FIRST REGIONAL CONSULTATION ON THE AFRICA 2000 INITIATIVE FOR WATER SUPPLY AND SANITATION

Country Case Studies

25–27 JUNE 1996

BRAZZAVILLE

REPUBLIC OF THE CONGO

Copies of this document may be obtained from:

World Health Organization
Regional Office for Africa, P.O. Box No.6, Brazzaville, Congo
Fax: (+242) 83 94 00, Tel: (+242) 83 91 11, E-mail: afro@who.org

Health and Environmental Documentation Centre, EHG
World Health Organization
20, avenue Appia, CH-1211 Genève 27, Suisse
Tel: (+41 22) 791 35 48, Fax: (+41 22) 791 41 23, E-mail: pfistera@who.ch

DESIGNED BY WHO GRAPHICS

WHO/EOS/96.6
ORIG.: ENGLISH
DISTR.: LIMITED

FIRST REGIONAL CONSULTATION ON THE AFRICA 2000 INITIATIVE FOR WATER SUPPLY AND SANITATION

WATER, SANITATION AND PEOPLE:

PARTNERS IN DEVELOPMENT

Country Case Studies

25–27 JUNE 1996
BRAZZAVILLE
REPUBLIC OF THE
CONGO

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE
FOR AFRICA

Contents

This document is a companion to the background report prepared for the Regional Consultation on the AFRICA 2000 Initiative in Brazzaville, 25-27 June 1996.

It contains case studies for nine countries where AFRICA 2000 launch or consultative meetings have been held, or where they are being prepared. Each case study describes the background against which AFRICA 2000 is being introduced, giving details of current water and sanitation service coverage, existing policies and programmes, and various problems and constraints. Each case study also outlines priority projects and actions for the future.

The aim of these examples is to show that AFRICA 2000 consultative meetings can and do lead to the establishment of effective national strategies and action plans.

The document also contains a brief summary of 13 demonstration projects, or 'microprojects', which have been set up as part of the AFRICA 2000 Initiative.

BENIN

1. Introduction

The government of Benin held a consultative meeting on the AFRICA 2000 Initiative on 27 and 28 July 1995. Representatives from the different government departments concerned with water supply and sanitation problems attended the meeting. Representatives from non-governmental organizations and other development partners also took part. The report of the meeting has been used as a basis for this case study.

2. Physical and socio-economic conditions

The Republic of Benin is situated in the south-eastern part of West Africa. It has a surface area of 112 620 sq km. It stretches 700 km northwards from the Atlantic Ocean to the Niger river. It is 125 km wide at the coast and up to 325 km wide inland. Benin is a hot, humid country. The south has two rain seasons and a total rainfall of between 800 mm and 1 400 mm. In the north, where the dry season lasts from October to April, the wettest regions may have as much as 1 300 mm of rain while in others the average may drop below 800 mm.

The total population is estimated at 5 million. The average demographic growth rate is 3.14 per cent per year. Almost half the population is under 15 years of age, and nearly three-quarters under 30. Just over 4 per cent are older than 65.

Health statistics show that life expectancy is 51.8 years and there is an infant mortality rate of 105.5 per 1 000 births. Water-related illnesses are a serious problem, with diarrhoeal diseases second in importance to malaria as the major cause of illness. Dracunculiasis (guinea-worm disease) is present throughout the country and in 1993 almost 15 000 cases were detected. In the Department of Zou, the disease is endemic in more than 79 per cent of villages and hamlets.

3. Service coverage

The following table shows the estimated service coverage for water supply and sanitation for urban and rural populations.

	Total	Water supply service		Sanitation service	
	Population x 1000	*Population x 1000*	*%*	*Population x 1000*	*%*
Urban	2 000	1 460	73	1 200	60
Rural	3 000	1 290	43	1 050	35
TOTAL	5 000	2 750	55	2 250	45

4. Analysis of the current situation

Water supply during the IDWSS decade

Before 1980, few water supply systems had been installed. Of those that existed, most were wells provided by a variety of different societies and decentralized water supply services. Maintenance was not carried out systematically and the supply was not always safe. During the period of the International Drinking Water Supply and Sanitation decade (1981-90), the country benefited from considerable financial assistance and, by the end of the decade, 4 570 water points had been installed. Of these, 2 776 were boreholes fitted with handpumps and 1 794 were protected wells with pumps. This responded to 48 per cent of the country's needs. In 1985, a national maintenance policy for village water supplies was adopted, based on three principal measures. These were:

- to establish management committees to ensure the regular use and upkeep of the facilities through local funding;
- to set up a network of operators who would be trained and equipped during the implementation of the project;
- to set up a network of outlets for the sale of spare parts.

This policy did not, however, function well. In 1990 a survey revealed that 30 per cent of the handpumps were out of order and the facilities were not regularly used as had been expected. As a consequence, the health status of the population had not improved. This was shown by the high incidence of dracunculiasis, which continued to be a problem, as well as other diseases caused by drinking poor-quality water. Analysis of the situation showed a number of reasons for the failure. These included:

- the poor quality of the pumps supplied;
- the lack of maintenance by the beneficiar-

ies on the grounds, for example, of the expense of spare parts;

- for some committees, the lack of maintenance funds;
- for other committees, the bad management of funds gained from the sale of water;
- the lack of motivation on the part of key coordinators in the maintenance system;
- the lack of retraining for such people;
- rural exodus;
- the lack of incentives for pump suppliers to ensure a proper after-sales service during the life of the pump;
- the lack of a marketing system by the pump manufacturers;
- the lack of a proper strategy in the sector;
- the misunderstanding by the village beneficiaries of the concept of paying for water.

Action on water supply since 1990

Since 1990, vigorous action has been taken to rectify the situation. Firstly, a decision was made to reduce the number of acceptable makes of pump to just four, in order to rationalize the problem of breakdowns. As a result, 341 pumps were rehabilitated. At the same time, various operators were retrained to improve their service, and the after-sales service was reorganized in order to ensure a constant supply of spare parts. Secondly, a new policy for village water supply was drawn up. This involved: decentralization of decision making; financial involvement of communities in the initial investment; research into the reduction of the cost of construction and maintenance; and privatization of construction, combined with particular efforts to improve the ability of local communities to implement their own projects.

Needs were re-evaluated on the basis of the 1992 census and efforts made to widen the circle of external support agencies involved. This led to the installation of new water points so that, at the end of 1994, a total of 5 641 had been completed. Of these, 3 431 were boreholes with handpumps, 1 885 were protected wells, and 34 were small piped water supply networks. In this way about 58 per cent of Benin's needs have been met.

Urban water supply

In urban areas, water supply is the responsibility of the Benin Society for Electricity and Water (SBEE). By 1990 all the capitals of the country's departments had piped water supply systems, as did 41 sub-prefecture towns and 12 large villages. Investments were financed by the SBEE and by bilateral and multilateral organizations (KfW, World Bank, DANIDA, ADB, CFD, EIB and OPEC). Since 1990, the situation has continued to improve. Increased supply has been accompanied by the promotion of water connections for social welfare reasons (schools and health centres) and a campaign of public education on the links between water, hygiene and health. The number of subscribers has grown from 35 660 in 1990 to 81 172 in 1994. Water production has increased from 12.45 million to 16.915 million cubic metres per year in the same period.

Sanitation

Sanitation has received much less investment than water supply. There has also been a lack of coordination between agencies. Another difficulty has been the absence of information which would enable a better analysis of the situation to be made. Fortunately, water supply projects often include an element related to sanitation improvement and there has therefore been an improvement in the overall situation in recent years. However, there is still a great shortage of funds.

5. Policies and programmes

The consultative meeting on the AFRICA 2000 Initiative set up three working groups to study and make proposals on: drinking water supply in rural and urban areas; sanitation, hygiene and the environment; a national coordination committee for AFRICA 2000. The findings of these working groups are summarized as follows.

Drinking-water supply

The group found that, although much investment had been made in this sector, efforts had not led to as substantial an improvement in the sanitary situation as had been desired. In order to improve results, a plan of action was drawn up, emphasizing:

- the strengthening of the community's role in drinking water supply programmes;

- the strengthening of drinking water supply programmes in schools and health centres;
- the strengthening of the sanitation component in drinking water supply programmes.

Sanitation, hygiene and the environment

The working group found that further study was needed to determine the extent of sanitation services in both rural and urban areas in Benin. The present situation indicated that garbage collection services covered less than 25 per cent of the population. A new strategy was proposed to raise this level to 50 per cent in the short term. To achieve this, it was necessary for the private sector to become more concerned that public services operated properly. With regard to storm-water drainage, the group felt that sanitation master plans needed to be established urgently for all towns in the country.

As far as excreta disposal was concerned, the technology used depended on the particular hydrogeological and socio-cultural features of the region involved. The AFRICA 2000 national plan of action would include provisions for:

- the strengthening of monitoring systems for water supply and sanitation;
- the promotion of sanitation in rural areas;
- the management of liquid wastes in Cotonou;
- the setting of standards for water, hygiene and sanitation;
- the preparation of sanitation master plans for towns not yet served.

AFRICA 2000 national coordination committee

Since the Ministry of Health was the favoured partner of WHO, this office was proposed as the 'focal point' for the AFRICA 2000 Initiative. It was decided that the coordination committee would include representatives from all relevant ministries and their associated departments dealing with health, hygiene, sanitation, water, housing, the environment, urban affairs, the interior, education and economic reconstruction. The non-governmental organizations SOROPTIMIST, GEERCOOP and BENIN 21 would also be represented, as well as external support agencies such as WHO, UNICEF, World Bank, UNDP, European Development Fund, French Mission for Cultural and Technical Cooperation, DANIDA, GTZ and USAID.

From this coordination committee, a smaller permanent cell was created composed of three government departments (the Directorate of Hygiene and Basic Sanitation, the Directorate of the Environment and the Directorate of Water) with WHO and SOROPTIMIST. It was decided that the coordination committee would meet annually and the permanent cell quarterly. The roles and responsibilities of both were defined.

6. Finance

In the past, external financial contributions to the sector have come from the Kuwait Fund (US$ 8.2 million for rural water supply in 1988), the International Development Association or IDA (US$ 10 million for the expansion of the water supply systems of Cotonou and Porto Novo in 1987), and the Islamic Development Bank (US$ 250 000 for ground water studies).

During the IDWSS decade, the investment in rural water supply was 13 000 million CFA francs, largely from external sources. In the period 1991–4, the total amount spent on rural water supply installations came to more than 45 000 million CFA francs.

Expenditure on water supply programmes in urban areas reached a total of 28 066 million CFA francs during the IDWSS decade. Of this, 7 891 million came from the SBEE budget and the remaining 20 175 million from bilateral or multilateral organizations (KfW, World Bank, DANIDA, ADB, CFD, IEB, OPEC) in the form of grants or loans. Since 1990, the cost of investments has been estimated at 13 240 million CFA francs.

Financial investment in sanitation has been much lower than water supply. However, KfW provided 1 602 million CFA francs for sanitation components to be included in projects in 26 main centres in the sub-prefecture of Natitingou. In addition, the World Bank, with finance from DANIDA and IDA, provided 2 000 million CFA francs for the sanitation component in a project to establish a new development strategy for the rural water supply sector. Further assistance is being received from WHO, UNICEF and other external support agencies.

7. Community management

Attempts to set up community management of rural water supply systems during the IDWSS decade were largely unsuccessful. The many reasons for this have already been described in point 4. Since 1990, new efforts and new policies adopted as part of the AFRICA 2000 Initiative have raised hopes that progress will be made in the devolution of responsibility to communities. It is hoped that this will result in improved coverage and quality for both water supply and sanitation.

8. Health and hygiene education

Renewed emphasis is needed in this field. It is useful that educational components are now being included in programmes designed to promote community involvement in water supply and sanitation.

9. Coordination

With the establishment of the AFRICA 2000 national coordination committee, sector coordination appears to have received renewed impetus. WHO, through its membership of the permanent cell of this committee, has a responsibility to stimulate the work of both the cell and the committee, and to encourage further coordination.

10. Priority projects

At the consultative meeting, the following projects were identified as priorities:

- drinking water supply in rural areas in Sud-Borgou;
- village water supply in the coastal zone of Ouémé;
- village water supply in Atacora;
- sanitation in 20 capital towns of sub-prefectures;
- the procurement of materials to implement 20 000 free water connections;
- support for monitoring systems;
- the promotion of rural sanitation;
- liquid wastes management in Cotonou;
- the setting of standards for water supply, hygiene and sanitation;
- sanitation master plans for Benin towns.

11. Recommended action

The following recommendations for action were made at the consultative meeting:

- to include a sanitation component in drinking-water supply projects (this should involve information, education and communication elements, as well as the construction of sanitation facilities);
- to encourage contact between the Directorate of Water and the Benin Society for Electricity and Water with a view to harmonizing drinking-water supply programmes;
- to strengthen the maintenance system in order to reduce the high level of pump breakdowns;
- to support the creation of an independent institution to control the quality of water in Benin;
- to define standards and regulations relating to sanitation;
- to update written advice on the application of rules relating to water and hygiene practice;
- to establish an efficient follow-up system for programmes concerning water supply and sanitation;
- to encourage Benin's development partners to increase financial resources for water supply and sanitation programmes;
- to establish an effective AFRICA 2000 national coordination committee with the least possible delay.

