <sup>c</sup>
Bahrain	27 -	234 -	463 -	77 -	318 -	2 633 2 481	No	Yes/Yes

\* Least-developed country.

<sup>a</sup> Tunisian figures refer Sonede only.

<sup>b</sup> Training Officer appointed.

<sup>c</sup> Non-permanent.

TABLE 5.6 - EASTERN MEDITERRANEAN REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction				Operation				
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
House connection	Standposts	Sewer connection	Other means						
Pakistan	40	-	45	-	30	15	-	-	Yes
Morocco	8	-	-	-	-	-	0.14	0.10	No
Afghanistan*	75	60	2 000	413	20	15	0.30	0.15	No
Iraq	350	-	350	100	100	100	0.12	-	-
Yemen Arab Republic*	400	325	530	400	170	160	-	1.16	Yes
Saudi Arabia	300	-	800	150	-	-	1.00	0.10	No
Tunisia	280	35	480	194	150	40	0.50	0.35	Yes
Somalia*	130	90	400	400	100	30	-	0.16	No
Oman	-	-	-	-	145	-	-	1.15	No
Cyprus	-	-	430	290	-	290	0.40	0.35	Yes
Djibouti*	410	1 690	-	-	-	-	0.40	0.55	Yes
Bahrain	1 725	-	1 140	660	1 725	600	-	-	Yes

\* Least-developed country.

TABLE 5.7 - EASTERN MEDITERRANEAN REGION

## COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ million	Sector Investments (1981-1985)			Acceleration in investment needed (fold)
		Total US\$ million	Percentage of total development investment	External US\$ million (%)	
Morocco	-	76 750 <sup>a</sup>	35.00	-	-
Afghanistan*	134	76	2.10	1.61 (2)	1.13
Iraq	-	11 245	-	0.00 (0)	-
Yemen Arab Republic*	1 055 <sup>b</sup>	353	5.22	108.40 (31)	1.50
Tunisia	-	114	5.70	52.70 (46)	-
Cyprus	115	-	-	-	-
Djibouti*	119	-	0.30	- (100)	-
Bahrain	1 323	741	-	29.18 (4)	0.89

\* Least-developed country.

<sup>a</sup> Urban water supply only.<sup>b</sup> Same as figure given in 1983, excludes rural sanitation.

TABLE 5.8 - EASTERN MEDITERRANEAN REGION

RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Funding limitations	6	1	2	22
Insufficiency of trained personnel (professional)	3	4	4	21
Insufficiency of trained personnel (sub-professional)	2	5	3	19
Operation and maintenance	3	4	1	18
Inadequate or out-moded legal framework	1	6	2	17
Inadequate water resources	3	3	2	17
Inappropriate institutional framework	3	2	3	16
Inadequate cost-recovery framework	2	4	2	16
Insufficient knowledge of water resources	2	3	2	14
Intermittent water service	1	4	1	12
Insufficient health education efforts	1	2	4	11
Import restrictions	2	1	3	11
Logistics	1	3	2	11
Non-involvement of communities	0	4	3	11
Lack of definite government policy for sector	0	2	6	10
Lack of planning and design criteria	1	1	5	10
Inappropriate technology	0	2	4	8
Currency devaluation <sup>c</sup>		1		
Divided water resources <sup>d</sup>	1			

<sup>a</sup> Number of reporting countries: 13.

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

<sup>c</sup> Yemen Arab Republic.

<sup>d</sup> Cyprus.

TABLE 5.9 - EASTERN MEDITERRANEAN REGION

DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education	Promotion of women's participation (Yes/No)	Water supply and sanitation in rural areas as component of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	No. of rural communities participating in improvements					
				Planning (%)	Building (%)	Operating (%)			
Morocco	-	-	-	-	-	-	100	Yes	Yes
Afghanistan*	50	15	-	20	63	100	100	-	-
Yemen Arab Republic*	950	20	-	90	20	100	4	-	-
Tunisia	400	70	-	0	0	0	100	-	-
Oman	-	-	-	-	-	-	-	No	No
Cyprus	-	-	-	-	-	-	-	No	Yes
Bahrain	-	-	-	0	0	0	-	No	-

\* Least-developed country.



TABLE 5.10.1 - EASTERN MEDITERRANEAN REGION

URBAN WATER SUPPLY SERVICES (1980/1985)

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
			1980		1985	
	1980	1985	No. (000)	%	No. (000)	%
Pakistan	23 700	26 900	17 000	72	22 282	83
Afghanistan*	1 890	2 470	521	28	945	38
Yemen Arab Republic*	710	914	710	100	914	100
Saudi Arabia	6 358	7 029	5 832	92	7 000	100
Tunisia	3 500	3 877	3 500	100	3 877	100
<b>Total</b>	<b>36 158</b>	<b>41 190</b>	<b>27 563</b>	<b>76</b>	<b>35 018</b>	<b>85</b>

\* Least-developed country.

TABLE 5.10.2 - EASTERN MEDITERRANEAN REGION

URBAN SANITATION SERVICES (1980/1985)

Country/ territory	<u>Urban population (000)</u>		<u>SANITATION</u> <u>Population covered</u>			
	1980	1985	1980		1985	
			No.(000)	%	No.(000)	%
Pakistan	23 700	26 900	10 000	42	13 800	51
Saudi Arabia	6 358	7 029	5 131	81	7 029	100
Total	30 058	33 929	15 131	50	20 829	61

TABLE 5.10.3 - EASTERN MEDITERRANEAN REGION

RURAL WATER SUPPLY (1980/1985)

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No.(000)	%	No.(000)	%
Pakistan	60 100	66 900	12 000	20	18 094	27
Afghanistan*	14 380	13 670	1 100	8	2 300	17
Yemen Arab Republic*	5 517	8 360	993	18	2 059	25
Saudi Arabia	1 150	1 757	1 000	87	1 200	68
<b>Total</b>	<b>81 147</b>	<b>90 687</b>	<b>15 093</b>	<b>19</b>	<b>23 653</b>	<b>26</b>

\* Least-developed country.

TABLE 5.10.4 - EASTERN MEDITERRANEAN REGION

RURAL SANITATION (1980/1985)

Country/ territory	Rural population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No.(000)	%	No.(000)	%
Pakistan	60 100	66 900	1 000	2	4 020	6
Saudi Arabia	1 150	1 757	575	50	575	33
Total	61 250	68 657	1 575	3	4 595	7

TABLE 5.11 - EASTERN MEDITERRANEAN REGION

WATER CONSUMPTION  
(Year 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban	Rural	Urban	Rural
	l/c/d	l/c/d	l/c/d	l/c/d
Morocco	-	-	117	50
Iraq	370	225	315	150
Yemen Arab Republic*	60	40	60	40
Saudi Arabia	350	250	250	110
Tunisia	-	20	73	23
Somalia*	30-130	25	25	15
Oman	250	45	220	35
Cyprus	250	150	220	130
Bahrain	320	270	502	1

\* Least-developed country.



## **6. WESTERN PACIFIC REGION**

### **6.1 Socio-economic and health situation**

Fourteen nations submitted reports, but because of the great variations in populations, cultures and other features it is only possible to examine conditions country by country and not regionally. No information was provided on China's service levels. In the eight countries reporting in 1980 and 1985, populations rose 13%, with urban growth reaching 15% and rural growth 8%. Individual annual growth rates ranged from Tonga's 0.9% to Vanuatu's 2.9%, with a median of 1.3%.

Of the 11 countries reporting, only Papua New Guinea said more than half its population was without safe and adequate water supplies, and three countries reported similarly low levels for sanitation.

Life expectancy generally remained as in 1980, with all countries except Papua New Guinea reporting more than 50 years. Infant mortality ranged from 10 to 75 per 1,000 live births compared to 10 to 73 in 1980, with a median of 32 both times. Water-borne diseases were only reported by six countries, compared with 13 in 1980 when the median value was 974 cases per 100,000 people. In 1985 the figure rose to 1,755.

The lowest gross national product of US\$354 was reported for Tonga and the highest of US\$2,033 for Malaysia with the Republic of Korea fractionally behind. Median GNP was US\$617.

### **6.2 Targets and planning**

#### **Water supply**

Overall, in the first half of the Decade 21.07 million additional people were served with water supplies raising coverage by 5% to 58%. To reach the 1990 target of 72% another 57.59 million people will have to be served, representing programme acceleration by a factor of 2.7.

In urban areas the level of coverage appears to have actually fallen by 1% to 75% during the first five years, but this is partly the result of downward revisions of estimates by the Philippines between 1980 and 1985. Nevertheless, an additional 8.29 million people received water supplies in the first half of the Decade, and to achieve the 1990 target of 89% set by responding countries another 21.76 million will need supplies. This represents a programme acceleration by a factor of 2.6 (table 6.4.1.1).

Progress in rural water is more clear, with 12.78 million people receiving supplies in the first five years, raising the level of coverage from 41% to 48%. An acceleration by a factor of 2.8 will be needed to raise coverage to the 63% target by serving an additional 35.83 million people (table 6.4.2.1).

**Table 6.2.1: Urban Water Supply Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	58.18	70.01	83.45
Estimated % service coverage	76*	75	89
Estimated population served or to be served (millions)	44.22	52.51	74.27

\* Adjusted downwards to allow for reassessment of criteria of safe and adequate services in the Philippines.

**Table 6.2.2: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	114.80	124.68	151.88
Estimated % service coverage	41	48	63
Estimated population served or to be served (millions)	47.07	59.85	95.68

**Table 6.2.3: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population estimate (millions)	172.98	194.69	235.33
Estimated population served or to be served (millions)	91.29	112.36	169.95
Estimated % service coverage	53	58	72

### Sanitation

Overall, in the first half Decade service levels increased from 73% to 76% by the addition of 21.67 million people with sanitation facilities. A modest further rise of 4%, or 40.53 million people, is needed to reach the 1990 target of 80%, representing a programme acceleration of 1.9.

This region is probably the most advantaged. It already enjoys a relatively high level of coverage especially in urban areas, where as many as 93% of the population in 1980 was served, compared with 54%, 56%, 30% and 57% in Africa, the Americas, South East Asia and Eastern Mediterranean respectively. In the first five years urban sanitation coverage rose to 94% with an additional 11.70 million people being served. The region has just to boost its first half implementation rate



by a factor of 1.15 to reach the 1990 goal of 95%, covering 13.47 million extra people (table 6.4.1.2).

The region also enjoys high levels of rural sanitation, with a 1980 coverage of 63%, more than three times higher than the nearest rival, Africa and nine times more than for the Eastern Mediterranean (table 6.4.2.2). In the first five years 9.97 million people were provided with sanitation facilities (excluding China), raising coverage by 63% to 66%. In the second half another 27.06 million will have to be served to reach the 72% target for 1990 representing an acceleration of 2.71.

**Table 6.2.4: Urban Sanitation Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	58.18	70.01	83.45
Estimated % service coverage	93	94	95
Estimated population served or to be served (millions)	54.11	65.81	79.28

\* Adjusted downwards to allow for reassessment of criteria of safe and adequate services in the Philippines.

**Table 6.2.5: Rural Sanitation Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	114.80	124.68	151.88
Estimated % service coverage	63	66	72
Estimated population served or to be served (millions)	72.32	82.29	109.35

**Table 6.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population estimate (millions)	172.98	194.69	235.33
Estimated population served or to be served (millions)	126.43	148.10	188.63
Estimated % service coverage	73	76	80

### **6.3 Staff and training**

Lack of professional personnel ranked as the worst constraint to attaining Decade goals, ahead of inadequate funding and lack of sub-professional personnel. Eight out of 10 countries complained of severe shortages of professional staff and seven out of nine said the same of sub-professionals.

Training budgets existed in eight countries, but four said these were inadequate and two reported that budgets dealt only with the water sector. Community based workers were employed in the rural water and sanitation sector in six out of eight countries.

### **6.4 Financial resources**

Funding ranked second equal as a constraint to implementing Decade goals, after staffing, and in the first half Decade relatively high levels of investment were seen in the region. For the second half, rough estimates put the cost at US\$5,523 million, of which 66% will be required for the urban sub-sector and only 6% for rural sanitation, reflecting some neglect of the country areas.

Dependence on external sources of finance ranged from Samoa's 87% to self sufficiency in Malaysia and Tonga. The median value was 51.5%. To raise finance internally, six out seven reporting countries operated tariffs which either equalled costs of production or were higher. Only in Samoa was the tariff less and the Cook Island had no tariffs at all.

Unit costs of providing water and sanitation (table 6.6) varied widely, with the cost of urban water supplies ranging from US\$320 for house connections in Samoa to just US\$1 for standposts in the Philippines. Sanitation costs ranged from US\$1,000 for sewer connections in Papua New Guinea to US\$3 in rural Malaysia. Median costs of urban water through house connections was reported to have risen US\$21 since 1980 to US\$96. Only three countries supplied data on urban standposts and the average unit cost was US\$42 as opposed to the 1980 figure of US\$91. Data on rural water was supplied by 10 countries and the median value was estimated at US\$44 as opposed to US\$26 in 1980.

Urban sanitation through sewer connections changed in median values from US\$344 in 1980 to US\$440 five years later according to reports from just three countries. Urban sanitation by other methods were reported by seven countries with a median value of US\$73 in 1985, US\$23 more than at the Decade start. Median value for rural sanitation was US\$12, up from US\$5 in 1980.

