

**UNITED NATIONS
ECONOMIC COMMISSION FOR AFRICA**

**Problems and Needs of Africa in
Community Water Supply and Sanitation**

*for the International Drinking Water Supply
and Sanitation Decade*

**(being a synthesis of country reports prepared by
member States of ECA)**

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PREFACE

This report is essentially a synthesis of the country reports prepared by Member States of the United Nations Economic Commission for Africa in response to the guidelines provided by the United Nations Secretary General, in terms of the requirements specified in Resolution E/1979/31 of 9th May 1979 of the Economic and Social Council.

After a brief introductory background and a short recapitulation of sources of information, the Report contains a short description of the principal demographic features of Africa's population, including the urban-rural concentration and trends. This is followed by a statement on the progress on the Continent in the sector during the seventies.

The current status in urban and rural water supply and urban and rural sanitation is briefly described.

Special problems and constraints as stated in the Country Reports are summarised, followed by some observations on problems relating to source development from surface and ground waters.

Targets and objectives of the Decade in the different countries are summarised and the rate of progress targetted over the next Decade in some countries compared with performance during the past decade. Programmes as formulated in some countries are then reviewed. This is followed by a summary of

the requirements set out in the country reports of technical assistance and advisory services, manpower and training, material and equipment, investments, institutional arrangements, public participation, choice of technology and select research problems.

In conclusion, some suggestions are made for further work in the light of the requirements pointed out by the countries in their respective reports.

It is hoped that this synthesis of the reports prepared by the countries in Africa on the eve of the launching of the international Drinking Water Supply and Sanitation Decade highlights the status of the sector in Africa, brings out the principal problems and needs and will thus serve, at least in a limited way, the intended purpose of stimulating joint cooperative action amongst the countries of the region to promote technical and economic cooperation amongst the countries and further, to stimulate the flow of external assistance in helping the achievement of the targets and objectives set by the countries of the region for the Decade.

Problems and Needs of Africa
in
Community Water Supply and Sanitation
for the
International Drinking Water Supply and Sanitation Decade

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Report on the Problems and Needs of Africa
in Community Water Supply and Sanitation

1. Introduction

The United Nations Water Conference 1977, recommended that "the Decade 1980-1990 should be designated the International Drinking Water Supply and Sanitation Decade and should be devoted to the implementation of the national plans of making water supply and sanitation in accordance with the Plan of Action contained in Resolution II" of what has now come up to be known as the Mar del Plata Action Plan for the integrated development of the water resources of the world.

In Resolution E/1979/31 of 9.5.1979, the Economic and Social Council recommended that, during its Thirty Fifth Session, the United Nations General Assembly should hold a special one day session to launch the International Drinking Water Supply and Sanitation Decade and requested the Secretary General to provide such guidance as might be requested by the Governments in the preparation of national reports for submission to the special meeting of the General Assembly.

In response to the resolution, many Governments of the African region prepared national reports according to the guidelines provided by the Secretary General. These include : Algeria, Angola, Benin, Botswana, Cape Verde, Chad, Comoros, Egypt, Ethiopia, Ghana, Guinea, Ivory Coast, Liberia, Madagascar, Malawi, Mauritania,

Mauritius, Mozambique, Senegal, Seychelles, Sierra Leone, Somalia, Swaziland, Togo, United Republic of Tanzania, Upper Volta, Zaire and Zambia.

An African Regional Meeting was convened on the problems and needs of Africa in community water supply and sanitation at Addis Ababa, during 4-8 August, 1980. This was convened by the United Nations Economic Commission for Africa in accordance with the recommendation made in October 1978 by the African Regional Meeting on the follow-up and Implementation of the Mar del Plata Action Plan. The African Regional Meeting convened in August 1980 was conceived as an occasion to provide the necessary inputs from Africa to the meeting of the General Assembly in November 1980. Many African governments and international organisations prepared additional papers for the African regional meeting on the problems and needs of Africa in the field of community water supply and sanitation. The countries which prepared special papers for the ECA sponsored meeting in August 1980, are Botswana, Burundi, Central African Republic, Congo, Ethiopia, Guinea (Conakry), Kenya, Lesotho, Liberia, Madagascar, Niger, Nigeria, Rwanda, Swaziland, Togo and Uganda.

Many organisations like the FAO, UNICEF, World Bank, UNEP, WHO and UNDP also provided documentation for the African regional meeting in August, 1980.

The papers prepared by the African Governments in response to the requests from the United Nations, New York and the ECA in Addis Ababa, covered among other things, several aspects pertaining to the current status of the sector in their respective countries, the targets and objectives set by the Governments in the region, the status of the formulation of projects and programmes for the Decade, individual national requirements for technical assistance and advisory services, manpower training, institutional arrangements and investment needs in as detailed and precise a manner as possible at the present stage. The present report is basically a synthesis of the reports prepared by the respective countries in the African region setting out their own perceptions of their problems and needs, supplemented by such additional information as is readily available in other published documentation of the United Nations and its specialised agencies. The objective of the synthesis is to provide a basic overview of the status of preparedness of the countries in Africa for undertaking projects and programmes to achieve the objectives of the Decade and also to provide essential information to interested governments and agencies in generating aid and providing assistance to the countries in Africa.

2. Sources of information used in compiling the report

Twenty eight countries submitted papers to the Secretary - General of the United Nations in response to ECOSOC Resolution No. 1979/31 of 9th May 1979. In addition, 16 countries submitted additional papers to the ECA for the meeting held in August 1980. These are detailed in Annex 1.

Besides these reports, WHO prepared Sector Digests and Rapid Assessment Reports for many countries in Africa.

In compiling this report, information contained in the country papers submitted by the governments has been used as a first priority and information in other documentation utilised to fill in gaps or otherwise consulted wherever necessary.

3. The Demographic Factor

The demographic factor is of fundamental importance in following the progress or in planning the future projects in the field of community water supply and sanitation. The projects in the sector will have to cater not only to the present populations but also to those expected in future. In so far as the Decade is concerned, the anticipated population growth during the period 1981-1991 is of basic interest. Further, its split up between urban and rural areas is significant because both present as well as targetted levels of supply in future are different in urban and rural areas. In fact, even within the areas classed as urban and rural, supply levels are likely to vary considerably in many instances. An attempt has, therefore, been made in this report to consider the demographic factor in the first instance.

One of the most prominent features in population data is that there is considerable variation in the population estimates, present as well as future, from different sources. This is inevitable in a situation where estimates are often projections from census data. The actual census year varies from country to country. Projections in 1990 based on census in 1980 will be different from those based on the 1971 census. In many countries of the region, 1981 is the census year, but present estimates of population in 1980 and 1990 are based on the 1971 census. The projections for 1985 and 1990 based on the latest census will be different from estimates as at present available.

It, therefore, appears necessary to reassess the population projections in the very near future based on the 1981 census in many countries of the region.

Annex 2 shows the population data of the countries in Africa as well as surface area, as given in the country reports under review. The year to which the population figure refers and the corresponding growth rate in percentages are also given in this annexure.

Annex 3 shows the population data of the countries in Africa for 1975, 1980, 1985 and 1990 collected from various other sources, namely, (A) Demographic Year Book (ECA) 1978., (B) Estimates and Projections as assessed in 1973 in the "Selected Demographic Indicators" worked out by United Nations and published in 1980; and (C) Demographic Year Book (ECA) 1979. The data from different sources broadly tally with each other. There are some variations which do not, however, appear statistically significant. The data for most of the countries presented for 1975 and 1980 are estimates. Only a few pertain to the census figures counted in 1975. The total for Africa presented in Annex 3 is for the countries listed therein.

Annex 4 shows the urban-rural split in different countries for 1975, 1980, 1985 and 1990. This annex also shows the percentage of urban and rural to the total population.

The total population in Annex 4 corresponds to the total population in column (A) in Annex 3.

Annex 5 shows the percentage of urban and rural population to the total population of Africa on five yearly intervals during the period 1975 to 1990. This shows that the urban percentage has been steadily growing during the period, while the percentage of rural population is steadily decreasing. This points to the increasing trend of urbanisation on the continent of Africa as a whole. The overall growth of the population over the period 1975 - 1990 is :

Urban :	114,876*	-	136%**
Rural :	97,301	-	34%
Total :	212,177	-	58%

* Population in ('000)

$$** \text{ Percentage Growth Rate} = \frac{P_{1990} - P_{1975}}{P_{1975}} \times 100$$

where P refers to population and suffix refers to the year

It is further seen that :

(a) the urban population of 1975 will more than double itself in a period of 15 years, if the growth trends remain the same during the next 15 years ;

(b) the rural population in 1975 will double itself in less than 50 years time if the trends were to continue ; and

(c) the total population will double itself in less than 30 years from 1975 say around the turn of the century if the same trend was to continue.

Annex 6 shows the absolute and percentage growth of urban, rural and total population of Africa in the five yearly periods, 1975-1980, 1980-1985, 1985-90. This annex shows that :

(a) the urban population is growing at a high rate, specially during the period 1985-1990;

(b) the growth in rural population is relatively constant; and,

(c) there is a spurt in the growth of total population during 1985-1990.

Annex 7 shows the population of urban, rural areas and the total for Africa for 1975, 1980, 1985 and 1990.

The data is graphically depicted in Fig 1 which corroborates the observations on trends made earlier.

Annex 8 indicates the figures of urban, rural and total population in Africa in the five yearly periods indicated on the graph. Δ is the measure of the slope and hence of the rate of increase in population. It is seen from Annex 8 that the Decadal growth for 1980-1990 is 84 percent for urban, 22 percent for rural and 38 percent for total population.

Annex 9 shows the distribution of African countries according to the percentage of urban, to total population during the period. The urban population has been stratified into eight categories in Annex 9, which shows that while most of the countries in Africa are rural, there is increasing tendency towards urbanisation.

Most of the countries fall in urban category classed as 'low-medium' (that is, 10% to 20% of total population). But by 1990, 27 out of 48 countries will have above 30 percent of their population in urban areas. In fact as many as 21 countries will fall in the category 'high' and above. While a majority of the countries shows an increasing trend of urbanisation, it is interesting to note that Swaziland shows the reverse trend of decrease.

There are some countries which show a sudden spurt towards urbanisation during 1985 to 1990 : Benin, Botswana, Gabon, Ivory Coast, Liberia, Libya, Malawi, Namibia, Sudan, and Cameroon. It will be interesting to study this specific feature of increasing urbanisation trend during the latter half of the Decade. This is, however, considered beyond the scope of the present report.

Moreover, it appears that the concept of urban and rural communities differs with the countries.

In Benin, Congo and Liberia, communities with more than 5000 people are classed in the respective country reports as urban, whereas in Angola, communities with more than 2500 are urban. Madagascar treats the problem in respect of communities above and below 2500 people but does not appear to use the nomenclature urban and rural. In Ethiopia, 57 towns with a population of over 10,000 are considered urban and, in addition, 74 towns with a population between 6,000 to 10,000 . The country report from Egypt notes that "the conventional distinction between rural and urban water supplies is difficult to make in the case of Egypt".

The urban and rural population data presented in Annex 4 is as published by the United Nations Economic Commission for Africa. However, the problems of water supply in different countries in the urban and rural sector are presented in the respective country reports.

4. Progress during the Seventies

Out of a population of 280 million covered by a survey conducted by the WHO in the early seventies in many countries including those in Africa, the urban population in Africa was 70 million and rural 210 million. According to the survey, 75 percent of the urban population (51 million) and 19 percent of the rural population (41 million) in the countries of Africa had reasonable access to safe water in 1970.

The goals set for the Second UN Development Decade called for the extension of water supply to serve 100 percent of the urban population (60 percent through house connections and 40 percent through public standposts) and 25 percent of the rural population.

An assessment made in the middle of the Second Development Decade in the African region showed that :

"The percentage of the urban population served by house connexions in Africa increased only marginally from 33 percent to 36 percent from 1970 to 1975. Therefore, a more realistic target of 45 percent to be achieved by 1980 is now proposed for this region, instead of the global target of 60 percent already adopted. The percentage of the urban population served by public standposts has actually decreased from 34 percent to 29 percent. The proposed new target is 35 percent giving a total 1980 urban

target of 80 percent, including both house connexions and public standposts.

"In the rural sector, the percentage of the population having reasonable access to safe water increased from 13 percent in 1970 to 21 percent in 1975. In view of the progress made a new target of 35 percent is proposed for attainment in 1980".

5. Current Status

"On the basis of country data collected by WHO, it is estimated that half the urban population and about 15 percent of the rural population of Africa have access to safe water supply. The corresponding statistics for sanitation reveal that one quarter of the urban population and about 12 percent of the rural inhabitants are provided with adequate waste disposal facilities.

Although the total number of people served has increased dramatically in recent years, the increase is matched by population growth, thus the number of people lacking service has remained more or less constant in recent years. For Africa as a whole, some 343 million people are still today without adequate water supply, and within the decade of the eighties, the population of Africa will increase by some 183 million people. This means that 526 million additional people should have access to water supply by 1990; with 365 million of these, or two-thirds, in rural areas. Comparable figures for sanitation indicate that 571 million people should be provided in the eighties with proper sanitation for the first time, of which 375 million would be rural residents. " *

* Extract from the address by Mr. W. Thalwitz to the
ECA sponsored African Regional Meeting at Addis
Ababa, 4th August 1980.

5.1 Selection of parameters

A precise definition of the current status in the countries is important to serve as a benchmark against which future progress during the Decade could be evaluated and monitored from time to time. This should be done separately in respect of each of the four sub-sectors, namely urban water supply, rural water supply, urban sanitation and rural sanitation. Further, it is important that suitable parameters should be selected to express in quantitative terms the dimensions of the status.

In respect of urban water supply there are three important parameters that deserve consideration, namely (a) population coverage, (b) levels of service and (c) water quality. In respect of levels of service, there are again detailed parameters to define a particular level of service, namely (i) litres per head per day, (ii) the extent of house connections and (iii) the extent of public standposts. Rural water supply also can be defined in terms of these same parameters, except that it does not appear feasible to use the percentage of house connections and public standposts to characterise the levels of service in rural areas in as extensive a manner as is possible in urban areas. Generally speaking, data on water quality has been inadequate to be taken as a parameter. Only one country, namely, Tanzania, is known to have prescribed norms for quality different from international standards and as applicable to the social and economic conditions prevalent in the country. Similar approach appears to be desirable

in other countries as well. Action is needed in many countries in order to evolve quality criteria suitable to their particular conditions, different from international standards.

By far the most important parameter is the extent of population coverage.

In respect of urban and rural sanitation, population coverage is the single important parameter to define the current status and future targets. An attempt was made to evolve other parameters based on methods of sanitation like on-site and off-site disposal. But there has not been enough data in the reports as at present for these to be used as effective parameters to describe either the current status or future targets of the Decade.

5.2 Urban Water Supply

Annex 10 shows the progress registered during 1975 to 1980 in the coverage of urban water supply in select countries of Africa. From this, it is seen that in 1980 :

(a) in some countries like Botswana, Egypt and Ghana, the level of coverage is above 90 percent ;

(b) in countries like Benin, Guinea, Liberia, Madagascar, Rwanda, Togo, Upper Volta and Zaire, the level of service is less than 50 percent ; and

(c) in some countries, the increased level of service has not kept pace with the increase in urban population with the result that the percentage of coverage in 1980 is less than that in 1970, for example, Zambia.

On the basis of data available for 23 countries, an average of 59 percent of the continent's urban population were provided with water. The coverage varies from country to country as may be seen in Annex 10.

In 10 countries out of 23 for which data are available in the country reports, the percentage of the urban population provided with water supply facilities was less than the regional average, pointing to the necessity of increased development in these countries in order to be brought up to the average for Africa. These countries are Benin, Chad, Guinea, Ivory Coast, Liberia, Madagascar, Rwanda, Togo, Upper Volta and Zaire.

It should be noted that even in respect of countries where a high percentage coverage is reported, supply is intermittent, of insufficient quantity and of dubious quality. Excessive leakage is reported in the distribution system in some countries. During the Decade, special efforts will be required to increase the existing facilities in these countries.

With the completion of the on-going projects in Guinea,

it is hoped that 37 percent of the urban population would be covered. Similar assessments in other countries are not readily available but appear to be useful, if possible.

Ivory Coast reports a policy in the field of urban water supply to provide facilities for the most important communities, those which play an administrative role like the headquarters of prefectures and sub-prefectures about which the local life of the country depends. Further, the policy has been to provide house connections in such areas in these cities as may be considered suitable and provide standposts to marginal areas. In other words, house connections are for well developed parts of the country and standposts for less developed peripheries.

A similar approach is reported by Madagascar. The urban areas in Madagascar are divided in two categories : (a) towns with a population of more than 2000 or administrative headquarters and (b) towns with less than 2000 population.

Another principal distinction in Madagascar is that some towns are provided with what is called 'normal' water supply whereas others receive what is called 'economic' water supply.

House connections and standposts

As noted in section 4, the goals set for the second UN Development Decade in the field of urban water supply called for the extension of water supply to serve 100 percent of urban population -

60 percent by house connections and 40 percent by public standposts. In order to study the current status in this respect, the percentage of house connections and standposts in 1975 and 1980 are tabulated in Annexes 13 and 14. The tabulation for 1980 in Annexes 13 and 14 shows that these percentages vary very widely in different countries for which data is available. No uniformity of pattern is discernable. In Upper Volta, the percentage of house connections is 7.2 whereas the corresponding figure for Egypt is 88. Similarly, the percentage of standposts in Egypt is 8.9 and that in Ivory Coast 3, whereas the corresponding percentage in Lesotho is 96, Botswana 59 and Tanzania 57. The figures for 1975 in relation to those of 1980 were intended to provide some distinct time trends but no set pattern is identifiable.

5.3 Rural Water Supply

On the basis of data available for 19 countries in the region, an average of 30 percent~~age~~ of the continent's rural population was provided with water supply facilities in 1980. The coverage in individual countries was uneven, as in the case of urban water supply. On the whole, the position in respect of rural water supply was less satisfactory than for the urban.

As many as 10 countries of the region out of 19 fall below the average. The ten countries are Benin, Cape Verde, Ethiopia, Guinea, Lesotho, Liberia, Mozambique, Tunisia,

Tanzania and Upper Volta.

A coverage of more than 65 percent was reported in some countries like Ivory Coast, Seychelles and Zambia. Although the figure appears to be satisfactory, there is a great need for improving the quality of water supplies and the levels of service.

Ivory Coast reports that the completion of an additional number of 10,000 wells or boreholes before the end of 1982 would represent one water point for 600 people at an average. The progress of work so far lends justification to the hope that the target for 1982 would be fulfilled. All these wells and boreholes would be provided with hand pumps.

On the other hand, the coverage of rural population in Upper Volta is as low as 10 to 12 percent. In Ethiopia the coverage in 1980 was 4 percent, Guinea 4.5 percent, Lesotho 9 percent and Mozambique as low as 2 percent.

It is stated that, in Togo, only about 500 cemented wells exist in the country; many of them not functioning properly. In Guinea (Conakry), the progress in respect of wells is as under :

1975	60,000	1.5 percent
1978	100,000	2.5 percent
1980	200,000	4.5 percent

The above figures would illustrate that although the progress in the increase in wells during the last two years was 200 percent representing an almost two-fold increase in terms of percentage coverage, the overall coverage at the beginning of the Decade is as low as 4.5 percent.

In Upper Volta, during the last fifteen years, 4400 masonry wells and boreholes were constructed, although only 1200 of them are in good working condition. During 1977-81, a total of 6500 water points were built including deepening of some 1500 wells. During 1981-1990, another 12,000 water points are proposed to be built.