CAMEROON

1. Introduction

The government of Cameroon launched its participation in the AFRICA 2000 Initiative with a consultative meeting from 30 August to 1 September 1995. The meeting was officially opened by the Minister of Public Health in the presence of the Minister of Mines, Water and Energy, the Vice-Prime Minister in charge of Urban Affairs and Housing, the Minister of Environment and Forests, and the Representative of WHO in Cameroon. The aims of the consultative meeting were: to promote the water supply and sanitation sector; to note

the problems and constraints observed during the International Drinking Water Supply and Sanitation decade (1981–90); and to adopt new approaches.

2. Physical and socio-economic conditions

Cameroon has a surface area of 475 000 sq km. It has one of Africa's most diversified economies and is a major exporter of several agricultural cash crops (notably cocoa) and, since the mid-1970s, of oil. It has mineral reserves of bauxite, iron ore and natural gas, and has good potential to produce hydroelectric power. However, the country remains poor and underdeveloped because of the large number of people living at subsistence level and because of its rapidly expanding population. The economy tends to be overcentralized, with a weak private sector.

Cameroon has a total population of about 12 million, of whom 60 per cent live in rural areas and 40 per cent in urban areas. In recent years, rapid urbanization has taken place (the urban population has risen from 28 per cent in 1976). Eight towns have a population of more than 100 000 and 65 have more than 10 000 people. Forty-six per cent of the population is under 15 years of age.

3. Service coverage

The following table shows the estimated service coverage for water supply and sanitation for urban and rural populations.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	4 800	2 016	42	4 800	100
Rural	7 200	3 240	45	72	1
TOTAL	12 000	5 256	44	4 872	40

The above table shows that about 6.75 million people are considered to be without access to a safe water supply. Over 7 million people, all of them in rural areas, do not have adequate sanitation facilities.

4. Analysis of the current situation

During the IDWSS decade, planned developments for urban areas included the provision of 156 new water treatment plants and improvements to the 26 existing plants, together with free water connections for social welfare reasons (schools and health centres) and an increased number of public standposts. However, of the 156 planned new plants, only 76 were completed. In those towns provided with piped drinking-water supply, 34 per cent have private connections, 35 per cent are served from standposts, and 31 per cent still rely on wells and surface water.

In rural areas, the target was to provide a water point for all communities of 300 to 500 people. To achieve this goal, the Cameroon government received help from friendly countries (Japan, Belgium, Denmark, the Netherlands), international organizations and NGOs. The aim was to provide boreholes and wells with handpumps in northern areas and, in the rest of the country, boreholes and wells with handpumps, plus gravity systems, pumped systems and piped supplies with small treatment plants. The results were: 1 737 wells and 2 021 boreholes with handpumps, 490 protected springs, nine weirs and dams, and 543 piped systems. These figures do not include the works carried out by certain NGOs and state enterprises. In rural areas, it is estimated that 2 per cent of people have house connections, 10.5 per cent use public standposts, 11.6 per cent use wells with handpumps and 25 per cent have open wells. The remainder take water from rivers, springs and swamps.

In terms of sanitation, all people in urban areas have adequate facilities. However, in rural areas the story is very different. Although 221 247 latrines have been installed with community participation in rural areas, they are not apparently considered to constitute safe excreta disposal facilities. Cameroon has therefore undertaken to improve their construction.

Problems and constraints

During the IDWSS decade the sector came up against a number of constraints, including:

- the lack of sophistication of the people;
- persistent beliefs in sorcery and in conservative myths and traditions;

- lack of training and development of institutional structures;
- lack of planning for balanced development, with political influence dictating the execution of works rather than the priorities;
- weak community participation, especially of women and children;
- feeble attempts to introduce hygiene education;
- poor representation of local languages in the dissemination of information through radio, slogans, posters, etc.;
- neglect of local materials and their use in construction (especially in sanitation);
- poor cost recovery as a result of the high cost of installations and the breakdown of facilities;
- inappropriate choice of technology (when considered in the light of beneficiaries' ability to pay);
- difficulties in releasing counterpart funds from the Cameroon government for the funding of projects;
- the absence of commercial suppliers and production of equipment and spare parts;
- the misuse of funds and resources;
- inefficient measures for operation, maintenance and repair of facilities;
- the provision of support with conditions attached (for example, support might only be given if beneficiaries adopted specific, often inappropriate, technologies);
- poor cooperation between the different participants;
- the lack of standardization in the manufacture of equipment.

5. Policies and programmes

At the national consultative meeting, three working groups were set up to consider the policies and strategies which the government should adopt for its plan of action for water supply and sanitation development. The working groups were assigned different subjects for their discussions and a summary of their findings is given here.

Group 1

This group looked at strategic and technical approaches. Members decided the following actions were necessary:

- to prepare a master plan for water supply and sanitation;
- to identify and introduce socially acceptable and low-cost technologies;
- to involve women as partners in the management of water supply and sanitation activities;
- to set up a database of training materials for both staff and beneficiaries;
- to establish a coordinating body;
- to develop strategies to allow the best possible use of resources in rural areas;
- to produce equipment and spares at low cost;
- to combine the marketing of spare parts with networks supplying essential drugs;
- to integrate hygiene education into all projects in rural and peri-urban areas;
- to train local people;
- to respect the choice of the beneficiaries for sites, standards and equipment;
- to give priority to the installation of water supply and sanitation facilities in areas with the highest health risks;
- to return all existing facilities to working order;
- to teach women and children simple operation and maintenance techniques.

Group 2

This group was charged with identifying measures for managing and coordinating the sector. It decided that the central government should: define a national policy for the sector; establish a national coordination committee and ensure that the efforts of different participants were properly coordinated; create programmes and projects based on the needs of the community; and ensure that programmes were supervised by the intermediate-level administration.

The group felt that the intermediate-level administration should be in charge of: distributing resources and strategic activities between the health districts; ensuring the

best possible coverage from the inputs made; and supervising the work of the health districts.

The health districts should: help communities to identify their needs; and promote the participation of women in all phases of development.

Group 3

This group considered resources. Members felt a number of areas required attention or specific action:

- the development of human resources;
- the reform of institutions and organizations;
- the improvement of cost recovery through fiscal and customs duties;
- the promotion of research into the production of low-cost equipment;
- the promotion of balanced development in which the choices of equipment, sites and strategies are acceptable to the beneficiaries;
- the formal commitment to refuse aid with conditions attached, or aid from external support agencies ignorant of the realities of the water supply and sanitation sector;
- reminders to public and local groups to become more involved in the sector, in accordance with law No. 74/23 of 5 December 1974 on community organization;
- the promotion of community participation, especially by women;
- the creation of a forum for NGOs working in the sector in order for them to identify, coordinate and plan their inputs;
- the strengthening of the partnership between the local NGO forum, foreign NGOs and all other participants in the sector or other areas of development;
- to encourage public, multinational and donor agencies to participate in the development of water supply and sanitation, through their educational programmes;
- the introduction of deterrents to polluters, in the form of pollution taxes payable to the national water supply and sanitation committee;
- the creation of a group of donors for AFRICA 2000;
- the expansion of the information system to help identify the needs of beneficiaries;
- the encouragement of the use of participatory and community initiatives in the implementation of programmes.

6. Finance

In 1989 the West German government provided support for rural water supply development in the Bafoussam area of the country (US$ 33 000). In addition Cameroon has depended on: bilateral support from Japan, Belgium, Denmark and the Netherlands; multilateral support from several international organizations (World Bank, FED, FAC, ADB, IDB, CEE, etc.); and inputs from a number of non-governmental organizations (SATA, CARE, AFVP, Save the Children, etc.). The sums involved have not been recorded. Estimates have not been made for the funding requirements for the AFRICA 2000 Initiative.

7. Community management

Current government policy on rural water supply is to provide a water point for every 250 to 300 persons, using technologies with low capital and running costs. In doing so, the government proposes to increase the participation of the beneficiaries of the projects so that they not only make a financial and material contribution, but also have some personal input. In particular, women are to be involved in the decision-making, the planning, the implementation and the maintenance of water points. Rural technicians and operators will be trained more fully in the construction and upkeep of water supply and sanitation installations, so that they will be able to continue to use their skills in these areas.

UNICEF is promoting the provision of community-managed services. It is maintaining strong commitment to such projects and encouraging the expansion of cost-effective services (particularly for sanitation) using appropriate technologies. UNICEF's projects also take into account the potential of the communities themselves for upgrading their own services.

8. Health and hygiene education

One of the working groups referred to the need to incorporate hygiene education into all projects in rural and peri-urban areas.

However, it appears that no service is currently carrying out such activities. One of the NGOs active in the sector, CEDAC, states that it has as an objective the promotion of good hygiene habits, and promotion of measures to improve the personal and community health status of rural populations.

9. Coordination

The fact that one of the working groups was assigned the task of considering the subject of coordination (see point 5) shows that Cameroon is committed to dealing with this matter.

A plan for the creation of an AFRICA 2000 coordination committee has been drawn up. It will be led by a national coordinator from the Ministry of Public Health, and will include members from the Ministry of Mines, Water and Energy, the Ministry of Social Affairs and Women's Issues, the Ministry of Environment and Forests and the Ministry of Agriculture. There will also be representatives from a number of NGOs (CEDAC, EAU C'EST LA VIE, PROSAMIR, SERGAADE, PESSAF and REPA) and the advisory organizations UNICEF, WHO and UNDP.

10. Priority projects

Although the broad outlines of a national plan of action have been established, the government has not yet reached the stage of identifying priority projects for which financial support may be sought.

11. Recommended action

At the end of the national consultative meeting, the participants draw up a list of recommendations. To the government, these were:

- to issue a joint communiqué from the Ministries of Health and of Mines establishing a national coordination committee;
- to invite external support agencies to give priority to national organizations responsible for the planning and implementation of projects;
- to give all the necessary support to NGOs participating in the water supply and sanitation sector;
- to propose to the Ministries of Health and of Mines to organize a round-table meeting with donor agencies;
- to organize training seminars for staff and community members with responsibility for implementing water supply and sanitation programmes;
- to cooperate with all participants in the sector;
- to strengthen community participation in all phases of project development;
- to strengthen partnership among the participants.

To WHO and UNICEF, the recommendations were:

- to support the Ministers of Health and of Mines in carrying out a study on the status of water supply and sanitation;
- to ensure, through fellowships, the training of staff in the field of water supply and sanitation.

COMOROS

1. Introduction

The government of the Comoros held a consultative meeting for AFRICA 2000 on 12 and 13 April 1995, with financial and technical support from WHO. The meeting was sponsored by the Ministries of Public Health, Water, Environment and Planning. The Director General of Planning presided over the plenary sessions. A document produced at the meeting 'Public Water Supply and Sanitation Sector Situation : AFRICA 2000 Initiative', has formed the basis of this case study.

2. Physical and socio-economic conditions

The four volcanic islands of the Comoros are situated in the Indian Ocean off the coast of Mozambique, 300 km from both Madagascar and Africa. They have a combined surface area of 2 235 sq km. In 1975, three of the islands (Grande Comore, Anjouan and Mohéli) became independent from France and formed the Federal Islamic Republic of the Comoros. The fourth, Mayotte, remains under French administration.

The islands have a tropical climate with a cool, dry season from May to October and a warm, rainy season from November to April. The temperature varies between 15° and 33°C.

In 1992, the republic adopted a new constitution. This proclaimed the country's adherence to the declarations and charters of the United Nations and the Organization of African Unity on the Rights of Man. It upheld the democratic principles of freedom of expression, freedom of belief and the independence of justice. At the federal level, the president and the government, under a prime minister, hold executive power. Each island is autonomous, with a popularly elected governor. Each island is divided into prefectures and subdivided into cantons.

The present population is estimated to be just below half a million. Forty-five per cent are under the age of 15 years. Twenty-eight per cent live in urban areas and 72 per cent in rural areas.

The country is currently experiencing great economic difficulties. This is due to the unsaleability and low prices of its principal export crops: vanilla, cloves and ylang-ylang. A structural adjustment programme is being delayed because of the government's failure to meet its commitments to the international financial institutions (the IMF and World Bank). The Comoros depend totally on imports for rice and petrol products, and partly on imports for other essential food supplies. Twenty per cent of the budget is spent on education and the rate of school attendance is 86 per cent.

Infectious and parasitic diseases are the highest causes of morbidity and death. Malaria, intestinal parasites, dermatitis and diarrhoeal disease are the most prevalent. The government allocates 9 per cent of its budget to health.

3. Service coverage

Separate details for water supply and sanitation services are not available. However, it is reported that 46 per cent of the population has access to drinking water and 76 per cent to traditional or modern latrines. There is considerable variation between the islands, as shown in the following table.

Island	Water supply coverage %	Sanitation coverage %
Anjouan	43	82
Mohéli	71	62
Grande Comore	24	84
Average	46	76

4. Analysis of the current situation

Water supply

The islands endure periodic shortages of water and this lack of resources was a challenge addressed during the International Drinking Water Supply and Sanitation decade (1981–90). The islands of Anjouan and Mohéli have water courses which flow permanently, but Grande Comore has practically no source of supply except rain-water tanks (although the capital Moroni and neighbouring villages have had a piped supply since 1977). The problem with water supply in the Comoros is not so much its scarcity, however, since not all possible sources have been exploited, but the poor quality and distribution resulting from infrastructural weakness. The high cost of such infrastructure has put it beyond the reach of the State's financial capability. Other problems have been caused by the spread of the population relative to the water points, and to cultural habits with regard to water use and hygiene.