The scope for making savings by trimming design criteria for services appears to be smaller in this region than others (table 6.11). Only five countries reported the possibility of making such reductions, while Malaysia had reached a balance between supply and demand and in Papua New Guinea, the Cook Islands and Samoa, consumption was higher than the designed capacities.

**Table 6.4.1: Median Values for Per Capita Costs of Water Supply and Sanitation Systems, 1980 and 1985 (median per capita costs US\$)**

	<i>Urban Water</i>		<i>Rural Water</i>	<i>Urban Sanitation</i>		<i>Rural Sanitation</i>
	<i>House Connection</i>	<i>Standpost</i>		<i>Sewer Connection</i>	<i>Other means</i>	
1980	75	91*	26	344**	50	5
1985	96	42*	44	444**	73	12

\* Average value because only three countries reported

\*\* Average considered more representative

### 6.5 Decade approaches

These refer to programme orientations towards rural and urban poor, support to investment programmes through health education, integration of water supply and sanitation with other elements of primary health care, and the fuller involvement of women.

Information was provided by 10 countries, but was still patchy (table 6.9). The Philippines reported a programme aimed at the urban poor as did Papua New Guinea, but in this case only a small proportion of the population was said to be benefiting. Community participation ranged from 100% in planning, construction and operation in the Republic of Korea and Vanuatu, to no participation in planning or operation in Samoa.

Health education was reported to be integrated in primary school curricula by six countries, with three indicating that all their school children benefited in this way. This represented no change from 1980. Only four out of nine countries ran programmes promoting women's participation. All but two of the eight reporting countries said rural water and sanitation schemes were integral parts of primary health care strategies.

**Fig. 6.1 WESTERN PACIFIC REGION**  
**POPULATION COVERAGE IN 1980, 1983 & 1985<sup>a</sup>**

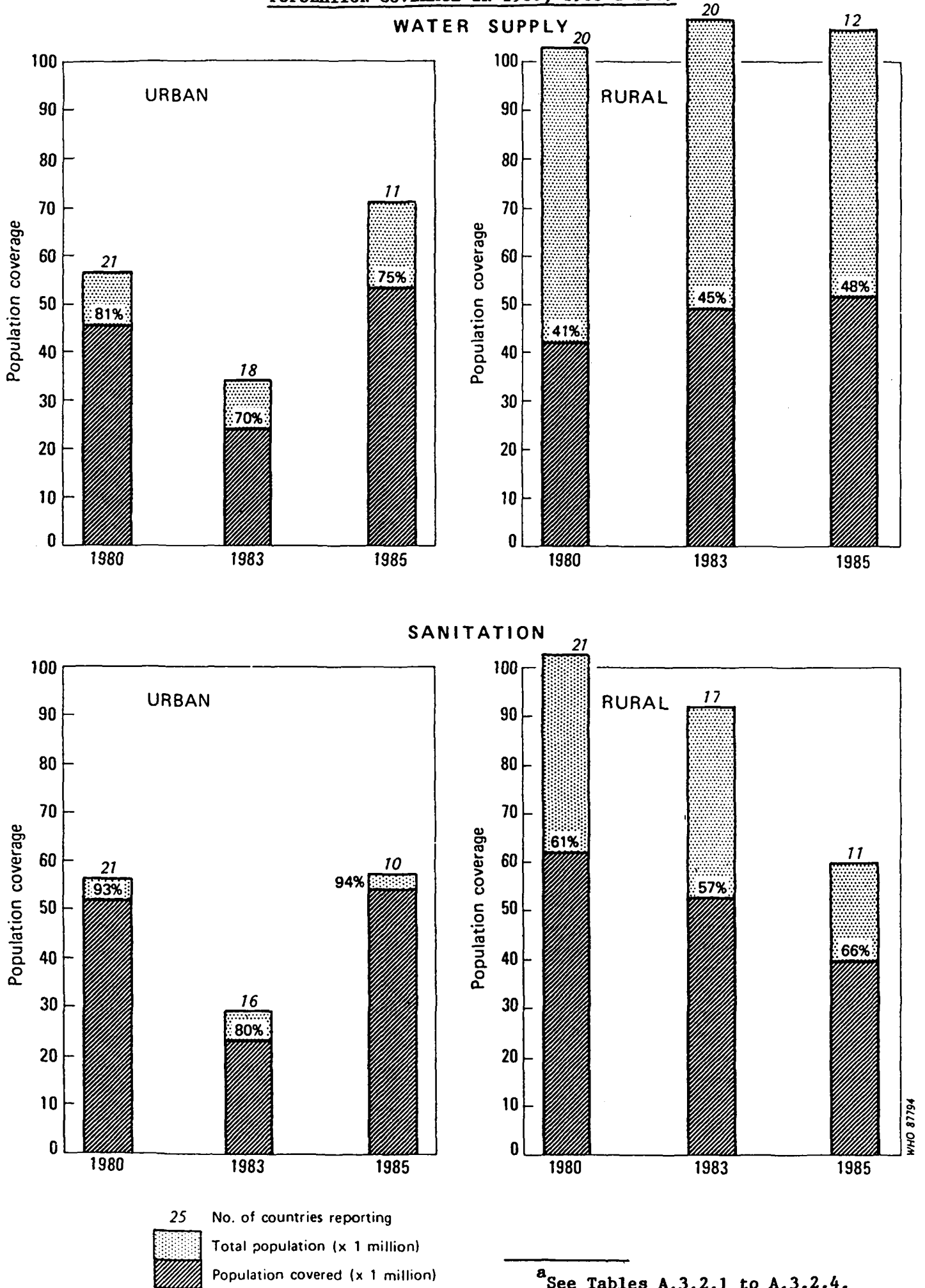
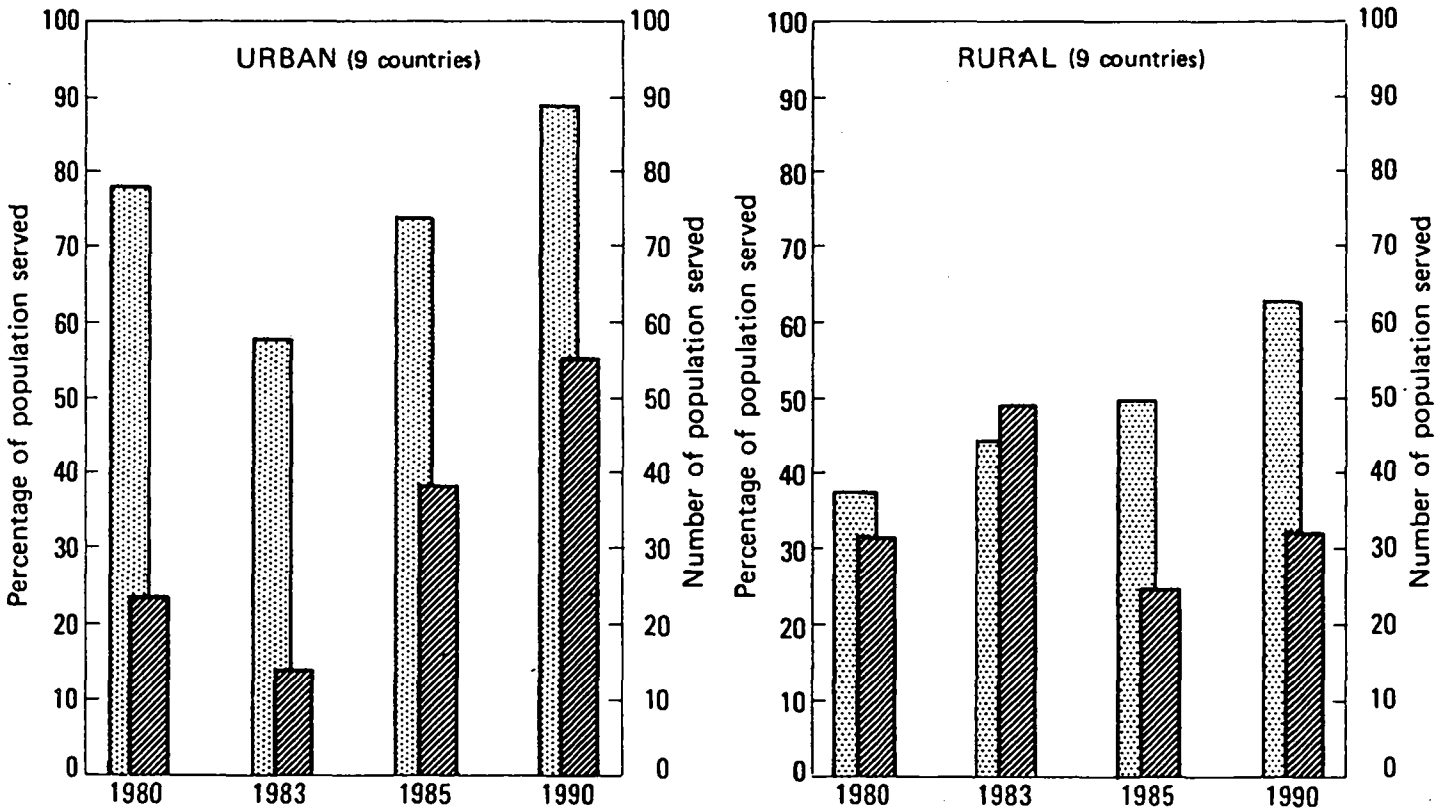


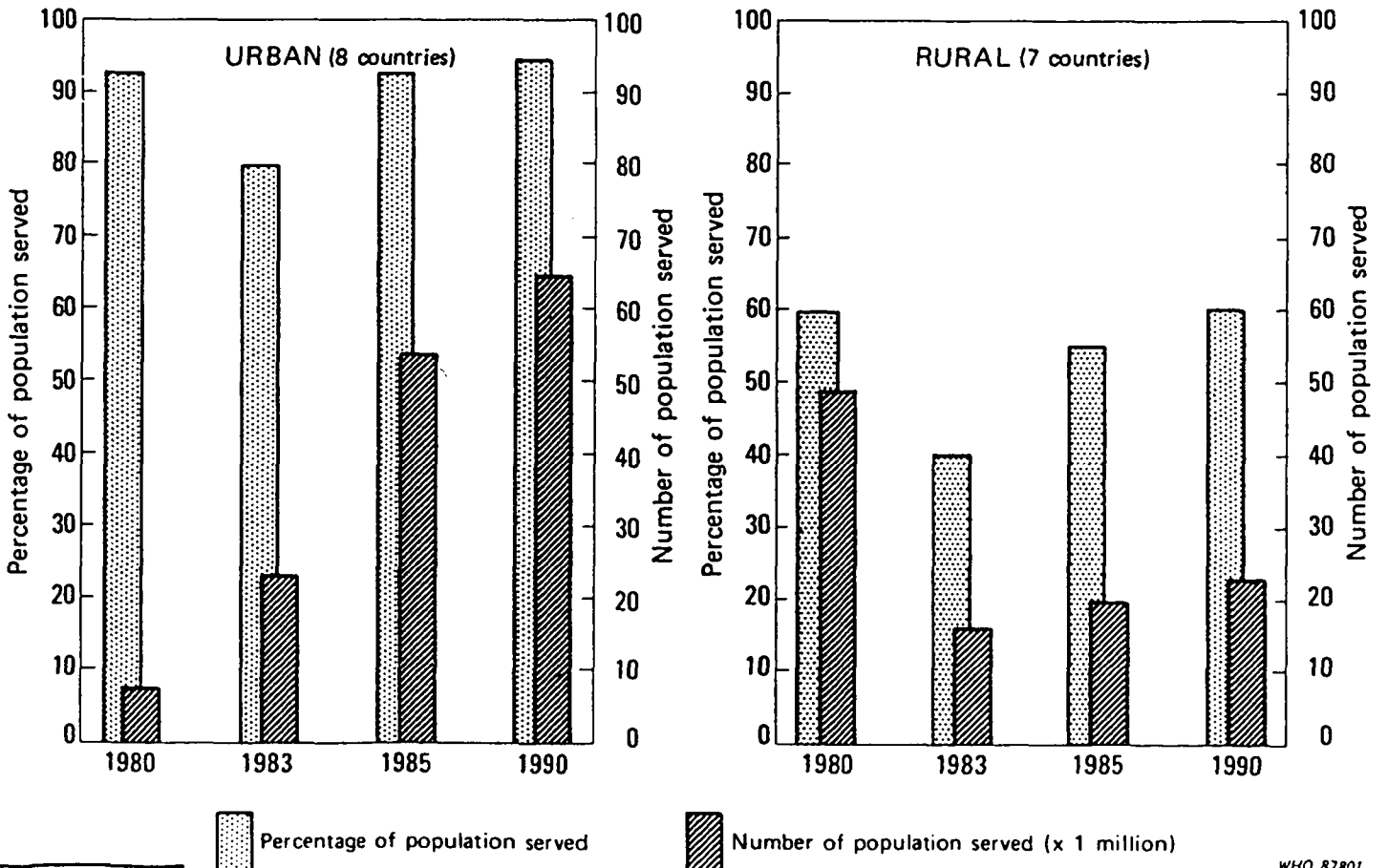
Fig. 6.2 WESTERN PACIFIC REGION

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980, 1983 & 1985 LEVELS OF COVERAGE<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**



Percentage of population served
  Number of population served (x 1 million)

<sup>a</sup> See Tables 6.4.1.1, 6.4.1.2, 6.4.2.1 and 6.4.2.2.