Levels of Service

There are wide variations in levels of water supply provided in urban and rural areas expressed in terms of litres per head per day as may be seen from the tabulation below:-

<u>Country</u>	<u>Litres per head per day current status</u>	
	<u>Urban</u>	<u>Rural</u>
Angola	15	-
Botswana		20 to 25
Congo	20 to 50	
Egypt	100	
Ghana	45 to 135	22 to 40
Guinea	50	
Madagascar	100 to 270	20 to 40
Nigeria	20 to 120	
Seychelles	135	

Even in one country, there are variations from town to town and from urban to rural areas. For example, in Upper Volta 70 litres per head per day is provided at Cuagadougou but the average for the country is 34 litres per head per day. In Guinea, 50 litres per head per day is now provided to towns like Conakry, Kankan, Kindia, Fria Kamsar, N'zerokere.....

In Madagascar, the daily per capita supply varies widely,

as may be seen from the following table :

<u>Population</u>	<u>Litres per head per day</u>
More than 70, 000	270
40, 000 to 70, 000	230
20, 000 to 40, 000	160
10, 000 to 20, 000	140
2, 000 to 10, 000	100

There are a number of other towns where water supply varies from 20 to 40 litres per head per day.

5.4 Urban Sanitation

The provision of sanitation facilities in urban areas was less satisfactory than water supply. The average population coverage for sanitation in 13 countries was 60 percent. The average varies from country to country. The percentage in 5 out of 13 countries was lower than the average of the region. These are Cape Verde, Guinea, Ivory Coast, Kenya and Upper Volta.

On the other hand, the country reports from Liberia, Malawi and Swaziland mention a 100% coverage in urban sanitation in 1980. Even so, it is reported that the condition of the sewerage systems has not always been good. Coverage between 50 and 75 percent is mentioned in the reports from Botswana, Kenya, Lesotho, Madagascar and Mozambique.

The coverage in Upper Volta is 5 percent and that in Guinea it is as low as 0.5 percent.

In general, the data in respect of urban sanitation is less complete than in the case of water supply. Moreover, the data of 1979 is so scanty that it is difficult to study trends of increase in the facilities during the period 1975-1980 for many countries in the region.

The capital cities and a few other important towns in the countries receive relatively higher attention than urban areas in general. For instance, Ivory Coast reports that the only significant work in urban sanitation is that of Abidjan. A master plan was established. First phase is completed in 1979 and the second phase started thereafter. The country has taken up the preparation of a development plan in urban sanitation.

Similarly, in Upper Volta, efforts are being made to extend the network for storm water disposal at Ouagadougou, Bobo-dioulasso and seven other towns.

Urban sanitation should in fact be considered as comprising, waste water disposal, storm water disposal and solid waste disposal. Very few towns have coordinated and comprehensive plans for all these aspects of urban sanitation.

5.5 Rural Sanitation

Annex 16 clearly shows the situation in respect of rural

sanitation is less satisfactory. Although Seychelles reports 97.5 percent coverage and Malawi 80 percent, these are more in the nature of exceptions. A number of countries report a coverage of about 5 percent. Liberia reports 3 percent, Senegal 2 percent Madagascar 1.4 percent and Ethiopia 1.1 percent.

The average for 12 countries in the region is estimated at 23 percent, while nine out of these 12 countries report a coverage less than the regional average. These nine countries are Benin, Cape Verde, Ethiopia, Ivory Coast, Lesotho, Liberia, Madagascar, Mozambique and Senegal.

Some countries have reported progress in the construction of rural latrines. The number is stated to be not sufficient and there is, in general, a need for evolving specific projects for implementation.

5.6 Annexes 17 and 18 depict on site and off site disposal of sanitation (urban and rural) of 1975 and 1980 respectively. The majority of the countries adopted on site sanitation disposal methods to a large extent and even in countries which attained 100% sanitation, off site disposal methods account for 50% of the total disposal as in the case of Liberia.

6. Special Problems and Constraints

Natural

Africa has a large percentage of arid and semi arid area amongst all the continents. 80 percent of the land area in Sahel is arid with acute problems of water supply and distribution. In a country like Algeria, more than 20 percent of the population live in arid, semi-arid and mountainous regions which causes special problems in providing water supply and distribution. Over vast regions, there are no water sources and, wherever available, require at least partial treatment to make them potable. In a country like Burundi, the relief is highly varied dominated by high hills and low valleys. 95 percent of the population live in dispersed rural habitations, and communities with more than 40 households are very rare. Moreover, people build their houses high. These social and geographic conditions pose special problems in the preparation of plans and projects for water supply and distribution.

There are a number of island countries; Madagascar, Mauritius, Cape Verde, Sao Tome and Principe, Seychelles, Comoros, etc. In Cape Verde, the rocky subsoil poses special problems in water supply as well as sanitation. Madagascar lists uneven population density and inadequate distribution of resources between desertic, sub-desertic and mountainous areas, among constraints posed by nature.

Several countries are landlocked : Burundi, Chad, Mali, Niger, Rwanda, Uganda, Lesotho, Botswana, Central African Republic etc. Procurement of material and equipment involves considerable delays, caused by transport bottlenecks etc., in addition to high costs.

Financial

Several countries report serious financial constraints not only for investment but even for the preparation of sector plans and projects. A WHO study in 1980 reports that 87 percent of the countries are in need of some form of technical or capital assistance. 60 percent of the countries reported serious problems with inadequate revenues for internal cash generation.

Socio-economic

Uneven distribution of population and differences in socio-economic structure of different segments make investments uneconomic. Data on tariff structures and economic affordability are not readily available. In Congo, there are some underpopulated zones of marginal economic activity whereas there are other zones which are over populated where most of the economic activity of the country originates.

Manpower

WHO reports that the development of adequate manpower is probably one of the most urgent tasks facing the countries in the preparation of plans for the Decade activities. There is an

extreme and urgent need in 42 countries (91 percent) to develop manpower. This will require staffing studies and training programmes of sector personnel at all levels specially in the sub-professional, technical and skilled worker categories.

Technological

Chad reports insufficiency of equipment, rapid pollution of ground waters, non-existence of infrastructure for water treatment, lack of technical know-how in certain difficult regions of deficit as technical constraints in the sector. There is need for setting up water quality laboratories either on a national level or sub-regional basis. Madagascar reports dominance of imported technology, difficulties in the adaptation of such technology to national needs, inadequate research on appropriate technology and a preference to capital intensive technologies to those which are relatively more labour intensive as some of the technical constraints in the further development of the sector. A plea is entered for more extensive exchange of technologies adopted in other developing countries.

Legislative

Absence of a water code and too little or too much of legislation are listed among other constraints. In some cases, it is reported that the existing legislation is outdated both in form as well as in substance.

Institutional

Institutional weaknesses and the need for better coordination amongst various agencies involved in the sector are reported by many countries.

23 countries showed the need for reorganisation and 18 countries for better coordination amongst the agencies in the sector, according to the WHO study (ECA/NRD/WR/80/1/15.6.80).

7. Source Development

Identification and development of sources of either surface or sub-surface waters is one of the important first steps in planning community water supply programmes. Considerable information in African countries has been collected both on surface as well as on ground waters as a part of the activities of the International Hydrological Programme (IHP) and the operational Hydrological Programme (OHP) and other data collection projects operated by UNESCO, WHO and bilateral aid agencies like ORSTOM in the case of French speaking countries. But all this data will have to be compiled, analysed and processed in such a manner as to help formulate specific programmes and projects for water supply. There is need for more effective integration of these inter-related activities under the impact of the Decade. This, in fact, is the major policy implication of Resolution No. I of the Mar del Plata Action Plan.

The United Nations Water Conference recognised that, "for the plans of action adopted by the conference for the identification and improvement of water use and development in agriculture and for providing safe drinking water by 1990, a proper assessment is necessary of water resources in all countries of the world." It was resolved that "International Cooperation aimed at the strengthening of water resources assessment, particularly within the International

Hydrological Programme be keyed to the targets set by the United Nations Water Conference and appropriately supported by national and international governmental and non-governmental institutions." (E/Conf. 70/29).

A reference to the importance of source development is contained in some of the papers at present under review.

Congo mentions that there is need for making a complete inventory of available surface and ground water sources in that country to facilitate their effective utilization. Surface waters are abundant in the Congo. Nevertheless, sometimes, it becomes necessary to depend on ground water resources in specific locations. Establishment of networks and improvement of existing coverage and setting up data banks are among the steps recommended to study and monitor the quantity and quality of surface and ground water resources.

The Central African Republic expresses the need for ground water exploration more extensively than before in relation to water supply.

In Cape Verde, the majority of the rural population live in communities below 200 and in the population range 200 to 500. This makes it necessary that small sources should be developed and new suitable technology evolved to satisfy the individual requirements.

The aspect of source development and water treatment appears to deserve greater attention in almost all the countries than they do now.

8. Targets and Objectives of the Decade

Recommendation C12 of the United Nations Conference on Human Settlements held at Vancouver in 1976 called upon the countries of the world to "adopt programmes with realistic standards for quality and quantity to provide water for urban and rural areas by 1990, if possible". The Plan of Action adopted at Mar del Plata in Resolution II of the United Nations Water Conference called upon each country to "establish goals for 1990 which match as far as possible the global targets adopted." Thus, one of the first steps which the countries were called upon is to establish individual national targets for the Decade.

A review of the country reports brings out that the targets and objectives for the Decade are defined differently by different countries. See Annexes 20 to 25.

In Algeria, the objective is stated to reach the supply level of 150 litres per head per day. 85 percent of the urban population and 25 percent of the rural population are to be the target group. The existing supplies are to be improved, to be brought upto the desired level.

In Cape Verde, the objective is to reach a supply level of 47 litres per head per day for a population of 450,000 in 1995.

In Ivory Coast, 30 to 40 house connections are planned for 1,000 people in the year 1990. Similarly, one standpost is planned to cover 500 people of urban population.

In Madagascar, the projects are divided into three categories, short-term (3 years), medium term (5 years) and long-term (10 years). The long-term objective is to provide water supply at a distance which does not take more than 15 minutes to and from to fetch water and a total water consumption of 26 cubic meters per head per year or 70 litres per head per day.

Malawi aims to supply water by standposts at distances not more than 500 meters from the households.

The policy in Tanzania is to supply water through the standposts in such a manner that the distance to be covered is 400 meters. The corresponding distance in Ethiopia is 200 meters.

In Mauritania, it is envisaged to provide 20 litres per head per day to all villages with more population than 500 people.

Togo has separate targets and objectives in each of the four sub-sectors. In urban water supply, the objective is to cover all the administrative towns and their neighbourhoods, improve existing works, cover all semi-urban communities

of more than 5,000 people. In rural water supply, extensive drilling of wells is envisaged; at least 500 wells per year, besides arranging maintenance of existing village wells. In urban sanitation, the target is to provide for disposal of waste water and storm water in Lome, the capital and 20 other towns. In rural sanitation, the target is the completion of 1,000 latrines of 6 holes each and better public education.

The above brief review brings out the diversity in the definition of targets and objectives in different countries. It is not perhaps possible to evolve strict uniformity in targets and standards because of widely varying socio-economic conditions but it appears desirable to review these targets and fix them in such a manner as to be able to monitor the progress from year to year.

Moreover, the targets as set appear to indicate a higher priority for water supply vis-a-vis sanitation and, in sanitation, higher priority for urban vis-a-vis rural sanitation.

The Plan of Action adopted at Mar del Plata recommended a hundred percent coverage of urban and rural population in respect of both Water Supply as well as Sanitation, if possible. Hundred percent coverage in Water Supply would necessitate corresponding coverage in treatment and disposal of Waste Water. As water supply and sanitation have to develop

in a coordinated manner, the possibility of hundred percent coverage in Sanitation (not necessarily water borne sewage disposal) in urban and rural areas may be given due consideration. The priorities may be reviewed and rearranged with a view to restoring a more balanced attention between water supply and sanitation and between the urban and rural sectors.

Fig 6 indicates that there are wide variations also in respect of targeted levels of water supply as Decade objectives. The policy of Algeria is to provide 150 litres per head per day for the entire population. Cape Verde plans for 47 litres per head per day by 1995. Guinea's targets are 100 litres per head per day for urban areas and 10 to 20 litres for rural areas by 1985. It is expected that the implementation of the programmes and projects in Ivory Coast during 1981-85 will result in the provision of water supply at rates ranging from 13.5 to 46 litres per head per day depending upon the levels of economic activity in the communities. Abidjan will get 93 litres per head per day. Nigeria's target for the Decade is 115 litres per head per day. Upper Volta's policy is to provide 30 to 40 litres in small towns and 150 litres in big towns per head per day. The target in the rural areas is 5 litres per head per day. Seychelles plans to provide 188 litres by 1985 and 211 litres by 1990.

The above targets do not appear to manifest any obvious relation to present levels of supply.

Moreover, the target for water supply of 150 litres in Algeria, including rural areas, is 30 times Upper Volta's rural target of 5 litres per head per day. The target of 211 litres by 1990 in Seychelles is 16 times the target in some urban areas in Ivory Coast. Present levels of water supply of 20 to 25 litres in Botswana are perhaps higher than the minimal target of 13.5 litres per head per day in some areas of Ivory Coast by 1985.

These appear anomalous but are presumably related to the specific economic and social conditions and aspirations in different countries. But the exact relationship between national objectives for the Decade and related socio-economic factors is not obvious and ~~appears~~ to deserve separate and indepth study.

9.0 Programme for the Decade

The fundamental characteristic of the Decade is to have a programme of activities in such a manner that there are certain well-defined targets for achievement over a period of time with goals to be achieved and monitored from time to time during the period. The achievement of a physical target within the time is the essence of the formulation of a programme. Although there is much room for improvement in the formulation of clear-cut and well-defined programmes, it appears that a beginning has been made in this direction as is evident from the presentation of the programmes in many country reports. The programmes presented by some of the countries are shown in Annexes 26 to 29 along with the implications of the timings involved.

Annex 26 is a programme of activities in the field of urban water supply. A perusal of this shows that majority of urban water supply schemes in the countries are targeted for completion during 1981-85. Certain schemes among these have a higher priority, for instance, in Benin, the drilling of wells and boreholes is given higher priority than others in the sense that they are expected to be completed during 1981-83. Botswana has a programme of completing some urban water supply projects before 1985. No works are indicated for the second half of the Decade both by Benin as well as Botswana.

Cape Verde has outlined many schemes for the Decade. 400 communities in Madagascar would be provided with water supply during 1981-1982. The rest of the target is programmed to be achieved during the period 1983-1990.

In Malawi, some programmes are targeted for the first half of the Decade, and others in the second half. City water supplies for Lilongwe and Balantyre are expected to be completed over the Decade but international milestones are not indicated.

Senegal has given a relatively more detailed programme, with separate timings indicated for its projects during the Decade.

Similar is the case for rural water supply programmes presented in Annex 27. Benin has indicated targets for the first half of the Decade. The rural water supply programme for Cape Verde calls for the provision of water supply for 260,000 people, at the rate of 26,000 people per year. The Ivory Coast's programme extends upto 1982 whereas Madagascar's programme covers the period 1983-1990. Malawi has indicated targets separately for the first and second halves of the Decade. Senegal has outlined a number of projects over different periods for a number of years during the Decade.

The programmes of urban sanitation presented in Annex 28 are worked out in less detail than for those for water supply. Benin and Cape Verde have worked out overall targets

for the Decade and annual targets in terms of population coverage for certain projects.

Excreta and waste disposal projects for 400 communities in Madagascar are targeted for completion before 1982 while the other communities would be covered during the period 1983-1990. Malawi and Senegal have outlined overall targets for the Decade, while Ivory Coast has mentioned the projects to be undertaken before 1985.

The programme formulation is less advanced in rural sanitation as presented in Annex 29. Benin envisages construction of 300 latrines in 6 provinces during 1981-83. While Cape Verde reports that 270,000 persons would be covered during the Decade at the rate of 27,000 per year.

The programmes in Annexes 26 to 29 take into account the national planning cycles. In some countries, the Decade coincides with two national planning cycles from 1981 to 1985 and 1986 to 1990. For many others, the current planning cycles coincide with the earlier years of the Decade.

In many instances, certain requirements have been noted although no timings or the programmes have been worked out. For instance, in the Central African Republic, the following are noted as the future requirements of Societe National des Eaux : (SNE).

- the replacement of a number of kilometres length of water supply pipes at Bangui;
- extension of the distribution network at Bangui;
- improvement of existing water supplies to cover the entire populations at Bonar, Bambari, Mougoumba, Berberati and Bozoum; and
- establishment of new water supply systems at places like Bangassou, Bossangoa, Carnot, M'baiki, Kouamga , Bria, Molay, Ndele, Sibut and Kagabandoro.

In the field of rural water supply, Guinea (Conakry) hopes to provide 10 to 20 litres per head per day for all the rural population by providing 8,000 to 16,000 pumps. Niger plans the construction of 17,500 water points for urban water supply and another 17,500 water points for rural water supply. The five-year plan covering the period 1979-83, envisages the construction of 2200 wells and 1000 boreholes and the remaining works in the later part of the Decade.

In Ghana, a master plan is being prepared on the basis of which preliminary identification reports will be prepared, followed by detailed planning studies and detailed design. This stage will be assisted by a design manual.

The African Regional Meeting held in August 1980 noted that there are many countries in the region which had not yet started the formulation of programmes for the Decade. The Meeting, therefore, recommended certain guidelines for action to be initiated in the countries by the National Action Committees or other existing institutional mechanisms. The guidelines recommended are in Annex 60.

The above review shows that some attempt has been made in the matter of programme formulation by some countries as summarised in Annexes 26 to 29. The methodologies adopted by these countries would be of interest to those who have yet to evolve their own respective projects and programmes. They would **also** be of interest from the point of view of inter-comparison. Further they underline the need for systematisation of the work in accordance with uniform guidelines and norms as recommended by the Regional Meeting and by other concerned **International** Organisations. The design manual being prepared for the Ghana Water & Sewerage Corporation with UNDP assistance could be of interest to many other countries in the region.

The formulation of programmes over such a long period as a Decade in the face of several uncertainties has certain natural limitations, constraints and difficulties. For instance, there are no definite indications about the availability

of funds over the Decade or of equipment or of manpower.

Funding cannot be firmly indicated because of the lack of programme and projects and, on the other hand, programmes and projects cannot be firmed up because of the uncertainties of funding. This is a vicious circle. It can only be resolved over a period of time. Programme formulation is a process.

A beginning has been made and it has to be followed up meticulously and systematically. But it is clear that without a programme ~~in the substance~~ the Decade will be lacking in substance.

10. Trends in Coverage

At this stage, it will be of interest to visualise the magnitude of the work to be done during the next decade in relation of the performance during the preceding decade. In other words, the enormity of the task during the 80's could be comprehended in relation to the actual performance during the 70's. However, the data of the status of the sector during the period 1970-75 is not as readily available as that during 1975-80.

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~~A~~ attempt is made in Fig 2 to show the status of urban water supplies in some African countries in 1975, 1980, 1985 and 1990. In some cases, the status in 2000 A.D. is indicated because 100% coverage in countries like Egypt and Madagascar is targeted for fulfillment by 2000 A.D.

Fig. 2 shows that in respect of urban water supply, the performance during 1980-1990 should be many times more than that during the period 1975-80. This is all the more so in countries like Madagascar, Liberia, Guinea, Ivory Coast, Tunisia, Cape Verde, Malawi, Zambia and Swaziland. The situation is relatively easier in countries like Egypt, Ghana and Seychelles.

The data from Swaziland indicates that the rate of progress during 1980-83 is such that while there could be increase in the provision of urban water facilities in absolute numbers, the percentage does not increase.

In the case of Ethiopia, the plot in Fig 2 shows that the percentage of coverage in 1984 is slightly less than that in 1980 which indicates that the increase in population during the period is more than the increase in coverage. This points to the necessity of revising the target and the pace of progress. Similar is the case in Zambia which shows that the percentage of coverage in 1980 is less than that in 1975, a trend which has to be significantly reversed in order to reach the target for 1990. This calls for particular effort in order to ensure the successful completion of the programme.