The Comoros have an annual rainfall of between 1 100 and 6 000 mm, some of which is collected in cisterns. Because the recent volcanic rock is porous, ground water can also be tapped. This is particularly true in Grande Comore, but because this ground water rests on a bed of sea water which has infiltrated the rock, it can have a more or less brackish taste. Higher up, where there are impermeable strata of clay, perched water tables have been formed. In Anjouan and Mohéli, these can be very big and give rise to water courses. In Grande Comore they provide water-point sources for some villages on high ground.

The difficulty of resources in Grande Comore explains the low coverage figure (see point 3). The population of the island is about a quarter of a million. Eighty per cent live in the coastal belt below 300 m altitude. About 50

per cent are in the capital Moroni and surrounding hamlets, below 100 m. Daily demand for water depends on social and economic constraints, as well as on the availability and quality of the resources. The General Directorate of Energy and Mineral Resources (DGERM) has proposed minimum standards in rural areas of 15 litres per head per day at a distance of less than one kilometre, and in urban areas of 50 litres per head per day at less than 100 m. In practice, these standards vary. In rural areas relying only on rain-water, levels can fall as low as 5 litres per head per day.

Below 100 m altitude many wells have been dug. As a result of UNDP projects during the IDWSS decade, for example, about 25 drinking-water wells were sunk. Between 100 m and 300 m altitude, hydrogeological surveys are needed, either to reach the deep ground water, in which case additional wells can be drilled, or to locate possible perched aquifers. Above 300 m, reliance is solely on rain-water. In fact, even above 100 m, rain-water tanks constitute the main source of drinking water.

The piped supply in Moroni, which also serves neighbouring villages, provides 2 million cubic metres of water per year through private connections and 100 metered public standposts. This supply reaches 24 per cent of the island's population. Elsewhere, most handpumps are out of order through want of spare parts. There are some 11 500 family tanks, with an average capacity of 8 cubic metres, plus 758 much larger public cisterns. However, all of these present a risk, particularly in the dry season, as they are old, often cracked and without covers.

Anjouan and Mohéli have fewer problems with resources. Standards of 50 litres per head per day in urban areas and 15 litres per head per day in rural areas have been proposed. In fact, these are largely exceeded when water is available. Supply is through gravity from streams and rivers to private connections or public standposts, or from wells. Many of the facilities are old and suffer from lack of maintenance, which affects the quality of the water supplied.

In the Comoros, drinking-water supply is the responsibility of the Ministry of Equipment, Energy, Town Planning and Housing, which operates through the DGERM. The DGERM has a mandate to form, coordinate, follow up and control government policy on drinking-water supply. It is organized into the following services:

- the planning and projects service, responsible for studies and project control;
- the water resources service, providing data on resource potential and exploitation;
- regional services for energy and mineral resources, which transmit information to the central database service;
- the village water service, which aims to involve rural communities in the planning, implementation and management of drinking-water supply facilities.

Sanitation

Sanitation services are much less developed than water supply. The government needs to take intensive action to remedy the situation. The three islands have 262 primary schools, 40 rural colleges and nine lycées, but 80 per cent of these do not have adequate sanitation and safe drinking-water supplies. Similarly, 80 per cent of the health infrastructure (consisting of 47 health posts, 11 health centres, three urban medical centres, two medical surgery centres and three regional hospitals) do not have proper facilities.

Storm-water drains have not been updated since the 1960s. Large amounts of rubbish are carried down to low-lying areas or the shore. The worst case is in Moroni, where all the market wastes are swept into the port area. Deforestation results in quantities of mud being deposited in urban areas, blocking drains and creating problems of poor hygiene. Roads are not well drained and unhealthy collections of water provide potential places for mosquitoes to breed.

The disposal of waste water in the Comoros is also unsatisfactory. Rudimentary soakaway pits are used, with no screening or treatment. This causes a proliferation of disease-carrying flies, mosquitoes and rats. There is also the risk of contamination of the soil and surface water, with grave consequences for aquatic life. The situation has become critical and dangerous for public health, especially in view of the density of housing in urban areas.

By custom, Comorians use a traditional type of pit latrine, 3 m to 4 m deep. These latrines represent 74 per cent of all facilities used. WCs are only found in urban areas with piped water supply and make up just 2 per cent of

all facilities. The latrines, because they are not deep, fill up quickly and are covered before another hole is dug a few metres away. In many instances the latrines are not covered and cause a nuisance from flies and smell. They are also a source of intestinal infection, particularly among children. As latrines are sited close to houses, there is a risk of pollution of well water. This is especially true in Anjouan and Mohéli, where the water table is at the same depth. It is evident, therefore, that the sanitation coverage figure reported in point 3 must be considered as a quantitative, rather than a qualitative, statistic.

Unplanned urban development has accentuated the problem of solid wastes, mainly domestic garbage. Collection and disposal is different from one island to another but nowhere is it carried out in a sanitary manner. There is very little data on the quantities involved although some limited studies have been done. Disposal is mainly into coastal waters, which has an unhealthy influence on the environment. In higher rural areas, incineration or composting methods are usually used.

Waste disposal is the responsibility of the General Directorate of the Environment. In addition, each island has a Regional Environmental Service, charged with applying national policies delegated from the central government. The Ministry of Health has a Hygiene and Sanitation Service, which is integrated with the Directorate of Control of Epidemic and Endemic Disease. The service's principal mission is the technical and administrative control of hygiene and sanitation rules aimed at preserving health and protecting the environment. It has a staff of only three (one engineer and two technicians) based in the federal capital, and lacks offices, auxiliary staff and proper equipment.

The provision of adequate sanitation is hindered by a number of problems, which can be summarized as follows:

- the shortage of land, which leads to habits unfavourable to good health;
- general ignorance of the dangers of pollution, promiscuity and the lack of basic sanitary measures;
- the low resources allocated to hygiene and sanitation, notably in terms of staffing, finance and supplies;
- the current disorganization in the manner of wastes removal;
- the pollution of flowing streams and coastal waters by wastes from light industry (soaps, dyes, etc.) and by the discharge of various substances from ships (hydrocarbons, garbage, etc.);
- the fact that the management, planning and financing of improvement projects are the responsibility of several different ministries, agencies or donors, each working independently;
- the marked insufficiency of infrastructure and means for the disposal of solid and liquid wastes;
- the virtual non-existence of a system for the maintenance and repair of facilities and equipment;
- the non-existence of an information system capable of monitoring facilities and activities in the sector.

5. Policies and programmes

The main objectives of the AFRICA 2000 consultative meeting held in April 1995 were: to consider the problems and constraints to the development of the sector identified during the IDWSS decade; to adopt new approaches and identify simple actions to overcome these problems: to improve coordination and cooperation between support agencies; and to generate resources through a continuous dialogue between the national authorities and the external support agencies.

The meeting decided that, in order to achieve satisfactory service coverage, to promote a rational use of resources, and to reduce the causes of the current unsatisfactory situation, the following policies would be pursued:

- the drawing up and effective enforcement of controls and restrictions;
- the establishment of new institutional arrangements to allow the public authorities and local communities to assume responsibility for the planning, financing and management of water supply and sanitation resources;
- the accordance of priority status to preventive health activities, particularly through the integration of health education in the water supply and sanitation sector;

- the introduction of a health education component in school curricula, and 'information–education–communication' cells within communities;
- the systematic installation of water supply and sanitation facilities in schools and health centres;
- renewed control of food quality: on arrival in the country, at the point of sale, and during conservation;
- the creation of pilot 'clean' villages;
- the establishment of a database for the water supply and sanitation sector;
- the creation of an inventory of ground and surface-water resources and effective follow-up of progress in water quality;
- the preservation of forests, reforestation and protection of catchment areas;
- the definition of quality standards for drinking-water, testing of samples and control of compliance;
- the rehabilitation of existing water supply facilities;
- the transfer of responsibility for management of facilities to the communities who benefit from them;
- the development of national competence in the subject of hydraulic engineering.

6. Finance

Based on these policies, a plan of action detailing specific projects has been prepared. However, government investment in providing new facilities in the sector, and in maintaining existing installations, is limited. External finance will need to be found. There is some indication of the funds which may be required and the sources of funding which may be approached, but negotiations have yet to be started with potential donors.

For sanitation, it is estimated that, in the period 1996–7, government funds of about US$ 35 000 may be assigned to a variety of projects. Such projects include those to publicize codes and regulations, apply existing rules and standards, prepare town and village plans, redefine the responsibilities of various agencies, and develop a national system for the control of dangerous wastes. This money would need to be matched by about US$ 250 000 of external funds.

Financing the proposed water supply projects would be more costly. In the period 1996–2000, some US$ 8.5 million would be required for the ten projects identified. Government input has not been specified.

7. Community management

The government's plan of action notes that active community participation is a guarantee of the success of a programme. It recognizes that: communities should be intimately involved in the identification of needs and in the planning, development and implementation of projects; they should take responsibility for the maintenance and management of the systems; and they should contribute financially to the operation of the system.

To achieve this goal, the following steps will be necessary:

- to set up a campaign of public information and education on water, health, the cost of water, etc.;
- to provide technical support to communities to train them in technical and financial management and maintenance of their facilities;
- to offer financial support for community development.

8. Health and hygiene education

The plan of action makes provision for health education activities, particularly for sanitation. It specifically advocates the integration of sanitation and health education in all development projects. In this way, it is hoped that women and youth groups will be encouraged to participate in the management of rural and urban wastes, thereby promoting social mobilization and active community participation.

9. Coordination

Management of the water supply and sanitation sector will be based on the following strategies:

- the establishment of a participatory approach based on a real partnership between the government, the private sector, multilateral, bilateral and non-governmental organizations, and local communities;

- the progressive transfer of responsibilities to the communities;
- the strengthening of the role of the State in the areas of planning, control and arbitration.

It will also be necessary to institute regular contact between the different partners at the national level. These include the various relevant ministries and directorates, WHO, UNICEF, UNDP, the European Union and various associations for the protection of the environment.

10. Priority projects

The following priority projects have been identified for the period to the year 2000:

- a study of water resources;
- a reduction in the use of forest wood for energy sources;
- the provision of equipment for UNDP wells in Grande Comore;
- the rehabilitation of the water supply system of Mutsamuda;
- the renovation of the water supply system of Domoni;
- the improvement of rural gravity systems;
- reforestation and forest management under the 'IEC Eau' programme;
- the provision of technical support equipment;
- research and exploitation of water sources in Grande Comore and Mohéli;
- a practical study and development of pilot water tanks.

The sanitation projects identified are less specific, but respond to the policies outlined in point 5.

11. Recommended action

As already stated, the consultative meeting in 1995 adopted the document 'Public Water Supply and Sanitation Sector Situation: AFRICA 2000 Initiative', which included a national plan of action. The projects and policies proposed in the document, as described in this case study, were accepted by the meeting as recommendations for action.

CONGO

1. Introduction

The government of the Congo is in the process of organizing a national consultative meeting in support of the AFRICA 2000 Initiative. A background document for this meeting has been produced by the interministerial National Technical Committee, which is responsible for coordinating the programme. This document has been used as the basis for this case study.

2. Physical and socio-economic conditions

The People's Republic of the Congo is in the western part of Central Africa, straddling the Equator and meeting the Atlantic Ocean in the south. It has an area of 342 000 sq km. It stretches 1 200 km from north to south and is 425 km wide at the Equator. The country consists mainly of plains and plateaux and barely rises above 1 000 metres in altitude. Its vegetation is either forest or savannah. The climate is hot and humid. There are two principal seasons, with the wet season lasting from October to mid-May. The Congo has an important network of water courses, mainly tributaries of the Congo and Ubangi rivers.

The urban population of the Congo in 1995 was just over 1 million. The rural population was estimated at 1.25 million. Compared to other African countries, the Congo has a relatively high level of urbanization.

3. Service coverage

The following table shows the service coverage for water supply and sanitation in the Congo.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	1 000	920	92	–	–
Rural	1 250	25	2	25	2
TOTAL	2 250	945	42	–	–

This shows that 1.3 million people are without a water supply service. Almost all of these people live in rural areas. No information is

available on the status of urban sanitation, but again only 2 per cent of the rural population has access to sanitation facilities. This means that over 1 million are unserved.

4. Analysis of the current situation

Water resources are generally abundant throughout the country, both as surface and ground water. Annual rainfall is between 1 200 mm and 1 400 mm. Apart from certain project areas which have benefited from programmes set up by external agencies, most of the population is supplied from traditional sources such as open wells, swamps and rivers. Most urban centres are supplied from surface-water sources, which require costly treatment.

Water distribution problems arise from difficulties of access and widely dispersed housing. In urban areas, production and distribution of drinking water is generally based on classic technology: river intake or borehole, treatment where necessary, storage and distribution. Several of these facilities are quite old. In rural areas, there are two categories of system. In bigger rural population centres, small piped supplies provide a basic distribution from underground sources, where possible to public standposts. Smaller villages use boreholes fitted with handpumps, rain-water cisterns or protected springs and wells.

Sanitation

In the case of sanitation, much needs to be done to achieve a proper and reliable service. In Brazzaville and Pointe-Noire, liquid waste is collected by basic networks of drains, constructed before the country became independent in 1960. These systems discharge foul sewage, storm water and waste water directly and without treatment into natural outlets. Other towns in the country do not have waste-water collection systems at all. Residents drain their liquid wastes into storm-water drains, into courtyards or even into the streets. A study in Brazzaville in 1988 showed that only 14 per cent of households used soakaways or cesspits. Some large companies and buildings use septic tanks, soakaways or settling ditches for primary treatment; others have treatment works using activated sludge, usually in poor working order, which discharge effluent into the nearest natural outlets. The purification capacity of these treatment plants is hampered by management problems. Suburbs are fouled by dregs and sludge from waste water thrown on to public paths, causing a proliferation of Culex mosquitoes, particularly in Brazzaville.