TABLE 6.1 - WESTERN PACIFIC

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 100 000 live births	Waterborne diseases (cases per 100 000)	Population without safe water (%)	Population without sanitation (%)
China	1 034 750	1.1	-	68	14-25 <sup>a</sup>	402	-	-
Vietnam	59 949	-	-	-	-	-	-	-
Philippines	55 336	2.5	585	63	57	785	48	33
Korea, Rep. of	41 056	1.3	2 032	68	33	-	24	0
Malaysia	15 677	2.7	2 033	70	17	410	17	26
Papua New Guinea	3 343	2.3	649	50	72	2 724 <sup>b</sup>	75	57
Singapore	2 558	1.1	-	-	-	-	0	1
Samoa*	160	2.3	-	64	29	-	31	16
Vanuatu*	137	2.9	529	56	75	-	39	65
Tonga	97	0.9	354	60	10	3 015	5	0
Cook Islands	17	-	-	64	32	-	6	0
Tuvalu*	8	1.3	386	59	54	4 520	0	25
Niue	3	-	-	-	-	-	-	-
Tokelau	1	1.2	900	-	-	-	0	59

\* Least-developed country.

<sup>a</sup> Range of values for different Provinces.

<sup>b</sup> Diarrhoea only.

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	Standpost	Sewer connection	By other means			
Philippines	64	14	4	83	73	60	1982
Korea, Rep. of	97	-	61	-	36	-	1981
Malaysia	100	0	48	52	83	66	1985
Papua New Guinea	90	9	20	79	50	50	1984
Singapore	100	0	100	0	-	-	1980
Samoa*	89	-	-	80	80	88	No
Vanuatu*		100 <sup>a</sup>	-	-	100	100	1982
Tonga	93	0	-	-	-	-	1985
Cook Islands	100	0	0	100	100	95	No
Tuvalu*	100	0	0	100	100	100	Under preparation
Niue	-	-	-	-	-	-	No

\* Least-developed country.

<sup>a</sup> No breakdown given.

TABLE 6.3 - WESTERN PACIFIC REGION

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water			Rural	Sanitation			Rural
				Total	Urban By H.C. <sup>a</sup>	By P.S. <sup>b</sup>		Total	Urban By S.C. <sup>c</sup>	By other	
Vietnam	59 949	12 804 (21)	47 145 (79)	8 963 (70)	- -	- -	18 528 (39)	- -	- -	- -	- -
Philippines	55 336	22 243 (40)	33 093 (60)	10 900 (49)	7 851 (35)	3 049 (14)	17 705 (54)	18 465 (83)	789 (4)	17 676 (79)	18 519 (56)
Korea, Rep. of	41 056	27 157 (66)	13 899 (34)	24 576 (90)	24 576 (90)	0 (0)	6 704 (48)	27 157 (100)	2 559 (9)	24 598 (91)	13 899 (100)
Malaysia	15 677	5 487 (35)	10 190 (65)	5 281 (96)	5 081 (93)	200 (4)	7 720 (76)	5 487 (100)	980 (18)	4 507 (82)	6 144 (60)
Papua New Guinea	3 343	435 (13)	2 908 (87)	413 (95)	348 (80)	65 (15)	436 (15)	431 (99)	87 (20)	344 (79)	1 018 (35)
Singapore	2 558	2 558 (100)	0 (0)	2 558 (100)	2 557 (100)	1 (0)	- -	2 529 (99)	2 276 (89)	253 (10)	- -
Samoa*	160	40 (25)	120 (75)	30 (75)	30 (75)	0 (0)	80 (67)	35 (88)	0 (0)	35 (88)	100 (83)
Vanuatu*	137	22 (16)	115 (84)	21 (95)	12 (55)	9 (40)	62 (54)	19 (86)	0 (0)	19 (86)	29 (25)
Tonga	97	36 (38)	61 (62)	36 (99)	36 (99)	0 (0)	60 (99)	36 (99)	0 (0)	36 (99)	24 (40)
Cook Islands	17	9 (54)	8 (46)	9 (99)	9 (99)	0 (0)	7 (88)	9 (100)	0 (0)	9 (100)	8 (99)
Tuvalu*	8	3 (35)	5 (65)	3 (100)	2 (85)	1 (15)	5 (100)	2 (81)	0 (0)	2 (81)	4 (73)
Niue	3	0 (0)	3 (100)	- -	- -	- -	3 (100)	- -	- -	- -	3 (100)
Tokelau	2	0 (0)	2 (100)	- -	- -	- -	2 (100)	- -	- -	- -	1 (41)
<b>Total</b>	<b>178 343</b>	<b>70 795 (40)</b>	<b>107 549 (60)</b>	<b>52 790 (75)</b>	<b>40 503 (70)</b>	<b>3 325 (6)</b>	<b>51 312 (48)</b>	<b>54 170 (94)</b>	<b>6 691 (12)</b>	<b>47 480 (82)</b>	<b>39 749 (66)</b>

\* Least-developed country.

<sup>a</sup> H.C. = House connection.<sup>b</sup> P.S. = Public standpost.<sup>c</sup> S.C. = Sewer connection.



TABLE 6.4 - WESTERN PACIFIC REGION

PRESENT (1985-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	Standpost	Sewer connection	Other means			
Philippines	22 243	7 851	3 049	789	17 676	33 093	17 705	18 519
	26 716	17 000	3 737	1 024	22 174	35 458	26 000	21 275
Korea, Rep. of**	27 157	24 576	0	2 559	24 698	13 899	6 704	13 899
	31 894	31 005	0	19 310	12 584	12 000	4 270	-
Malaysia	5 487	5 081	200	980	4 507	10 190	7 720	6 144
	6 620	-	-	6 620	-	9 130	-	-
Papua New Guinea	435	348	65	87	344	2 908	436	1 018
	745		671 <sup>b</sup>		738 <sup>b</sup>	2 982	1 491	1 491
Singapore	2 558	2 557	1	2 276	253	0	-	-
	2 710	2 710	0	2 710	0	0	-	-
Samoa*	40	30	0	0	35	120	80	100
	45	40	0	0	36	125	100	110
Vanuatu*	22	12	9	0	19	115	62	29
	26		26 <sup>b</sup>	-	-	128	128	128
Tonga	36	36	0	0	36	61	60	24
	42	39	0	-	-	60	60	60
Cook Islands	9	9	0	0	9	8	7	8
	10	10	0	0	10	10	10	10
Tuvalu*	3	2	1	0	2	5	5	4
	3		3 <sup>b</sup>		3 <sup>b</sup>	6	6	6
Tokelau	0	0	0	0	0	2	2	1
	0	0	0	0	-	-	-	-

\* Least-developed country.

<sup>a</sup> Water targets for 1991 and sanitation targets for 1996.

<sup>b</sup> No breakdown given.

TABLE 6.4.1.1 - WESTERN PACIFIC REGION

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Philippines	22 243	26 716	10 900	49	20 737	78
Korea, Rep. of	27 157	31 894	24 576	90	31 005	97
Papua New Guinea	435	745	413	95	671	90
Singapore	2 558	2 710	2 558	100	2 710	100
Samoa*	40	45	30	75	40	100
Vanuatu*	22	26	21	95	26	100
Tonga	36	42	36	99	39	93
Cook Islands	9	10	9	99	10	100
Tuvalu*	3	3	3	100	3	100
<b>Total</b>	<b>52 504</b>	<b>62 191</b>	<b>38 546</b>	<b>73</b>	<b>55 241</b>	<b>89</b>

\* Least-developed country.

TABLE 6.4.1.2 - WESTERN PACIFIC REGION

DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Philippines	22 243	26 716	18 465	83	23 198	87
Korea, Rep. of	27 157	31 894	27 157	100	31 894	100
Malaysia	5 487	6 620	5 487	100	6 620	100
Papua New Guinea	435	745	431	99	738	99
Singapore	2 558	2 710	2 529	99	2 710	100
Samoa*	40	45	35	88	36	80
Cook Islands	9	10	9	100	10	100
Tuvalu*	3	3	2	81	3	100
<b>Total</b>	<b>57 932</b>	<b>68 743</b>	<b>54 115</b>	<b>93</b>	<b>65 209</b>	<b>95</b>

\* Least-developed country.

TABLE 6.4.2.1 - WESTERN PACIFIC REGION

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Philippines	33 093	35 458	17 705	54	26 000	73
Korea, Rep. of	13 899	12 000	6 704	48	4 270	36
Papua New Guinea	2 908	2 982	4 36	15	1 491	50
Samoa*	120	125	80	67	100	80
Vanuatu*	115	128	62	54	128	100
Tonga	61	60	60	91	60	100
Cook Islands	8	10	7	88	10	100
Tuvalu*	5	6	5	100	6	100
<b>Total</b>	<b>50 209</b>	<b>50 769</b>	<b>25 059</b>	<b>50</b>	<b>32 065</b>	<b>63</b>

\* Least-developed country.

TABLE 6.4.2.2 - WESTERN PACIFIC REGION

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural population (000)		SANITATION Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Philippines	33 093	35 458	18 519	56	21 275	60
Papua New Guinea	2 908	2 982	1 018	35	1 491	50
Samoa*	120	125	100	83	110	88
Vanuatu*	115	128	29	25	128	100
Tonga	61	60	24	40	60	100
Cook Islands	8	10	8	99	10	95
Tuvalu*	5	6	4	73	6	100
<b>Total</b>	<b>36 310</b>	<b>38 769</b>	<b>19 702</b>	<b>54</b>	<b>23 079</b>	<b>60</b>

\* Least-developed country.

TABLE 6.5 - WESTERN PACIFIC REGION

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community-based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
Philippines	381	3 141	1 796	1 035	2 762	1 653	Yes	Yes/Yes
Korea, Rep. of	-	6 013 <sup>a</sup>		4 921	-	267	Yes	Yes/No
Malaysia	-	-	-	-	-	-	No	Yes/-
Papua New Guinea	3	20	52	28	44	22	-	-
Singapore	59	1 347	616	196	1 091	1 294	-	Yes/Yes (water only)
Samoa*	10	16	20	5	120	1 069	Yes	Yes/No
Vanuatu*	2	12	48	2	-	467	-	Yes/Yes (water) No
Tonga	9	42	-	48	86	1 859	Yes	Yes/No
Cook Islands	2	15	31	2	40	5 215	Yes	No
Tuvalu*	1	2	8	-	-	1 338	Yes	No
Niue	0	1	0	0	0	334	No	Yes/No

\* Least-developed country.

<sup>a</sup> No breakdown given.

Note: Tokelau - no specific staff allocated to water supply and sanitation; Works Department staff undertake the necessary duties.

TABLE 6.6 - WESTERN PACIFIC REGION

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
	House connection	Standpost	Sewer connection	Other means					
China	81	54	-	-	22	-	0.02	0.03	-
Philippines	34	1	31	41	22	12	0.05	0.15	Yes
Korea, Rep. of	135	-	-	35	40	16	0.19	-	No
Malaysia	150	-	300	200	26-160	3	-	-	-
Papua New Guinea	200	70	1 000	20-500	15	10	0.55	0.55	Yes
Singapore	41	-	-	-	-	-	0.24	0.29	-
Samoa*	320	-	-	120	180	70	0.09	0.03	No
Vanuatu*	-	-	-	-	62	5	0.22	0.34	No
Tonga	63	-	-	73	48	30	0.80	0.85	Yes
Cook Islands	96	-	-	60	75	15	-	0.00	No
Tokelau	-	-	-	-	6	6	2.12	-	No

\* Least-developed country.

TABLE 6.7 - WESTERN PACIFIC REGION

COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ million	Sector investments (1981-1985)			Acceleration in investment needed (fold)
		Total US\$ million	Percentage of total development investment	External US\$ million (%)	
Philippines	1 943	566	-	275 (49)	1.72
Korea, Rep. of <sup>a</sup>	1 260	1 262	-	-	0.00
Malaysia <sup>b</sup>	1 031	503	-	0 (0)	1.02
Papua New Guinea	80	34	4	18 (54)	1.17
Singapore <sup>c</sup>	490	300	-	3 (1)	0.82
Samoa*	22	4	6	4 (87)	2.54
Vanuatu* <sup>b</sup>	14	5	-	4 (85)	1.49
Tonga	5	0	-	0 (0)	13.03
Cook Islands	2	1	-	1 (79)	0.94

\* Least-developed country.

<sup>a</sup> Urban and rural water supply only.

<sup>b</sup> Urban sector only.

<sup>c</sup> Urban water only.



TABLE 6.8 - WESTERN PACIFIC REGION

RANKING AND FREQUENCY OF CONSTRAINTS<sup>a</sup>

Constraints	No. of countries indicating constraint			Ranking index <sup>b</sup>
	Very severe	Severe	Moderate	
Insufficiency of trained personnel (professional)	3	5	2	21
Insufficiency of trained personnel (sub-professional)	3	4	2	19
Funding limitations	2	4	5	19
Inadequate water resources	2	4	5	19
Operation and maintenance	1	5	3	16
Logistics	2	3	4	16
Inadequate cost-recovery framework	2	3	2	14
Insufficient knowledge of water resources	1	3	5	14
Insufficient health education efforts	0	4	5	13
Intermittent water service	0	3	5	11
Inappropriate technology	0	4	2	10
Non-involvement of communities	0	2	6	10
Inadequate or out-moded legal framework	1	2	3	10
Lack of definite government policy for sector	0	2	5	9
Inappropriate institutional framework	0	2	5	9
Lack of planning and design criteria	0	2	5	9
Import restrictions	0	2	4	8
Land tenure <sup>c</sup>		1		
Lack of interdepartmental coordination <sup>c</sup>			1	
Lack of motivation <sup>c</sup>	1			

<sup>a</sup> Number of countries reporting: 12

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

<sup>c</sup> Samoa.