Fig 3 shows a similar treatment of the data in respect of trends in the coverage of rural water supply. This figure brings out the variation in the targets for population coverage for 1990 in different countries. For instance, the targets in Ethiopia, Ghana, Liberia, Chad and Cape Verde fall short of 100% coverage by 1990. Egypt and Seychelles plan 100% coverage by 2000 AD. Botswana plans to reach the target of 100% coverage well ahead of 1990.

The rate of progress in rural water supply during the next decade should be several times the performance during the past decade, particularly in countries like Mozambique, Cape Verde, Liberia, Swaziland, Ghana, Tanzania, Malawi, Tunisia, Egypt and Zambia. In Ivory Coast and Seychelles, the rate of

progress planned for the next decade is surprisingly less steep than that during the period 1975-80.

Figures 2 and 3 bring out clearly the need for an unprecedented effort to be made during the coming decade, if the targets set for the countries are to be realised without fail.

Yet Figs. 7 to 10 bring out coverages in drinking water supply more vividly countrywise on the map of the continent of Africa.

Figs. 7 and 10 show the present coverage (1980) of the population in drinking water supply in urban and rural areas respectively, countrywise. Figs. 8 and 9 depict the anticipated population and the targets in drinking water supply by 1990 or 2000 A.D. countrywise, in urban and rural areas respectively.

11. Requirements of the Decade for Technical Assistance
and Advisory Services

A number of countries have reported on their requirements during the Decade for technical assistance and advisory services. In the absence of any prescribed format for reporting these requirements, the countries have reported in many different ways, some by way of expert man-months for assisting the countries in the formulation of plans, projects and programmes, its corresponding costs while others have reported the amounts in foreign exchange in the aggregate. In this connection, it will be pertinent to recall that actual project costs are considered as investment requirements whereas all other costs for the preparation of plans or projects are considered as technical assistance requirements.

Annex 30 is a listing of the technical assistance requirements indicated by different countries. Wherever details of aggregate requirements are given in the country reports, they are extracted and shown in the accompaniments to this annex. (See Annexes 31 to 34).

By far a comprehensive discussion on these aspects is contained in the report of the Madagascar. According to Madagascar, "the lack of qualified manpower, inadequate training facilities and the need for improvement of quality of the existing personnel abundantly makes it clear that it is

necessary to rely on external assistance. But at the present moment, it is difficult to quantify these needs. Moreover, technical assistance has to be considered as complementary to financial assistance as both are requirements for various phases of the project. Technical assistance should also facilitate technology transfer and must help adaptation to the realities of the recipient countries."

A number of constraints are noted in the report from Madagascar which make present projections for technical assistance not as effective as generally desired. These constraints operate both in the donor countries as well as the recipient countries. Among the constraints in the donor countries the following are noted :

- i) The technicians who are sent out are often freshers with no practical experience in their own country.
- ii) On the job collaboration in the field should be improved.
- iii) Greater weightage should be given to the needs of the developing countries. Some times, data is collected in haste from the recipient country, interpreted at the headquarters of the donor country, projects prepared in the design offices abroad and sent back to the recipient country for implementation.

iv) National experts find it necessary often to visit the design offices abroad.

v) The terms and reference for the studies should be prepared by national experts in consultation with foreign technicians.

Among the difficulties in the recipient countries, the report notes the following :

- i. Trained technicians are transferred to other sectors after training.
- ii. Officers not directly responsible for the work are involved in the preparation of the terms of reference.

The following suggestions are offered by Madagascar to rectify and improve the present situation.

- a) The procedures in force in various agencies incharge of execution of a project should be adapted to the national realities and should not be rigid.
- b) Collaboration between national and international experts in project preparation should be improved.

- c) Mixed teams consisting of national engineers and those from consulting offices abroad should be set up, both sub-groups working together in the same place.
- d) Experts and consultants should go to the field as early as possible so as to familiarise themselves with the realities at site.
- e) International experts should work not with 'counter parts' but with 'national experts'.

Burundi notes that the following studies were recommended by a WHO Mission.

- A sectoral study on Central organisations and legislation
- Sector plan for water and sanitation
- A study for the establishment of a water resources division.

The implementation of these recommendations needs to be reviewed and follow up action taken as necessary.

The Central African Republic has requested technical assistance from the EEC to strengthen the Societe National des Eaux.

The requirements in the field of technical assistance in Benin, Cape Verde, Congo, Ethiopia and Swaziland are tabulated in Annexes 31 to 35.

In Congo, one expert is required for 3 months in the field of public utility service and two experts are required for training various categories of personnel, preparation of syllabi, planning the courses etc. (Page 8 of the country report).

Rwanda requests for the establishment of 3 units of external technical assistance.

Upper Volta received a UNDP Mission in 1979 which identified 37 man months of technical assistance for the following :

- Training and sanitation of Ouagadougou.
- Departmental reorganisation of sanitation services at Ouagadougou and Bobo-dioulasso.
- Planning for the Decade.
- Master planning in the sector including improvement of the existing distribution net-works.
- Water supply tariff and sanitation tax.
- Integrated approach for technical support to DHER in preparing an inventory.

The implementation of these suggestions should be reviewed and necessary follow up action taken.

12. Manpower and Training Needs

There is an extreme and urgent need in several countries of Africa to develop manpower. This will require staffing studies and training programmes of sector personnel at all levels, especially in the sub-professional, technical and skilled workers of all categories. The development of adequate manpower is probably one of the most urgent tasks of the Decade activities (VHC report ECA/NRD/WR/80/1/15.6.30).

Mauritania has given a detailed statement of various categories of staff, senior, middle and junior levels, both in respect of the existing staff as well as staff required in future for all the categories. The methodology followed in making this assessment would be of interest to many other countries in the region.

Several country reports have outlined the existing facilities and have underlined the importance of strengthening and utilising more effectively the existing training institutions in addition to creating new ones.

In Algeria, the following institutions exist :

National Polytechnique, Alger :	Sanitary engineering 5 year course. Hydraulic engineering 5 years course.
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National Agronomic Institute, Alger	Rural engineering 5-year course. Post graduate sanitary engineering 2-year course.
Public Health Engineering Insti- tute, Alger.	3 year course for sanitary inspectors.

The Government has under consideration the creation of an 'Ecole Supérieur' for the training of engineers, some institutes of technology and specialised training centres.

In Congo, there is only one sanitary engineer, although some cadres are trained in Institute de Development Rural, Institute Supérieur des Sciences de la Sante, etc.

It is estimated that, in Ghana, about 800 skilled personnel varying from Water Works Superintendents, operators, technicians and artisans would be required during the Decade to operate new systems. Hence, the two available training schools in Ghana Water and Sewerage Corporation are proposed to be expanded to meet this demand. The cost of manpower development for the Decade in Ghana is estimated at 11.2 million U. S. dollars. The yearwise details of engineering services required to implement the proposed programme in Ghana are given in Annex 58 and they aggregate to a total of 4162 manmonths.

Guinea (Conakry) reports that "there is manpower at all levels but it requires to be strengthened and developed to

cope with future programmes and works. Some engineers are being trained at Institute Poltechnique Gemal Abdel Nassar. "

In Rwanada, it is stated that there are 165 persons in Electrogaz which include one foreign technical assistance expert. They have expressed the need for strengthening both national and international personnel and propose to add two civil engineers at the national level and 3 units utilising foreign technical assistance.

Proposals have been put forward in Uganda for both professional and sub-professional staff to the tune of 207 and 250 respectively. It is anticipated that as matters progress from the planning and design stage to the implementation stage, the ratio of the number of professional to technicians, artisans and operators will change from 1:2 to 1:5. The personnel of the support services will number 222.

Mauritania has indicated requirements of professional and sub-professional staff, technicians, artisans etc. (Annex 57). Some of the staff as mentioned in the annex are under training.

13. Material and Equipment Requirements

Material and equipment requirements constitute an important component of water supply and sanitation projects. Experience elsewhere indicates that 50 to 70% of the project costs relate to the cost of materials like cement and steel as equipment like pumps and pipes etc. Not only should adequate funding be provided and manpower trained but the provision of key materials and essential equipment should be assured in order to be able to successfully implement the projected activities of the Decade. In the existing situation in the region, there are many countries in which material and equipment are at present imported either from other countries in the region or from outside the region. The present state of affairs involves not only long delays in obtaining the necessary imports but project costs become prohibitively expensive as noted in the report from Madagascar. This is a situation not confined to Madagascar alone but to all other island countries and in fact to many other countries of the African continent. The situation is particularly acute in the case of land-locked countries in the region.

The country reports do not cover this aspect, presumably because this item as such does not figure in the format provided to the countries for reporting.

However, there are some references to the problem in many of the reports, though not according to a uniform and set pattern. For instance, the report from Congo notes the lack of equipment and spare parts as one of the constraints. Similarly, the report from Central African Republic refers to the request from Societe National des Eaux to the European community for 1500 water meters to replace the old ones at Bangui, 2 motor pumps, 2 storage tanks for gas oil, two water treatment plants and a number of spare parts for maintaining the existing distribution networks at Berberati and Bosoum. *

It will be pertinent to recall in this connection that the African Regional meeting in 1976 made a specific recommendation calling upon the countries to "promote attempts to manufacture construction materials like cement, steel, PVC and asbestos cement pipes, water treatment reagents, etc". (E/CN.14/NRD/WR/1/Rev.2/page 73). This was reinforced in recommendation 59 of the Mar del Plata Action Plan (E/conf.20/29).

An important exercise would be to work out the requirements for the Decade for different countries for materials and equipment on the basis of certain norms derived from past experience in different parts of Africa.

A single norm for Africa would be impracticable. Different norms for different sub-regions would be a practical device in order to project future requirements on the basis of the past experience. But, unless this or any other suitable methodology is evolved and applied to work out future requirements, it will not be possible to impart the needed realism to the planning of the Decade activities in the African region. A beginning has got to be made to promote indigenous production of key material and manufacture of essential equipment in Africa by encouraging inter-governmental cooperation within the overall context of TCDC and ECDC. Such a step is not only inevitable for the activities of the Decade but it has got a tremendous potential for creating new employment opportunities both in the rural and urban areas on an unprecedented scale. Thus, it will be possible to link up the activities of the Decade with related activities for creating the necessary infrastructure for the industrial development of Africa within the terms of the Lima Plan of Action. This will be a unique coordination of the programmes of different agencies within the United Nations system.

14. Investment Needs

It would have been highly desirable for the countries to present their investment needs separately in the field of urban and rural water supply and urban and rural sanitation for the Decade as a whole and for individual projects and the requirements for each project during the Decade each year. If against such an overall investment needs separately for each project and for the programme of the sector as a whole, extent of possible mobilization from internal sources and requirements of external assistance could be indicated, a clear-cut picture of the investment needs would have emerged country by country and for the continent as a whole. Further, it would have been necessary to mesh these requirements with the allocations for individual national 5-year economic development plans. This has been done in some countries, but not in all. A perusal of the country reports does not facilitate the presentation of such a sharp and clear cut picture of the financial and economic requirements for the region as a whole. Some precise guidelines and planning procedure seem to be called for to enable the countries to present their investment needs in a uniform manner.

However, considerable thought and attention seem to have been devoted to the aspect of working out their investment needs by different countries in different ways depending upon varying social, economic and administrative structures and planning policies and procedures. In the midst of considerable diversity, there is a discernible attempt in many countries to work out individual project costs as the basis for working out the programme costs and show annual requirements, extent of potential national mobilization, requirements for external resources and various other financial needs.

Annexes 38, 39, 40 & 41 show a summary of the investment costs for the Decade in Angola, Botswana, Chad and Ethiopia.

Annex 44 is a listing of the projects in Mauritania for which foreign assistance is required. The annex shows individual project requirements per year.

The report from Ivory Coast points out that "In order to complete the programmes envisaged in different periods, the provision for the next 5 year period should be four times the provision in the previous 5-year period. It comes to about four percent of the total annual outlay of all the sectors development.". Ivory Coast points out that dependence on

variety of bilateral and multi-lateral external resources not only leads to higher costs, tariffs and outlays but also results in lack of homogeneity in equipment causing complex problems in training and operation. However, it is impossible to do without external assistance particularly in the field of rural water supply and both urban as well as rural sanitation.

Annex 42 is a summary of the requirements in Madagascar which shows that investment requirement for towns with more than 2,000 population is US\$ 172 million and for towns with less than 2,000 population US\$ 35 million, making a total of US\$ 207 million. An amount of only US\$ 6 million is indicated by Madagascar as the amount available at present. The disparity between the investment required and the available funds is so large that unless a herculean effort is made to bridge the gap, it is problematic to envisage the timely completion of all the projects proposed for the Decade.

Annexes 46-50 show the details of the programme in the different sub-sectors in the different departments/divisions of the country and for different projects in the Republic of Niger. The costing is done in a fairly detailed manner.

In the case of the Republic of Togo, the report points out that investment needs for 1990 would be as under:

Urban water supply	75 million U.S. dollars
Urban sanitation	200 million U.S. dollars
Rural Water supply	65 million U.S. dollars

Project wise details and the present status of funding are shown in Annex 51.

The intention of summarising the data of investment needs of some of the countries is not merely to work out a single figure to represent investment needs on a continental scale. This has been done on many occasions using different methodologies for making assessment of the requirements on a continental scale on the basis of populations to be served and per capita costs. Such assessments are useful in planning and developing appropriate perspectives for the Decade and obviously not to serve as the basis of actual funding. A review of the country reports shows that considerable amount of detailed work based on projects has been done in many countries in the region and should serve as the starting point for generating external resources to meet identified needs in different countries for different projects.

Annex 58 shows the percentage ratio of external resources to total investment requirements for water supply and sanitation during the Decade for some of the countries in the region. A perusal of the annex shows that for a majority of the countries a greater proportion of the total investment needs has to come from external resources.

Figure 4 shows investments required in some countries for urban and rural water supply. Algeria has indicated a requirement of US\$ 5,700 million for both water supply and sanitation. The next largest requirement in the figure is that indicated by Nigeria for US\$ 4,600 million followed by Egypt for US \$ 2,293 million excluding the requirements for the Suez Canal cities. Sierra Leone has indicated a requirement of US\$ 3.2 million.

Figure 5 is a graphical representation of the external resources required for urban and rural water supply in some of the countries. Ethiopia's requirement is US \$ 606 million while that of Kenya is US \$ 584 million and Tanzania's US\$ 483 million. Sierra Leone has indicated a requirement of US \$ 3.2 million which is 100% of the total investment.

Annexes 52 and 53 summarise investment costs in the field of water supply in some countries in Africa. Annex 54 is

a summary of annual investment indicated in some of the country reports. Annex 55 shows the requirement of external resources for the Decade.

U.N. Doc. No. A/35/367/September 18, 1980 contains a succinct summary of the activities of the donor countries and other organisations in the field of water supply and sanitation. If Europe is excluded, the ratio of external to total financing works out from an average of 17 percent in countries of Western Asia to an average of 63 percent in African countries. A summary of external inputs in the water supply and sanitation sector may be seen in Annexes 36 and 37. This shows that out of US \$ 862 million of external input into the sector in Africa during recent years, US\$ 381 million are contributed by donor governments (45 percent). An additional amount of US\$ 259 million comes from the Development Banks (30 percent). The balance of 25 percent comes from UN organisations, international non-governmental organisations and funds set up by OPEC and OPEC countries.

The amount of US\$ 862 million, being the external inputs in Africa, is 45 percent of the total aid flow into the sector in the world. In other words, about one half of the total

foreign aid of the world in this sector goes to Africa.

However, according to the requirements of external assistance indicated by the countries in the reports there is need for further increasing this external input from various sources into the water supply and sanitation programmes in many of the countries of Africa.

15. Institutional Arrangements

The subject of institutional arrangements for the Decade should be considered at three levels, national, sub-regional and regional.

National Level

WHO study (ECA/NRD/WR/80/I dated 15.6.1980) brought out that "in the institutional field 23 countries (50%) showed the need for reorganisation and 18 countries (39%) for better coordination of the agencies in the sector".

"20 countries of 46 assessed, (43 percent) are experiencing system deterioration and varying degrees of severity with leakage, due principally to inadequate or lack of operation and maintenance. One country reported its system deterioration rate equal to its rate of new system construction".

Burundi wishes to set up "a national institution to ensure the maintenance of infrastructure for water distribution and eventually to plan and implement water supply schemes by gravity to cover the demands of growing population" (page 24 of the monographies prepared by Burundi).

The Central African Republic expresses the hope that the national water committee of the permanent Secretariat of

the office of water (Bureau de l'eau) established by the ordinance of 1975 will be activated with the SNE playing an active role in it.

In Guinea (Conakry) (PRG), a National Commission has been established for the water and sanitation sector by Decree No. 062/PRG dated 25.2.1980.

Madagascar emphasises that "the efforts should aim at completion of all the projects proposed for the Decade in phases - short-term, medium and long term. It is also necessary that at the end of each such sub-period, the project progress should be analysed, evaluated and steps should be taken to streamline the bottlenecks to maintain the main thrust."

The African Regional meeting, 4-8 August, 1980 considered it necessary for the countries "to designate an existing national institution or set up a new one in the countries where there is no suitable existing mechanism to serve as a focal point for the activities of the Decade." The suggestion that national action committee should be established, where necessary, as stated in the basic document prepared by WHO was generally endorsed. All countries were called upon to set up such a national mechanism before the Decade was launched.

Annex 59 shows the list of countries in Africa which have set up such national committees.

Sub Regional Level

At the sub regional level, there is agreement for promoting joint Inter-Governmental cooperation in matters of education, research, training, assessment of surface and ground water resources, manufacture of equipment and supply etc.

Regional Level

At the regional level, consideration was given by the African Regional Meeting, 1980, 'to the need for coordination, evaluation and monitoring of the activities of the Decade through appropriate institutional arrangements. It was agreed that the proposed ECA inter-governmental committee on water should establish an appropriate mechanism for that purpose."

16. Public Participation

The Plan of Action in Resolution II of the United Nations Water Conference 1977 emphasised that "communities must be provided with effective education on domestic hygiene and must be motivated and involved as appropriate at several levels of the programme including planning, construction, operation, maintenance and financing of services, and the monitoring and safeguarding of the quality of water supply," (UN Publication Sales No. E. 77. II. A. 12 p. 68 para A4).

Towards this end, the Plan of Action recommended that each country should, among others, "promote massive national campaigns to mobilise public opinion regarding the provision of basic sanitary services, and develop appropriate procedures to ensure the active participation of the communities in the programme." (ibid, p. 69, para 5d)

In general, this important aspect of public participation is not reported upon in detail in the country reports. It appears that this is an area in which considerable amount of initiative will have to be taken in future and suitable mechanisms evolved to enable the public to participate fully in the Decade activities.

An interesting experience is reported from Lem Ferreira - Praia- (Cape Verde) where local population are involved in the construction of public sanitary facilities, baths and social centres

through a committee of residents. Women contribute labour in the construction of small earthen dikes for soil conservation, buildings, roads and construction of water supply facilities near their habitat which is obviously beneficial to them (page 5 of CR).

17. Choice of Technology

Although choice of technology does not figure prominently in many country reports, there are some which clearly reflect an awareness of the importance of the problem in relation to the successful implementation of the Decade activities.

The report from Madagascar stresses that "it is necessary to change the mentality of the national technicians who want to stick to techniques already developed and orient them towards finding out new technologies adopted in the third world to the needs of their country, utilising local materials and equipment which could be manufactured locally with local materials. It is also desirable to establish research laboratories towards this end either at national or regional levels as the case may be, if necessary, with external assistance."

Similarly, Congo reports that sophisticated water treatment techniques are retained in that country in place of simple and more appropriate techniques. (page 6 of the report from Congo).