Waste water in rural areas consists essentially of domestic wastes which are thrown directly into the yard (with a few exceptions such as political or administrative buildings, where septic tanks or soakaways are used). This custom is now causing a serious problem in some rural towns, where the population is growing and living conditions are becoming more crowded.

Storm-water drainage in all principal and secondary towns is carried out in open ditches. In older parts, these were mostly constructed before independence. In the centres of Brazzaville and Pointe-Noire, there are some covered drains. These storm-water channels overflow at the slightest downpour. This is because more and more road surfaces are now sealed, and because drains are often blocked with solid wastes of all sorts. Overflows cause flooding, deposits of mud and erosion. In smaller towns and in rural areas, if any drainage is provided at all, it is in unlined ditches.

Individual excreta disposal facilities are available to nearly 90 per cent of the population of Brazzaville. More than 50 per cent of plots have traditional latrines, 15 per cent sanitary ditches and 20 per cent septic tanks. In rural areas, however, there are very few improved latrines or septic tanks. Sludge from urban septic tanks is discharged in unofficial sites, often on the outskirts of towns. The number of suction tankers is insufficient in Brazzaville and Pointe-Noire, and non-existent elsewhere. Manual emptying of tanks has led to pollution of the soil, as well as of surface and ground water.

The management of solid waste is inadequate throughout the country. The volume and diversity of the solid wastes generated pose collection problems that the authorities cannot handle. As a result, urban open spaces have deteriorated, insanitary conditions have been created and urban areas have become unsightly. The few municipal vehicles (some run by private enterprises) employed to collect garbage are insufficient to deal with the large amounts of waste, so a traditional system of household collection has devel-

oped. This is usually tipped, uncontrolled, on the urban perimeter. In rural areas, where solid wastes are mainly organic, collection problems have not yet had the same polluting effect as in urban areas.

Constraints

The principal constraints on the development of water supply and sanitation have been:

- the lack of logistic support for the National Committee on Water and Sanitation established in 1986 and the consequent lack of coordination of sector activities;
- a deficient information system and lack of centralized data;
- the absence of a coherent legal foundation for regulating the sector;
- the absence of logistic, technical and financial means for running the central administration services;
- an inappropriate approach to implementation and follow-up of water supply projects;
- the absence of a plan of action for development.

5. Policies and programmes

Any national development strategy for the water supply and sanitation sector must include the following measures:

- the strengthening of the institutional, legislative and regulatory framework;
- the decentralization of operational and technical services to the regional level;
- the development and strengthening of human resources;
- the dissemination of information on appropriate technologies for drinking-water supply;
- the planning, management, evaluation and follow-up of water resources;
- the strengthening of regulation of the exploitation of water resources;
- the involvement of local communities in the project development from which they will benefit;
- the rehabilitation and construction of water supply facilities;
- the strengthening of supplementary measures for disposal of waste water;
- the inclusion of instruction on how to carry out health and hygiene education, in training programmes for different levels of staff;
- the development of independent low-cost sanitation programmes in peri-urban and rural areas;
- renewed controls for water and food quality.

The Congo's proposed national plan of action covers a period of five years from 1996 to 2000 and aims to resolve the problems identified in point 4.

6. Finance

The proposed plan of action includes costs for each group of activities. The total cost of the programme has been estimated at US$ 19.736 million, equivalent to 9 868 million CFA francs.

The current financial situation in the Congo will affect the way the programme is funded, despite the commitment of the government to the AFRICA 2000 Initiative. It will be necessary to limit the State's contribution to funds for programme supervision and the implementation of 'microprojects'.

The bulk of the finance will be sought from:

- principal funding institutions (ADB, IDA, KfW, etc.) for water supply and sanitation projects in urban areas;
- bilateral and multilateral cooperation agencies (GTZ, FAC, UNDP, WHO, JICA, UNICEF, UNFPA, etc.) for projects in both urban and rural areas;
- non-governmental organizations (NGOs), for community development projects;
- the communities who will benefit, for the implementation of water supply and sanitation facilities, operation and maintenance.

7. Community management

The plan of action contains three projects relevant to the promotion of community management. One of these proposes training communities to develop projects with the objective of increasing their capacity for management. The other two seek to initiate water supply and sanitation pilot projects, based on appropriate technologies, which will

be managed by the communities themselves and particularly by women and young people.

The development policy which the Congolese government is currently pursuing includes the involvement of local communities in the identification of their needs and project planning.

8. Health and hygiene education

There is no specific project proposed to promote health and hygiene education, but it is possible that this aspect of the development of water supply and sanitation will be covered in the project implementation details.

9. Coordination

At national level, the National Technical Committee will be responsible for programme coordination. This committee should bring together representatives from the principal categories of partners working in the programme development, such as:

- the administrative and technical services of the main ministries involved (water, health, construction, planning, environment, housing, etc.);
- non-governmental organizations;
- multilateral and bilateral cooperation agencies (UNDP, WHO, UNICEF, EDF, FAC, GTZ, etc.);
- private consultants;
- small and medium enterprises and artisans working in the sector.

Coordination committees for the programme will be established in each region and district. These will consist of the regional and district representatives of the offices and agencies identified above.

10. Priority projects

The proposed plan of action identifies 29 projects for implementation in the period 1996-2000. These are grouped in the following categories:

- strengthening of institutional, legislative and regulatory infrastructure (ten projects);
- human resources development (seven projects);
- expansion of appropriate technology, research (four projects);
- project implementation (three projects);
- sector follow-up and evaluation (three projects);
- programme supervision (two projects).

11. Recommended action

The recommended action to be taken will depend on the outcome of the AFRICA 2000 Initiative consultative meeting.

GAMBIA

1. Introduction

A three-day consultative workshop was held on water supply and sanitation in support of the AFRICA 2000 Initiative from 29 to 31 August 1995. The meeting was organized by the Ministry of Health and Social Welfare and sponsored by WHO. The meeting attracted more than 40 participants from various ministries, the private sector, the media, and local and international NGOs. The main objective of the workshop was to review the major constraints on the water supply and sanitation sector in the Gambia, and to form policy guidelines and action plans based on the goals of long-term sustainability and economic viability. The workshop produced a final report consolidating the reports of various working groups. This has been the basis of this case study. Reference has also been made to the 'Water Supply and Sanitation Sector Planning Document' of May 1981.

2. Physical and socio-economic conditions

The Gambia, with an estimated 1995 population of 960 000 and a surface area of just 11 300 sq km is one of the most densely populated countries in West Africa. It is completely surrounded by Senegal, apart from an outlet to the Atlantic. It consists of a strip of land, about 16 km wide, on both banks of the Gambia river. It extends 325 km eastwards from the sea. Banjul, the capital, is at the mouth of the river and serves as the major port.

The climate is generally hot and humid, with well-defined wet and dry seasons (the wet season is from June to October). Agriculture, forestry, animal husbandry and fishing provide a living for 85 per cent of the population. There is little industry. Tourism has expanded rapidly, but it is largely confined to the coastal districts and to the seven-month dry season. Cattle and small animals, about 0.3 million of each, are important in the context of rural water supply development.

There is a high prevalence of dysentery, which is a major cause of death in children under five years, especially in the wet season. Malaria and schistosomiasis are other prevalent diseases. There have been few cholera cases recorded (only 1 in 1994) but, in view of outbreaks elsewhere in the region and the rapid movement of people, a National Cholera Task Force has been set up.

3. Service coverage

Statistics for 1994 were collected through the WHO/UNICEF Joint Monitoring Programme. The following table shows service coverage, in terms of both access to safe water and adequate sanitation, in urban and rural areas.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	240	221	92	120	50
Rural	720	367	51	209	29
TOTAL	960	588	61	329	34

The total number of people not served with safe water is about 0.4 million, of whom 95 per cent live in rural areas. The total number without access to sanitation facilities is 0.63 million, of whom 81 per cent live in rural areas. In all seven provincial towns in the Gambia, access to facilities is estimated to be at least 80 per cent.

4. Analysis of the current situation

Responsibility for the provision of water supplies in the Gambia is split between the Utilities Holding Corporation (UHC) and the Department of Water Resources (DWR). The UHC supplies the urban areas while the DWR, with the contribution of external support agencies and some NGOs, is the main supplier to rural populations. The Medical and Health Department of the Ministry of Health is primarily responsible for urban sanitation. Rural sanitation comes under the Department of Community Development.

The AFRICA 2000 workshop held in Banjul in 1995 set up working groups to review the following topics: urban and rural sanitation; hygiene education; water supply coverage; and cholera preparedness. The constraints or shortcomings identified by these working groups are summarized below.

Urban and rural sanitation

In overall terms, the group found that: insufficient funds had been allocated to the expansion of programmes and the provision of logistic support; there was not enough trained personnel to expand and manage programmes; and there was an inadequate legal framework and lack of policy for dealing with sanitation. More specific findings were as follows:

- few public excreta disposal facilities in urban areas;
- a lack of facilities in rural areas, resulting in indiscriminate defecation, use of insanitary latrines, and the consequent high prevalence of disease;
- potential hazards to coastal and marine life caused by the pumping of raw sewage into the sea;
- poor drainage, causing increased mosquito breeding and a higher incidence of communicable and vector-borne disease;
- inappropriate waste management technologies for both solid and liquid wastes;
- inadequate public awareness, resulting in negative attitudes towards sanitation facilities and activities;
- inadequate standardization of equipment;
- little community participation.

Hygiene education

The working group found that basic social education did not deal adequately with sanitation and hygiene. As a result, communities and individuals did not take sufficient responsibility for their own hygiene and

sanitation needs, but relied on government interventions. Moreover, at government level, inadequate resources had been allocated for hygiene education programmes, which were regarded (wrongly) as the sole responsibility of the Ministry of Health.

Water supply

The working group identified a number of financial constraints to the development of water supply. In areas covered by the UHC, for example, local councils were unable to pay water bills, resulting in fewer taps being provided and, consequently, less access to safe water supplies. In both urban and rural areas, there was a lack of funds to cover the investment costs of new water supply systems. Moreover, for services to be sustainable, facilities had to be affordable and communities willing to pay for them.

In addition, the group noted the following problems:

- rural communities were unable to operate and maintain existing facilities because they lacked adequate training and repair skills, and failed to understand the health risks of using unsafe sources;
- there was a lack of relevant monitoring, evaluation and policy regulation;
- collaboration between different agencies was weak and the overall coordination of programmes poor (partly due to the lack of relevant legislation to ensure collaboration);
- there was a need for treatment processes in some places, especially where iron content in ground water exceeded WHO recommended guidelines.

5. Policies and programmes

The AFRICA 2000 workshop defined the basic national policies for water supply and sanitation in the Gambia. These included:

- to review, with the help of a legal expert, the existing policies and legislation pertaining to rural and urban sanitation;
- to formulate policies and create an adequate legal framework (and ensure enforcement);
- to propose projects for possible funding by donor agencies;
- to conduct surveys to quantify the volume and variety of wastes;
- to organize radio programmes, mobile video shows, public meetings, workshops, etc. to stimulate public awareness;
- to set up a task force to deal with the proper siting of waste disposal sites;
- to impose charges on users for improved sanitation facilities;
- to strengthen national coordinating agencies, such as the water and sanitation working group;
- to enforce building regulations regarding the provision of toilet facilities for tenants;
- to strengthen the institutional framework for rural and urban sanitation at all levels;
- to propose feasibility studies projects on drainage in the Greater Banjul area;
- to conduct situation analysis studies to generate basic information on various aspects of hygiene education;
- to incorporate hygiene education into adult literacy and numeracy programmes;
- to promote hygiene education through the work of policy-makers, community leaders and Divisional Coordinating Committee members;
- to train the trainers of extension workers and other staff in hygiene education techniques;
- to disseminate policy information to all participants in the water supply sector and to seek the acceptance of national policies by all involved, especially NGOs;
- to improve the monitoring of water quality in order to identify polluted sources, and to set standards for different water uses;
- to ensure adequate disinfection of water sources where testing and monitoring programmes cannot be regularly undertaken;
- to ensure the sustainability of rural water supply facilities by having trained personnel in each community to carry out essential repairs, preventive maintenance and servicing.

6. Finance

In 1988, UNDP allocated US$ 832 000 for: strengthening the managerial capacity of the DWR; rehabilitating wells; constructing new wells; training and manpower development. Towards the end of the 1980s, the International Development Association provided US$ 7 million to the UHC for water supply development. In the same period, the African Development Bank contributed US$ 4 million to the sector, the European Development Fund provided US$ 2.6 million, and the European Investment Bank and Austria were together considering a contribution of US$ 6 million.

The AFRICA 2000 workshop did not address the issue of finance. In urban areas, the UHC expects consumers to pay for water to cover production costs. However, capital sources for new investment were not identified. In rural areas, the DWR expects that external support agencies and NGOs will be partners in the water supply and sanitation programme. However, there is no indication of the amounts of funding required. Unfortunately external support agencies were poorly represented at the workshop.

7. Community management

Efforts have been made to increase the involvement of the communities in well digging through projects involving UNDP, the UN Department of Technical Cooperation and Development and the UN Community Development Fund. However, while there is a stated goal to increase community participation, in practical terms this has meant no more than training village personnel to operate and maintain facilities. Action is needed towards setting up community management committees and involving the communities in all aspects of planning, implementation, operation and management of water supply and sanitation facilities.

