WATER SUPPLY AND SANITATION SECTOR POLICY

THIS DOCUMENT WAS APPROVED AT THE 257TH AND 185TH MEETING OF THE BOARDS OF DIRECTORS OF THE AFRICAN DEVELOPMENT BANK AND THE AFRICAN DEVELOPMENT FUND RESPECTIVELY, IN A JOINT SESSION HELD ON APRIL 24, 1989 IN ABIDJAN.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

1.1.1 The water supply and sanitation sector occupies a significant place in the African Development Bank Group's overall lending and assistance policy. Safe drinking water is one of the most important basic human needs and is indispensable for sustaining and enhancing life. Social and economic benefits also are to be gained from access to a clean and reliable supply of water and adequate sanitation.

1.1.2 The Governments of Africa have recognized the necessity of providing an adequate quantity and quality of potable water and appropriate sanitation. By 1980, at the start of the International Drinking Water Supply and Sanitation Decade (IDWS SD), 66% of the urban population and 22% of the rural population in Africa were served by adequate supplies of potable water. In addition, 54% of urban residents and 20% of rural dwellers had access to adequate sanitation. By 1985 water supply coverage had increased to 78% in urban areas and 25% in rural areas; sanitation coverage had increased to 73% in urban areas and 25% in rural areas. Newly revised coverage targets for 1990 for water supply are 84% in urban areas and 46% in rural areas; targets for sanitation coverage are 82% in urban areas and 52% in rural areas (1).

1.1.3 Since Independence, and especially over the first five years of the Decade, progress in the sector has been remarkable considering the rapid rates of population growth (17% from 1980-1985), the rate of urbanization (34% for the same period), and a reduction in GNP per capita measured in real terms (2). The urban centers of the member countries now face several decades of extremely rapid population growth. Evidence suggests that the rural exodus to the towns is gaining pace. In 1960, only five African cities had populations greater than 500,000; in 1980, 28 cities had more than one-half million residents. One of the greatest administrative challenges will be to provide adequate drinking water supplies and sanitation services to the new urbanized populations.

1.1.4 During the period 1970 to 1984 external support for the sector was estimated to have been US $4.9 billion. In the remaining five years of the Decade (1986-1990) member countries will need to obtain an

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1. "The International Drinking Water Supply and Sanitation Decade: Review of Mid-Decade Progress (as at December 1985), "World Health Organization, September 1987, 38-39.**

2. Ibid., 37.**

estimated US $13 billion in investment to achieve the new targets. Even if 75% of the funds required come from external sources, investment throughout the region will have to be stepped up by factors ranging from 1.4 (Lesotho) to 22 (Senegal) (3). To achieve these targets in the next five years the member countries will have to secure three times the funds obtained during the previous fifteen years. Given the ever-increasing demands and the scarcity of resources, achieving the new targets will be extremely difficult.

1.1.5 The Bank Group has financed a wide range of projects in various member countries. Loans for projects have been made in Sahelian countries, where water is in extremely short supply, and in tropical and equatorial regions where there is abundant annual rainfall. The Bank Group has financed water distribution and waste-water collection networks in major urban centers, employing advanced technology, as well as shallow wells, hand-pumps, and VIP latrines in villages or rural areas. The projects financed have been executed by institutions that differ by organizational structure and performance, and reflect the diversity of the member countries and the projects in the sector. One of the greatest challenges, and one of the greatest opportunities, facing the Bank Group have been to recognize and analyze the commonalities as well as the differences among projects. The Bank Group has tried to apply the institutional and technical lessons learned from one project to others, so that a programme of mutual institutional support could be developed within the sector among the member countries.

1.1.6 The Bank Group has just completed its twentieth year of financing projects; those in the water supply and sanitation sector have had a very important place. The recent tripling of the capital of the African Development Bank and the fifth replenishment of the African Development Fund constitute a solid base for the second five year programme of the Bank Group that plans to give the sector the same degree of importance in the future. At this time, therefore, it is appropriate to take stock of the role that the Bank Group has played and to define an explicit policy to guide the lending activities of the Bank Group in the sector.

1.2 OBJECTIVES

1.2.1 This policy paper identifies the major problems of the sector and analyses the Bank Group's role and experience in water supply and sanitation. It also formulates guidelines that will orient the Bank Group's future lending policies for the development of the member countries in the sector and strengthen the Bank Group's distinctive position among the many bilateral and multi-lateral donor agencies providing assistance to the sector.

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3. Ibid., 40.**

Like the Bank Group's other sectoral policy statements, this one has three objectives:

- It should serve the internal decision processes of the Bank Group by providing a frame of reference within which to consider and assess specific program and projects of the member countries for the water supply and sanitation sector.
- It should inform and stimulate dialogue among the member countries on the kinds of water and sanitation projects the Bank Group is likely to support, and should facilitate sectoral planning by regional member countries and long-term collaboration between the Bank Group and regional member countries.
- It should help to coordinate the Bank Group efforts in the sector with those of the other donor and financing agencies operating in Africa.

1.3 ORGANIZATION OF THE DOCUMENT.

1.3.1 The document has been divided in three parts:

The first part (Chapter 2) examines the role of water supply and sanitation in development and analyzes the most important aspects and characteristics of the sector. It also identifies the principal problems and constraints in the sector that have comprised an important part of the Bank Group's experience.

The second part (Chapter 3) reviews this experience in light of the operations of the Bank Group in financing projects in the water supply and sanitation sector. This section also identifies the difficulties and bottlenecks that the Bank Group has encountered with the implementation of the project cycle.