TABLE 6.9 - WESTERN PACIFIC REGION

DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			No. of primary school children receiving health education	Promotion of women's participation (Yes/No)	Water supply and sanitation in rural areas as part of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
Philippines	10 317	30	-	90	80	80	100	Yes	Yes
Korea, Rep. of	-	-	-	100	100	100	100	-	-
Malaysia	-	-	-	-	-	-	-	Yes	Yes
Papua New Guinea	40	<1	-	30	30	25	15	No	Yes
Samoa*	0	-	-	0	50	0	95	No	No
Vanuatu*	-	-	-	100	100	100	-	Yes	Yes
Tonga	-	-	-	40	71	20	42	Yes	Yes
Cook Islands	-	-	-	40	100	30	100	No	No
Tuvalu*	-	-	-	-	-	-	-	No	Yes
Niue	-	-	-	-	-	-	-	No	-

\* Least-developed country.

TABLE 6.10.1 - WESTERN PACIFIC REGION

URBAN WATER SUPPLY (1980/1985)

Country/ territory	Urban population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Philippines	17 392	22 243	11 315	65	10 900	49
Korea, Rep. of	25 400	27 157	21 800	86	24 576	90
Malaysia	4 595	5 487	4 130	90	5 281	96
Papua New Guinea	372	435	206	55	413	95
Singapore	2 414	2 558	2 414	100	2 558	100
Samoa*	35	40	34	97	30	75
Vanuatu*	20	22	13	65	21	95
Tonga	29	36	25	86	36	99
Cook Islands	2	9	2	100	9	99
<b>Total</b>	<b>50 259</b>	<b>57 988</b>	<b>39 939</b>	<b>79</b>	<b>43 824</b>	<b>76</b>

\* Least-developed country.

TABLE 6.10.2 - WESTERN PACIFIC REGION

URBAN SANITATION (1980/1985)

Country/ territory	Urban population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Philippines	17 392	22 243	14 161	81	18 465	83
Korea, Rep. of	25 400	27 157	25 400	100	27 157	100
Malaysia	4 595	5 487	4 595	100	5 487	100
Papua New Guinea	372	4 35	356	96	431	99
Singapore	2 414	2 558	1 936	80	2 529	99
Samoa*	35	40	30	86	35	88
Vanuatu*	20	22	19	95	19	86
Tonga	29	36	28	97	36	99
Cook Islands	2	9	2	100	9	100
Tuvalu*	2	3	2	100	2	81
<b>Total</b>	<b>50 261</b>	<b>57 990</b>	<b>46 529</b>	<b>93</b>	<b>54 170</b>	<b>93</b>

\* Least-developed country.

TABLE 6.10.3 - WESTERN PACIFIC REGION

RURAL WATER SUPPLY (1980/1985)

Country/ territory	Rural population (000)		WATER SUPPLY Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Philippines	30 552	33 093	13 034	43	17 705	54
Korea, Rep. of	12 700	13 899	7 800	61	6 704	48
Malaysia	8 841	10 190	4 370	49	7 720	76
Papua New Guinea	2 635	2 908	264	10	436	15
Samoa*	120	120	113	94	80	67
Vanuatu*	98	115	52	53	62	54
Tonga	69	61	48	70	60	99
<b>Total</b>	<b>55 015</b>	<b>60 386</b>	<b>25 681</b>	<b>47</b>	<b>32 767</b>	<b>54</b>

\* Least-developed country.

TABLE 6.10.4 - WESTERN PACIFIC REGION

RURAL SANITATION (1980/1985)

Country/ territory	Rural population (000)		SANITATION Population covered			
	1980	1985	1980		1985	
			No. (000)	%	No. (000)	%
Philippines	30 552	33 093	20 486	67	18 519	56
Korea, Rep. of	12 700	13 899	12 700	100	13 899	100
Malaysia	8 841	10 190	4 850	55	6 144	60
Papua New Guinea	2 635	2 908	75	3	1 018	35
Samoa*	120	120	100	83	100	83
Vanuatu*	98	115	67	68	29	25
Tonga	69	61	65	94	24	40
Cook Islands	17	8	13	76	8	99
Tuvalu*	5	5	4	80	4	73
<b>Total</b>	<b>55 037</b>	<b>60 399</b>	<b>38 360</b>	<b>70</b>	<b>39 745</b>	<b>66</b>

\* Least-developed country.

TABLE 6.11 - WESTERN PACIFIC

WATER CONSUMPTION (YEAR 1985)

Country/ territory	Water consumption used for design purposes		Water consumption actual	
	Urban l/c/d	Rural l/c/d	Urban l/c/d	Rural l/c/d
China, People's Rep. of	150-250	40-80	100-200	40-60
Philippines	194	60	155	50
Malaysia	230	160	230	120-160
Papua New Guinea	225	40	750	20
Singapore	459	-	331	-
Samoa*	220	200	350	300
Vanuatu*	120	50	100	45
Tonga	180	60	130	30
Cook Islands	500	80	550	30
Niue	450	225	-	-
Tokelau	-	100	-	-

\* Least-developed country.





## **7. LEAST-DEVELOPED COUNTRIES (LDCs)**

Reference has been made to least developed countries (LDCs) throughout the regional reports and since there is specific interest in LDCs in the Decade it was felt important to include a short summary of their situation as a group. Most of the world's LDCs (23 out of 40) are within the African region and of the 33 reporting countries, 20 were from Africa. Thus trends in the African region will be reflected in the analysis of the LDCs. There are however several marked differences.

### **7.1 Socio-economic and health situation**

Rapid population increase is a phenomenon common to all LDCs. During the first five years of the Decade total population increased by about 17%, about the same as in the African region though overall the growth in the urban population was significantly higher than for the African region.

Of the reporting LDCs 22 out of 32 reported over 50% of their population without safe and adequate water supply; 20 out of 26 reported over 50% of the population without access to an appropriate means of excreta disposal. Figures for the African region are 20 out of 34 and 20 out of 26 respectively. Conditions in the LDCs are therefore marginally worse than in Africa as a whole with regard to water supply.

Median life expectancy in the reporting LDCs is 48 years and only 13 of the 33 reported a life expectancy of over 50 years (39%). This is exactly the same as for the African region. Median value for infant mortality is 130 per 1,000 live births, slightly higher than that for the African region as a whole. Only eight out of the 31 countries for which data was available had an infant mortality rate of less than 100 per 1,000 live births, and six of those eight were the smallest reporting countries in the classification: Cape Verde, Maldives, Samoa, Vanuatu, Sao Tome and Principe, and Tuvalu.

Reported incidences of water-borne diseases illustrate the poor health status of the LDCs. Median value is 5,000 incidences per 100,000 population with all but two countries reporting more than 2,000 incidences.

The highest per capita gross national product in the group is Botswana with US\$749 and the lowest Bangladesh with US\$136. Median value for GNP was US\$267

### **7.2 Targets and planning**

#### **Water supply**

Total population served in 1985 was 119.8 million, 36% of the total population of 336.8 million. This is a considerable improvement over the 1980 figure of 26%. Targets for the LDCs as a whole are 61% for urban water supply and 50% for rural water supply comparing with 84% and 46% respectively for the African region (tables 7.3.1-7.3.2).

**Table 7.1.1: Regional Targets (%)**

	<i>Urban water supply</i>	<i>Urban sanitation</i>	<i>Rural water supply</i>	<i>Rural sanitation</i>
African Region	84	82	46	52
Least Developed Countries	61	58	50	32

But even if national Decade targets are met about half of the population in LDCs, some 178.64 million, will still be without access to a safe and adequate water supply and of these, 82% will be in the rural areas.

Urban water supply coverage has increased by only 2% since 1980 but this has been despite rapid growth in urban populations. If the urban population had remained constant over the five year period, the level of urban water supply service coverage would have risen from 46% to 64%. Progress with rural water supply has been more spectacular with an estimated 33% of the population having access to safe and adequate water in 1985 compared with 23% in 1980.

#### Sanitation

Sanitation service coverage rose from 55.02 million to 68.41 million - 19% to 20% of the total population between 1980 and 1985. Even with this achievement of providing sanitation to an additional 13.39 million a further 73.29 million need to be served if national sanitation targets of 38% coverage are to be achieved. LDC targets are 58% for urban sanitation and 32% for rural sanitation compared with 80% and 52% respectively for the African region.

Urban sanitation coverage rose by only 1% between 1980 and 1985 as countries struggled to keep pace with rapid urban population growth. In common with the situation globally little progress has been made in raising the levels of sanitation services in rural areas which appear to have remained static at 15%. The apparently low rural sanitation target of 32% is thus nevertheless ambitious and possibly unattainable.

**Table 7.2.1: Urban Water Supply Service Coverage**

	<i>1980</i>	<i>1985</i>	<i>1990</i>
Urban population estimate (millions)	42.0	57.7	82.83
Estimated % service coverage	46*	48	61*
Estimated population served or to be served (millions)	19.32	27.70	50.53

\* For those countries which did not report data for 1980 and/or 1990, the 1985 figure from Table 7.3 has been adjusted by the average ratio calculated for the fully reporting countries.

**Table 7.2.2: Urban Sanitation Service Coverage**

	1980	1985	1990
Urban population estimate (millions)	42.0	57.7	82.83
Estimated % service coverage	45*	46	58*
Estimated population served or to be served (millions)	18.90	26.54	48.04

**Table 7.2.3: Rural Water Supply Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	240.78	279.10	292.69
Estimated % service coverage	23*	33	50*
Estimated population served or to be served (millions)	55.38	92.10	146.35

**Table 7.2.4: Rural Sanitation Service Coverage**

	1980	1985	1990
Rural population estimate (millions)	240.78	279.10	292.69
Estimated % service coverage	<u>15*</u>	<u>15</u>	32
Estimated population served or to be served (millions)	36.12	41.87	93.66

*no increase!*

\* See note for Table 7.2.1

**Table 7.2.5: Overall (Urban/Rural) Water Supply Service Coverage**

	1980	1985	1990
Total population estimate (millions)	282.78	336.80	375.52
Estimated % service coverage	74.70	119.80	196.88
Estimated population served or to be served (millions)	26	36	52

**Table 7.2.6: Overall (Urban/Rural) Sanitation Service Coverage**

	1980	1985	1990
Total population estimate (millions)	282.78	336.80	375.52
Estimated % service coverage	55.02	68.41	141.70
Estimated population served or to be served (millions)	19	20	38

### **7.3 Staff and training**

Information on levels of staffing in the LDCs is scanty. Eighteen out of 22 countries identified lack of professional personnel as a very severe or a severe constraint to Decade progress, with similar reports for sub-professional personnel.

The median value for staff per million population, based on information from only 22 countries, was 130, much lower than the 224 reported for the African region. But it is encouraging to note that 20 out of 25 countries reported the employment of community-based workers in the sector for rural services, with Guinea Bissau in particular reporting over 2,000 per million rural inhabitants, or 1 per 500.

### **7.4 Financial resources**

Information on levels of investment during the first half of the Decade and estimates of the needs for attaining Decade goals was provided by only ten countries. However, all indicated that without increases in funding it would not be possible to attain objectives.

Reliance on external funding in LDCs is higher than for developing countries in general. Nine countries reported that more than 80% of investment was from external sources. Median value was 79%. Attaining Decade goals in the LDCs will depend on the degree to which external support agencies are able to increase their sector investment.

Cost of achieving Decade targets set by LDC governments has been estimated at US\$ 8,013.20 millions. This has been calculated as for other regions, by combining unit costs with estimated numbers to be served. Of this total 59% is required for the urban sub-sector, while only 16% is allocated to rural sanitation.

Unit costs vary widely (table 7.6) with costs of urban water supply through house connections ranging from US\$63 in Sao Tome and Principe to US\$400 in Yemen Arab Republic, the difference clearly reflecting differing climatic and geological conditions. Median value was US\$121 compared to US\$106 for the African region. Rural water supply was reported as costing within the range of US\$ 2 (Bangladesh and parts of Nepal) to US\$180 (Samoa) with a median value of US\$36 compared with the African region's figure of US\$40.

Per capita costs of providing urban sanitation through sewer connections ranged from US\$44 (Ethiopia) to US\$2000 (Afghanistan) with the median value being US\$150, exactly the same as for the African region. For rural sanitation per capita costs were in the range of US\$5 (Bangladesh and Vanuatu) to US\$160 (Yemen). Median value was US\$23.3 almost the same as the African region's US\$25.