8. Health and hygiene education

The AFRICA 2000 workshop paid particular attention to this subject by making it one of the four areas for examination by a working group (see point 4).

9. Coordination

Discussions at the AFRICA 2000 workshop implied that there had been some problems of coordination and collaboration between agencies in the past, and that the division of responsibility was not always clear. The workshop, which was jointly chaired by the Ministry of Health, the Department of Community Development and the Department of Water Resources, provided an opportunity for coordination to be thoroughly discussed and agreed. A major recommendation of the workshop was for closer collaboration. It also proposed the strengthening of coordinating agencies, such as the water supply and sanitation working group.

10. Priority projects

The workshop did not give details of specific priority projects. However, now that a framework has been established, the responsibility rests with the government agencies, in consultation where necessary with external support agencies, to formulate such projects and seek funding for them.

11. Recommended action

The final report produced at the AFRICA 2000 workshop made the following recommendations:

- to strengthen the water supply and sanitation working group as the main government agency responsible for coordinating all water supply and sanitation programmes, by funding some of its activities;
- to formulate adequate policies and a legal framework for improved sanitation;
- to identify appropriate sites for refuse and waste disposal;
- to ensure the enforcement of laws regarding drainage and the location of soakaways;
- to maintain systematic monitoring of sewage outfalls for levels of bacteriological and physico-chemical pollution;
- to encourage closer collaboration between agencies in programme implementation;
- to develop the necessary political commitment for waste management and sanitation projects;

- to ensure adequate female representation and participation in committees and task forces at all levels;
- (in peri-urban and provincial towns) to adopt vendor or common ownership systems, so as to provide for payment of bills, maintenance costs and income for the vendor, and to allow for some general administrative costs;
- to train village operators and caretakers to carry out certain repairs and servicing of facilities;
- to improve and provide more water supply facilities in rural areas, in order to meet the target of 'Water for All by the Year 2000';
- to establish a divisional task force on cholera preparedness, including units for health education, epidemiology and statistics, and food hygiene; the task force should include representatives from the Women's Bureau and the Ministry of Defence;
- to finalize policy guidelines on cholera preparedness, to be launched by the Minister of Health and distributed to all concerned by the end of February 1996;
- to ensure the availability of adequate supplies for emergencies;
- to require divisional health teams to submit training plans for funding.

MALAWI

1. Introduction

The government of Malawi has not yet launched the AFRICA 2000 Initiative, nor set a date for a consultative meeting. Correspondence between the WHO Representative and the Ministries of Health and Population and of Irrigation and Water Development is under review. When the meeting takes place there will be two important background documents. One is the National Water and Development Plan (NWDP), from which a project document for World Bank support was prepared in 1993. The other is a report entitled 'Rural Water Supply and Sanitation in Malawi: Sustainability Through Community-Based Management', prepared by a mission organized in May 1995 in which WHO participated. A second draft of this latter document was used in the preparation of this study, together with national papers presented at the Sub-regional Workshop on Operation and Maintenance of Rural and Urban Water Supply and Sanitation Systems, Harare, in November 1993.

2. Physical and socio-economic conditions

Malawi is a landlocked country with a surface area of 120 000 sq km. Its geography and environment is dominated by the configuration of the Great Rift Valley, which runs along the country's entire length.

Socio-economic indicators show Malawi to be one of the poorest countries of the world, with a deteriorating standard of living, health and welfare. It is estimated that more than half of Malawi's population lives below the poverty line. The economy is based on agriculture, which has suffered severely from drought conditions in recent years. Average annual rainfall varies from below 800 mm in the south, to over 2 000 mm on the northern plateaux.

The population has grown from 7.7 million in 1977 to an estimated 10 million in 1995. Adverse demographic growth and distribution trends between urban and rural areas are straining the country's resources. The problem is exacerbated by a significant refugee influx. The population growth rate is estimated at 3.3 per cent per year, with considerable disparities between rural and urban areas. Twenty five per cent of the population is under the age of five. Some 82 per cent of the population lives in rural areas.

3. Service coverage

The estimated coverage for water supply and sanitation services is shown in the following table.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	1 800	1 188	66	1 602	89
Rural	8 200	4 182	51	4 920	60
TOTAL	10 000	5 370	54	6 522	65

These figures show a high level of rural water supply. This is due to an extensive ground and surface water programme implemented during the International Drinking Water Supply and Sanitation decade (1981–90). On the basis of these figures, however, there are still over 4.5 million people without access to safe water and nearly 3.5 million without adequate excreta disposal facilities.

4. Analysis of the current situation

Water supply and sanitation are considered to be basic rights by the government of Malawi which is anxious to accelerate coverage of basic provisions to the poor, in order to promote human and economic development. The government set up an energetic rural water supply programme, with strong community participation, and progress was made in expanding services. During the early 1990s, however, it was clear that sustainability of services was a problem. This question is currently being addressed.

The rural water supply programme has used a mixture of dug wells, boreholes and piped gravity systems. Boreholes were drilled by private and government drilling rigs. Up to 500 per year were completed in the period 1969–72, when large-scale agricultural development projects were set up. Most boreholes were equipped with handpumps. In the mid-1970s, a low-cost programme of rural water supply was started by the Ministry of Community Development and Social Welfare with the purpose of increasing rural coverage. This included small gravity piped schemes and shallow wells equipped with locally produced handpumps.

External help for rural and urban water supply systems became a feature of poverty alleviation and drought relief work in the 1980s and early 1990s, so that there is now a mix of inputs from central government and multilateral, bilateral and non-governmental organizations. This input comes largely in the form of capital assistance for borehole construction and handpump installation. In principle, the boreholes are operated and maintained by a centralized system administered by the Ground-water Section of the Water Department. It is supported largely by a recurrent budget from central government and relies on a network of district units staffed by supervisors and technical personnel. These units have often lacked the transport and spare parts to monitor systems and carry out pump repairs.

The Hygiene Education and Sanitation Promotion (HESP) programme was started by the Ministry of Health in 1982 to promote the use of appropriate sanitation facilities by each household, to improve the condition of these facilities, and to increase the knowledge and skills of health workers and local communities in the prevention and control of waterborne diseases.

Problems and constraints

A number of lessons have been learned and constraints identified as a result of these water supply and sanitation programmes. These include the following points:

- the accelerated coverage achieved over the last 20 years has proved technically and financially unsustainable without large substantial assistance from donors;
- there is a need for systematic updating of the hydrogeological information available;
- the lack of reliable information on the status of water supply in rural and peri-urban areas has been a constraint to planning, management and rehabilitation of services;
- closer coordination is needed between the central, regional and district levels, and between the ministries involved in the sector;
- careful planning and phasing is needed to ensure the integration of improved sanitation and hygiene with the installation of water supply services;
- effective community-based management through village committees requires the participation of women and back-up support from district authorities;
- the technologies employed must be well tested and proven;
- the standardization of equipment and availability of spares are essential factors for achieving sustainability;
- locally manufactured spare parts contribute to sustainability;
- there is a shortage of staff at all levels of the HSEP programme;

- delays in securing funds from donors cause delays in implementation;
- the shortage of transport has obstructed supervision and distribution of materials;
- training materials and teaching aids have been inadequate;
- inadequate implementation periods for HSEP projects have affected sustainability.

5. Policies and programmes

Approaches to development

The present approaches to urban and rural water supply development involve the use of area development programmes, together with projects run by the Hygiene Education and Sanitation Promotion/Village-Level Operation and Maintenance (HESP/VLOM) programme. Both of these are coordinated by district development committees and have inputs from the Ministries of Health, Education, Community Development and Local Government. The capital cost of drilling and handpump installation is provided through the Ministry of Irrigation and Water Development. In addition, large-scale regional borehole drilling and rehabilitation projects, funded by donors, create new facilities and replace unserviceable boreholes and pumps.

Malawi's national development policy, published in 1987, outlined policy on water and related environmental matters. The overall thrust was in line with the objectives of the IDWSS decade. The priority was the rural population and its overall development through improved health and food security. Financial and technical self-sufficiency, for both rural and urban schemes, within a national technical and environmental-planning framework, was seen as desirable.

In 1994, a government document, 'Water Resources Management Policy and Strategies', was issued to mark the launch of the National Water Development Plan (NWDP), supported by the World Bank. This proposed the creation of regional water boards, and emphasized a market-based approach to the provision of water and sanitation services. It is possible that this approach may not correspond with policy initiatives on poverty alleviation and environmental conservation. It would seem to preclude the notion that improved coverage (in a predominantly rural population) can be used as a developmental tool by encouraging improved health and economic activity. There is a need for the government to clarify whether the current water supply policy, endorsing community-based management and village-level operation and maintenance, is to continue to be implemented.

The objectives of the NWDP project document, to be achieved by the year 2010, are as follows:

- 100 per cent coverage for public water supply services in the urban areas of Lilongwe and Blantyre and 95 per cent in other towns;
- 74 per cent coverage in rural areas;
- 24 per cent coverage for waterborne sewerage and septic tanks in urban areas;
- implementation of the government's water-resource management and environmental protection plan when ready;
- implementation of comprehensive institutional reforms.

Institutional arrangements

The institutional arrangements for rural water supply and sanitation are fragmented. The problems are well recognized and are due principally to the closeness of the relationship between the regulator and the provider of services. The Water Resources Board is chaired by the Department of Water, which is the operational agency for services provided by the government. This problem will be remedied under the proposed 'Water Resources and Water Services Act', which will make the board independent with its own secretariat. The lack of coordination between the ministries dealing with water and sanitation is also a problem that needs to be addressed.

The Water Department has recently been combined with the Irrigation Department to form the Ministry of Irrigation and Water Development. This may add to the need to separate users from regulators. The fact that irrigation needs may eventually come into conflict with drinking-water needs has implications for both urban and rural water supplies.

The creation of three regional water boards, if approved, would clarify matters. However, the

relationship between the Ministries of Health (covering health education), of Local Government (sanitation) and of Community Development (community participation) remains confused. Inevitably, there is duplication of tasks and competition for resources from central government, district councils and donors.

In the areas of sanitation and health the picture is also confused. City councils are responsible for waterborne sewerage systems and emptying of septic tanks. In rural areas, district councils are responsible for low-cost sanitation (pit latrines) while the Ministry of Health is responsible for health and hygiene education. The Ministry of Community Development is also involved in work with village communities. Nevertheless, at local level, despite this institutional fragmentation, some degree of harmonization of roles and functions has been achieved, largely through the efforts of district development committees.

6. Finance

Malawi's efforts to increase service coverage face the fundamental problem of a lack of adequate finance. Moreover, previous investments, much of them through donor support, have now fallen into disrepair. These two factors suggest that any financial strategy must be based on the need for sustainability. Also, the fact that communities are unable to pay for capital, or even recurrent, costs of services means that any financial strategy must be sensitive to the plight of the poor.

Total central government expenditure on water and sanitation in 1994/95 was less than 1 per cent of annual spending and only 4 per cent of Malawi's total development expenditure (including contributions from donors). Virtually all the development expenditure on water and sanitation came from external sources. This external help is essential if basic water supply and sanitation services are to be extended to the 4.5 million people still unserved. In the 1995/96 Public Sector Investment Programme, 7 per cent of the total investment has been allocated to water supply and sanitation. Rural water supply receives 68 per cent of this (a third being allocated to on-going programmes, including rehabilitation, and the two-thirds to new projects).

The government is launching the National Water Development Plan (NWDP) and the Malawi Social Action Fund (MASAF) with World Bank support. The proposal is to provide US$ 100 million under the NWDP over the period 1996–2003. Of this, it had been expected that US$ 20–30 million would be provided for rural water supply but the figure has now been reduced to US$ 14.7 million. This amount seems minimal in view of the fact that the estimated requirement to meet the objectives of the rural project by 2010 is US$ 114 million. Malawi's own input is estimated at US$ 11 million over this period and US$ 10 million may come from MASAF. In view of the fact that 80 per cent of the population lives in rural areas, and more than half of these people are unserved or underserved, increasing funding for the rural sector would provide an important opportunity for poverty alleviation.

Funding for rural sanitation is not being considered under the NWDP. Nor is it expected to be considered under MASAF. It would be possible to include sanitation and hygiene messages in the community-based management approach. However, this would require close integration of the provision of sanitation services and water supply in rural areas. Guidelines for the implementation of the NWDP and MASAF, using the community-based management approach, will need to be carefully developed. The implementation of both programmes will need to be monitored and evaluated, with corrective action taken as necessary.

7. Community management

The transition from a government-run maintenance system to a community system requires a continued involvement at national level to deal with policy, overall strategy and coordination. In addition, back-up for major repairs and maintenance is needed at district level. To develop the abilities of communities to plan and manage their water supply, sanitation and hygiene activities, the following steps are necessary:

- to identify and promote the various approaches to community-based water supply management and maintenance;
- to develop and promote effective environmental sanitation and hygiene strategies, which are well integrated with water supply interventions;

- to strengthen the abilities of staff working at district level to support communities in their water supply and environmental sanitation activities.

It is also important to encourage community management and protection of water resources, and to ensure equal participation of men and women.