Recommendation 15 of the UN Water Conference 1977 calls upon the countries to "provide mutual assistance in the transfer and application of technologies associated with this programme".

Thus there is an acknowledged need for intensifying work on the correct choice of suitable technologies.

18. Research Needs

Many countries are trying to develop a new hand pump to serve the needs of rural and small urban communities. Zambia has produced a model which is under improvement. Ethiopia and Ghana are also trying to develop indigenous models suited to their particular purposes. Considerable work has been and is being done, particularly in West Africa, in the use of solar and wind energy for pumping water supplies (E/CN.14/NRD/WR/1/Rev.2 pt. x 1980 page 44, para 227).

In Zambia, a sanitation research project is to be undertaken to identify one or more socially and economically acceptable sanitation disposal alternatives to water-borne sewerage systems.

The African Regional Meeting in 1976 identified the following areas as requiring further research in relation to the programme in Africa :

- Evolution of a suitable hand pump
- Purification of brackish water
- Use of roof catchments and rain water tanks
- Design of commercial water points
- Reduction of fluoride in pumped water from boreholes
- Use of solar energy and wind energy for pumping water
- Techniques of measuring and rating water to rationalise consumption.

(E/CN.14/NRD/WR/1/Rev.2/21.10.1976, Annex XXV, page 2).

19. Some Suggestions for further work

- i) Population estimates are of basic importance in planning community water supply and sanitation. One of the features in the population data at present available is that there are considerable variations in estimates from different sources at different times. The projections for 1990 based on 1980 or 1981 census will be different from those based on 1971 or earlier census. In many countries of the region, the latest census counts pertain either to 1980 or 1981. Population estimates for 1980 and 1990 presented in the country reports and summarised in this synthesis are those based on the previous census figures. It is necessary to re-assess the population projections for the Decade in the very near future based on the most recent census of either 1980 or 1981 conducted in the countries of the region.
- ii) There is need to re-assess urban and rural components of the total populations, present as well as future, based on the most recent census data.
- iii) Available population data indicates a spurt of increase during the period 1985-1990. The reasons and significance of this trend need to be investigated in greater depth and its impact evaluated on the targets in the water supply and sanitation sector.

iv) Available population statistics indicate increasing trend of urbanisation during the Decade with particular accentuation during 1985-1990. The significance of this for water supply and sanitation should also be studied in depth.

v) The concept of urban and rural communities appear to be different in different countries. While it will not be possible or desirable to evolve and adopt a single criterion for urban-rural classification, the existing criteria appear to need re-assessment and review with a view to examining if a stricter rationale is possible in this categorization.

vi) An attempt is contained in the country reports to review the progress in water supply and sanitation during the period 1975-1980. Preliminary scrutiny of the data presented brings up the need for stricter evaluation with a view to determining trends over the seventies in order to conceive the programmes over the eightys in terms of past performance.

vii) There is need to determine the current status in respect of urban water supply, rural water supply, urban sanitation and rural sanitation to serve as a bench mark to evaluate and monitor progress during the Decade.

viii) Efforts should be continued to obtain reports from such countries as have not yet submitted these reports in response to either the invitation from the United Nations or from the ECA.

ix) It appears desirable to set up certain standards or guidelines in the percentage of house connections and stand posts in expanding water supplies during the Decade.

x) A review of the targets set by many countries for 1985 and 1990 reveals that there are wide variations in such targets set in terms of either population coverage or by other parameters or criteria such as reasonableness of distance to be covered to the nearest water source. A similar variation is observed in respect of targeted levels of water supply in terms of litres per head per day to be achieved by 1990. While such variations perhaps arise out of widely varying socio-economic conditions and aspirations in different countries the exact relationship between such objectives and related socio-economic parameters appears to deserve consideration and study in depth.

xi) The fundamental characteristic of the Decade is to have a programme of activities in such a manner that there are well-defined targets for achievement over

a period of time and also intermediate targets for intervening years or periods. The achievement of physical targets within a time frame is the essence of formulation of a programme. Although it appears that a beginning has been made in this direction there is much room for improvement in many countries of the region in the formulation of clear-cut and well-defined programmes in accordance with guidelines set by coordinating agencies and institutions at the national and international levels.

xii) Many countries have indicated requirements for technical assistance and advisory services to help prepare plans, programmes and projects. It is desirable to review from time to time if the technical assistance requirements indicated by countries are, in fact, provided in accordance with the suggestions made by several missions to the countries during the last few years.

xiii) While there is universal recognition of the importance of development of manpower and training during the Decade, there is a continuing need to assist countries in making scientific estimates of the requirements of manpower in a detailed manner covering professional as well as sub-professional personnel

at all levels senior, middle and junior and to make necessary arrangements for training. The requirements indicated by different countries in their reports appear to be fragmentary instead of being detailed and comprehensive. They do not seem to stem from a uniform or compatible methodology and are therefore not presented in a uniform manner. It is, however, necessary that the requirements should be spelled out in a more precise manner taking an overall view of the programme for the Decade.

xiv) The country reports do not in general contain an assessment of their requirements of materials and equipment. Experience elsewhere indicates that 50 to 70 percent of the project costs relate to materials like cement and steel and equipment like pumps and pipes. Key materials and essential equipment should be assured in order to be able to implement the projected activities of the Decade successfully. There is need to make an assessment of the requirements of material and equipment in each country and in a group of countries within a sub-region. Sub-regional approach is relevant in this context because sub-regional cooperation in the production of material and manufacture of equipment can help prevent difficulties arising out of capital and manpower constraints in individual countries.

- xv) Several countries have presented estimates of their requirement of investment. These investment needs are collected, compiled and presented in this report. No attempt has been made to scrutinise and evaluate the requirements as indicated. It will, perhaps, be useful if the investments indicated by the countries could be separately discussed through an appropriate mechanism.
- xvi) Country reports describe the institutional arrangements in their respective countries and the arrangements which have been made to coordinate the activities during the Decade. Many countries have already established national action committees for the Decade. Establishment of such committees at the national level, needs to be expedited in countries which have not yet established them.
- xvii) While there is general agreement for promoting joint inter-governmental cooperation at the sub-regional level in matters of education, research, training, assessment of water resources, equipment and supplies, progress registered in the establishment of the required sub-regional institutional mechanism should be reviewed.

- xviii) At the regional level, there was agreement at the African Regional meeting 1980 that the proposed ECA inter-governmental Committee on Water should establish an appropriate mechanism for coordination, evaluation and monitoring of the Decade activities. Progress on this needs to be reviewed and accelerated.
- xix) Some country reports contain information on the arrangements for ensuring public participation. But, in general, it appears that suitable mechanisms should be evolved in many countries of the region to enable public participation in the Decade activities.
- xx) Some country reports reflect an awareness of the importance of the right choice of technology in relation to the successful implementation of the Decade activities. However, it appears that there is an acknowledged need for intensifying work on the correct choice of suitable technologies in many countries of the region.
- xxi) Some reports have alluded in their reports to the efforts being made to solve some pressing problems in the sector like hand-pumps for water supply or low-cost sanitation. There is need to

promote research on selected problems in the water supply and sanitation sector in order to evolve low-cost solutions suited to the socio-economic conditions in the countries of the region.

Countries in Africa which submitted papers on
their problems and needs in community water
supply and sanitation

Sl. No.	Country	Paper to U.N. New York	Paper to ECA Addis Ababa	Remarks
1.	Algeria	/		
2.	Angola	/		
3.	Benin	/		
4.	Botswana	/	/	
5.	Burundi		/	
6.	Cape Verde	/		
7.	Central African Republic		/	
8.	Chad	/		
9.	Comoros	/		
10.	Congo		/	
11.	Egypt	/		
12.	Ethiopia	/	/	
13.	Ghana	/		
14.	Guinea (Conakry)	/	/	
15.	Ivory Coast	/		
16.	Kenya		/	
17.	Lesotho		/	
18.	Liberia	/	/	
19.	Madagascar	/	/	

Sl. No.	Country	Paper to U.N. New York	Paper to ECA Addis Ababa	Remarks
20.	Malawi	_/		
21.	Mauritania	_/		
22.	Mauritius	_/		
23.	Mozambique	_/		
24.	Niger		_/	
25.	Nigeria		_/	
26.	Rwanda		_/	
27.	Senegal	_/		
28.	Seychelles	_/		
29.	Sierra Leone	_/		
30.	Somalia	_/		
31.	Swaziland	_/	_/	
32.	Tanzania	_/		
33.	Togo	_/	_/	
34.	Uganda		_/	
35.	Upper Volta	_/		
36.	Zaire	_/		
37.	Zambia	_/		

Area and Population Data of Countries in Africa
(Collected mostly from country reports)

Name of Country	Area in 1000 km ²	Population in Million	Year	Growth rate per cent- age
-----	-----	-----	-----	-----
Angola	1246	6.8	1978	2.37
Benin	112.6	3.4		2.8
Botswana	570.0	0.7	1977	3.0
Burundi	2.78*	4.9	1979	--
Cape Verde	0.403	0.34	1980	--
Cent. Afr. Rep.	62.30*	1.9 ^x	mid 1978	--
Chad	128.4*	4.3 ^x	"	--
Comoros	0.217*	0.3 ^x	"	--
Congo	342	1.6	"	2.4 52% Urban 48% Rural
Egypt	100*	40	1980	--
Ethiopia	1200	30.8	Jan. 1980	--
Ghana	23.85*	10.96	1980	--
Guinea (Conakry)	246.00	5.06	1980	1.9
Ivory Coast	32.246*	8.6	1980	--
Kenya	58.3	14.8	Mid 1978	--
Lesotho	30.35	1.2	1976	--

Annex 2
Sheet 2 of 3

Name of Country	Area in 1000 km ²	Population in million	Year	Growth rate Percentage
Liberia	11.14*	$\frac{1.82}{1.50}$	$\frac{1980}{1974}$	--
Madagascar	58.70*	8.0	Mid 1978	--
Malawi	91.94	$\frac{5.6}{6.1}$	$\frac{1977}{1980}$	2.9
Mauritania	103.07*	1.5 ^x	Mid 1978	--
Mauritius	0.186*	0.9	1979	--
Mozambique	78.3*	12	1980	--
Niger	1267	5.239	--	--
Nigeria	92.38	80	1980	2 to 3
Rwanda	2.63*	4.5	1978	--
Senegal	19.619	5.4 ^x	Mid 1978	--
Seychelles	0.44	0.06	1977	--
Sierra Leone	7.174	3.3	1978	--
Somalia	63.7	3.4	Mid 1978	--
Swaziland	1.7*	0.553	1980	--
Togo	5.6	2.4 ^x	Mid 1978	5% in Urban area 2% in Rural area
Uganda	23.6	12.6	1980 Census	3
Uni. Rep. Cameroon	47.5*	8.0 ^x	Mid 1978	--

Name of Country	Area in 1000 km ²	Population in million	Year	Growth rate Percentage
-----	-----	-----	-----	-----
Uni. Rep. Tanzania	937	$\frac{18.46}{17.5}$	$\frac{1980}{1978}$ Census	2.7
Upper Volta	274.1	5.6	1975	2.0
Zaire	2346	26.7 ^x	Mid 1978	2.8
Zambia	753	5.3	Mid 1977	2.9

* Figures refer to Vol. 32, FAO Production Year Book,

x Selected population Indicators for African Countries 1970-2000.

AFRICA - TOTAL POPULATION

(in thousands)

		1975			1980		1985		1990
		A	B	C	A	B	A	B	A*
1		2	3	4	5	6	7	8	9
1.	Algeria	16780	15680		19757	18594	23353	22215	26525
2.	Angola	6353	6260		7170	7078	8159	8073	9233
3.	Benin	3110	3043	3112	3202	3530	3681	4127	4828
4.	Botswana	690	716		792	821	917	952	1101
5.	Burundi	3760	3934		4275	4512	4881	5203	5991
6.	Cape Verde	290	298		317	324	344	351	378
7.	Cent.Afr.Rep.	1790	1985		2003	2221	2270	2515	2848
8.	Chad	4030	4030		4476	4524	4976	5124	5814
9.	Comoros	310	300		351	335	395	373	401
10.	Congo	1350	1352		1535	1537	1762	1749	1984
11.	Djibouti	110	106		122	119	-	135	-
12.	Egypt	37230	36916	37233	41730	41995	46668	47303	52806
13.	Equ.Guinea	310	323		338	363	371	408	458
14.	Ethiopia	27940	28770	27946	31441	32601	35591	37271	42639
15.	Gabon	530	521		550	551	572	590	639
16.	Gambia	520	524	524	574	603	636	686	783
17.	Ghana	9870	9990		11420	11679	13334	13666	15939
18.	Guinea	4420	4416		5011	5014	5705	5700	6471
19.	Guinea Bissau	530	525		578	573	636	630	694
20.	Ivory Coast	6670	6710	6714	7606	7973	8706	9290	10706
21.	Kenya	13400	13531		15823	16402	18710	19864	23925
22.	Lesotho	1041	1192		1161	1341	1300	1512	1700
23.	Liberia	1710	1574		1937	1863	2195	2193	2574
24.	Libya	2440	2430		2848	2977	3324	3599	4289
25.	Madagascar	8020	7675		9306	8742	10857	10037	11537
26.	Malawi	5040	5250		5708	6162	6508	7290	8628
27.	Mali	5700	5807		6462	6646	7353	7648	8825
28.	Mauritania	1320	1421	1318	1467	1634	1638	1890	2192

For notes and Legends see sheet 3 of this Annex.

Name of country	1975			1980		1985		1990
	A	B	C	A	B	A	B	A*
1	2	3	4	5	6	7	8	9
29. Mauritius	880	903		955	995	1016	1086	1166
30. Morocco	17310	17305		20116	20296	23421	23869	27840
31. Mozambique	9240	9203		10363	10473	11713	12013	13811
32. Namibia	890	875		999	1009	1126	1164	1336
33. Niger	4600	4587		5271	5305	6063	6176	7208
34. Nigeria	62930	65663		72457	77082	84036	91178	107871
35. Rwanda	4200	4120		4855	4797	5631	5631	6613
36. Sao Tome & Principe	80	80		90	85	-	87	-
37. Senegal	4140	4977		4667	5661	5271	6474	7425
38. Seychelles	60	58		63	65	73	72	80
39. Sierra Leone	2938	3045		3387	3474	3858	3997	4603
40. Somalia	3170	3170		3645	3645	4219	4214	4843
41. Sudan	15730	16015		18395	18371	21542	21153	24299
42. Swaziland	490	483	477	587	556	659	641	737
43. Togo	2220	2325		2559	2699	2959	3158	3699
44. Tunisia	5610	5608		6394	6363	7330	7186	8045
45. Uganda	11550	11337		13422	13201	15621	15478	18149
46. Uni. Rep. Cameroon	6400	7528		1084	8444	7971	9505	10670
47. Uni. Rep. Tanzania	15310	15393		17861	17934	20367	21057	24757
48. Upper Volta	6030	6074		6762	6908	7617	7900	9060
49. Zaïre	24900	24655		28379	28291	32564	32451	37024
50. Zambia	4980	4810	4896	5813	5645	6827	6630	7764
AFRICA	368967	373493		422084	432013	485226	501514	580908

For notes and legends see sheet 3 of this Annex.

LEGENDS :

- Data not available
- A Demographic Year Book (ECA) 1978
- B Selected Demographic Indicators by Country,
1950 - 2000 : Demographic Estimates and
Projections as assessed in 1978; U.N, New York, 1980.
- C Demographic Year Book (ECA)1979

NOTE

- 1) Total population of Africa as given in columns
7 and 9 are underestimates as data for certain
countries are not available.
- 2) A* : Data corresponds to C also
- 3) Data in columns 3, 6, 8 and 9 (From source B)
correspond to Medium Variant.

AFRICA - POEULATION - URBAN, RURAL AND TOTAL
COUNTRYWISE - URBAN AND RURAL PERCENTAGE

[illegible]

Name of country	1975					1980				
	Population in ('000)			% of total population		Population in ('000)			% to total population	
	U	R	T	U	R	U	R	T	U	R
Senegal	1250	2890	4140	30	70	1537	3130	4667	33	67
Seychelles	22	38	60	37	63	23	40	63	37	63
Sierra Lenne	447	2491	2938	15	85	560	2827	3387	17	83
Somalia	897	2273	3170	28	72	1139	2506	3645	31	69
Sudan	2411	13319	15730	15	85	3170	15225	18395	17	83
Swaziland	67	423	490	14	86	103	464	567	18	82
Togo	303	1917	2220	14	86	392	2167	2559	15	85
Tunisia	2695	2915	5610	48	52	3346	3048	6394	52	48
Uganda	954	10596	11550	8	92	1309	12113	13422	10	90
Uni. Rep. of Cameroon	1523	4877	6400	24	76	1949	5135	7084	28	72
Uni. Rep. of Tanzania	1050	14260	15310	7	93	1390	16471	17861	8	92
Upper Volta	1104	4926	6030	18	82	1226	5536	6762	18	82
Zaire	6391	18509	24900	26	74	8581	19798	28379	30	70
Zambia	1838	3142	4980	37	63	2485	3328	5813	43	57
	84703	284029	368732	23	77	108368	313476	421844	26	74

* Figures not available

Source : Demographic Year Book (ECA), 1978 (Unpublished)

Name of Country	1985					1990				
	Population in ('000)			% of total population		Population in ('000)			% to total population	
	U	R	T	U	R	U	R	T	U	R
Senegal	1890	3381	5271	36	64	2198	5227	7425	30	70
Seychelles	27	46	73	37	63	30	51	81	37	63
Sierra Leone	704	3154	3858	18	82	1482	3121	4603	32	68
Somalia	1449	2770	4219	34	66	1845	2998	4843	38	62
Sudan	4149	17393	21542	19	81	8310	15989	24299	34	66
Swaziland	151	508	659	23	77	84	653	737	11	89
Togo	505	2454	2959	17	83	858	2841	3699	23	77
Tunisia	4145	3185	7330	57	43	4779	3266	8045	59	41
Uganda	1789	13832	15621	11	89	3122	15027	18149	17	83
Uni. Rep. of Cameroon	2500	5471	7971	31	69	5100	5570	10670	48	52
Uni. Rep. of Tanzania	1839	19028	20867	9	91	4481	20276	24757	18	82
Upper Volta	1367	6250	7617	18	82	1024	8036	9060	11	89
Zaire	11345	21219	32564	35	65	17993	19031	37024	49	51
Zambia	3300	3527	6827	48	52	3602	4162	7764	46	54
	137970	347256	485226	28	72	199579	381330	580909	34	64

* Figures not available

Source : Demographic Year Book (ECA), 1978 (Unpublished)

Annex : 5

Percentage of Urban and Rural Population to the
- Total Population of Africa
(1975-1990)

Year	% to Total Population	
	Urban	Rural
1975	23	77
1980	26	74
1985	28	72
1990	34	66

Annex : 6

Absolute and Percentage Growth (Five-Yearly) of
Urban, Rural and Total Population of Africa (1975-80,
80-85 and 85-90)

(Population in thousands)

Growth						
Absolute		%	Absolute		%	
1975-80			1980-85			
1985-90						

Urban	23,605	26	29,602	27	61,609	45
Rural	29,447	10	33,780	11	34,074	10
Total	53,112	14	63,382	15	95,683	20

Annex : 7

Population of Urban, Rural and Total
of Africa for 1975, 1980, 1985 and 1990

(Approx. in thousands)

	Year			
	1 9 7 5	1 9 8 0	1 9 8 5	1 9 9 0
Urban	35,000	108,000	133,000	200,000
Rural	284,000	314,000	347,000	381,000
Total	369,000	422,000	480,000	581,000

Five yearly slope for Urban, Rural and Total
Populations of Africa, 1975-80, 1980-85 and 1985-90
and percentage growth for the Decade

	Tan θ *			Percentage of growth for 1980-90
	1975-80	1980-85	1985-90	
Urban	4.7	5.9	12.3	84
Rural	5.9	6.8	6.8	22
Total	10.6	12.7	19.1	38

* : Change in population as shown in Figure 1.