**Table 7.4.1: Median Values for Per Capita Costs of Water Supply and Sanitation Systems In LDCs and the African Region (median per capita costs US\$)**

	<i>Urban Water</i>		<i>Rural Water</i>	<i>Urban Sanitation</i>		<i>Rural Sanitation</i>
	<i>House Connection</i>	<i>Standpost</i>		<i>Sewer Connection</i>	<i>Other means</i>	
LDCs	121	60	36	150	120	23.3
African region	106	55	40	150	116	25

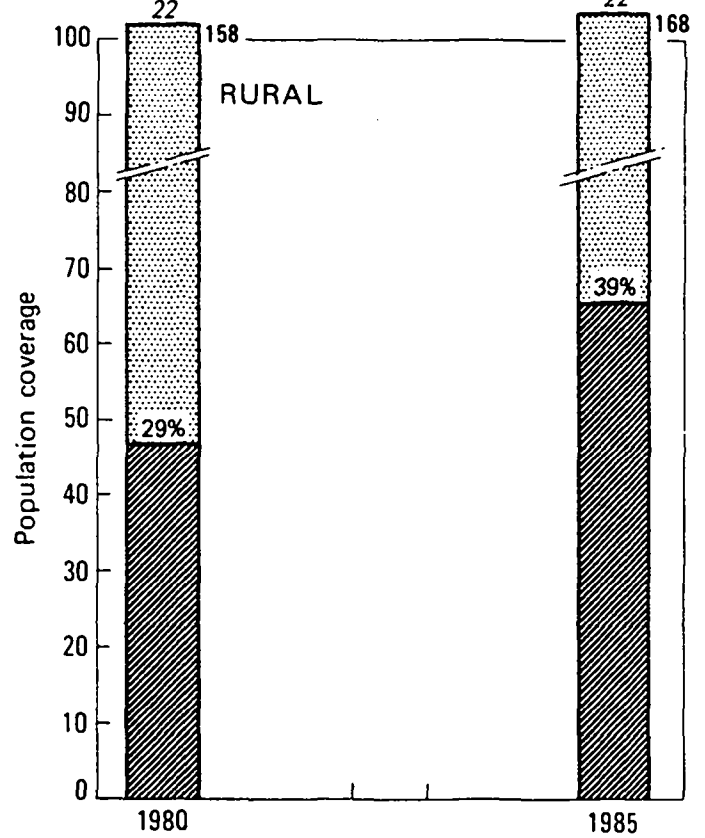
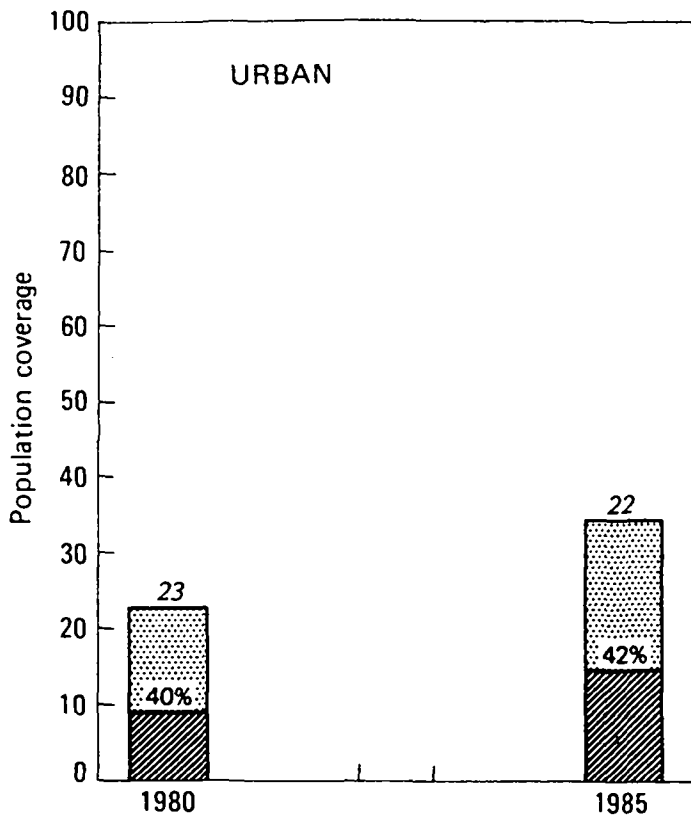
#### **7.5 Decade approaches**

Five out of seventeen LDCs reporting claimed 100% community involvement in all aspects of project development while Bangladesh reported zero involvement in planning but 30% involvement in construction and operation. Median values of community involvement were 50% in planning, 55% in construction, and 90% in operation.

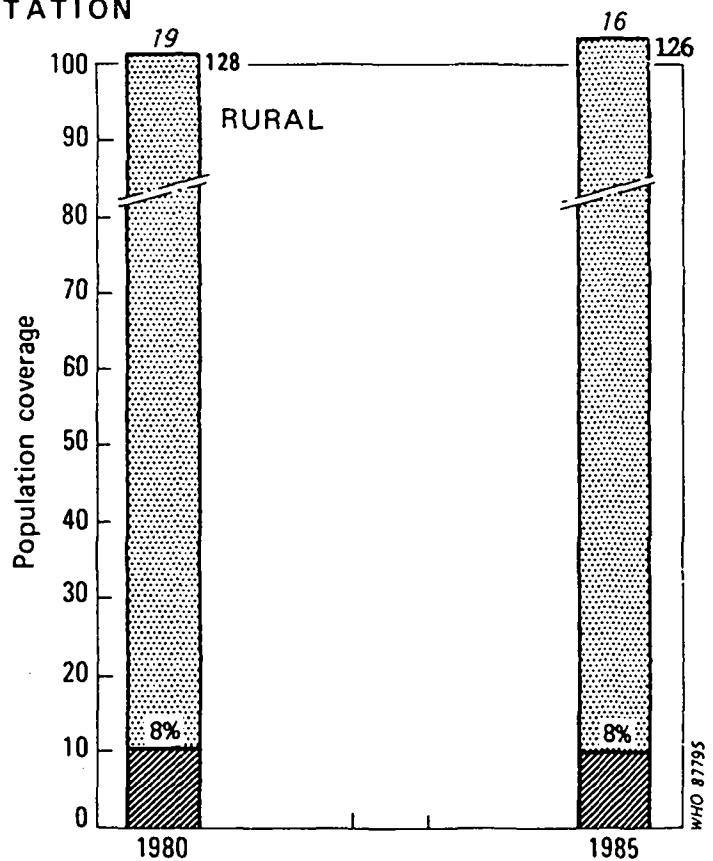
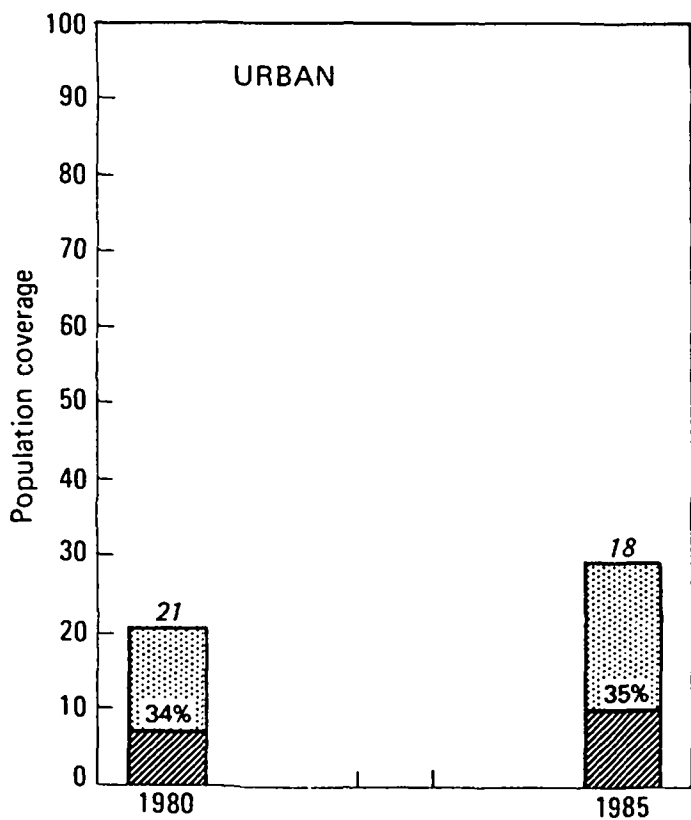
Out of 23 countries reporting on deliberate strategies to promote the involvement of women in rural water supply and sanitation projects, 19 reported positively. Water supply and sanitation programmes were reported as being integral parts of a national primary health care strategy in 16 out of 25 countries, but in seven of these this was done only in restricted areas where special primary health care projects were being implemented.

**Fig. 7.1 LEAST-DEVELOPED COUNTRIES**  
**POPULATION COVERAGE IN 1980 and 1985<sup>a</sup>**

**WATER SUPPLY**



**SANITATION**

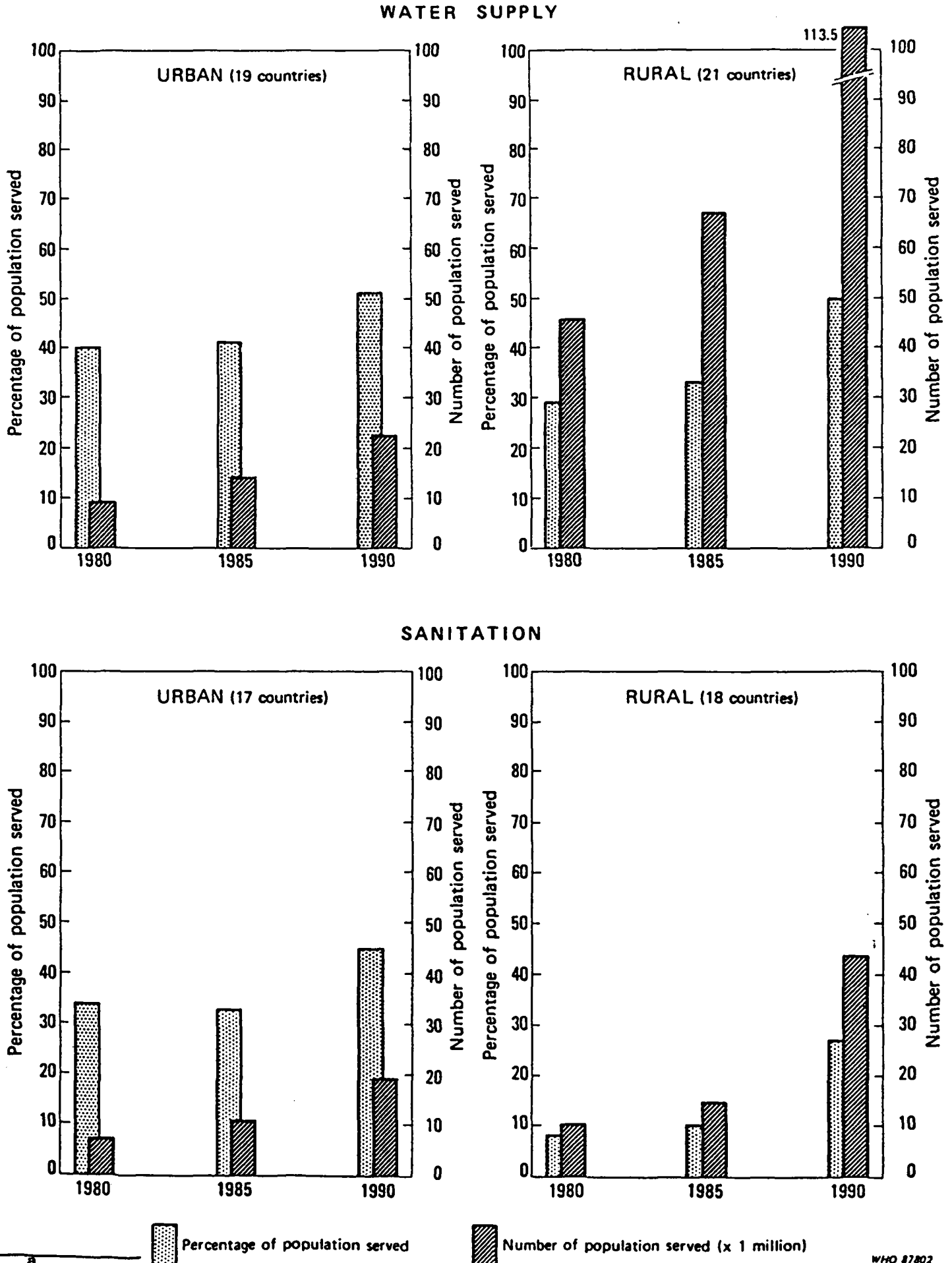


25 No. of countries reporting  
 Total population (x 1 million)  
 Population covered (x 1 million)

<sup>a</sup> See Tables 7.3.1 and 7.3.2.

**Fig. 7.2 LEAST-DEVELOPED COUNTRIES**

**DECADE TARGETS FOR URBAN AND RURAL WATER SUPPLY AND SANITATION  
IN SELECTED COUNTRIES COMPARED WITH 1980 AND 1985 LEVELS OF COVERAGE<sup>a</sup>**



<sup>a</sup> See Tables 7.4.1.1, 7.4.1.2, 7.4.2.1 and 7.4.2.2.