To achieve sustainable community management of rural water supply systems and ensure effective integration of water, sanitation and hygiene strategies, the following factors are essential:

- a national inventory of rural water supply points;
- a study of existing community-based maintenance systems;
- standardization of handpumps;
- costing and financing of the maintenance of community water supplies;
- a study of existing community-based sanitation and hygiene approaches;
- 'Knowledge, Attitudes and Practices' (KAP) studies on water use, sanitation and hygiene;
- development of appropriate sanitation and hygiene strategies;
- expansion of the activities of the HESP programme;
- development and distribution of water, sanitation and hygiene information, education and communication materials.

8. Health and hygiene education

Reference has already been made to the Hygiene Education and Sanitation Promotion (HESP) programme which is part of the Ministry of Health. HESP is best implemented as a component of the community-based management approach, since they complement each other and together comprise a comprehensive package. This idea needs to be officially accepted and appropriate funding provided. So far, a start has been made with the setting up of an HESP coordination unit in the Ministry of Health, supported by USAID. However, a more committed approach to an overall rural and peri-urban programme must be adopted.

9. Coordination

The need for closer coordination between central, regional and district levels, and between the various ministries involved in the sector, has already been cited. It has also been pointed out that, at local level, district development committees have achieved some success in harmonizing the roles and functions of the different agencies involved in programme implementation. It is to be hoped that, if and when the government decides to hold a consultative meeting for the AFRICA 2000 Initiative, this will result in the establishment of a national coordination committee.

10. Priority projects

The NWDP project document specifically identified five key projects which would be pursued in rural areas in the period 1994-2010:

- the rehabilitation of ten community-managed gravity piped schemes;
- the construction of 12 new community-managed gravity piped schemes;
- the rehabilitation of 5 500 boreholes and shallow wells equipped with handpumps;
- the construction of 16 400 new boreholes with handpumps (14 900 in rural areas and 1 500 in urban fringe areas);
- the promotion of community participation, village-level operation and maintenance and personal hygiene.

11. Recommended action

Recommended action with regard to the AFRICA 2000 Initiative will need to await the outcome of discussions at any eventual consultative meeting.

MALI

1. Introduction

The government of Mali held a consultative meeting for the AFRICA 2000 Initiative from 30 May to 1 June 1995. The meeting had the following objectives:

- to examine and re-evaluate the status of

the water supply and sanitation programme in rural and urban areas;

- to consider the need to integrate the AFRICA 2000 coordination committee with the water committee which was created in 1989 to draw up a master plan for water resources and sanitation (the plan was approved by the government in February 1991);
- to summarize the results already achieved since the adoption of the master plan.

The meeting was organized by the Ministry of Mines, Energy and Water, with the support of the WHO Representative in Mali and finance from WHO/AFRO. It was attended by representatives of all the ministries and agencies involved in the sector, by regional representatives, and by representatives of multilateral, bilateral and non-governmental organizations. The report of this meeting was used as the basis for this case study. Reference has also been made to the report prepared for the Sub-regional Workshop on Operation and Maintenance of Water Supply and Sanitation Systems, Ouagadougou, in April 1995.

2. Physical and socio-economic conditions

Mali is a landlocked country in West Africa. It has a surface area of 1.24 million sq km. The climate is tropical, with a long dry season of up to nine months and a short wet season. The land shows little variation, with flat plains extending into dune systems in the north and east. Permanent water courses exist only in the western and southern regions, mainly in the tributary basins of the Senegal and Niger rivers. Water resources are relatively abundant. There are storage dams in the large river basins, plus largely untapped underground reserves.

The present population of Mali is estimated at 10 million with an annual growth rate of 1.7 per cent. The proportion of the population living in communities of less than 5 000 people is decreasing and will be down to 79 per cent by 2001. There is a high proportion of young people under 18 (55 per cent) and a low proportion over 65 (3 per cent). The capital city, Bamako, had a population of 700 000 in 1991 and this is expected to reach 1.2 million by 2001.

3. Service coverage

The urban and rural populations served with safe water and adequate sanitation are shown in the following table.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	1 500	665	45	1 485	99
Rural	8 500	3 740	44	2 040	24
TOTAL	10 000	4 405	44	3 525	35

4. Analysis of the current situation

In urban areas, the standards laid down for water supply vary from 41 litres per head per day (in semi-urban areas) to 50 litres per head per day (in cities). Mali has 96 localities classified as urban. Of these, 25 are supplied through modern piped systems. In general, however, these systems do not meet requirements. Only 22 per cent of the urban population has private water connections. The remainder take water from either protected or traditional wells.

While the reported coverage for sanitation services in urban areas is high, it should be noted that 86 per cent of people are served by simple dry pit latrines which may not always be well maintained. Septic tanks are not yet widely used. Except in the major population centres, there are no adequate systems for solid wastes management. Only nine of the 96 urban communities have any system of storm-water drainage. In most cases, these systems only cover a small central area and are badly maintained.

In rural areas, sources of water supply are either traditional or modern. About 800 000 traditional water points (village wells, catchment pits) are still in use, but these are of inadequate quality. Modern installations include about 9 000 boreholes with pumps and 3 000 protected wells. In addition, there are 291 solar pumps used either with boreholes or surface-water sources. In 1988, Mali adopted an interim standard for rural water supply of 20 litres per head per day. This was to satisfy the minimum needs of a maximum number of people. However, more than half the rural population still needs to be

provided with access to safe drinking water. Furthermore, it is reported that the level of coverage varies greatly between the different regions of the country.

Where sanitation services exist in rural areas (usually only in localities of high human concentration), dry pit latrines are used. Most defecation takes place in the open air. There is little use of soakaways for domestic waste water, of which there is little. Storm water does not pose any particular sanitation problem in rural areas. Most domestic solid wastes are used as fertilizer in the fields. The lack of hygiene around protected water points is often a hazard.

The consultative meeting set up separate working groups to discuss the situations in urban and rural areas. These working groups identified a number of key issues and constraints.

The working group which considered urban areas made the following points:

- the cost of water supply connections is high;
- there is a need for promotional or free water connections to schools and clinics to be made;
- community management of systems is not yet established;
- taxes on imported materials should be lowered;
- national private enterprises should be encouraged to design, install and manage water supply and sanitation facilities;
- an integrated approach is needed in the field of research to find solutions for health, water supply and sanitation problems;
- national resources allocated to the sector should be increased;
- the institutional structure should be re-examined and adapted to suit present needs;
- internal and external resources should be used to achieve the objectives of the master plan on water resources development;
- there should be effective involvement of communities in planning and implementing of projects, and particularly involvement of women;
- sector workers should be organized into decentralized units which should be strengthened with increased staff and funds;
- a clear and coherent policy for sanitation should be strictly applied;
- a database for sanitation should be established;
- legislation to control industrial pollution should be strictly enforced;
- water supply and sanitation installations in schools and training centres should be improved.

The working group on rural water supply and sanitation made the following recommendations:

- water supply installations carried out by NGOs and private enterprises should be controlled in order to ensure the technical quality of the facilities;
- technical details of all water supply works carried out by NGOs should be made available to the National Directorate of Water Supply and Energy;
- the activities of all the technical agencies involved in the sector should be coordinated;
- communication with communities should be strengthened in order to have a more appropriate selection of facilities;
- all pumps which have proved unreliabe and for which there is no guarantee of spare parts in the country should be replaced;
- key parts of the principal pumps used should be standardized;
- donor agencies should negotiate with pump manufacturers to allow concessions to industrial enterprises in Mali for the production of pump spare parts;
- rural population centres should be equipped with basic water supply;
- a study on rural sanitation should be organized;
- sanitation measures around water points, both traditional and modern, should be promoted;
- a special programme of water supply and sanitation for schools should be set up;

- there should be regular meetings with external support agencies;
- the water supply and sanitation coordination committee should be broadened to include all contributors;
- the role of the coordination committee at regional level should be strengthened;
- a national workshop should be held on the management of village water points.

5. Policies and programmes

According to Mali's five-year plan for economic and social development (1987-91), the water supply and sanitation sector includes the sub-sectors of agriculture, animal husbandry, fisheries, water, health and social affairs, and human resources. The country's master plan for the development of water resources describes the basic elements of the sector's role as follows:

- to make an inventory of the country's water resources through studies, soundings and surveys;
- to control the use and exploitation of surface and ground-water sources, particularly with regard to drinking water and sanitation;
- to control water courses and lakes for agriculture, fisheries, animal husbandry, navigation, hydroelectric energy, erosion control, drought and desertification;
- to manage water resources;
- to establish policies, strategies and standards for drinking-water and sanitation programmes.

A draft proposal has been made for the establishment of an interministerial coordination committee for water supply and sanitation. In the meantime, a group presided over by the Ministry of Mines, Energy and Water coordinates the activities of the various ministries involved.

6. Finance

In 1987, the European Community provided US$ 27 million for a project to develop ground-water resources in the Mopti region of Mali. Support for a rural well construction programme has been provided by the United States, Europe and the UN. The French government has funded institutional support for water administrations, users, local communities and the private sector. It has also supported: the upkeep of existing water supply systems; the water supply to large rural communities; the improvement of water quality; and the management of water resources.

UNICEF has allocated resources to the programme for 1993–1997 with a budget of US$ 6.606 million from general funds and US$ 4.751 million from special funds. These are to be used for a variety of projects, including village water supply, hygiene education and sanitation, and the eradication of guinea-worm disease.

7. Community management

A principal objective of the AFRICA 2000 consultative meeting was to strengthen the role of communities and women in the management of water supply and sanitation systems, in order to guarantee the sustainability of the facilities.

At the Sub-regional Workshop on Operation and Maintenance of Water Supply and Sanitation Systems in 1995, a new approach to village water supply was adopted. This aims to reinforce the community role in implementing and operating water supply facilities. The approach relies on:

- the participation of consumers in the purchase of equipment and in the upkeep of access to facilities;
- the payment of recurrent costs by the consumers;
- the training of local village operators to take over technical tasks from the government;
- the establishment of revolving funds for each village, and a stock of spare parts;
- the setting up of a management committee in each village with water supply facilities.

8. Health and hygiene education

The consultative meeting did not stress the need for general improvement in the field of education. However, a UNICEF-supported project, concentrating on villages at risk from guinea-worm infection, has been instrumental in training health educators and in producing

and popularizing appropriate educational materials. There would appear to be a need to develop a programme of this kind, in order to inform and motivate communities in the rest of the country.

9. Coordination

The consultative meeting considered the need to integrate the tasks of the AFRICA 2000 coordination committee with those of another coordination committee which was already in the process of being established. It was decided that the earlier committee should be enlarged to include representatives of NGOs and external support agencies, and that periodical meetings should be organized. Branches of the committee would be formed at regional level in order to cope with problems in a decentralized way.

10. Priority projects

The government, together with external support agencies, has identified a number of priority projects, including:

- the provision of institutional support for water administrators, users, communities and the private sector;
- the improvement of living standards by creating sustainable water distribution, providing services to large rural centres, and improving the quality of the service;
- the management of water resources;
- the development of soakaways and the construction or rehabilitation of family latrines;
- the involvement of NGOs in project implementation, and in information and motivation programmes;
- the improvement of village water supply, including the development of new wells and the operation and maintenance of pumps;
- hygiene education and sanitation;
- support for the programme to eradicate guinea-worm disease.

11. Recommended action

The consultative meeting concluded that, despite the financial constraints, many activities could be undertaken to improve water supply and sanitation programmes. In summary, such activities were:

- better coordination of involved agencies;
- involvement of communities in the management of water supply and sanitation systems;
- limiting the makes of pump used;
- improvement of water supply systems to semi-urban and rural population centres and to schools;
- evaluation of the status of sanitation;
- better use of resources.

One principal recommendation is that a national workshop should be held to deal with two subjects: community management of water points; and hygiene and sanitation in schools and health centres. This workshop would bring together the national and regional institutions, the external support agencies, NGOs and other involved agencies. The workshop would include a broad evaluation of the operation and maintenance of water supply and sanitation facilities, undertaken by national agencies and their partners in development. This would be used to prepare regional reports. UNICEF has agreed to fund this workshop.

In addition, the consultative meeting recommended revising and adapting water supply regulations to make them more decentralized. It was felt that the evaluation of the sanitation sub-sector should be made a priority programme.

NIGERIA

1. Introduction

A three-day consultative meeting was held on the AFRICA 2000 Initiative from 17 to 19 May 1995. The meeting was organized by the federal Ministries of Health and of Water Resources and Rural Development, in conjunction with WHO. About 100 participants attended from federal and state government agencies, universities, technical institutions, external support agencies and non-governmental agencies. Representatives of the two key ministries both addressed the meeting

and jointly declared it open. The report and the background papers prepared for this meeting were used as a basis for the preparation of this case study.

2. Physical and socio-economic conditions

Nigeria has a surface area of 923 800 sq km. The climate is tropical throughout the country. Annual rainfall varies, however, from more than 3 000 mm in the coastal zone around the Niger delta to less than 500 mm in the extreme north-east and north-west. The rainy season may last up to eight months in the south, but is often as short as four months in the north.

All parts of the country are subject to water deficit (that is, more evaporation than rainfall) but this problem is worst in the extreme north. The main surface water sources are the Niger and Benue rivers and the Lake Chad system. Smaller rivers stop flowing in the dry season, so water is extracted from the river bed or from underground. In most states, ground water is generally adequate to supply small rural communities.

Nigeria is a very populous country. The 1995 population was estimated at 134.4 millions. Thirty-nine per cent live in urban areas and 61 per cent in rural areas. The population is growing at a rate of about 3 per cent per year. Urban populations are increasing more rapidly than rural ones.