Distribution of African countries according to
the percentage of urban to Total Population :
1975, 1980, 1985 and 1990

Urban Category	Urban population to total population	1975		1980		Total
		Countries		Countries		
Very Low	Below 5	Burundi Rwanda	Lesotho 3	Burundi Lesotho	2	
Low	5 - 10	Cape Verde Mozambique Uganda	Malawi Niger United Rep. of Tanzania 6	Cape Verde Malawi Uni. Rep. of Tanzania	Mozambique Rwanda 5	
Low Medium	10 - 20	Angola Botswana Ethiopia Guinea Kenya Madagascar Mauritania Sierra Leone Sudan Togo	Benin Chad Comoros Gambia Ivory Coast Liberia Mali Nigeria Swaziland Upper Volta 20	Botswana Comoros Gambia Kenya Liberia Mauritania Sierra Leone Swaziland Uganda	Chad Ethiopia Ivory Coast Mali Niger Nigeria Sudan Togo Upper Volta 18	
Medium	20-30	Gabon Libya Uni. Rep. of Cameroon	Guinea Bissau Somalia Eaire 6	Angola Guinea Madagascar	Benin Guinea Bissau Uni. Rep. of Cameroon 6	
High Medium	30-40	Cen. Afr. Republic Congo Namibia Seychelles	Ghana Morocco Senegal Zambia 8	Gabon Libya Senegal Somalia	Ghana Namibia Seychelles Zaire 8	
High	40-50	Egypt Mauritius	Equ. Guinea Tunisia 4	Cen. Afr. Republic Zambia	Congo Morocco 4	
Very High	50-60	Algeria	1	Algeria Equ. Guinea Tunisia	Egypt Mauritius 5	
Very very High	60 +	-	-	-	-	-
			48			48

Urban Category	Urban population to total population	1985		Total	1990		Total
		Countries			Countries		
Very Low	Below 5	--		--	Burundi		1
Low	5-10	Burundi Lesotho Mozambique Un. Rep. of Tanzania	Cape Verde Malawi Rwanda	7	Cape Verde Rwanda	Lesotho	3
Low Medium	10-20	Botswana Ethiopia Kenya Niger Sudan Uganda	Comoros Gambia Mali Mauritania Sierra Leone Togo Upper Volta	13	Comoros Niger Uganda Upper Volta	Mozambique Swaziland Uni. Rep. of Tanzania	7
Medium	20-30	Angola Chad Ivory Coast Madagascar Swaziland	Benin Guinea Liberia Nigeria	9	Angola Ethiopia Guinea Madagascar Nigeria	Chad Gambia Kenya Mali Togo	10
High Medium	30-40	Gabon Senegal Somalia Zaire	Guinea Bissau Libya Seychelles Uni. Rep. of Cameroon	8	Guinea Bissau Seychelles Somalia	Senegal Sierra Leone Sudan	6
High	40-50	Cen. Afr. Republic Morroco Zambia	Congo Ghana Namibia	6	Benin Congo Gabon Ivory Coast Morroco Zaire Zambia	Cen. Afr. Republic Ghana Liberia Uni. Ref. of Cameroon	11
Very High	50-60	Algeria Equ. Guinea Tunisia	Egypt Mauritius	5	Botswana Malawi Namibia	Egypt Mauritania Tunisia	6
Very Very High	60 +	--	--	--	Algeria Libya	Equ. Guinea Mauritius	4

				48			48

Urban Water Supply : Current Status :
1975 and 1980 : Population served

(Population in thousands)

Name of country	Urban population	Population served	%	Urban population	Population served	%	Remarks
	1975			1980			
Algeria				1020			
Benin						42	
Botswana				135	132.7	98	
Cape Verde		51	63		61	67	Hard water, cuts in supply breakdown in pumps etc.
Congo				832			
Egypt		12690	90.6		16440	96.7	
Ethiopia		2047	80*		2528	82	*Annex 1 : Ethiopian paper submitted to UN, New York
Ghana	2756	2547	92.4	3156	2970	94.1	
Guinea		415	27	1666	600	56	
Ivory Coast		792	37		1671	51	
Kenya		2015			2955		
Lesotho		37	65		55	96	
Liberia		64	100		117	100	
Madagascar	82200			56.89			Data is for 1979

Annex. 10

Sheet 2 of 2

	Urban popula- tion	Popula- tion served	%	Urban popula- tion	Popula- tion served	%	Remarks
	1 9 7 5			1 9 8 0			
Malawi		312	67	633	443	70	
Maurit ius					497		Data for 1979
Mozambique	1100	550	50	1550	930	60	
Rwanda						41	(CR to ECA)
Senegal	1447	753	52	1810	1253	69.2	
Seychelles		17	80	24.4	21	86	
Swaziland	60	42	65	77	58	80	
Togo				700	330	47	
Tunisia				--	---	67	
Uni. Rep. Tanzania		1318	68		1820	82	
Upper Volta		550	10		732	12	
Zaire				9300	1590	17	
Zambia		1316	74		1717	67	

Rural Water Supply : Current Status :
1975 and 1980 : Population served

(Population in thousands)

Name of country	Rural population	Population served	%	Rural population	Population served	%	Remarks
			1975	1980			
Angola				5780			
Benin						16	
Botswana					229	30	
Cape Verde		21	9.7		24	9.8	Hard water
Chad						30	
Egypt		11800	55		12800	56	
Ethiopia		510	2.03	27141	1101	3.9	
Ghana	6924	1148	16.6	7800	2330	29.9	
Guinea		60	1.5		200	4.5	
Ivory Coast	4566	242	5.3	5337	4040	75	
Kenya		930			2100		
Lesotho		99	9		126	9	
Liberia		140	15		160	15	
Malawi		1150	24		1995	37	
Mauritius					357		
Mozambique	9500	100	1	10500	200	2	
Rwanda				460			(CR to ECA p. 9)
Seychelles		24	65		33	30	
Swaziland	421	123	29	476	145	30	
Tunisia						27	(CR to ECA)
Uni. Rep. Tanzania		2416	17		4500	28	
Upper Volta					600	10	
Zambia		1843	60		2563	68	

Total Water supply: Current Status: 1975 and 1980
Population Served

(Population in thousands)

Name of Country	Total Popula- tion	Total Served	%	Total Popula- tion	Popu- lation served	%	Remarks
		1975			1980		
Angola				6300			
Benin						80.0	
Botswana					347	39.3	Data is for 1978
Cape Verde		72	24		85	25	
Congo						25	Page 3 of CR
Egypt		24490	70		29240	71.0	
Ethiopia		2357	9.4	30025	3029	11.8	
Ghana	9380	3696	38.2	10000	5306	48.3	
Guinea		475	9		300	12	
Ivory Coast		1022	15		5711	30	
Kenya		2945	-		5055		
Lesotho		99	9		181	14	
Liberia		150	10		273	15	
Malawi		1447	28		2438	40	
Mauritius					354	99.88	(for the year 1979)
Mozambique	10800	650	6	12000	1130	9	
Niger			27*				*for rural and urban
Senegal		1447			1810		
Seychelles		40.8	71		54.2	32	
Swaziland		165	33		210	37	
Uni. Rep.							
Tanzania		3734	23		6320	34	
Upper Volta							
Volta					1332	12	
Zambia		3159	65		4280	72	

Urban Water Supply : House Connections
and Public Stand Posts, 1975

(Population in '000)

Name of Country	Urban		
	Total popula- tion served %	House Connections %	Public stand posts %
Cape Verde	$\frac{51}{63}$	$\frac{20}{25}$	$\frac{31}{38}$
Egypt	$\frac{12690}{92}$	$\frac{10540}{76.6}$	$\frac{2150}{15.4}$
Ethiopia	$\frac{2047}{80}$ *		
	* Annex. 1 : Ethiopian paper submitted to UN, New York.		
Ghana	$\frac{2547}{92.4}$	$\frac{1170}{42.4}$	$\frac{1377}{50}$
Guinea (Conakry)	$\frac{415}{27}$		
Ivory Coast	$\frac{792}{37}$	$\frac{686}{32}$	$\frac{106}{5}$
Kenya	$\frac{2015}{45}$	$\frac{920}{45}$	$\frac{1095}{35}$
Lesotho	$\frac{37}{65}$	$\frac{23}{40}$	$\frac{14}{25}$
Liberia	$\frac{64}{100}$	$\frac{45}{70}$	$\frac{19}{30}$
Madagascar	$\frac{49.32}{5.72}$	$\frac{47.20}{5.72}$	$\frac{2.12}{5.72}$
Malawi	$\frac{312}{67}$	$\frac{218}{47}$	$\frac{94}{20}$

Name of Country	Urban		
	Total popula- tion served <u>%</u>	House connections <u>%</u>	Public stand posts <u>%</u>
Mozambique	$\frac{550}{50}$	$\frac{330}{50}$	$\frac{220}{20}$
Niger	27% of population urban and rural		
Senegal	753	43	$\frac{710}{30}$
Seychelles	$\frac{17.1}{80}$	$\frac{12.1}{57}$	$\frac{5.0}{23}$
Swaziland	$\frac{42}{65}$	$\frac{24}{37}$	$\frac{18}{28}$
Tanzania	$\frac{1318}{68}$	$\frac{264}{14}$	$\frac{1054}{54}$
Upper Volta	$\frac{550}{10}$	$\frac{357}{6.5}$	$\frac{193}{3.5}$
Zaire	1590	1590	6.4% of the population 1978
Zambia	$\frac{1316}{74}$	$\frac{753}{42}$	$\frac{563}{32}$

Urban Water Supply : House Connections
and Public Stand
Posts, 1980

(Population in '000)

Name of Country	Urban		
	Total popula- tion served %	House Connections %	Stand- posts %
Botswana	$\frac{132.7}{98}$	$\frac{52.7}{39}$	$\frac{80}{59}$
Cape Verde	$\frac{61.29}{67}$	$\frac{21.29}{23}$	$\frac{40.0}{43}$
Egypt	$\frac{16445}{96.7}$	$\frac{14930}{88}$	$\frac{1515}{8.9}$
Ghana	$\frac{2970}{94.1}$	$\frac{1500}{47.4}$	$\frac{1470}{46.6}$
Ivory Coast	$\frac{1671}{51}$	$\frac{1474}{45}$	$\frac{197}{6}$
Kenya	$\frac{2955}{100}$	$\frac{1775}{60}$	$\frac{1180}{40}$
Lesotho	$\frac{55}{96}$	$\frac{36}{63}$	$\frac{19}{33}$
Liberia	$\frac{115}{100}$	$\frac{69}{60}$	$\frac{46}{40}$
Madagascar	$\frac{56.89}{17.3}$	$\frac{54.47}{15}$	$\frac{2.421}{2.3}$

Name of Country	Urban		
	Total popula- tion served <u> </u> %	House Connections <u> </u> %	Stand- posts <u> </u> %
Malawi	$\frac{443}{70}$	$\frac{307}{50}$	$\frac{136}{20}$
Mozambique	$\frac{930}{60}$	$\frac{465}{30}$	$\frac{465}{30}$
Senegal	1253	53	$\frac{1200}{40}$
Swaziland	$\frac{58}{73}$	$\frac{31}{39}$	$\frac{27}{34}$
Seychelles	$\frac{21.1}{36}$	$\frac{18.4}{75}$	$\frac{2.7}{11}$
Tanzania	$\frac{1820}{82}$	$\frac{546}{25}$	$\frac{1274}{57}$
Upper Volta	$\frac{732}{12.2}$	$\frac{432}{7.2}$	$\frac{300}{50}$
Zambia	$\frac{1717}{67}$	$\frac{958}{37}$	$\frac{759}{30}$

Urban Sanitation : Current Status : 1975 and 1980 :
Population served

(Population in thousands)							
Name of country	Urban popu- lation	Popula- tion served	%	Urban popu- lation	Popula- tion served	%	Remarks
	1975			1980			
Botswana					86	64	Data is for 1978
Cape Verde		19	23.5		20	21.9	
Egypt					9900		
Guinea		9	0.6		9	0.5	
Ivory Coast		526	25		1054	32	
Kenya						56	
Lesotho		22	45		43	72	
Liberia		42	75		100	100	
Madagascar				1258	908	72	(Report to ECA p. 12)
Malawi		448	100		600	100	
Mozambique	1100	660	60	1550	1000	65	
Seychelles		20	93.5		24	98	
Swaziland	60	60	100	77	77	100	
Uni. Rep. Tanzania		1284		2156			
Upper Volta					300	5	
Zambia	1578				2238		

Rural Sanitation : Current Status :
1975 and 1980 : Population served

(Population in thousands)

Name of country	Rural population		%	Rural population		%	Remarks
	1975	Population served		1980	Population served		
Benin					5		(Ey latrines)
Cape Verde		11	5		12	5	
Egypt			5				
Ethiopia					236	1.1	1977 figures
Ivory Coast		916	20		1074	20	
Kenya		127	12		1705		
Lesotho					162	14	
Liberia		11	1		38	3	
Madagascar				7131	101	1.4	(Report to ECA p. 12)
Malawi		3200	67		4400	80	
Mozambique	9500			10500	500	5	
Rwanda					1.5 to 2 million		(CR to ECA p. 13)
Senegal			1			2	
Seychelles		33	93.5		40	97.5	
Swaziland	421	146	35	481	175	37	
Uni. Rep. Tanzania		3634			6592		
Zambia		1548			1696		

Sanitation : 1975 : on site : off site disposal

(Population in thousands)

Countries	Urban			Rural			Remarks
	Total	On Site	Off Site	Total	On Site	Off Site	
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	
Cape Verde	$\frac{19}{23.5}$	$\frac{11.7}{14.5}$	$\frac{7.3}{9}$	$\frac{11}{5}$			
Egypt					$\frac{5}{5}$		
Ivory Coast	$\frac{540}{25}$	$\frac{322}{15}$	$\frac{218.0}{10}$	$\frac{916}{20}$			
Kenya				$\frac{1063}{1063}$			
Lesotho	$\frac{22}{45}$	$\frac{3}{5}$	$\frac{19}{40}$	$\frac{127}{12}$	$\frac{127}{12}$		
Liberia	$\frac{45}{45}$	$\frac{6}{10}$	$\frac{39}{65}$	$\frac{11}{1}$	$\frac{11}{1}$		
Malawi	$\frac{448}{100}$	$\frac{378}{84}$	$\frac{70}{16}$	$\frac{3200}{67}$	$\frac{3200}{67}$		
Mozambique	$\frac{660}{60}$	$\frac{220}{20}$	$\frac{440}{40}$				
Senegal	$\frac{4}{4}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{1}{1}$	$\frac{1}{1}$		
Seychelles	$\frac{20.15}{93.5}$	$\frac{19.40}{90}$	$\frac{0.75}{3.5}$	$\frac{33.55}{93.5}$	$\frac{32.8}{90}$	$\frac{0.75}{3.5}$	
Swaziland	$\frac{40}{67}$	$\frac{36}{60}$	$\frac{4}{7}$	$\frac{146}{35}$	$\frac{146}{35}$		
Tanzania	$\frac{1283.5}{54}$	$\frac{1048}{54}$	$\frac{235.5}{54}$	$\frac{1281.5}{3633.5}$	$\frac{3633.5}{3633.5}$		
Zambia	$\frac{1578.5}{89.5}$	$\frac{774}{44}$	$\frac{804.5}{45.5}$	$\frac{1548.5}{30.5}$	$\frac{1536}{30}$	$\frac{12.5}{0.5}$	

Sanitation - 1980 : On site : Off site disposal

(Population in thousands)

Name of Country	Urban			Rural			Remarks
	Total	On Site	Off Site	Total	On Site	Off Site	
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	
Benin					<u>5</u>		
Botswana	<u>85.6</u> <u>63.4</u>	<u>47.7</u> <u>35.3</u>	<u>37.9</u> <u>28.0</u>				For the year 1978
Cape Verde	<u>20.3</u> <u>21.9</u>	<u>7.3</u> <u>7.9</u>	<u>13.0</u> <u>14.0</u>	<u>12.2</u> <u>5.0</u>			
Egypt	<u>9900</u>	<u>NA</u>	<u>9900</u>				Excluding Suez canal Cities.
Ethiopia					<u>236</u> <u>1.1</u>		
Guinea (Conakry)	<u>9.00</u> <u>0.5</u>		<u>9.00</u> <u>0.5</u>				
Ivory Coast	<u>1354</u> <u>32</u>	<u>424</u> <u>13</u>	<u>630</u> <u>19</u>	<u>1074</u> <u>20</u>	<u>1074</u> <u>20</u>		
Kenya	<u>1655</u> <u>56</u>	<u>1655</u> <u>56</u>		<u>1705</u>	<u>1705</u>		
Lesotho	<u>43</u> <u>72</u>	<u>5</u> <u>8</u>	<u>38</u> <u>64</u>	<u>162</u> <u>14</u>	<u>162</u> <u>14</u>		
Liberia	<u>100</u> <u>100</u>	<u>50</u> <u>50</u>	<u>50</u> <u>50</u>	<u>38</u> <u>3</u>	<u>38</u> <u>3</u>		
Madagascar		908		101			Situation 1978
Malawi	<u>600</u> <u>100</u>	<u>510</u> <u>85</u>	<u>90</u> <u>15</u>	<u>4400</u> <u>80</u>	<u>4400</u> <u>80</u>		
Mozambique	<u>1000</u> <u>65</u>	<u>770</u> <u>50</u>	<u>230</u> <u>15</u>	<u>500</u> <u>5</u>	<u>500</u> <u>5</u>		
Senegal	<u>10</u>	<u>5</u>	<u>5</u>	<u>2</u>	<u>2</u>		

(population in thousands)

Name of Country	Urban			Rural			Remarks
	Total	On Site	Off Site	Total	On Site	Off Site	
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	
Seychelles	$\frac{23.9}{97.5}$	$\frac{22.3}{91}$	$\frac{1.60}{6.5}$	$\frac{39.9}{97.5}$	$\frac{39.3}{95}$	$\frac{0.6}{2.5}$	
Swaziland	$\frac{55}{71}$	$\frac{47}{61}$	$\frac{8}{10}$	$\frac{175}{37}$	$\frac{175}{37}$		Other means 29%, x 22% for urban areas
Tanzania	2156	<u>1798</u>	358	6592			
Upper Volta	$\frac{300}{5}$	$\frac{300}{5}$					
Zambia	$\frac{2238.5}{90.5}$	$\frac{1235}{50}$	$\frac{1003.5}{40.5}$	$\frac{1696.5}{50.5}$	$\frac{1684}{50}$	$\frac{12.5}{0.5}$	

Total Sanitation (Urban and Rural) Current Status
1975 and 1980 - Population served

(Population in thousands)

Name of country	Total popu- lation	Popula- tion served	%	Total popu- lation	Popula- tion served	%	Remarks
		1975			1980		
Cape Verde		30	10		32.5	9.8	
Ethiopia				236	1.1		For the year 1977
Guinea		9	0.6		9.0	0.5	
Ivory Coast		1456	21		2128	25	
Lesotho		149	13		205	15	
Liberia		120	8		138	12	
Madagascar				8390	1009	12	(p. 12 of CR)
Malawi		3648	70		5000	83	
Mozambique		660	6		1500	12	
Seychelles		53.7	93		63.8	97	
Swaziland		186	38		230	42	
Uni. Rep. Tanzania		4917	30		8548	48	
Upper Volta					300	5	
Zambia		3127	64		3935	65	

Urban Water Supply : Targets for 1985 and 1990
Population to be served

(Population in thousands)

Name of Country	Urban popu- lation	Popula- tion to be served	%	Urban popu- lation	Popula- tion to be served	%	Remarks
	1985			1990			
Algeria						85	
Benin						100	
Botswana			100			100	
Cape Verde				121	60	100	
Chad						80	
Congo			80			100	
Egypt						100	By the year 2000.
Ethiopia			80 1984			100	
Ghana						100	
Guinea (Conakry)	1402			1784		100	
Ivory Coast						100	
Kenya						100	By the year 2000.
Lesotho						100	
Liberia						100	
Madagascar						100	By the year 2000.
Malawi		701	87		1070	100	
Mauritius			100				

Annex : 20
Sheet 2 of 2

Name of Country	Urban Popu- lation	Popula- tion to be served	%	Urban popu- lation	Popula- tion to be served	%	Remarks
		1985			1990		
Nigeria						100	
Senegal			$\frac{100}{97}$	capital city urban centers	interior		100% is target- ed by 2000 A.D.
Seychelles						100	
Swaziland			80*			100	*Data is for 1983
Tunisia						100	
Uni. Rep. Cameroon						100	By the year 2000 A.D.
Uni. Rep. Tanzania						100	
Upper Volta							(1160 thousands additional people will be served).
Zaire						100	
Zambia						100	

RURAL WATER SUPPLY
Targets for 1985 and 1990
Population to be served

(Population in thousands)

Name of Country	Rural -- Popula- tion	Popula- tion to be served	%	Rural -- popu- lation	Popula- tion to be served	%	Remarks
		1985			1990		
Algeria						25	
Benin						2400 villages be covered within this period	
Botswana			100 (1986)				
Cape Verde				284	260	91.5	
Chad						75*	
Congo			60			100	
Egypt						100	By the year 2000.
Ethiopia			6 1984			50	
Ghana						61	
Ivory Coast						100	
Kenya						100	By the year 2000.
Liberia					1114	65	
Madagascar						100	By the year 2000 AD.
Malawi		4050	68		6680	100	
Mauritius			100			100	

Name of Country	Rural Popu- lation	Popula- tion to be served	%	Rural popu- lation	Popula- tion to be served	%	Remarks
		1985			1990		
Mozambique						100	
Nigeria						100	(2000 AD).
Senegal			60			100	By the year 2000 AD.
Seychelles						100	
Sierra Leone						50	5000 villages by 1990
Swaziland			35			100	
Tunisia						100	
Uni. Rep. Tanzania						100**	
Upper Volta							4.9 million additional people will be served by 1990
Zaire						100 ^x	
Zambia						100	

* 7850 new wells by 1990 and capacity for maintenance of 3,250 old wells.