TABLE 7.1 - LEAST-DEVELOPED COUNTRIES (LDCs)

BASIC INDICATORS: DEMOGRAPHIC, ECONOMIC, HEALTH  
(Year 1985)

Country/ territory	Population (000)	Population growth rate (%)	GNP per capita (US\$)	Life expectancy (years)	Infant mortality per 1 000 live births	Waterborne disease cases per 100 000	Population without safe water (%)	Population without sanitation (%)
Bangladesh	100 000	2.2	136	54	121	-	56	93
Ethiopia	44 517	2.9	140	46	144	-	86	-
Tanzania, Rep. of	21 940	3.2	197	51	103	-	51	36
Nepal	16 680	2.7	165	52	140	-	72	98
Afghanistan	16 140	1.9	163	41	182	2 214	80	99
Uganda	14 680	2.8	220	53	-	-	79	70
Yemen Arab Republic	9 274	2.6	471	42	174	3 784	65	92
Mali	7 907	2.6	142	40	150	80 000	83	79
Malawi	7 059	3.3	140	45	151	-	45	-
Burkina Faso	7 014	2.7	185	38	167	5 007	35	88
Rwanda	6 331	3.7	280	49	115	2 872	51	44
Niger	6 115	2.8	258	44	158	-	54	-
Guinea	5 780	2.3	310	49	160	-	80	-
Somalia	5 515	2.9	200	49	170	-	69	85
Haiti	5 269	1.4	320	54	125	50 000	62	79
Burundi	4 782	2.6	230	47	127	20 000	74	42
Benin	3 825	2.6	320	46	106	-	43	60
Sierra Leone	3 700	2.3	200	47	225	-	74	75
Togo	3 068	2.8	300	46	90	-	43	85
Central African Rep.	2 673	2.5	-	48	190	452	96	-
Mauritania	1 888	2.9	363	44	137	17 942	14	97
Lesotho	1 496	2.3	484	51	130	31	65	85
Bhutan	1 286	1.7	-	46	-	-	-	-
Botswana	1 088	3.7	749	56	68	-	46	58
Guinea Bissau	880	2.2	150	40	200	3 500	79	79
Gambia	749	3.4	241	44	120	-	59	-
Djibouti	430	3.0	276	48	200	-	57	38
Cape Verde	337	2.1	317	62	66	5 070	37	82
Maldives	181	3.2	524	52	63	-	76	73
Samoa	160	2.3	-	64	29	-	31	16
Vanuatu	137	2.9	529	56	75	-	39	65
Sao Tome & Principe	108	2.3	362	64	62	6 000	86	98
Tuvalu	8	1.3	386	59	54	4 520	0	25



TABLE 7.2 - LEAST-DEVELOPED COUNTRIES (LDCs)

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			
Bangladesh	24	8	5	31	6	11	1986
Ethiopia	-	-	-	-	16	6	-
Nepal		94 <sup>a</sup>	17	10	67	13	1980
Afghanistan	31	25	1	4	32	-	1986
Uganda		80 <sup>a</sup>		85 <sup>a</sup>	40	50	1984
Yemen Arab Republic	69	31	42	58	50	-	Plan no/targets yes
Mali	30	18	1	93	36	30	1984
Malawi	62	18	11	59	67	-	Under preparation
Burkina Faso	49	51	0	46	65	85	1982
Rwanda	45	45	0	85	70	75	1984
Niger	-	-	-	-	-	-	1985
Guinea	7	4	3	-	9	0	1980
Somalia	36	43	12	55	55	25	Yes
Haiti	-	-	15	-	60	60	1982
Burundi	57	39	40	60	90	70	1984
Benin	60	40	0	80	80	50	1986
Sierra Leone	-	-	-	-	-	-	1981
Togo	15	85	3	37	99	80	1984
Central African Rep.	100	0	100	0	50	50	1982
Mauritania	99	-	43	-	59	-	1983
Lesotho	59	41	16	70	60	45	1983
Bhutan	100	0	10	-	100	60	1984
Botswana	34	58	-	-	-	-	-
Guinea Bissau	16	5	-	28	35	24	No
Cape Verde	47	53	22	40	76	73	Partial
Maldives	0	92	100	0	80	40	1985 (Rev.)
Samoa	89	-	-	80	80	88	No
Vanuatu		100 <sup>a</sup>	-	-	100	100	1982
Sao Tome & Principe	38	51	62	15	73	91	Yes 1985
Tuvalu	100	0	0	100	100	100	Under preparation

<sup>a</sup> No breakdown given.

TABLE 7.3 - LEAST-DEVELOPED COUNTRIES (LDCs)

## 1985 LEVELS OF SERVICE

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water			Rural	Sanitation			Rural
				Total	Urban			Total	Urban		
					By H.C. <sup>a</sup>	By P.S. <sup>b</sup>			By S.C. <sup>c</sup>	By other	
Bangladesh	100 000	18 000 (18)	82 000 (82)	4 324 (24)	3 300 (18)	1 024 (6)	39 858 (49)	4 350 (24)	800 (4)	3 550 (20)	2 460 (3)
Ethiopia	44 517	4 175 (9)	40 342 (91)	2 873 (69)	4 31 (10)	2 442 (59)	3 567 (9)	4 007 (96)	307 (7)	3 700 (89)	-
Tanzania, Rep. of	21 940	3 510 (16)	18 430 (84)	3 155 (90)	1 950 (56)	1 205 (34)	7 700 (42)	3 264 (93)	421 (12)	2 843 (81)	10 689 (58)
Nepal	16 680	1 350 (8)	15 330 (92)	950 (70)	-	-	3 783 (25)	232 (17)	218 (16)	14 (1)	26 (<1)
Afghanistan	16 140	2 470 (15)	13 670 (85)	945 (38)	445 (18)	500 (20)	2 300 (17)	125 (5)	45 (2)	80 (3)	-
Uganda	14 680	1 894 (13)	12 786 (87)	700 (37)	-	-	2 350 (18)	600 (32)	-	-	3 836 (30)
Yemen Arab Republic	9 274	914 (10)	8 360 (90)	914 (100)	544 (60)	370 (40)	2 059 (25)	757 (83)	292 (32)	465 (51)	-
Mali	7 914	1 589 (20)	6 325 (80)	728 (46)	238 (15)	490 (31)	633 (10)	1 434 (90)	10 (1)	1 424 (89)	190 (3)
Malawi	7 059	847 (12)	6 212 (88)	818 (97)	620 (73)	198 (24)	3 099 (50)	-	-	-	-
Burkina Faso	7 014	1 093 (16)	5 921 (84)	465 (43)	230 (21)	235 (22)	4 060 (69)	482 (44)	0 (0)	482 (44)	350 (6)
Rwanda	6 331	253 (4)	6 078 (96)	200 (79)	120 (47)	80 (32)	2 888 (48)	195 (77)	0 (0)	195 (77)	3 367 (55)
Niger	6 115	991 (16)	5 124 (84)	349 (35)	247 (25)	102 (10)	2 494 (49)	-	0 (0)	-	-
Guinea	5 780	1 579 (27)	4 201 (73)	642 (41)	410 (26)	232 (15)	514 (12)	-	145 (9)	-	-
Somalia	5 515	1 379 (25)	4 136 (75)	793 (58)	396 (29)	397 (29)	920 (22)	600 (44)	0 (0)	600 (44)	212 (5)
Haiti	5 269	1 405 (27)	3 864 (73)	826 (59)	447 (32)	379 (27)	1 166 (30)	592 (15)	0 (0)	592 (15)	515 (13)
Burundi	4 782	310 (6)	4 472 (94)	304 (98)	204 (66)	100 (32)	950 (21)	260 (84)	20 (7)	240 (77)	2 500 (56)
Benin	3 825	1 874 (49)	1 951 (51)	1 499 (80)	843 (45)	656 (35)	663 (34)	1 124 (58)	0 (0)	1 124 (58)	390 (20)

Sierra Leone	3 700	1 110 (30)	2 590 (70)	755 (68)	231 (21)	524 (47)	189 (7)	667 (60)	7 (1)	660 (59)	259 (10)
Togo	3 068	819 (27)	2 249 (73)	819 (100)	154 (19)	665 (81)	918 (41)	250 (31)	0 (0)	250 (31)	209 (9)
Central African Rep.	2 673	908 (34)	1 765 (66)	119 (13)	61 (7)	58 (6)	- -	- -	- -	- -	- -
Mauritania	1 888	654 (35)	1 234 (65)	475 (73)	100 (15)	375 (58)	- -	53 (8)	18 (3)	35 (5)	- -
Lesotho	1 496	187 (13)	1 309 (87)	121 (65)	65 (35)	56 (30)	396 (30)	41 (22)	22 (12)	19 (10)	181 (14)
Bhutan	1 286	168 (13)	1 118 (87)	- -	- -	- -	217 (19)	- -	- -	- -	0 (0)
Botswana	1 088	227 (21)	861 (79)	190 (84)	76 (33)	114 (51)	393 (46)	211 (93)	125 (55)	86 (38)	245 (28)
Guinea Bissau	880	190 (22)	690 (78)	33 (17)	24 (13)	9 (4)	150 (22)	55 (29)	2 (1)	53 (28)	127 (18)
Gambia	749	139 (19)	610 (81)	135 (97)	- -	- -	306 (50)	- -	- -	- -	- -
Djibouti	430	323 (75)	108 (25)	162 (50)	127 (39)	35 (11)	22 (20)	250 (78)	125 (39)	125 (39)	18 (17)
Cape Verde	337	135 (40)	202 (60)	112 (83)	33 (24)	79 (59)	101 (50)	43 (32)	18 (13)	25 (19)	18 (9)
Maldives	181	46 (25)	135 (75)	27 (58)	0 (0)	27 (58)	16 (12)	46 (100)	37 (80)	9 (20)	2 (2)
Samoa	160	40 (25)	120 (75)	30 (75)	30 (75)	0 (0)	80 (67)	35 (88)	0 (0)	35 (88)	100 (83)
Vanuatu	137	22 (16)	115 (84)	21 (95)	12 (55)	9 (40)	62 (54)	19 (86)	0 (0)	19 (86)	29 (25)
Sao Tome & Principe	108	36 (34)	72 (66)	12 (33)	10 (27)	2 (6)	33 (45)	6 (18)	3 (9)	3 (9)	11 (15)
Tuvalu	8	3 (35)	5 (65)	3 (100)	2 (85)	1 (15)	5 (100)	2 (81)	0 (0)	2 (81)	4 (73)
<b>Total</b>	<b>301 025</b>	<b>48 640 (16)</b>	<b>252 385 (84)</b>	<b>23 499 (48)</b>	<b>11 350 (25)</b>	<b>10 364 (23)</b>	<b>81 892 (33)</b>	<b>19 700 (46)</b>	<b>2 615 (6)</b>	<b>16 630 (41)</b>	<b>25 738 (15)</b>

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 7.3.1 - LEAST-DEVELOPED COUNTRIES (LDCs)

1985 LEVELS OF SERVICE FOR COUNTRIES REPORTING FOR BOTH 1980 AND 1985

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water				Sanitation			
				Total	Urban		Rural	Total	Urban		Rural
					By H.C. <sup>a</sup>	By P.S. <sup>b</sup>			By S.C. <sup>c</sup>	By other	
Bangladesh	100 000	18 000 (18)	82 000 (82)	4 324 (24)	3 300 (18)	1 024 (6)	39 858 (49)	4 350 (24)	800 (4)	3 550 (20)	2 460 (3)
Nepal	16 680	1 350 (8)	15 330 (92)	950 (70)	-	-	3 783 (25)	232 (17)	218 (16)	14 (1)	26 (1)
Afghanistan	16 140	2 470 (15)	13 670 (85)	945 (38)	445 (18)	500 (20)	2 300 (17)	125 (5)	45 (2)	30 (3)	-
Yemen Arab Republic	9 274	914 (10)	8 360 (90)	914 (100)	544 (60)	370 (40)	2 059 (25)	757 (83)	292 (32)	465 (51)	-
Mali	7 914	1 589 (20)	6 325 (80)	728 (46)	238 (15)	490 (31)	633 (10)	1 434 (90)	10 (1)	1 424 (89)	190 (3)
Malawi	7 059	847 (12)	6 212 (88)	818 (97)	620 (73)	198 (24)	3 099 (50)	-	-	-	-
Burkina Faso	7 014	1 093 (16)	5 921 (84)	465 (43)	230 (21)	235 (22)	4 060 (69)	482 (44)	0 (0)	482 (44)	350 (6)
Rwanda	6 331	253 (4)	6 078 (96)	200 (79)	120 (47)	80 (32)	2 888 (48)	195 (77)	0 (0)	195 (77)	3 367 (55)
Niger	6 115	991 (16)	5 124 (84)	349 (35)	247 (25)	102 (10)	2 494 (49)	-	0 (0)	-	-
Guinea	5 780	1 579 (27)	4 201 (73)	642 (41)	410 (26)	232 (15)	514 (12)	-	145 (9)	-	-
Burundi	4 782	310 (6)	4 472 (94)	304 (98)	204 (66)	100 (32)	950 (21)	260 (84)	20 (7)	240 (77)	2 500 (56)
Benin	3 825	1 874 (49)	1 951 (51)	1 499 (80)	843 (45)	656 (35)	663 (34)	1 124 (58)	0 (0)	1 124 (58)	390 (20)
Sierra Leone	3 700	1 110 (30)	2 590 (70)	755 (68)	231 (21)	524 (47)	189 (7)	667 (60)	7 (1)	660 (59)	259 (10)
Togo	3 068	819 (27)	2 249 (73)	819 (100)	154 (19)	665 (81)	918 (41)	250 (31)	0 (0)	250 (31)	209 (9)
Mauritania	1 888	654 (35)	1 234 (65)	475 (73)	100 (15)	375 (58)	-	53 (8)	18 (3)	35 (5)	-
Bhutan	1 286	168 (13)	1 118 (87)	-	-	-	217 (19)	-	-	-	0 (0)