3. Service coverage

The following table shows the estimated service coverage for water supply and sanitation for urban and rural areas.

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	52 800	27 456	52	26 928	51
Rural	81 600	29 376	36	23 664	29
TOTAL	134 400	56 832	42	50 592	38

4. Analysis of the current situation

Roles and responsibilities

Nigeria's federal government is mainly concerned with policy-making and guidance, setting of standards, overall planning of water supply and sanitation development, coordination and organizing resources for the sector. Occasionally, it will intervene in critical areas.

The state governments have primary responsibility for water supply and sanitation in urban and semi-urban areas. State water agencies collect revenue to run the systems. However, because the government dictates the tariff, these agencies also depend on government subsidies.

Local governments (with assistance from state governments) are responsible for the provision of water supply and sanitation facilities in rural areas. Their task is to involve local communities from the initial planning stages, ensuring that they are aware of the operation and maintenance involved, of the financial implications of the various technological choices, and of the responsibilities that they will be obliged to assume once facilities have been installed and funds need to be collected.

Problems and constraints

During the International Drinking Water Supply and Sanitation decade (1981–90), two constraints to the development of the sector were identified. These were funding limitations (caused by declining subsidies and inadequate tariffs) and ineffective operation and maintenance. At the AFRICA 2000 consultative meeting, working groups looked separately at water supply and sanitation, and identified several factors which had led to inadequate performance during the IDWSS decade.

In the case of water supply, problems and constraints included:

- inefficient cost-recovery systems;
- inappropriate institutional and management structures;
- inappropriate technologies;
- underfunding of water supply projects;
- frequent turnover of personnel;

- lack of sufficient trained personnel;
- overbearing political influences and interference;
- non-standardization of equipment;
- lack of a local manufacturing base for equipment, chemicals, etc.;
- lack of continuity in policy implementation;
- lack of coordination and collaboration between agencies;
- gaps in communication at key levels.

Constraints to sanitation development included:

- ineffective supervision;
- the failure to update and enforce enabling laws;
- absence of organizational structures to deal with logistics, manpower, treatment units, supplies and equipment;
- conflicts about roles between professional bodies and agencies;
- lack of political will to address sanitation issues;
- politicization of executive members on authorities and boards;
- inadequate public health education.

5. Policies and programmes

A national plan of action for water supply and sanitation was drawn up in 1992 by the federal Ministry of Water Resources and Rural Development with the collaboration of the National Planning Commission and the assistance of UNICEF. The aim of this plan was to ensure that all Nigerians had access to safe drinking water and sanitary means of excreta disposal by 2000. States were expected to draw up their own plans to complement the national one.

The AFRICA 2000 consultative meeting suggested a range of strategies to achieve these goals, which can be categorized as follows.

Finance Every state should have a long-term plan and an appropriate annual budget to reflect this commitment. Funds from international and external loans and grants should be increased. Improvements should be made to the system for collecting revenue from consumers.

Management Institutional and management structures should be improved. The organizational structure of sanitation services, in particular, should be reviewed and the management depoliticized. At state level, the work of different agencies should be coordinated to avoid duplication.

Legislation Enabling laws for the sector should be reviewed, updated and enforced. Minimum standards should be set for water quality, cost per capita and distance from water sources.

Manpower and training States should have regular manpower audits to avoid overstaffing. Funding for staffing needs should be assured and effective training provided. Universities and training institutions should review courses to ensure the competency of graduates when starting jobs.

Research Universities and research institutions should aim to increase their research work. State health ministries should be mandated to establish research and public health laboratories.

Local participation Local governments and communities should be involved in planning, implementing and maintaining water supply schemes. State governments should provide technical and logistical support to local governments supplying water to communities.

Priority interventions Methods for dealing with blockages and leakages should be improved. Existing sanitation facilities in all areas should be upgraded. Schools, health centres, public buildings and institutions should be fully provided with safe water supply and proper sanitation. A systematic approach should be taken to eliminate open drainage in urban areas. State governments should set down rules for the emptying of septic tanks to control indiscriminate discharging of septic waste.

Monitoring All water supply and sanitation facilities should be monitored and evaluated continuously.

Public education Health information, communication and education should be emphasized. Exercises currently organized as part of the National Environmental Sanitation Day should be transferred to federal and state health ministries.

6. Finance

In a country the size of Nigeria, with vast differences between the states, it is practically impossible to arrive at an overall figure for the amount of funds required to provide full water supply and sanitation services to the entire population by 2000. One study, based on assumed unit costs and numbers of people not yet served, has suggested that as much as US$ 5 200 million might be needed. Eighty per cent of this would be spent on water supply systems and only 20 per cent on sanitation. The ratio of urban to rural expenditure shown in this study is 60:40 for water supply. For sanitation it is shown as about 92:8, reflecting the high cost attributed to urban excreta disposal systems. These figures are not thought to be realistic.

While Nigeria appears to be relatively wealthy on account of its oil reserves, it still relies on external support for water supply and sanitation development. Among the external support agencies which are making important contributions on a participatory basis are: World Bank, EU, ADB, CIDA, JICA, ODA/UK, DGIS/Netherlands, UNICEF and WHO.

7. Community management

The national plan of action provides for communities to accept the responsibility to operate and maintain facilities and to collect the funds to make this possible. In practice, however, in many instances this responsibility is still shared with the local government. The World Bank/UNDP and UNICEF have both been instrumental in promoting projects in a number of states which have stressed mobilizing the community and instilling a sense of ownership. These projects, which have now been expanded into 16 states, have been based on handpump-equipped boreholes and VIP latrines. A model approach for effective and sustainable programmes for rural water supply, sanitation and health education has thus been successfully established. The challenge now is to build on this approach and expand it to all rural communities.

8. Health and hygiene education

The inadequacy of public health education has been recognized as a constraint to development in the past. The strategy adopted at the consultative meeting included an increased emphasis on health and hygiene information, education and communication. Health education has also formed a part of the 'microprojects' supported by WHO (see page 37). The demonstration projects of UNDP/World Bank and UNICEF have shown the importance and effectiveness of incorporating a health and hygiene component in community development programmes.

9. Coordination

One of the working groups set up by the consultative meeting dealt with the subject of collaboration and coordination. This was seen to have been less than satisfactory during the IDWSS decade. Some rivalry had been evident between the federal Ministry of Water Resources and Rural Development on the one hand and the Ministry of Health on the other. This matter was fully discussed and the following conclusions were reached:

- the existing AFRICA 2000 task force should form the core coordinating committee and set up a secretariat;
- the Ministries of Water Resources and Health should work together to evolve an integrated action plan for water supply and sanitation, using the findings of the working groups on water supply and on sanitation;
- in order to strengthen the two ministries, there should be integrated short-term training courses as well as conferences and seminars;
- the role of the community should be strengthened through skills training, provision of tools and links with community-based NGOs;
- the core committee, as well as the two ministries, should consult regularly with the external support agencies;
- to promote communication between policy-makers, consumers, operators and NGOs, an appropriate means of communication, such as a newsletter, should be established;
- the core committee should work out appropriate monitoring programmes with the operating agencies, and a quarterly reporting system should be established;
- research carried out in universities and research institutes should be coordinated; researchers should be encouraged to

undertake projects on water supply and sanitation relevant to the country, using locally available technology and expertise;

- the core committee should arrange for states in a particular region of the country to meet and discuss; any decisions taken at such a forum should be communicated to the core committee;
- the core committee should work out ways for local governments to participate in the AFRICA 2000 Initiative.

10. Priority projects

The consultative meeting did not reach the point of identifying specific priority projects. Rather, it emphasized the need to revise certain strategies for implementing the projects included in the existing national plan of action. In this way, progress in water supply and sanitation programme development would be improved in line with the objectives of the AFRICA 2000 Initiative.

Under the national plan of action, states defined their own plans for urban and rural water supply and sanitation projects, to be executed through local governments. These are continuing with support from a variety of external support agencies. It will be necessary, if the AFRICA 2000 goals are to be achieved, for major expansion and increased investment to be made in both urban and rural areas.

11. Recommended action

The final communiqué of the AFRICA 2000 consultative meeting identified a number of recommendations for action, as follows:

- funds for stated rural water supply and sanitation programmes should be sought from the Petroleum Trust Fund in order to increase the coverage of water supply and sanitation to rural communities;
- the national master plan on water supply should be developed and appropriate funding allocated in the annual budget;
- rural water supply schemes using appropriate technologies (hand-dug wells fitted with handpumps, rain-water harvesting, etc.) should be the responsibility of the local government, with the local communities being involved in planning, implementation and maintenance;
- water supply agencies should establish consumer consultative councils at all levels (state, local government and community);
- regular cleaning and clearing of open drains should be encouraged to prevent mosquito breeding and avoid flooding;
- state governments should announce controls on the indiscriminate disposal of septic tank sludges;
- efforts should be made at all levels to provide drinking water and basic sanitation in critical areas such as schools, health centres, institutions and public places;
- existing coordination of the water supply and sanitation sector should be continued and widened to include the AFRICA 2000 Initiative;
- local research on water supply and sanitation technology should be encouraged and promoted at universities and research institutes;
- the federal Ministries of Water Resources and Rural Development and of Health, should be strengthened in terms of staff and equipment;
- appeals should be made to donor agencies to review their commitments to the sector, particularly in the area of community development;
- promotion of effective health education messages and campaigns on water usage and personal hygiene should be intensified;
- continuous monitoring and evaluation (data collection, reporting, storage analysis, etc.) should be ensured.

ZIMBABWE

1. Introduction

Zimbabwe's Minister of Health and Child Welfare launched the AFRICA 2000 Initiative in Harare on 28 September 1995 at an official ceremony which was well attended by representatives from ministries, United Nations agencies, NGOs and interested parties. Provincial project proposals had been consolidated into a national document which was made available to participants. A report on

the ceremony, including all the presentations, was prepared and this document has formed the basis of this case study. Reference has also been made to the documents produced in connection with the Decade Consultative Meeting on Water Supply and Sanitation, held in November 1990.

2. Physical and socio-economic conditions

Zimbabwe is a landlocked, largely agricultural country in southern Africa with a surface area of 390 000 sq km. It attained independence from Britain in 1980. Zimbabwe's colonial inheritance has been, on the one hand, a diversified economy with a well-developed physical and administrative infrastructure and, on the other, a highly unequal distribution of wealth and income with widespread poverty in rural areas.

The country's administrative structure comprises eight provinces and, within these, 57 districts. The estimated population for 1995 was 14.7 million. About two-thirds live in rural areas and a third in urban areas. The population growth rate is estimated at 2.8 per cent per year, but in urban areas and service centres the growth rate ranges from 4–8 per cent.

Despite an economic potential greater than many developing countries, declining investment levels, a budget deficit and weak export performance pose serious problems for future economic growth. The government has embarked on a programme of structural reform to address these economic problems.

Zimbabwe's average annual rainfall is about 675 mm, varying from 1 200–2 000 mm in the Eastern Highlands to 300–500 mm in the South Western Lowveld. Water and excreta-related diseases are a major public health problem, particularly: diarrhoeal diseases, typhoid, cholera, schistosomiasis, intestinal parasites and skin and eye infections.

3. Service coverage

The following table shows the service coverage for water supply and sanitation in urban and rural areas.

Urban populations have had the benefit of relatively high levels of service for some years. Moreover, the figures in the table show

	Total	Water supply service		Sanitation service	
	Population x 1000	Population x 1000	%	Population x 1000	%
Urban	3 500	3 325	95	3 325	95
Rural	11 200	8 960	80	2 464	22
TOTAL	14 700	12 285	84	5 789	39

a remarkable improvement in the rural situation, compared to 1980 levels. At that time, it was estimated that safe water was only accessible to 35 per cent of rural populations, and adequate sanitation to just 5 per cent. By mid-1995, it was estimated that 30 406 water points had been established in Zimbabwe. Close to 500 000 Blair (VIP) latrines had been provided in rural areas. It is clear, however, that further improvements in rural sanitation are still necessary.

4. Analysis of the current situation

Hydrological records show that Zimbabwe has good potential for water source development. Surface-water sources are not really suitable for domestic and low-cost rural water supply development, because of the costs involved in water purification and the wide dispersal of rural settlements. However, almost all areas of the country have the potential to develop single-point primary water supplies. The sector has the advantage of being technologically developed. It has good manufacturing capabilities and a developed borehole drilling industry. There is a valuable pool of engineering skills in the private sector.

For rural women, the development of domestic water supplies is a priority, mainly to ease the task of water collection. The importance of accessibility is illustrated by the fact that, even where improved sources are available, in the wet season water is often collected from more convenient, unimproved sources. Improved sanitation is not generally perceived as a high priority in rural areas. However, demand has increased following extensive promotional efforts. Latrine subsidies and increased rural deforestation, which destroys the privacy of traditional defecation sites, have both encouraged demand. Latrine ownership remains associated with wealth and educational attainment. Where latrines

exist, usage is high, except by young children.

Since independence, emphasis has been placed on human resources development, but there are still major shortages of personnel in the sector among middle-level and field staff. Zimbabwe is able to train large numbers of skilled personnel at professional and sub-professional levels, but the public service is unable to retain staff in the required numbers. The National Action Committee on Integrated Rural Water Supplies and Sanitation (NAC/IRWSS) has recently developed a national training plan for the sector, to respond to training needs.