** 100 m. distance from & around post.

x for villages with population more than 1000.

Total Water Supply : Targets for 1985 and 1990
Population to be served

(Population in thousands)

Name of Country	Total popu- lation	Popula- tion served	%	Total popu- lation	Popu- lation served	%	Remarks
Eotswana			100			100	
Burundi						50	(CR. to Addis Ababa p. 29, para 31)
Cape Verde				405	320	79	
Congo						100	
Egypt						100	By the year 2000.
Ghana						72*	
Kenya						100	By the year 2000
Madagascar						100	By 2000 A.D.
Malawi		4644	68		7750	100	
Mauritius			100			100	
Mozambique						100	
Nigeria						100	
Senegal						100	By 2000 A.D.
Seychelles						100	
Sudan						100	
Swaziland						100	
Uni. Rep. Tanzania				24090	24090	100	
Zaire						100**	
Zambia						100	

* Additional 3 million people will be served during the Decade

** of all urban areas + rural areas of villages with more than 1000 people.

Number of peoples to be reached
between 1981 and 1990 in Africa in
millions

Urban -----	Rural -----	Total -----	Percentage -----
<u>Water Supply</u>			
104	310	414	22
<u>Sanitation</u>			
130	342	472	20

Extracted from the UN GA Doc. No. A/35/367 of
18th Sept. 1980.

IDWSSD : Present situation and Prospects
Report of the Secretary General. Table 5
Page 16.

Sanitation targets for 1990 (Urban and Rural)

[illegible]

Cape Verde *Objectives proposed for the Decade

	1980		1990		2000	
	Urban		Rural	Urban		Rural
	House con- nections	Stand- pipes		House con- nections	Stand- pipes	
Total population in thousands	← 337 →			← 405 →		→ 485 →
	← 92 →		← 245 →	← 121 →		→ 284 →

A- Water Supply

- 1) in terms of population (in thousands)

population served ← 61 → ← 24 →

population to be served

← 60 → ← 260 →

population to be served per year

← 6 → ← 26 →
← 32 →

- 2) in terms of water supply systems

a) Urban systems 2 cities - implementation of projects for Praia and Mindelo

16 towns - Maintenance, improvement or construction of new systems as the case may be.
No significant percentage increase is envisaged during the Decade in respect of house connections

* Annex 4 of the Country Report.

1980		1990		2000
Urban		Rural		
Dispo- sal Net- work	Septic Tanks	Disposal Network	Septic Tanks	

B. Excreta/Waste
Water Disposal

1. in terms of
population
in thousand) ← 7 → ← 13 →

population
served ← 20 → ← 12 →

population
to be served ← 100 → ← 270 →

" per year ← 10 → ← 27 →

2. in terms of
existing
systems ← 100 →

Systems to be
established or
improved ← 700 →

[illegible]

[illegible]

[illegible]

Programme of Activities: Rural Water Supply

[illegible]

Programme of Activities: Urban Sanitation

[illegible]

[illegible]

Requirements of Technical Assistance for Water supply and
Sanitation for the Decade

Name of the Country	U.S.\$ millions	Manmonths	Remarks
Algeria	0.8		Details not indicated
Benin	0.279	35	Details on page 8 of the country paper
Botswana	49.5		Details on last page of country report
Cape Verde	0.287	147	Details on page 6 of country report.
Chad	275		Details on annex F of country report
Congo		112	Details on p. 9 of country report.
Malawi	9.61		Details in annex. III of country report.
Mauritania		7 Professionals	Details in Annex to the country report.
Senegal	17.65		Details in annex III of country report
Somalia	10.35		
Swaziland	0.28		
Togo	0.75		
Upper Volta		37	

Benin : Technical Assistance Requirements

ACTIV IT: NO.	DESCRIPTION	Man months of consul- tancy services	ESTIMATED COST IN US \$
1.	Cotonu Sanitation - Short term and long term measures.	2	18 000
2.	Study Cell	4	30 000
3.	Construction of latrines	-	15 000
4.	Training of Sanitary Inspectors	2	18 000
5.	Establishment of drilling Unit	2	18 000
6.	Master Plan for resources (Exploratory Mission)	4	36 000
6 bis.	Master Plan for resources (Exploratory Mission)	21	144 000
Total :		35	279 000

Cape Verde : Technical Assistance Requirement

		1979 Manmonths	IN US \$
Identification and Project preparation	3 Hydrogeologists	24	27000
	3 Sanitary Engineers	24	27000
Development of labour	2 Consultants	48	18000
	Monitors	3	12000
Strengthening of Sanitary Laboratory.	2 Technicians	48	18000
Management Assis- tance	Consultants		10000
Equipment			20000
Construction material			50000
Vehicles	3 Land Rovers		45000
	3 trucks 7 ton		60000
		147	287000

(Page 6, Cape Verde Report)

Congo : Technical Assistance Requirements

Congo has indicated the following requirements in the matter of technical assistance.

1) Training Programme

12 man-months on consultancy services over the period of next 2 years for on the job training of foremen.

2) Hydrogeological Study

30 man-months over a period of next 3 years for ground water prospection including training.

3) Sector Study for Secondary Centres

12 man-months of consultancy services on behalf of an international consulting firm over a period of one year for preparing complete investment projects.

4) Water and Sanitation Study in Rural Areas

Two international experts from UNDP or WHO working at Genie rural and Genie Sanitaire with a contribution by each man of approximately 12 months over a period of one year.

5) Water and Sanitation Study for Brassaville and Pointe-Noire

An international firm of consulting engineers could put in 40 man-months over a period of 2 years for preparing master plans for water and sanitation for the two cities and the pre-investment studies for the first phase of the proposed works.

- 6) International Expert in Financial Analysis and Accounts
6 man-months to prepare a Financial Plan with samples of book-keeping and presentation results.
- 7) Integration of Water Supply Sector with Sanitation and Social Development

Ethiopia : External Technical Assistance Requirement

(In million U.S.\$)

	Rural Water Supply	Urban Water Supply	Sanitation
Management Assistance	15.0	7.0	2.0
Project Preparation	1.5	12.9	2.0
Training	5.0	7.0	2.0
	21.5	26.9	6.0

Swaziland : Technical Assistance Requirements

i) (a) Project Preparation :

Four Projects were identified for external assistance as part of predecade activities.

1. An investigation of Spring Water resources.
2. An investigation with alternatives for drinking water supply to the low-veld area.
3. Study for identifying manpower and training requirements for the sector.
4. An investigation to Select Suitable means of Sanitation for Swaziland.

Total cost of the above projects - US \$ 280,000

ii) Value of external input of required manpower for design, construction of Water Supply and Sanitation Projects for the decade and Supportive requirements of training officers etc.

12 Engineers and engineering assistants	360,000 p.a.
15 Clerks of Works	300,000 p.a.
3 Surveyors	75,000 p.a.
1 Project Manager	40,000 p.a.
3 Training Officers	75,000 p.a.
2 Cost accounting and material ordering Managers	40,000 p.a.
36 Externally provided personnel US \$	890,000 p.a.

Note. : The technical personnel requirements could be considered high, but it must be borne in mind that the provision of water supply and sanitation to a dispersed rural population as is the case of Swaziland, requires much more technical input than the provision of the same to an urbanized densely settled population

Summary of external inputs in the water supply and sanitation sector

(in millions of United States Dollars)

(Figures cover 1979 or annual average of recent years)

	Asia and Pacific	Latin America	Africa	Western Asia	Europe	Total
Donor Governments	82	38	381	44	4	549
Development banks	395	254	259	32	31	971
Other United Nations organizations	50	10	76	12	2	150
Funds set up by OPEC and OPEC countries	3	8	92	57	-	160
International non- governmental organisations	30	7	54	8	1	100
Total :	560	317	862	153	38	1930

Table 7 of CA document A/35/367/Sept. 1980/page 26.

Investment in Africa
in Water Supply and Sanitation: 1978

Total investment	1300 million US \$
Investment as percentage of GNP	0.7%
External commitments (average 1977-79)	862 million US \$
External commitments as percentage of total investment	63%
Per capita investment/inputs	3.1 US \$

Extracted from the UNGA Doc. No. A/35/367 of
18th Sept. 1980.

IDWESD: Present situation and Prospects Report of
the Secretary General.

Angola : Investments programmes in potable water
supply 1979 - 83

Millions of colones (Costa Rican Currency)

	Total investments	1979	1980	1981	1982	1983
Metropolitan area	1, 110, 13	64, 40	31, 89	258, 98	422, 05	348, 21
Urban	418, 50	50, 70	59, 39	103, 41	100, 00	100, 00
Rural Area	220, 82	99, 03	39, 59	55, 20	30, 00	-
Other investments	7, 32	2, 44	2, 44	1, 22	0, 61	0, 61
Total for the country	1, 756, 77	216, 57	133, 31	420, 81	553, 26	441, 02

Source : Instituto Costarricense de Acueducto Y Alcantarillados
ICAA

Botswana : Total Investment - Water Supply and External
Assistance

	Thousand U.S. \$ (1979)							
	1979/ 80	1980/ 81	1981/ 82	1982/ 83	1983/ 84	1984/ 85	Present Donor	Total
Water Supplies for Villages of -500- people	(1266)	(1710)	(640) + 900	1660			SIDA	6176
Villages - 500 people - reticulation	(360)	(460)	(357) + 146	560	1250	1370	UK	4503
- water source	(360)	(372)	444	530	1160	1280	SIDA	4146
Major Village - Planning		60*	300	500	550	610	None	2020
- Extension	(130)	(180)	230	420	460	1010	None	2430
Construction overheads	(340)	(540)	400	420	400	440	SIDA	2540
Rehabilitation of old village supplies		150	160	250	400	430	None	1390
Acceleration of Village water supplies construction		1160	3750	290			None	5200
Expansion of Govern- ment Borehole Drilling	(680)		610	1420		1520	USAID/ Local	4230
Assistance to Private Borehole Drilling		(60)	210	250	275		CIDA	795
S.E. Botswana Water Planning		70*	120	110		100	None	400
Sand Rivers Project	(60)	(50)					SIDA	110
Limpopo Water Utilization Study		70	75				None	145

	1979/ 80	1980/ 81	1981/ 82	1982/ 83	1983/ 84	1984/ 85	Present Donor	Total
Hydrological support		15	60	80	50		None	200
Windmill Provision			300	1000	1100	1200	None	3600
Evaluation of Under- ground Water Resources	(130)	(240)	(120) +	600	660	725	UK	2835
			360					
Urban Water Supply Projects	(4320)	(7200)	4400	1800	3500	7100	IBRD	28320

Notes :

- Items marked with * are provisionally allocated in 1980/81 only to the WHODA Decade Planning assistance. However long delays in WHO response may prevent this.
- Brackets indicate that funds are already available

Chad: Investment Costs for Water Supply and Sanitation
for the Decade

Sl. No.	Description	Cost (Millions CFA 1977)
1.	Water Supply and Sanitation	49.795
2.	Studies in Water resources, research, evaluation, exploitation and operation.	3.412
3.	Organisation and strengthening of the Services	1.653
4.	Strengthening the Secretariat of the National Committee for Water and Sanitation	220
5.	Major hydraulic structures which could have repercussions on the water supply and sanitation sector.	-
Total:		55.080
		or 275.4 million \$

Ethiopia : Mobilization of Resources from Internal and
External Sources

(In million U.S. \$)

Sub Sector	Total Investment requirement	Internal Resource	External Resources Sought
Rural Water Supply	615	195	420
Urban Water Supply	266	80	186
Rural Sanitation	4	1	3
Urban Sanitation	250	75	175
			<hr/> 784 <hr/>

Madagascar : Investment Needs

"For towns with more than 2000 population or within administrative places.

Design	40 million US dollars
New works	95 million US dollars
Improvement	37 million US dollars
Total:	<u>172 million US dollars</u>

For towns less than 2000 population.

Studies	10 million US dollars
Works	-
Training	25 million US dollars
Partial total	<u>35 million US dollars</u>

Funds available at present	0 million US dollars
----------------------------	----------------------

External resources for different International organisations are as below:

FED

Preparation of projects 12.5 million dollars

Japan

Switzerland

Korea

France

Training Manpower 22,000 US dollars

Considering the disparity between investment necessary and funds available till now a great effort should be made for obtaining additional resources from national and then international organisations, if the completion of the proposed project is to be ensured. "

Malawi : Summary of Programmes, Estimates and External
aid arrangements*

Appendix Ref.	Description of Project/ Programme	Total Estimated Cost MK (Million)	Decade Total Estimated Cost MK (Million)
1.	Rural Gravity Piped Supplies 1981-1990		12.50
1a.	Planned projects for completion 1981-1985. Funding by CIDA, Japan, CSC, UNDP/UNCDF and others	7.50	
1b.	Planned projects for completion 1986-1990. Funding unidentified	5.00	
2.	Rural Borehole Programme 1981-1990		20.00
2a.	Rural borehole programme 1981-1985. Funding sources not yet identified but foreign aid being sought.	9.00	
2b.	Rural borehole programme 1986-1990. Funding as in 2a.	10.50	
2c.	Borehole equipment projects	0.50	
3.	Rural Shallow Wells Programme 1981-1990.		10.00
3a.	Rural Shallow Wells Programme 1981-1985. Funding sources not yet identified but foreign aid being sought	4.00	
3b.	Rural Shallow Wells Programme 1986-1990. Funding as in 3a.	6.00	
4.	Rural Miscellaneous Water Schemes 1981-1990. Foreign funds are being sought	20.00	20.00
	<u>Decade total estimates cost - Rural Water Sector</u>		62.50

* Annex III of Country Report.

Appendix Ref.	Description of Project/ Programme	Total Estimated Cost MK (Million)	Decade Total Estimated Cost MK (Million)
5.	Urban centres Water Supply Programme 1981-1990		
5a.	UNCDF project to provide standpipes in the poor areas of urban centres	0.53	
5b.	On going project-Funded by ADF- to be completed 1981 (Project cost K 5.5m) Decade expenditure.	3.00	
5c.	Planned projects for 1981-1985 to be funded by ADF	8.00	
5d.	Water supply augmentation programme 1986-1990. Foreign aid being sought.	12.47	
	<u>Decade total estimated cost-all urban centres water supply sub-sector</u>		24.00
6.	City Water Supplies 1981-1990		
6a.	Lilongwe Water Board Foreign funding being sought	24.00	
6b.	Blantyre Water Board. Foreign funding being sought	22.00	
	<u>Decade total estimated cost for city water supplies</u>		46.00
7.	Sewerage Facilities 1981 - 1990 foreign funding being sought (including studies)	12.50	
	<u>Decade total estimated cost-sewerage facilities</u>		12.50

Appendix Ref.	Description of Project/ Programme	Total Estimated Cost MK (Million)	Decade Total Estimated Cost MK (Million)
8.	Water Miscellaneous Projects 1981 - 1990		
8a.	Various study projects related to the work programme, foreign funding being sought.	1.70	
8b.	Purchase of equipment for drilling. Funding as for 8a.	0.50	
8c.	Water Technicians Training School Project. Funding source as for 8a.	1.50	
8d.	Infra-structural development programme-Funding sources as for 8a.	3.10	
	<u>Decade total estimates cost for water Miscellaneous Projects</u>		6.80
9a.	MoH Basic Sanitary Services	1.35	
9b.	MoH Health Laboratory Services	0.85	
	<u>Decade total estimated cost MoH Services</u>		2.20
	<u>Decade Estimated Grand Total Cost for all water supply and sanitation projects</u>		MK154.0 million
N.B.	This programme does not include water activities unconnected with drinking water and sanitation such as irrigation, Lake Malawi etc.		

Mauritania : List of projects for which foreign assistance
is required.