Guinea Bissau	880	190 (22)	690 (78)	33 (17)	24 (13)	9 (4)	150 (22)	55 (29)	2 (1)	53 (28)	127 (18)
Gambia	749	139 (19)	610 (81)	135 (97)	- -	- -	306 (50)	- -	- -	- -	- -
Cape Verde	337	135 (40)	202 (60)	112 (83)	33 (24)	79 (59)	101 (50)	43 (32)	18 (13)	25 (19)	18 (9)
Maldives	181	46 (25)	135 (75)	27 (58)	0 (0)	27 (58)	16 (12)	46 (100)	37 (80)	9 (20)	2 (2)
Samoa	160	40 (25)	120 (75)	30 (75)	30 (75)	0 (0)	80 (67)	35 (88)	0 (0)	35 (88)	100 (83)
Vanuatu	135	22 (16)	115 (84)	21 (95)	12 (55)	9 (40)	62 (54)	19 (86)	0 (0)	19 (86)	29 (25)
Tuvalu	8	3 (35)	5 (65)	3 (100)	2 (85)	1 (15)	5 (100)	2 (81)	0 (0)	2 (81)	4 (73)
<b>Total</b>	<b>203 739</b>	<b>34 919 (17)</b>	<b>168 820 (83)</b>	<b>14 710 (42)</b>	<b>7 914 (24)</b>	<b>5 711 (17)</b>	<b>65 367 (39)</b>	<b>10 379 (35)</b>	<b>1 737 (5)</b>	<b>8 787 (30)</b>	<b>10 049 (8)</b>

<sup>a</sup> H.C. = House connection.  
<sup>b</sup> P.S. = Public standpost.  
<sup>c</sup> S.C. = Sewer connection.

TABLE 7.3.2 - LEAST-DEVELOPED COUNTRIES (LDCs)

1980 LEVELS OF SERVICE FOR COUNTRIES REPORTING FOR BOTH 1980 AND 1985

Country/ territory	Population			Population with service							
	Total	Urban	Rural	Drinking-water			Sanitation				
				Total	Urban	Rural	Total	Urban	Rural	Rural	
				By H.C. <sup>a</sup>	By P.S. <sup>b</sup>		By S.C. <sup>c</sup>	By other			
Bangladesh	90 000	10 000 (11)	80 000 (89)	2 600 (26)	-	-	32 000 (40)	2 100 (21)	-	-	900 (1)
Nepal	14 000	1 000 (7)	13 000 (93)	800 (80)	-	-	900 (7)	160 (16)	-	-	1 (1)
Afghanistan	16 270	1 890 (12)	14 380 (88)	521 (28)	136 (7)	385 (21)	1 100 (8)	-	-	-	-
Yemen Arab Republic	6 227	710 (11)	5 517 (89)	710 (100)	355 (50)	355 (50)	993 (18)	426 (60)	71 (10)	355 (50)	-
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)
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)
Burkina Faso	6 129	930 (15)	5 199 (85)	255 (27)	155 (16)	100 (11)	1 612 (31)	349 (38)	0 (0)	349 (38)	260 (5)
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)
Niger	5 534	701 (13)	4 833 (87)	286 (41)	203 (29)	83 (12)	1 547 (32)	252 (36)	0 (0)	252 (36)	145 (3)
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)	0 (0)	-
Bhutan	1 200	60 (5)	1 140 (95)	30 (50)	-	-	60 (5)	-	-	-	-

Guinea Bissau	794	159 (20)	635 (80)	29 (18)	17 (11)	12 (8)	49 (8)	34 (21)	2 (1)	32 (20)	81 (13)
Gambia	601	110 (18)	491 (82)	94 (85)	-	-	-	-	-	-	-
Djibouti	330	274 (83)	56 (17)	137 (50)	110 (40)	27 (10)	11 (20)	118 (43)	-	-	11 (20)
Cape Verde	296	108 (36)	188 (64)	108 (100)	25 (23)	40 (21)	83 (44)	37 (34)	12 (11)	25 (23)	19 (10)
Maldives	161	41 (25)	120 (75)	4 (11)	-	-	4 (3)	25 (60)	-	-	1 (1)
Samoa	155	35 (23)	120 (77)	34 (97)	34 (97)	0 (0)	113 (94)	30 (86)	0 (0)	30 (86)	100 (83)
Vanuatu	118	20 (17)	98 (83)	13 (65)	9 (45)	4 (20)	52 (53)	19 (95)	0 (0)	19 (95)	67 (68)
Tuvalu	7	2 (29)	5 (71)	-	-	-	-	2 (100)	0 (0)	2 (100)	4 (80)
<b>Total</b>	<b>180 093</b>	<b>22 952 (13)</b>	<b>147 141 (87)</b>	<b>9 241 (40)</b>	<b>2 419 (21)</b>	<b>3 294 (28)</b>	<b>45 908 (29)</b>	<b>7 143 (34)</b>	<b>373 (4)</b>	<b>4 367 (44)</b>	<b>10 322 (8)</b>

<sup>a</sup> H.C. = House connection.

<sup>b</sup> P.S. = Public standpost.

<sup>c</sup> S.C. = Sewer connection.

TABLE 7.4 - LEAST-DEVELOPED COUNTRIES (LDCs)

PRESENT (1985-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	Standpost	Sewer connection	Other means			
Bangladesh	18 000	3 300	1 024	800	3 550	82 000	39 858	2 460
	25 000	5 950	1 920	1 300	7 700	88 000	51 970	9 933
Ethiopia	4 175	431	2 442	307	3 700	40 342	3 567	-
	5 129	1 000	-	-	-	46 315	7 262	3 000
Nepal	1 350		950 <sup>a</sup>	218	14	15 330	3 783	26
	1 864		1 750 <sup>a</sup>	214	296	17 159	10 757	2 250
Afghanistan	2 470	445	500	45	80	2 300	-	-
	3 199	987	800	47	139	12 800	4 100	-
Uganda	1 894		700 <sup>a</sup>		600 <sup>a</sup>	12 786	2 350	3 836
	1 970		1 567 <sup>a</sup>		1 675 <sup>a</sup>	15 000	6 000	7 500
Yemen Arab Republic	914	465	449	292	465	8 360	2 059	-
	1 295	900	395	540	755	9 154	4 577	-
Mali	1 589	238	490	10	1 424	6 325	633	190
	1 882	565	339	19	1 750	7 080	2 549	2 124
Malawi	847	620	198	-	-	6 212	3 099	-
	1 259	776	232	140	740	7 030	4 687	-
Burkina Faso	1 093	230	235	0	482	5 921	4 060	350
	1 305	645	661	0	595	6 292	4 060	5 360
Rwanda	253	120	80	0	195	6 078	2 888	3 367
	411	185	185	0	349	6 852	4 797	5 139
Somalia	1 379	396	396	0	600	4 136	920	212
	1 588	564	689	188	877	4 763	2 631	1 210
Haiti	1 405	447	379	0	592	3 864	1 166	515
	1 713	-	-	-	-	4 061	2 450	2 450
Burundi	310	204	100	20	240	4 472	950	2 500
	351	206	137	140	211	4 918	4 425	3 442
Benin	1 874	843	656	0	1 124	1 951	663	390
	2 118	1 271	847	0	1 694	2 204	1 763	1 102
Togo	819	154	665	0	250	2 249	918	209
	1 046	156	886	33	383	2 568	2 552	2 054
Central African Rep.	908	61	58	-	-	1 765	-	-
	962	962	0	962	0	1 870	935	935



Lesotho	187	65	56	22	19	1 309	396	181
	244	144	100	60	172	1 432	864	644
Bhutan	168	-	-	-	-	1 118	217	0
	193	193	0	193	0	1 287	1 287	772
Botswana	227	76	114	125	86	861	393	245
	293	105	171	-	-	1 014	-	-
Guinea Bissau	190	24	9	2	53	690	150	127
	229	36	12	-	65	752	260	180
Cape Verde	100	30	63	14	25	237	95	-
	130	90	40	72	-	254	150	-
Maldives	46	0	27	37	9	135	16	2
	64	0	59	64	0	151	121	60
Samoa	40	30	0	0	35	120	80	100
	45	40	0	0	36	125	100	110
Vanuatu	22	12	9	0	19	115	62	29
	26		26 <sup>a</sup>	-	-	128	128	128
Sao Tome & Principe	36	10	22	3	3	72	33	11
	47	18	24	29	7	72	53	66
Tuvalu	3	2	1	0	2	5	5	4
	3		3 <sup>a</sup>		3 <sup>a</sup>	6	6	6

<sup>a</sup> No breakdown given.

TABLE 7.4.1.1 - LEAST-DEVELOPED COUNTRIES (LDCs)

DECADE TARGETS FOR URBAN WATER SUPPLY

Country/ territory	Urban population (000)		WATER SUPPLY			
			Population covered		1990	
	1985	1990	No. (000)	%	No. (000)	%
Bangladesh	18 000	25 000	4 324	24	7 870	31
Nepal	1 350	1 864	950	70	1 750	94
Afghanistan	2 470	3 199	945	38	1 787	56
Uganda	1 894	1 970	700	37	1 576	80
Yemen Arab Rep.	914	1 295	914	100	1 295	100
Mali	1 589	1 882	728	46	904	48
Malawi	847	1 259	818	97	1 008	80
Burkina Faso	1 093	1 305	465	43	1 305	100
Rwanda	253	411	200	79	370	90
Somalia	1 379	1 588	792	57	1 253	79
Burundi	310	351	304	98	343	98
Benin	1 874	2 118	1 499	80	2 118	100
Togo	819	1 046	819	100	1 042	100
Central African Rep.	908	962	119	13	962	100
Lesotho	187	244	121	65	244	100
Botswana	227	293	190	84	276	94
Guinea Bissau	190	229	33	17	48	21
Cape Verde	100	130	93	93	130	100
Maldives	46	64	27	59	59	92
Samoa	40	45	30	75	40	89
Vanuatu	22	26	21	95	26	100
Sao Tome & Principe	36	47	32	89	42	89
Tuvalu	3	3	3	100	3	100
<b>Total</b>	<b>34 551</b>	<b>45 331</b>	<b>14 127</b>	<b>41</b>	<b>24 451</b>	<b>51</b>

TABLE 7.4.1.2 - LEAST-DEVELOPED COUNTRIES (LDCs)

DECADE TARGETS FOR URBAN SANITATION

Country/ territory	Urban population (000)		SANITATION			
			Population covered			
	1985	1990	1985		1990	
			No. (000)	%	No. (000)	%
Bangladesh	18 000	25 000	4 350	24	9 000	36
Nepal	1 350	1 864	232	17	510	27
Afghanistan	2 470	3 199	125	5	186	6
Uganda	1 894	1 970	600	32	1 675	85
Yemen Arab Republic	914	1 295	757	83	1 295	100
Mali	1 589	1 882	1 434	90	1 769	94
Burkina Faso	1 093	1 305	482	44	595	46
Rwanda	253	411	195	77	349	85
Somalia	1 379	1 588	600	44	1 065	67
Burundi	310	351	260	84	351	100
Benin	1 874	2 118	1 124	60	1 694	80
Togo	819	1 046	250	31	416	40
Lesotho	187	244	41	22	232	95
Guinea Bissau	190	229	55	29	65	28
Cape Verde	100	130	39	93	72	100
Maldives	46	64	46	100	64	100
Samoa	40	45	35	88	36	80
Sao Tome & Principe	36	47	6	17	36	77
<b>Total</b>	<b>32 547</b>	<b>42 791</b>	<b>10 633</b>	<b>33</b>	<b>19 413</b>	<b>45</b>

TABLE 7.4.2.1 - LEAST-DEVELOPED COUNTRIES (LDCs)

DECADE TARGETS FOR RURAL WATER SUPPLY

Country/ territory	Rural population (000)		WATER SUPPLY			
			Population covered		1990	
	1985	1990	No. (000)	%	No. (000)	%
Bangladesh	82 000	88 000	39 858	49	51 970	59
Ethiopia	40 342	46 315	3 567	9	7 262	16
Nepal	15 330	17 159	3 780	25	10 757	63
Uganda	12 786	15 000	2 350	18	6 000	40
Yemen Arab Republic	8 360	9 154	2 059	25	4 577	50
Mali	6 325	7 080	633	10	2 549	36
Malawi	6 212	7 030	3 099	50	4 687	67
Burkina Faso	5 921	6 292	4 060	69	4 060	65
Rwanda	6 078	6 852	2 888	48	4 797	70
Somalia	4 136	4 763	920	22	2 631	55
Haiti	3 864	4 061	1 166	30	2 450	60
Burundi	4 472	4 918	950	21	4 425	90
Benin	1 951	2 204	663	34	1 763	80
Togo	2 249	2 568	918	41	2 552	99
Lesotho	1 309	1 432	396	30	864	60
Bhutan	1 118	1 287	217	19	1 287	100
Guinea Bissau	690	752	150	22	260	35
Cape Verde	237	254	95	93	150	100
Maldives	135	151	16	12	121	80
Samoa	120	125	80	67	100	80
Vanuatu	115	128	62	54	128	100
Sao Tome & Principe	72	72	33	46	53	74
Tuvalu	5	6	5	100	6	100
<b>Total</b>	<b>203 827</b>	<b>225 603</b>	<b>67 965</b>	<b>33</b>	<b>113 449</b>	<b>50</b>