In general, there is strong political commitment to the development of water supply and sanitation, particularly in communal lands and resettlement areas. This is illustrated by the innovation and dedication shown by sector workers, by the basic soundness of many sector policies, and by the far-sighted technologies used in Zimbabwe. The chief weakness lies in the lack of sustainability. The government is aware of this problem and is making significant efforts, in consultation with its partners and supporters, to address it. Other constraints to sector development can be summarized under the following headings:

- the complexity of the institutional structure, because of the large number of agencies involved;
- the inadequacy of sector plans, because they are limited in coverage and scope and are often held up waiting for approval;
- public sector staffing problems combined with underuse of the private sector;
- unclear institutional responsibilities for support to community mobilization and management;
- problems of sustaining support for community management;
- the need to incorporate more health and hygiene education in sector programmes;
- the lack of alternative techniques in hygiene education;
- (in communal lands and resettlement areas) delays in shifting operation and maintenance costs to the consumer;
- the need to improve cost-effectiveness and financial efficiency;
- the need to develop strategies to reduce recurrent expenditure;
- the need to increase the use of domestic resources for capital costs;
- the need to develop the financial responsibilities of local authorities;
- inappropriate choice of technologies, which are not always the most cost-efficient;
- the setting of unaffordable and unsustainable service standards;
- the need for further development of pumps and facilities suitable for community maintenance.

5. Policies and programmes

The independence of Zimbabwe in 1980 coincided with the launch of the International Drinking Water Supply and Sanitation decade. The ideals of the decade were adopted by the new government. With support from Norway, the government produced a national water master plan. This has continued to be the guide for implementation of Zimbabwe's rural water supply and sanitation programme.

In 1985, a National Action Committee (NAC) was formed to deal with the planning and management of the programme. This committee brought together members from the following government offices: the Ministry of Local Government, Rural and Urban Development; the Ministry of Health and Child Welfare; the Ministry of National Affairs, Employment Creation and Cooperation; the Ministry of Finance; the National Economic Planning Commission; the District Development Fund; the Department of Water Development; and the Department of Agricultural, Technical and Extension Services (AGRITEX).

Water supply and sanitation sub-committees have been set up in all eight provinces and fifty-seven districts. At national level, three sub-committees exist to deal with: planning and budgeting; research, information management and human resources development; and sustainable development.

It is felt that the AFRICA 2000 programme, with its community-based water supply and sanitation projects, has much in common with Zimbabwe's existing programme. The ideals of AFRICA 2000 can easily be incorporated

into current projects and it should therefore not operate as a separate programme.

6. Finance

Investment in the water supply and sanitation programme has grown recently. In the 1993/94 financial year, Z$ 88.6 million was invested, dropping slightly to Z$ 85.4 million in 1994/95. In the financial year 1995/96, however, Z$ 110 million has been allocated to the programme. The NAC is currently engaged in discussions with donors to secure funding for additional projects.

A special allocation was made by WHO/AFRO to the Monzoni village 'microproject'. This amounted to US$ 21 346 for family latrines, health and hygiene training, rehabilitation of boreholes and drilling of four new boreholes.

7. Community management

A principal objective of the AFRICA 2000 Initiative is to enable the NAC to strengthen community management of rural water supply and sanitation facilities. The aim is to enable communities to plan, construct, operate and maintain their own facilities.

The NAC has developed systems to ensure that communities benefit as much as possible from the installed facilities. Departing from the classic 'three-tier' maintenance system for water supply, a community-based maintenance system is being developed. The object is to increase the community's participation in the maintenance of their water points by equipping key people with management and technical skills. This is seen as a step towards introducing a full community management system for the programme. To complement this training, a bush pump with an extractable cylinder, which is easier to maintain by the community, is being introduced.

8. Health and hygiene education

Despite the slow pace of the latrine construction programme, health and hygiene education efforts are yielding encouraging results. Studies show that high levels of health and hygiene exist within communities, largely as a result of efforts by extension workers. The system for disseminating information has also been improved by the use of participatory training methods. However, increased knowledge has not always translated into positive hygiene behaviour change. Current efforts are therefore being focused on planning and implementing education programmes designed to encourage such behaviour change, rather than simply to impart information.

9. Coordination

The active involvement of the different government agencies in the National Action Committee is evidence of effective sector coordination. There is less evidence, however, of organized coordination of the inputs of external support agencies.

10. Priority projects

Monzoni village, with 265 households and a population of 1 596, was selected for a demonstration 'microproject' (see page 38). This village had been affected by cholera in the 1992/93 rain season. The outbreak was attributed to the lack of sanitary facilities and to the use of unsafe water by the community. An intensive community-based water and sanitation project was prepared and accepted by WHO for funding within the framework of the AFRICA 2000 Initiative. Immediate objectives were to:

- train 40 builders during implementation of the project;
- construct 265 single Blair (VIP) latrines, some with hand-washing facilities;
- provide three boreholes so as to improve the water supply for the village;
- train 16 pump caretakers to ensure prompt repairs and proper maintenance;
- place responsibility in the hands of the community by running the project through a committee formed of local villagers.

Efforts to mobilize the community included meetings, seminars and supportive visits. A seminar on project management issues was held for community leaders. This was followed by the formation of a nine member committee (including two women). A seminar for 16 members of the Monzoni Water Point Committee was held. Two courses were run to train 38 latrine builders. Implementation has proceeded successfully with the community participating in digging pits and supplying building materials. Additional refuse pits and

pot drying racks were also provided. The drilling of the three boreholes is under way.

Problems have arisen because of the unreliable transport system to the village and inadequate storage facilities. The provision of a storeroom is a priority for the future. Unfortunately, the inaccessibility of the area during the rain season makes monitoring difficult. The district administration is planning a 'Knowledge, Attitudes and Practices' (KAP) study on disease conditions in the area to assess the benefits of the project. Plans are now being drawn up to expand the methods of the project to other nearby villages. It is also planned to develop a revolving fund to provide building tools, which have been in short supply.

In conclusion, the progress achieved so far is attributed to the total commitment of the community and to the principle of involving all sectors in the approach. The Monzoni community is in full control of the project, which it considers as a village development programme.

11. Recommended action

Zimbabwe's action plan for AFRICA 2000 initially identifies one village project proposal for each of the eight provinces. It also develops a framework within which to implement community-managed programmes. The main purpose is to promote community management of rural water supply and sanitation services, according to the following objectives:

- to help communities form water and sanitation development committees;
- to empower communities by building their capacity to take action;
- to promote community-initiated improvements and maintenance of water and sanitation facilities;
- to provide incentives for the development of community management systems through targeted subsidies and matching grants.

The projects will build on the experience of the Monzoni 'microproject', using the community management approaches and participatory health education materials developed by WHO within the AFRICA 2000 programme. The focus is on community management and community empowerment, rather than on technology and coverage. It is believed, however, that access to sanitation and safe water supplies will improve dramatically with effective community management.

The action plan will be carried out in two phases in the eight provinces. After the initial village projects, the second phase will focus on adjacent villages in the same ward. This will allow villagers to share ideas and experiences. Extension workers will be trained in the new methods and approaches, particularly community management, participatory methods, hygiene promotion and principles of management.

Communities will be encouraged to establish a financial system for the operation and maintenance, and development, of their water supply and sanitation services. The aim will be to train villagers in accounts management, appropriate technology and skills and planning. The communities will be encouraged to share their experiences with neighbouring villages in order to stimulate progress and the exchange of positive ideas.

SUMMARY OF AFRICA 2000 'MICROPROJECTS'

This section contains a brief summary of 13 demonstration projects, or 'microprojects', implemented as part of the AFRICA 2000 Initiative. WHO offered limited financial support to encourage countries to develop such projects, which are designed to demonstrate low-cost technologies in the water supply and sanitation sector. They also provide experience and training in community management, operation and maintenance, and hygiene education. In the longer term, the aim is to achieve widespread development by replicating these small projects on a broader scale.

Thirteen countries took up the offer to set up 'microprojects'. Some have been completed; others are on-going. Brief descriptions of each are given here.

1. Cameroon

This project was directed at two districts which had been affected by epidemics of cholera and other diarrhoeal diseases. The aim was to build the capacity of local communities to operate and maintain their own water supply and sanitation systems. This would be done in two ways:

- increasing the number of community-based systems, while at the same time ensuring that the new style of management and maintenance would improve accessibility, facilities and water quality;
- renovating or constructing water points, latrines and ditches for solid wastes disposal, at health centres and schools, in order to create a healthier and cleaner environment.

2. Congo

The aim of this project is to provide water supply and sanitation to the combined health centre of Moussosso Poto-Poto Djoué, a peri-urban area of Brazzaville. The centre serves a population of 30 000, but it is ineffective because it has no sanitary installations, is dilapidated, and is short of medical supplies. The project provides for a two-cabin latrine over a ventilated pit with three inter-connected compartments, a shower and a soakaway, a connection to the town supply of piped drinking water, and the refurbishment of a room to house the pharmacy. The participation of the community has been ensured in the planning and implementation. This project will have a dual purpose: serving as a launch pad for other community-based projects; and permitting the health centre to fulfil its proper function.

3. Ghana

The aim in Ghana is to provide five sanitation units for health centres and primary schools in two highly deprived rural areas in the Greater Accra region. The type of facility chosen is an eight-seat improved pit latrine of affordable design, which is easy to construct using local materials and with a limited amount of cement and iron rods. A programme of hygiene education is also being carried out at the selected institutions, to ensure the use and maintenance of facilities and good hygiene practices.

4. Kenya

This project proposed constructing three water supply and sanitation facilities in Kalifi District, which had suffered a cholera epidemic in 1994. The three facilities were a rural piped water supply for a primary school; a 50 000-litre ferrocement tank to catch rainwater at a girls' secondary school; and a three-compartment VIP latrine for a dispensary. Community committees were established in each case and, in the case of the latrine project, the community participated in digging and providing materials.

5. Malawi

This project aims to provide rural communities in two districts with safer and sustainable sources of drinking water, appropriate sanitation facilities and better hygiene habits and behaviour. One of the districts had had a cholera outbreak in 1994; both had had frequent diarrhoea outbreaks. The project will rehabilitate, improve and construct protected shallow wells and improved pit latrines in health posts and schools. It will also strengthen the capability of communities to operate and maintain their water supply systems. The overall objective is to reduce morbidity from diarrhoea, especially among children under five.

6. Mozambique

The proposal in Mozambique is to improve hygiene and sanitation conditions in health centres, schools and markets situated in the peri-urban area of Cidade de Xai Xai. It is hoped that the communities who will benefit will be mobilized to participate in all activities, including installation and rehabilitation works. The project will involve the rehabilitation and construction of water points and latrines, and the collection and removal of garbage.

7. Nigeria

This project is directed at a cholera-affected community in Ankpa local government area in Kogi State. The chosen project sites are at the primary health-care clinic and the local education authority primary school. The project proposes to provide model protected hand-dug wells and three-compartment VIP latrines. The package will also include hygiene education and training at the commu-

nity school and clinic. Training of members of the community in construction and maintenance of wells and latrines is planned, together with community participation in the project, with a view to ensuring their future responsibility for operation and maintenance.

8. Swaziland

The area of northern Hhohho has suffered from outbreaks of typhoid. The project for this area will build 268 household pit latrines, rehabilitate the intake structure of the existing water system (by relocating it and adding a slow sand filter), and site and drill boreholes fitted with handpumps (since existing sources have low yields). The community will be involved in providing local materials, siting and digging of latrines and refuse pits, and constructing latrine superstructure.

9. Tanzania

Here, the proposal is to raise the knowledge and skills of district and community extension workers about water-quality control and sanitation improvement. In addition to training trainers, the project will develop guideline manuals for sampling procedures and draw up standard reporting forms. This will lead to improved drinking-water quality. The project will operate in two districts where there is low service coverage for safe water supply and sanitation. It will be aimed at five villages in each district.

10. Togo

This project was set up to construct 11 VIP latrines in rural areas seriously affected by diarrhoeal diseases, particularly cholera. The project, which has already been completed, provided seven three-compartment latrines in seven villages of Haho district, and two six-compartment latrines each at the health centre of Pagala and the hospital of Bassar. In each case, the beneficiaries were brought together at meetings, where the functioning and use of the VIP latrines was explained. The workers constructing the latrines were from the villages themselves and they were trained to be able to repeat the technology for future projects.

11. Zaire

Zaire proposed to improve and control the quality of drinking water in the health zone of Tshela which was affected by an epidemic of bacillary dysentery in 1993–4. The project involves the rehabilitation of a 4 500 m-long pipeline, control of drinking-water quality (through training of personnel) and improvements to facilities for excreta disposal at three or four schools. There are also information, education and communication campaigns to make the local population aware of the subjects of drinking water, sanitation, hygiene and the dangers of faeces.

12. Zambia

The aim is to implement a community-based water supply project in three districts in north-eastern Zambia which have been at risk from cholera. The project involves training members of village water committees in the operation and maintenance of water supply facilities and the hygienic handling and use of water – before any technical programme begins. The training is followed by the rehabilitation of wells, protection of springs and construction of soakaway pits. All the district teams have managed to integrate community water supply and sanitation programmes into primary health care programmes.

13. Zimbabwe

The proposal here was to implement an intensive community-based water supply and sanitation project in Monzoni village, which had been affected by cholera in 1992–3. The project was to train 40 builders, construct 265 single VIP latrines (some with hand-washing facilities), provide three boreholes with handpumps, and train 16 pump caretakers to ensure prompt repairs and proper maintenance. The community has participated in digging pits and supplying building materials, and is totally committed to the project.