<u>Name of the Project</u>	<u>Amount in UM</u> (1 US\$ = 45 UM)
Water Supply Atar - Tidjikja, Kiffa Salibaby :	224,000.538
Water Supply for Rosso	115,000.000
Distillation of sea water for fishing villages :	-
Handpumps for 130 wells	19,224.000
Study of small storages	-
Extension of water supply to Nonadhibon Bolilañonar	30,000.000
Evaluation of local manufacture of handpumps	30,000.000
Programme of 100 wells in the south-east	150,000.000
Improvement of the Failing	2,500.000
A pumping unit for each team	26,633.750
Extension of potable water and sanitation of Nouakchott	150,010.448
Development of pastures of the dry regions in Mauritania	2,394.000
Construction of 40 boreholes	25 to 250 millions
Kiffa watersupply	200,000.000
Establishment of a pumping squad	10,000.000
Hydrogeological study of the metamorphic zones of Guidimaka and Aftout	129,190,000
Evaluation of the development of surface water resources of eastern Brakna and Aftout	1,500.000
Ground water study of Taoudena	193,540.000

Taoudeni

<u>Name of the Project</u>	<u>Amount in UM</u>
Programme for study of hydrogeological relation of the Senegal river and the aquifers of south-west	150,000.000
Synthesis of hydrogeology of Mauritania	15,165.000
Establishment of the operational structure for the construction and maintenance of water points	2,500.000
Equipment and operation of three teams for each crash construction and upkeep of wells	16,572.760
Equipment for pumping stations on wells along the Nouakchott-Kiffa road	58,685.600
Operation and maintenance of 10 pumping stations during 2 months	19,305.754
Execute extension of waste water treatment of Nouakchott	
Management, maintenance and operation of existing 10 pumping stations	
Construction of 10 pastoral wells in Dhar Oualata - Nema	13,919.814
Measurement of wind potential	1,834.800
Solar pumps	5,800.000
	<hr/>
	34.2 million US

Cape Verde : Investment Cost

		No.	Cost '000 \$ CV	Total Cost	
				'000 \$ CV/ yr.	US\$
-	Project PRAIA			10, 000	265, 000
-	Project MINDELO			10, 000	265, 000
-	Water supply for 40 communities				
-	Water supply for 200 communities		140	5, 600	150, 000
-	Water supply for 34 communities of population 200-500				
-	Storage	10	240	2, 400	63, 000
-	Bore holes	12	450	5, 400	140, 000
-	Bore holes	12	640	7, 680	200, 000
-	Water supply for communities of population 500-1000	6	640	3, 840	100, 000
-	Construction of septic tanks and latrines 1700+4500	6200	1	6, 200	160, 000
				Total	1, 343, 000

Niger : Mobilisation of National Resources Water Supply

Programme of Investments by Departments

(millions of F CFA)

Departments	1979	1980	1981	1982	1983	Total	Avail- able
AGADEZ							
DIFFA	77	337	375	84	95	956	410
DOSSO	60	240	240	160		700	700
MARADI	+	-	306	424	449	1179	54
NIAMEY	288	932	677	202	187	2286	1685
TAHOUA	98	140	244	384	281	1147	494
ZINDER	237	372	315	415	390	1729	675

Multi Department Projects

2090 880 3358 4006 4456 14790 2320

1 US \$ = 200 F CFA

NIGER : Mobilization of National Resources : Sanitation

(Millions of F CFA)

Programme	Cost during the plan period	1979	1980	1981	1982	1983	Available
Sanitation of big towns (Niamey, Dosso, Zinder, Tahoua, Maradi)	3150	400	1250	700	550	250	1000
Improvement of Rural sanitation	100		25	25	25	25	50

1 US \$ = 200 F CFA

NIGER : External Resources : Water Supply

Specific Projects in different Departments

		(in million F CFA)						
Department		1979	1980	1981	1982	1983	Total Avail	able
1)	<u>Agadez</u>							
	Wells							
2)	<u>Diffa</u>							
-	Construction of 97 wells	31	206	133			370	370
-	Construction of 50 wells			84	84	95	263	
-	Construction of 100 wells	40	125	158			323	40
3.	<u>Dosso</u>							
-	Construction of 200 wells	60 (17)	240 (68)	240 (68)	160 (47)		700	700
4.	<u>Maradi</u>							
-	Construction of 9 village wells			54			54	54
-	Construction of 150 wells			252	252	284	788	
-	Construction of 100 wells				172	165	337	

NIGER : Rural Sanitation

(Millions of F CFA)

Project	Total for plan period	1979	1980	1981	1982	1983
Improvement of Rural sanitation	55	23	13	15	5	

Niger : National coverage : Programme of investment

(In million F CFA)

1979	1980	1981	1982	1983	Total	Available
	465	916	250	--	1631	359

Details of project investment1) ProjectsTotal cost in 10⁶ F CFAa) Agadez

-	Maintenance of village wells	1400
-	Water supply to secondary centres	2760

b) Diffa

-	50 wells	1200
-	Water supply to secondary centres	2740
-	sub-divisions	500

c) Dosso

-	Maintenance of village wells	1400
-	Water supply to secondary centres	2760

d) Maradi

- Construction of 150 wells and boreholes at Maradi for the project 150 wells and 300 boreholes 1500
- Construction of 100 wells for the programme: 300 wells CE&C 1200
- Water supply to secondary centres 1020 + 1740
- 1000 shallow boreholes at Niamey, Maradi, Zinder 3000
- Sub-divisions OFEDES 500

e) Niamey

- 50 wells on the project 50 wells CEAO 1200
- Water supply to secondary centres YC boreholes 2760
- Sub-division OFEDES 500
- 1000 shallow boreholes at Niamey, Maradi, Zinder 3000

f) Tahoua

- Maintenance of village wells 1400
- Water supply to secondary centres 2760
- sub-divisions OFEDES 500

g) Zinder

- 300 boreholes for the project Danida 1500
- 100 wells on the project CEAO 1200
- Water supply to secondary centres 2760
- 1000 shallow boreholes, Niamey, Maradi, Zinder 3000
- Sub-divisions OFEDES 500
- Water supply to Niamey, Maradi, Zinder 3600

Projects	1979	1980	1981	1982	1983	Total	Available
<u>NIAMEY</u>							
- Construction of 56 wells at Oullam	30	110	74			214	214
- Construction of 56 wells in the Departments	84	336	248			668	668
- Construction of 200 boreholes			212	202	187,6	601.6	
- Construction of 200 boreholes Liptako	54	216	1434			413.4	413.4
- 100 boreholes at Liptako	120	230				350	350
- Installation of OFEDES Filingue		40				40	40
<u>TAHCUA</u>							
- Construction of 51 wells	38	80	76			194	194
- Construction of 50 wells	60	60	60	60	60	300	300
- Construction of 200 wells			108	324	221,3	653.3	

Annex - 5C
Sheet 4 of 4

Projects	1979	1980	1981	1982	1983	Total	Available
<u>ZINDER</u>							
- Construction of 30 wells at Damergou	210	293	50			500	500
- Construction of 19 wells at Tanout	21	64	10			115	115
- Construction of 133 wells			242	252	220	714	-
- Construction of 100 wells			7	103	170	340	-

Togo : Water and Sanitation Sector

1978 Prices
(Millions of F CFA)

Region	Name of Centre	Population in 1000 persons		Present Situation	Source	Study to be funded+	Construction	
		1979	1990**				Cost	Status of funding
1	2	3	4	5	6	7	8	9
A. Urban Water Supply								
Maritime	VOGAN	14	19	Constructed in 78 for 90	Drilling		400	Completed
	TABLIGBO	20	34	-do- in 79	-do-		400	Completed
	TSEVIE	25	43	Work in progress	-do-		372	Obtained
	ANEHO	25	43	Old network	-do-	20+	200+	To be funded
	LOME*	350	595	Distribution study to be done	-do-	100+	8000+	To be funded
Plateaux	ANLAME*	10	17	Study completed	River		250+	To be funded
	BADOU*	15	26	-do-	River		200+	To be funded
	MOTSE	22	42	Constructed in 78 for 2000	Barrage		950	To be funded
	KPALAME*	30	51	Study completed	-do-		1170	To be funded
	ATAKPAME*	30	51	Study completed	-do-		1161	To be funded
Central	BASSARI	10	17	Constructed in 79 for 85			400	Completed
	BAFILO	12	26	Constructed in 78 for 2000	River		340	Completed
	TCHAMBA	10	17	Study in progress			450+	To be funded
	SOTOUBOUA	9	12	Constructed in 78 for 2000	Drilling		280	Completed
	SOKODE	30	51	Network construc- ted in 1970			0	Completed
Kara	LAMA-KARA	20	40	Constructed in 78 for 90	Barrage@		2250	Completed
	PAGOUDA	5	10	-do-	Barrage@		2300	Completed
	NIAMTOUGOU	6	11	-do-	Barrage@		2050	Completed
	KANTE	7	10	-do-	Drilling		160	Completed
Savana	MANGO	10	17	Constructed in 79 for 90	Drilling		400	Completed
	DAPAON	20	30	Old network	Barrage	30+	930	To be funded
TOTAL		630	11602	-	-	150+	23703	-
Projects to be funded		460	779			150+	12,220@	

- * Towns for which projects are to be formulated or which have not yet obtained funds for construction.
- ** Annual growth rate 5% in urban area (except for towns already studied by Hydraulique Directorate) and 2% in rural areas.
- @ Lama-Kara, Pagouda at Niamtougou are fed by the same dam, (cost F CFA 3 milliards). This dam can serve 87 other towns.
- + Preliminary estimate to be confirmed after study or completion. Studies to be financed are those for which no funding source has been specifically identified. Urban project costs are estimated at 1978 prices with 65% as foreign exchange component.

Investment in Urban, rural and total water supply:
Current and Future Requirements for the Decade

(In million U.S.\$)

Name of Country	Urban Water Supply			Rural Water Supply			Total Water Supply		
	75-80	80-85	85-90	75-80	80-85	85-90	75-80	80-85	85-90
Algeria	2000*						5700 for 1980-2000, for Sanitation also.		
Botswana		--34---			--40.4			--34.4--	
Chad								-- 275.4---	For Sanitation also
Egypt		---4018---			---- 1275---			---- 2293----	
Ethiopia		--- 266---			----- 615---			----- 881----	
Ghana		----- 72 ----			----- 137 ----			----- 209----	
Ivory Coast		--270.4--			--159.6--			-- 430 --	
Kenya		----- 85 ----			-----499 ----			----- 584-----	
Liberia	.5 (for 1980)	-----47.5 ---			--- 112.85---			-----160.25---	
Madagascar		----- 102----			not determined			----- 102----	
Malawi		----- 9 ----			---78 ----			----- 176----	
Mauritania	The details of projects are in Annex. 44								
Nigeria								-- 4600---	
Senegal		----- 300----			--83.25--			-----383.25---	
Sierra Leone								-----3.2 ----	
Somalia		----- 40 ^{xx} ---			-- 10.5 ^{xx} --		for sanitation also		
Swaziland								---30**--	
Tanzania					-- 604---			--- 604---	
Togo		----- 75---			--- 65.0 ^x --			--- 140--	
Tunisia	450			37.5					

Name of Country	Urban water supply			Rural water supply			Total Water Supply		
	75-80	80-85	85-90	75-80	80-85	85-90	75-80	80-85	85-90
Uganda		----- 78---			-----642 ---			-----720----	
Uni. Rep. Tanzania					-----604 [@] ---			--- 604----	
Upper Volta		---180---			-----180---			-----360----	
Zaire		--- 290.14--			----- 40---			----- 330.14--	
Zambia								<u>96.7[@]</u> 1979-83	

* For Water Supply and Sanitation, for last decade 1969-79

x For early years of decade

xx For earlier years of decade

X Includes drilling

** Provision for the remaining 300,000 rural population

@ Includes Sanitation

Investment in urban, rural and total Sanitation
Current and future requirements for the Decade

(In million US \$)

Name of Country	Urban			Rural			Total	
	75-80	80-85	85-90	75-80	80-85	85-90	75-80	80-90
Algeria	2000 (for last decade) for W/S & sanitation							
Chad		---- 9 ----						
Egypt								2993
Ethiopia		---250---			---4---			254
Ghana	37							90
Ivory Coast		--- 588.9						
		Yearly data available, 'See Table. (1980-85)						588.9
Kenya		93			100			193
Liberia		48.1			47.0			95.1
Malawi								15.5
Mauritania		Details of projects <i>see Annex 3</i> on pages						
Senegal								180
							(Annex 3, P. 5, CR)	
Swaziland					1			
Togo		--- 200 ----		. 25				200.25
Uganda					- 1439 ----			1439
Uni. Rep. Tanzania								604
							includes water supply	
Zambia								5
							(1979-83)	

**Annual Investment Requirement for the Water Supply
and Sanitation Sector**

(In million U. S. \$)

Country	80	81	82	83	84	85	86	87	88	89	90	Remarks
Botswana*	7.646	12.337	13.572	9.890	9.805	14.785						
Ghana	0.11	3.1	1.45	4.91	33.82	33.45	34.55	31.64	28.72	27.27	18.18	
Ivory Coast	94.5	262.1	259.6	269.4	84.4	84.9						
Malawi												
1. Lilongwe Water Supply borehole equip- ment programmes.			1.9									
2. Lilongwe Water Supply Programme Ind Pha					3.15							
3. Rural gravity piped supplies & AID funded urban centres programme.				35.8								
4. Rural borehole program shallow well program & water supply aug- mentation pro- gramme.								42.66				
5. Other Rural & Urban W. S. programmes and services.					110.0							
TOTAL:					193.51							
Senegal	22.1	43.7	84.7	61.2	100.83	16.75	10.3	117.5	41.5	22.1	52.5	
Seychelles	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
Tanzania								604 for rural supply				
Zaire	6.4	22.7	21.4	24.8	31.6	27.6	134.5					

* Includes rural and urban water supply.

Requirements of External Resources for Water Supply
and Sanitation for the Decade

(In million US \$)

Name of Country	Water Supply			Sanitation			Total	Remarks
	75-80	80-85	85-90	75-80	80-85	85-90		
Algeria							85.8*	
Botswana		---49.47---					49.47	
Chad		---14---			---234--		248	
Ethiopia		-- 606**-----			---178#-		784	
Ghana		--- 72-----					72	
Guinea	80% of Requirements 567 Sylis	will be 80 % of investment in the decade		80% of invest- ment			80%	Investment in decade not worked out.
Kenya		---584-----					584	
Lesotho		---13,13-----						This estimate covers three projects
Liberia		---160.35-----			-- 95.1--		255.45	
Madagascar		---96-----						
Malawi		---173-----			--- 15.5--		288.5	
Mauritania		---34.2--	As per details in Annex - 44					
Mauritius	74 ^x	---150 ^x -----						x Available external resources
Mozambique	2154							
Senegal		---382-----			-- 140--		522	
Serra Leone		---3.2----- includes sanitation					3.2	See page 3.

Name of Country	Water Supply			Sanitation			Total	Remarks
	75-80	80-85	85-90	75-80	80-85	85-90		
Somalia		40.0						
Swaziland	.28	-Not estimated-						
Togo	1.85						60	
Tunisia		17.5						
Uni. Rep. Tanzania	330		543				543	
Zaire		157						Mentioned for Urban water supply only. Data for 1985-2000
Zambia		70		2.1			72.1	For four year plan 1979-83

* Sought from World Bank

** Urban Water Supply + Rural Water Supply = 186+420 = 606

Urban Sanitation + Rural Sanitation = 175 + 3 = 178

External Resources for Water Supply
and Sanitation for the Decade as percentage
of total investment

Name of Country	Percentage of external resources to total investment for the Decade	
Botswana	76.8	
Ethiopia	69.1	/
Ghana	35	
Guinea	80	
Kenya	75	
Liberia	100	
Madagascar	94.1	
Malawi	99.0	
Mauritania	85 to 90	
Senegal	92	
Sierra Leone	100	
Somalia	81.0	
Togo	17.6	
Uni. Rep. Tanzania	30/90.0	For total water supply and sanitation. For rural water supply and sanitation.
Zaire	54*	29% upto 1985
Zambia	80.0	

* For urban water supply and sanitation.

Mauritania : The Personnel Situation

National Staff

Senior Staff

Hydrogeologists 2

Middle level Staff

Senior technicians Civil Engineering 1

Senior technicians Agrometeorology 1 (2 on-board Nov. 79)

Senior technicians Hydrologist 1 (2 on-board Nov.79)

Civil Engineers 5

Meteorological operator (Assistant Technician) 1

Drilling technicians 1111

Hydrologic operators 3

Pumping technician 1

Well Superintendents 5

Geophysical operator 1 (not yet identified)

Technical Assistants 6 (in training in Morocco)

Expatriate Staff

Geophysicist 1

Hydraulic Engineers 2

Hydrogeologists 2

Drilling Foreman 1

Well sinking Foreman 1

Requirement of national Staff in all categoriesSenior Staff

Hydrologist	1	(in training since March, 1979)
Pastoral hydraulic engineers	4	
Hydraulic engineers	4	
Electrical engineers	4	
Mechanics	4	
Well foremen	5	
Topographic surveyors	3	
Drilling foremen for deep wells	3	

Middle Level Cadres

Assistant Engineers (Civil)	8	
Senior Hydrologic technicians	2	
Senior Agrometeorological technicians	2	
Draftsmen	2	
Senior technicians for maintenance of equipment	2	(in training for two years).
Civil Engineer		
Mechanics	10	
Electricians	10	
Geophysical operators	2	
Senior hydrologic technicians	3	

Ghana : Engineering Services required to implement
proposed water supply programme
(in Manmonths)

	80	81	82	83	84	85	86	87	88	89	90
<hr/>											
<u>Project for New Water Supply Systems</u>											
Planning	27	48	48	3.5	-	-	-	-	-	-	-
Design	-	-	12	26	48	-	50	48	-	-	-
Supervision	-	-	-	100	167	167	167	167	167	177	100
<hr/>											
<u>Upgrading and Extension of Existing Water Supply Systems</u>											
Planning	70	70	70	70	70	70	36	-	-	-	-
Design	-	100	100	100	100	100	100	100	64	-	-
Supervision	-	-	-	100	172	172	208	208	172	172	172
<hr/>											
	97	218	230	399	557	557	561	523	399	349	272
<hr/>											

Table 6 of the country Report of Ghana

List of countries in Africa that have established
national action committees for the Decade

Region	Committee established	Committee under consideration
ECA	Benin	Angola
	Burundi	Cape Verde
	Egypt	Comoros
	Ghana	Congo
	Guinea	Ethiopia
	Kenya	Rwanda
	Liberia	Senegal
	Madagascar	
	Mauritius	
	Mali	
	Mauritania	
	Mozambique	
	Nigeria	
	Seychelles	
	Sierra Leone	
	Swaziland	
	Tanzania	
	Togo	
	Upper Volta	
	Zambia	

Extract from Report of the African Regional Meeting
on Problems and Needs of Africa in Community Water
Supply and Sanitation, Addis Abeba

Guidelines for formulation of a programme for implementation by
the African region for the Decade

60. The meeting considered that the formulation of a programme for the Decade in each country was essential to accomplish Decade objectives. To that end, the meeting felt that it would be useful to suggest some broad guidelines for consideration by member Governments. The guidelines might include action necessary to

(a) Establish or form a suitable national action committee with a permanent secretariat (including the designation of an officer to provide liaison with UNDP) and bring together the national authorities in the sector and relevant agencies of financing, planning, resources, etc. to plan and co-ordinate the Decade activities;

(b) Specify institutional arrangements and the allocation of responsibilities including those for planning, the implementation of programmes, operation and maintenance;

(c) Assess the current status of the sector;

(d) Make an investigation, identification and evaluation of possible alternatives to define levels of service in respect of costs and determine the least-cost technologies in order to obtain maximum benefit from limited available resources;

- (e) Set specific targets to be achieved over the period of the Decade and for specified shorter periods of time to mesh with national development plans;
- (f) Identify priority projects and/or activities and establish schedules for their implementation on a year-by-year basis;
- (g) Define staffing and logistics in relation to the programme of implementation;
- (h) Establish funding mechanisms.