TABLE 7.4.2.2 - LEAST-DEVELOPED COUNTRIES (LDCs)

DECADE TARGETS FOR RURAL SANITATION

Country/ territory	Rural population (000)		SANITATION			
			Population covered		1990	
	1985	1990	1985 No. (000)	%	No. (000)	%
Bangladesh	82 000	88 000	2 460	3	9 933	11
Nepal	15 330	17 159	26	0	2 250	13
Uganda	12 786	15 000	3 836	30	7 500	50
Mali	6 325	7 080	190	3	2 124	30
Burkina Faso	5 921	6 292	350	6	5 360	85
Rwanda	6 078	6 852	3 367	55	5 139	75
Somalia	4 136	4 763	212	5	1 210	25
Haiti	3 864	4 061	515	13	2 450	60
Burundi	4 472	4 918	2 500	56	3 442	70
Benin	1 951	2 204	390	20	1 102	50
Togo	2 249	2 568	209	9	2 054	80
Lesotho	1 309	1 432	181	14	644	45
Bhutan	1 118	1 287	0	0	772	60
Guinea Bissau	690	752	127	18	180	24
Maldives	135	151	2	1	60	40
Samoa	120	125	100	110	100	80
Vanuatu	115	128	29	25	128	100
Sao Tome & Principe	72	72	11	15	66	92
Tuvalu	5	6	4	80	6	100
<b>Total</b>	<b>148 676</b>	<b>162 850</b>	<b>14 509</b>	<b>10</b>	<b>44 520</b>	<b>27</b>

TABLE 7.5 - LEAST-DEVELOPED COUNTRIES (LDCs)

STAFF RESOURCES 1985 (top line) AND PROJECTED REQUIREMENTS FOR 1990 (bottom line)

Country/ territory	Planning and Management	Technical	Craftsmen Artisanal	Administration Clerical	Unskilled workers	Total per million population	Community- based workers (Yes/No)	Established training budget - is it sufficient (Yes/No)
Bangladesh	115 -	2 158 -	2 212 -	2 979 -	- -	75 -	Yes	Yes/No
Ethiopia	85 -	108 -	- -	104 -	132 -	10 -	Yes	Yes/No
Nepal	15 -	496 -	925 -	- -	- -	- -	No	Yes/No
Afghanistan	60 -	151 -	84 -	357 -	336 -	61 -	No	Yes(rural only)
Uganda	- -	- -	- -	- -	- -	- -	Yes	No
Yemen Arab Republic	20 44	133 221	388 541	370 448	385 475	139 165	-	-
Mali	38 -	201 -	77 -	60 -	- -	48 -	Yes	No
Malawi	63 68	380 500	2 000 3 000	180 195	- -	372 454	-	Yes/No
Burkina Faso	58 -	56 -	32 -	43 -	70 -	37 -	Yes	Yes/-
Rwanda	40 -	132 -	70 -	30 -	- -	37 -	Yes	No
Niger	28 -	120 -	66 -	- -	- -	35 -	Yes	No
Haiti	24 28	284 309	140 400	185 223	- -	120 -	Yes	No
Burundi	26 40	70 105	55 85	30 50	- -	38 53	Yes	Yes/-
Benin	30 55	42 80	248 500	72 150	- -	102 182	Yes	No
Sierra Leone	5 -	350 -	750 -	170 -	- -	- -	No	No
Togo	- -	- -	- -	- -	- -	- -	Yes	-

Central African Rep.	-	385	-	-	-	-	-	Yes	-
	-	-	-	-	-	-	-		
Mauritania	8	43	409	28	-	395	-	Yes	No
	-	-	-	-	-	-	-		
Lesotho	13	99	367	115	-	297	-	Yes	Yes/No
	-	-	-	-	-	-	-		
Bhutan	5	11	51	6	-	57	-	Yes	Yes/Yes
	-	-	-	-	-	-	-		
Botswana <sup>a</sup>	2	20	140	60	230	1 991	-	-	-
	-	-	-	-	-	-	-		
Guinea Bissau	4	240	30	277	-	626	-	Yes	No
	-	-	-	-	-	-	-		
Gambia	-	-	-	-	-	-	-	Yes	Yes/No
	-	-	-	-	-	-	-		
Cape Verde	-	-	-	-	-	-	-	No	No
	-	-	-	-	-	-	-		
Maldives	6	18	8	32	6	386	-	Yes	Yes/No
	-	-	-	-	-	-	-		
Samoa	10	16	20	5	120	1 069	-	Yes	Yes/No
	-	-	-	-	-	-	-		
Vanuatu	2	12	48	2	-	467	-	-	Yes/Yes(water only)
	-	-	-	-	-	-	-		
Sao Tome & Principe	1	7	70	7	-	785	-	No	No
	1	9	60	20	-	754	-		
Tuvalu	1	2	8	-	-	1 338	-	Yes	No
	-	-	-	-	-	-	-		

<sup>a</sup> Urban water only.

TABLE 7.6 - LEAST-DEVELOPED COUNTRIES (LDCs)

UNIT COSTS OF CONSTRUCTION (US\$ PER CAPITA) AND OF WATER PRODUCTION (US\$/m<sup>3</sup>)

Country/ territory	Construction						Operation		
	Urban water supply		Urban sanitation		Rural water supply	Rural sanitation	Average cost of water production	Average water tariff	Progressive water tariff
	House connection	Stand- post	Sewer connection	Other means					
Bangladesh	-	-	81	15	2	5	0.09	0.08	Some areas
Ethiopia	-	-	44	116	24	-	-	0.48	No
Tanzania, Rep. of	85	60	-	-	60	35	-	0.17	No
Nepal		60-88 <sup>a</sup>	118	23-58	2-48	12-17	0.09	0.07	Yes
Afghanistan	75	60	2 000	413	20	15	0.30	0.15	No
Uganda		210 <sup>a</sup>		300 <sup>a</sup>	40	25	-	0.17	No
Yemen Arab Republic	400	325	530	400	170	160	-	1.16	Yes
Mali	100	14	120	50	50	8	0.33	0.22	No
Malawi	-	-	-	-	-	-	0.60	0.20	Yes
Rwanda	165	55	-	385	23	18-25	0.40	0.43	Yes
Niger	-	-	-	-	50	-	-	-	-
Somalia	130	90	400	400	100	30	-	0.16	No
Haiti	145	48	200	25	36	15	0.18	0.28-1.00	Yes
Burundi	150	1 000	150	200	20	100	0.35	0.28	No
Benin	88	-	-	-	-	-	-	-	-
Sierra Leone	112	78	-	150	35	30	0.90	0.30	Yes
Togo	-	-	-	142	23	-	0.66	0.33	Yes
Central African Rep.	183	7	-	-	-	-	-	0.41	-
Mauritania	-	-	-	-	50	-	-	-	No
Lesotho	275	140	300	40	25	25	0.76	0.30	No
Bhutan	60	25	20	20	25	20	-	-	-
Botswana	83	44	230	185	-	40	0.75	0.54	Yes
Guinea Bissau		160 <sup>a</sup>		300 <sup>a</sup>	110	60	0.06	0.04	No
Cape Verde	-	-	-	-	-	-	4.65	1.08	-
Maldives	-	100	90	20	12	12	-	-	No
Samoa	320	-	-	120	180	70	0.09	0.03	No
Vanuatu	-	-	-	-	62	5	0.22	0.34	No
Sao Tome & Principe	63	31	150	120	40	20	-	0.05	No

<sup>a</sup> No breakdown given.



TABLE 7.8 - LEAST-DEVELOPED COUNTRIES (LDCs)

RANKING AND FREQUENCY OF CONSTRAINTS

Constraints	No. of countries (25) indicating constraint			Ranking index <sup>d</sup>
	Very severe	Severe	Moderate	
Inadequate cost-recovery framework	12	8	2	54
Funding limitations	11	7	6	53
Insufficiency of trained personnel (professional)	12	6	4	52
Logistics	10	8	5	51
Insufficiency of trained personnel (sub-professional)	9	8	6	49
Operation and maintenance	10	8	3	49
Inappropriate institutional framework	8	7	5	43
Inadequate or out-moded legal framework	4	9	6	36
Insufficient health education efforts	3	8	10	35
Insufficient knowledge of water resources	3	7	11	34
Import restrictions	6	4	6	32
Intermittent water service	5	4	8	31
Non-involvement of communities	1	7	14	31
Inadequate water resources	5	1	13	30
Inappropriate technology	1	7	11	28
Lack of definite government policy for sector	2	4	11	25
Lack of planning and design criteria	1	6	8	23

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

TABLE 7.7 - LEAST-DEVELOPED COUNTRIES (LDCs)

COST PROJECTIONS COMPARED WITH 1981-5 SECTOR INVESTMENTS

Country/ territory	Estimated cost to reach country Decade targets US\$ million	Sector investments (1981-85)			Acceleration in investment needed (fold)
		Total US\$ million	Percentage of total development investment	External US\$ million (%)	
Bangladesh	1 157	103	0.19	55 (50)	5.63
Ethiopia	-	-	4.30	-	-
Nepal	270	62	-	57 (91)	2.17
Afghanistan	134	76	2.10	2 (2)	1.13
Yemen Arab Republic	1 055 <sup>a</sup>	353	5.22	108 (31)	1.50
Mali	272	23	6.00	22 (95)	11.73
Malawi	-	19	3.10	- (77)	-
Burkina Faso	-	-	-	- -	-
Niger	-	-	7.30	- -	-
Haiti	143	8	4.00	8 (94)	8.81
Burundi	-	42	9.40	35 (83)	-
Sierra Leone	-	29	-	23 (81)	-
Togo	-	11	-	8 (74)	-
Central African Rep.	-	-	2.12	- -	-
Lesotho	114	41	10.50	34 (83)	1.39
Bhutan	-	4 000	-	1 750 (44)	-

Botswana	-	39	-	24 (60)	-
Djibouti	119	-	0.30	- (100)	-
Maldives	17	4	-	3 (75)	2.19
Samoa	22	4	6.00	4 (87)	3.00
Vanuatu	14	5	-	4 (85)	1.40
Sao Tome & Principe	11	-	-	- -	-

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<sup>a</sup> Urban water supply and sanitation only.

TABLE 7.9 - LEAST-DEVELOPED COUNTRIES (LDCs)

## DECADE APPROACHES DURING 1981-1985

Country/ territory	Improved services for the urban poor			No. of rural communities participating in improvements			Primary school children receiving health education	Promotion of women's participation (Yes/No)	Water supply and sanitation in rural areas as part of PHC (Yes/No)
	Total urban poor population (000)	Population affected by improvements (%)	Urban water development funds used (%)	Planning (%)	Building (%)	Operation (%)			
Bangladesh	7 200	2	-	0	30	30	-	Yes	Yes
Ethiopia	-	-	-	-	-	-	-	Yes	Yes
Tanzania, Rep. of	-	-	-	1	25	2	-	Yes <sup>a</sup>	Yes <sup>a</sup>
Nepal	-	-	-	50	50	50	100	Yes	No
Afghanistan	50	15	-	20	63	100	100	No	Yes
Uganda	-	-	-	-	-	-	-	Yes	Yes
Yemen Arab Republic	950	20	-	90	20	100	4	-	-
Mali	-	-	-	100	100	100	80	Yes <sup>a</sup>	Yes <sup>a</sup>
Malawi	680	-	-	-	-	-	-	Yes	Yes
Burkina Faso	635	36	-	-	-	-	-	Yes	No
Rwanda	-	-	-	-	-	-	100	Yes	No
Niger	-	-	-	-	-	-	-	Yes	No
Somalia	-	-	-	-	-	-	-	-	-
Haiti	65	16	-	70	30	15	15	Yes	No
Burundi	-	-	-	-	-	-	-	-	-
Benin	-	-	-	0	90	90	20	Yes <sup>a</sup>	Yes <sup>a</sup>
Sierra Leone	1 110	0	-	100	100	100	15	Yes	No
Togo	-	-	-	15	1	70	-	-	Yes <sup>a</sup>
Mauritania	98	2	-	<5	15	40	19	No	No
Lesotho	-	-	-	-	-	-	-	Yes	Yes
Bhutan	-	-	-	100	100	100	-	No	Yes
Guinea Bissau	-	-	-	90	55	30	0	Yes <sup>a</sup>	Yes <sup>a</sup>
Gambia	120	0	-	100	100	100	Almost all	Yes <sup>a</sup>	Yes <sup>a</sup>
Cape Verde	-	0	-	-	-	-	0	-	No
Maldives	-	-	-	30	100	100	-	Yes	Yes
Western Samoa	0	-	-	0	50	0	95	No	No
Vanuatu	-	-	-	100	100	100	-	Yes	Yes
Sao Tome & Principe	-	-	-	-	-	-	35	Yes <sup>a</sup>	Yes <sup>a</sup>
Tuvalu	-	-	-	-	-	-	-	-	-

<sup>a</sup> Associated with specific projects.