List of Abbreviations

CIDA	-	Canadian International Development Agency
ECA	-	Economic Commission for Africa
ECDC	-	Economic Cooperation among Developing Countries
ECOSOC	-	Economic and Social Council
EEC	-	European Economic Community
FAO	-	Food and Agriculture Organisation of the United Nations
IBRD	-	International Bank for Reconstruction and Development
ICAA	-	Instituto Costarricense de Acueducto Y Alcantarillados
IDWSSD	-	International Drinking Water Supply and Sanitation Decade
IHP	-	International Hydrological Programme Operated by UNESCO
NRD	-	Natural Resources Division of ECA
OHP	-	Operational Hydrological Programme operated by WMO
OPEC	-	Organization of Petroleum Exporting Countries
ORSTOM	-	Office de la Recherche Scientifique et Technique Outre -Mer
SIDA	-	Swedish International Development Agency
SNE	-	Societe National des Eaux
TCDC	-	Technical Co-operation among Developing Countries
UN	-	United Nations
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environmental Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
UNICEF	-	United Nations Children's Fund
USAID	-	United States Agency for International Development
WHO	-	World Health Organisation
WMO	-	World Meteorological Organisation

INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE
I D W S S D
AFRICA

URBAN, RURAL & TOTAL POPULATION OF AFRICA
1975 - 1990 (Five Yearly)

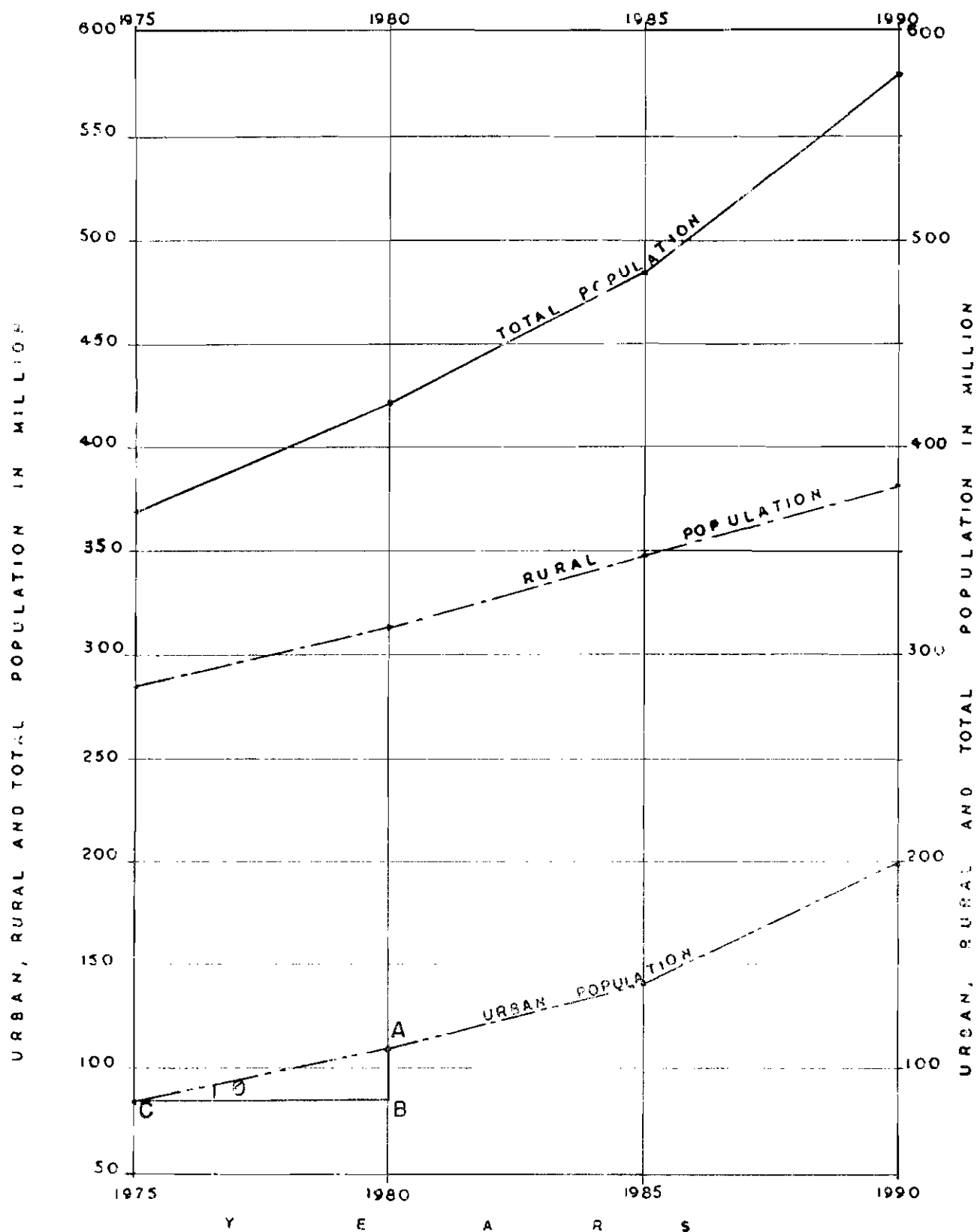
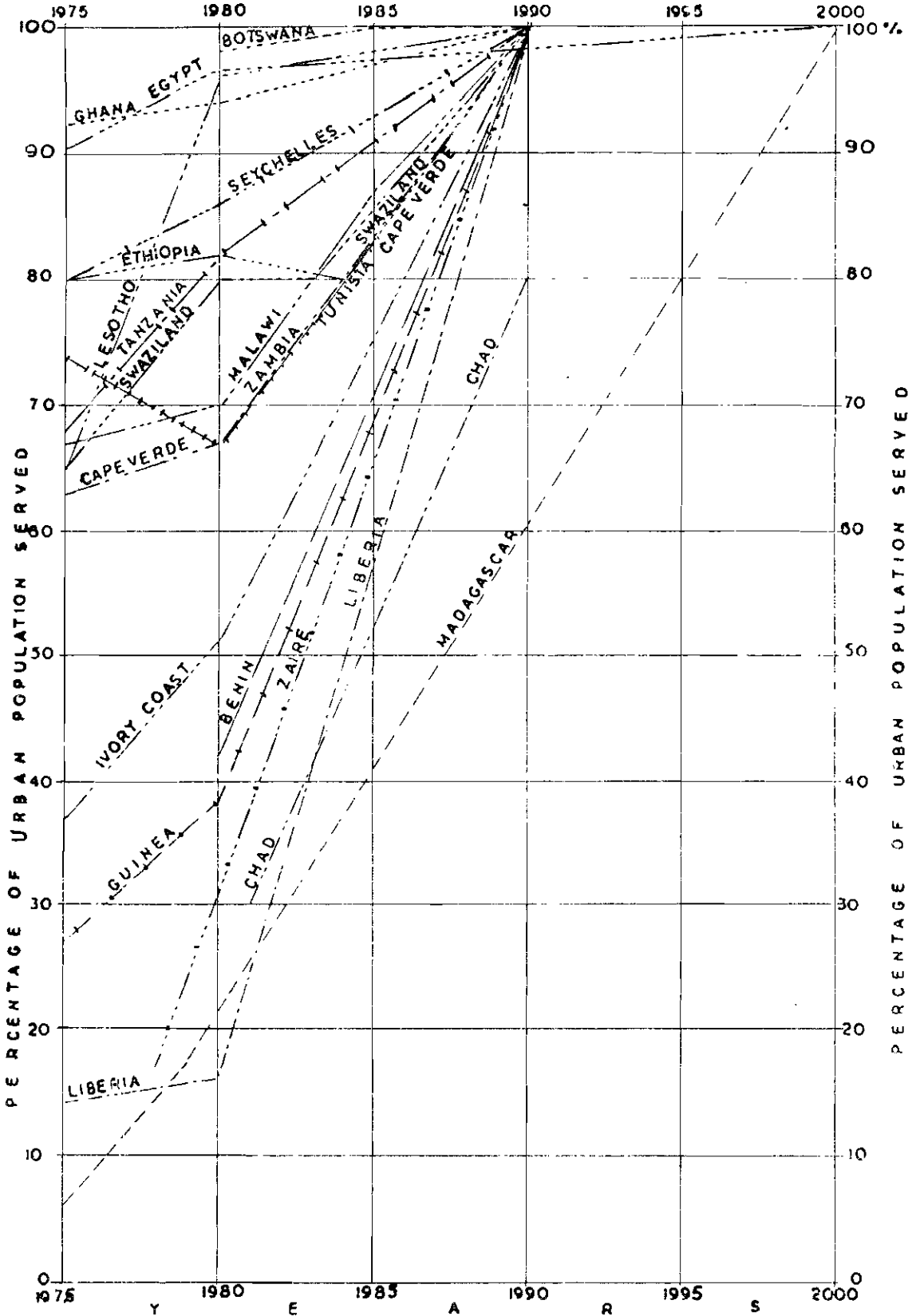


Fig. 2

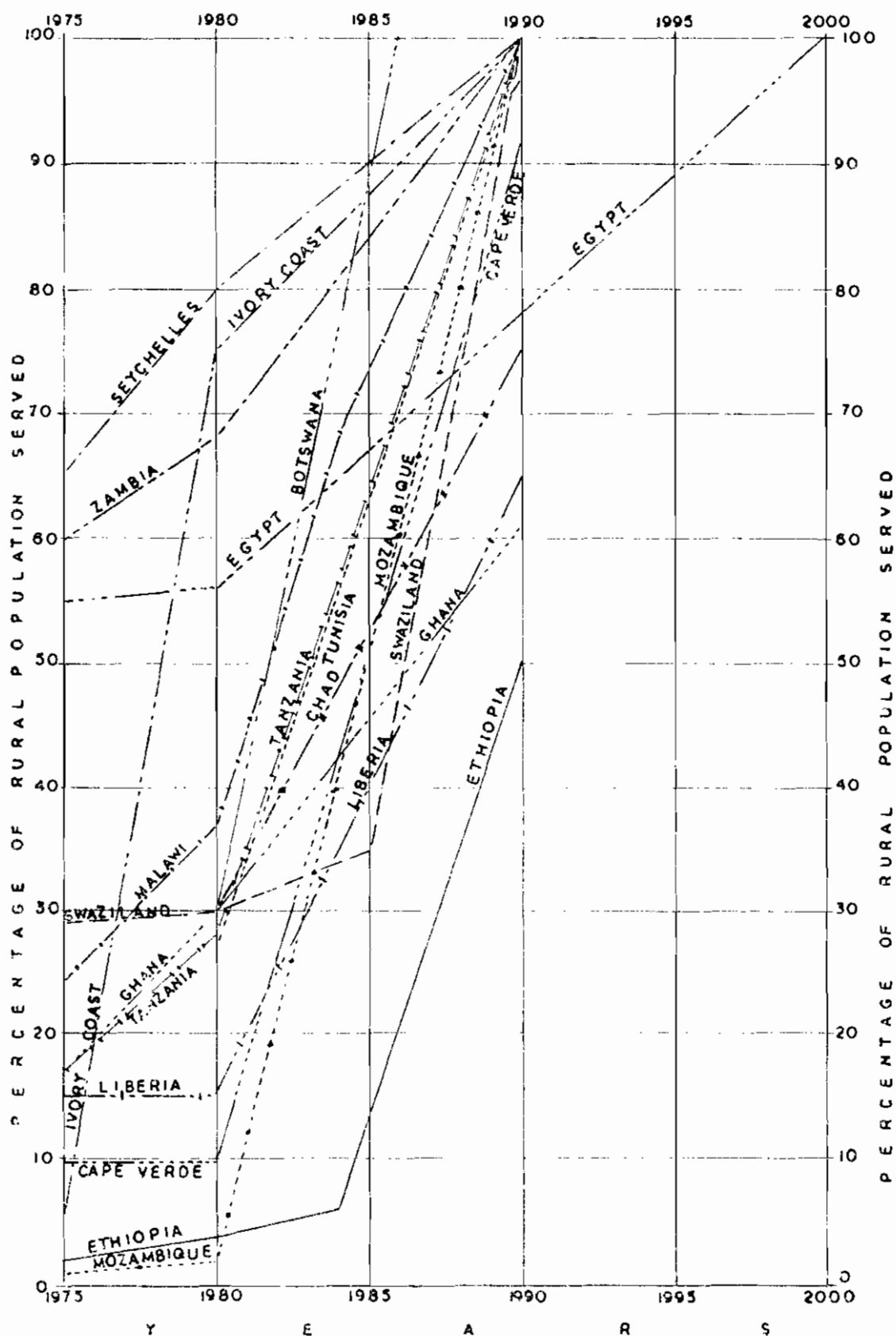
INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE
I D W S S D
AFRICA

URBAN WATER SUPPLY: TRENDS IN COVERAGE
PERCENTAGE OF POPULATION SERVED



INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE
I D W S S D
AFRICA

RURAL WATER SUPPLY: TRENDS IN COVERAGE
PERCENTAGE OF POPULATION SERVED



INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE

I D W S S D

AFRICA

INVESTMENT IN MILLION U S DOLLARS
REQUIRED FOR THE DECADE
URBAN AND RURAL WATER SUPPLY

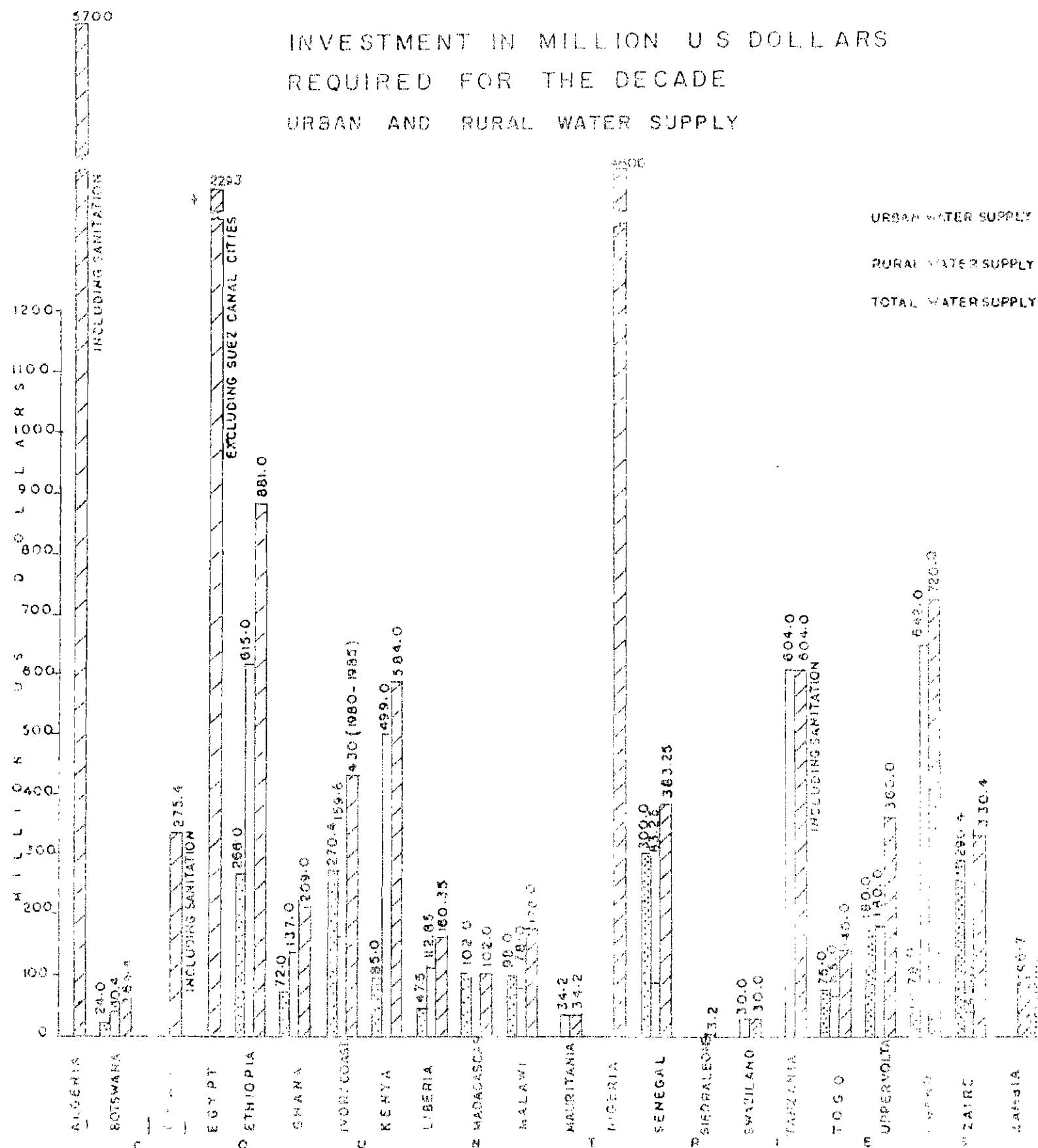
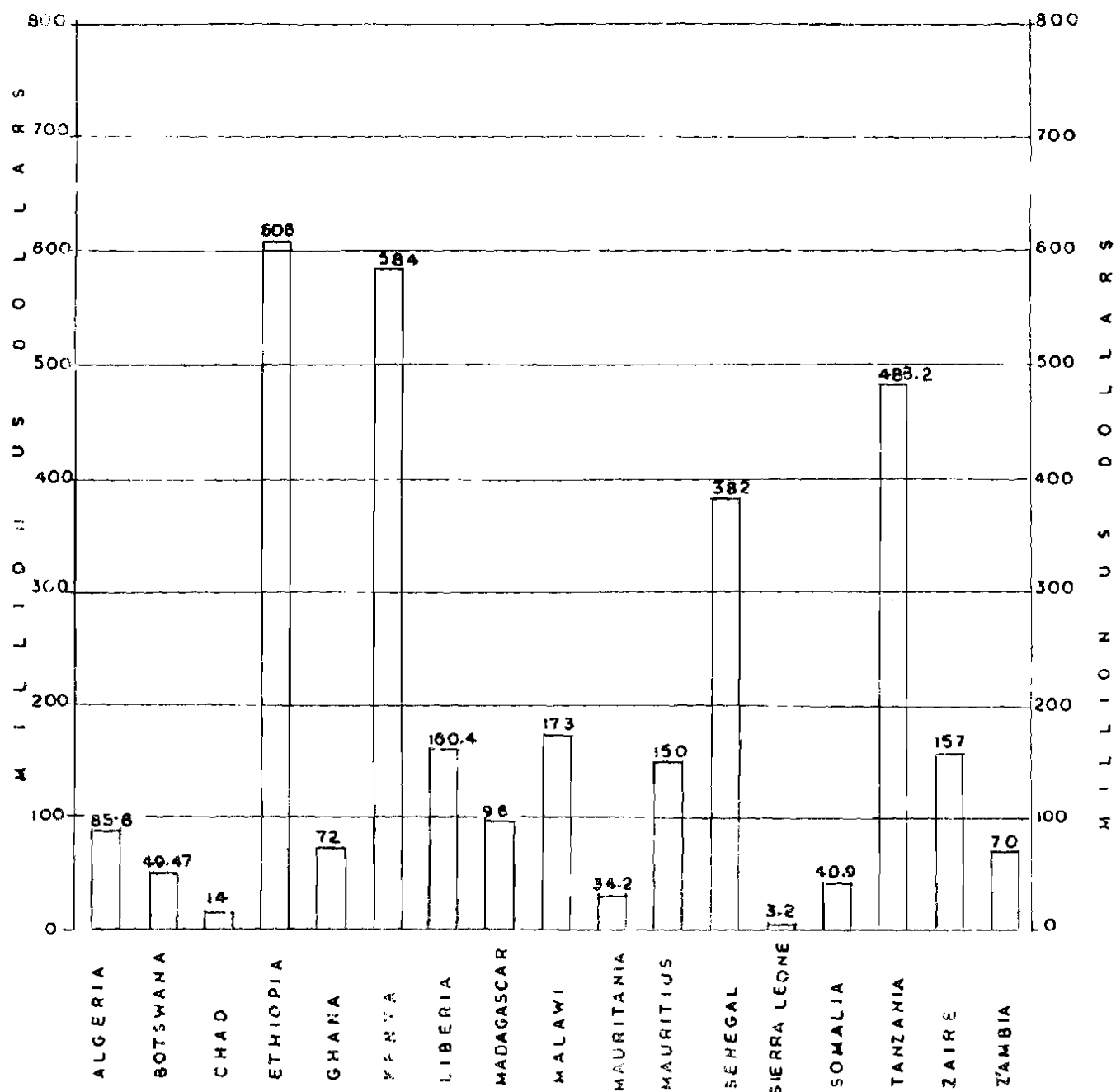


Fig. 5

INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE
I D W S S D
A F R I C A

EXTERNAL RESOURCES REQUIRED
FOR
URBAN AND RURAL WATER SUPPLY



PER CAPITA LEVELS OF WATER SUPPLY

Litres Per Head Per Day