The third part (Chapter 4) presents policy guidelines to be used to orient the future activities of the Bank Group in the sector. These are intended to constitute the basis for dialogue between the member countries and the Bank Group on issues in the sector and projects proposed for financing by the Bank Group.

CHAPTER 2

THE WATER SUPPLY AND SANITATION SECTOR IN AFRICA

2.1 DEFINITION OF THE COMPONENTS OF THE SECTOR

2.1.1 The water supply and sanitation (WS&S) sector encompasses a range of development projects concerned with the provision of potable water for domestic consumption and the improvement of personal and community sanitation. The principal objective of water supply projects is to ensure the supply of safe drinking water for basic human needs (drinking, cooking, and washing). The principal objectives of sanitation projects are to ensure the safe disposal of wastes and to promote effective sanitary behaviors. Both sub-sectors are concerned with finding sustainable solutions to water supply and sanitation problems.

2.1.2 The water supply and sanitation sector comprehends not only the supply of water, but the disposal of sewage, faeces, solid waste, and storm water. There are obvious technological linkages between these subsectors. Once piped water is introduced into a community, evacuation of the wastewater becomes a concern. Project planning, therefore, calls for the development of an integrated view to how the component subsectors fit together.

2.1.3 The water supply subsector in Africa covers a wide variety of approaches and technologies for the sustainable provision of potable water for personal consumption.

2.1.4 The World Health Organization estimates that the minimum consumption to serve these purposes is 30 liters per capita per day. The range of actual water use varies greatly, however, from 10-15 liters per capita per day in semi-arid rural areas without improved water sources to several hundred liters per capita per day in modern, high-income, urban residences.

2.1.5 Domestic water supply projects involve a variety of technologies, service levels, and implementation methods. The city center usually enjoys full service with house connections supplying treated water to full plumbing. For the lower income peri-urban areas, water often is suplied through public standpipes or yard taps. In rural villages, groundwater may be tapped by open dug well or borehole and handpump. Where perennial springs exist, they often can be economically piped under gravity over several kilometers to village standpipes. Increasingly, household storage tanks are employed to collect rainwater from rooftops for domestic use.

2.1.6 The sanitation subsector covers a variety of activities that are closely linked to water supply and include:

- the evacuation or disposal of human excreta, sewerage or wastewater, solid and toxic wastes, rainwater, and unsanitary standing water;
- the planning, implementation, and evaluation of educational and promotional programs aimed at changing personal and community hygienic behaviors.

The linkage of many sanitation activities to water supply is technical, as in the case where the provision of water into homes requires its evacuation and permits excreta disposal through sewers or septic tanks, or where the uncontrolled use of public standpipes can create pools of stagnant water in which insects can breed. The positive health impact of clean water is only maximized when it is combined into a program of sanitary excreta disposal and hygiene education. Within the subsector itself, improvements in sanitary installations and equipment need to be integrated with changes in personal and community behaviors to ensure that facilities are properly used and maintained.

2.1.7 Sustaining water supply and sanitation systems has become the primary preoccupation of the sector. Since many of the existing systems have not been properly maintained and operated, efforts have been made to improve community participation, to increase the sense of ownership and responsibility on the part of the beneficiaries, and to improve the capabilities of the public and private sector institutions to recover costs and to operate existing systems. A sustainable project has been defined as being able to continue to deliver a high level of benefits after the donor ends major financial, managerial, and technical support.

2.1.8 Although sustainability depends largely on the institutional and financial capacity of the member country, it also depends on the way the project has been designed. Project design incorporates considerations of the economic, financial, technological, and operational structures; analyzes organizational and management requirements; and reviews the political and socio-cultural context in which the project must be executed and the completed system operated.

2.2 THE ROLE OF WATER SUPPLY AND SANITATION IN DEVELOPMENT

2.2.1 INTRODUCTION

One of the distinctive characteristics of water supply and sanitation as a sector is that it influences development through several different channels. Health, social, economic, and environmental impacts are derived. Some of the benefits that result from water supply and sanitation enhance the impact of investments in other sectors, e.g., education, industry, and vice versa.

2.2.2 IMPACT ON PUBLIC HEALTH

Investments in water supply and sanitation have been shown to be critical to improving public health. It is estimated that 80% of endemic disability in developing countries is due to diarrheal disease. A recent review by the World Health Organization demonstrates that improvements in water supply and sanitation have a direct and significant payoff in reducing diarrheal morbidity. As Table 1 shows, when both water quality and water quantity are improved, diarrheal morbidity rates can be reduced by as much as 37 percent. When health education and excreta removal are added, the reduction in diarrheal disease is still more dramatic, as much as 50 percent and higher (4).

Table 1

Impact of Safe Water and Sanitation on Diarrheal Morbidity (5)

Improvement in:	Median Percent Reduction in Diarrheal Morbidity
Water Quality	18%
Water Quantity	25%
Joint Water Quality and Quantity	37%
Excreta Disposal	22%

2.2.2.1 Safe water supply also has been shown to be highly effective in reducing the incidence of worm infections in humans in certain areas of rural Africa where an estimated 120 million people are at risk of infection (6). Well construction plus health education have cut the rate of infection from guinea worm disease (dracunculiasis) by 85 percent and more in certain areas of rural Togo, Mali, Nigeria, and Burkina Faso (7).

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4. See also, Esrey and Habicht, "Epidemiologic Evidence for Health Benefits from Improved Water and Sanitation in Developing Countries," Epidemiological Reviews, vol. 8, 1986; Feachem, "Preventing Diarrhea: What are the Policy Options ?" Health Policy and Planning 1986; 1 (2): 109-117.**

5. Source: Esrey, Feachem and Hughes, "Interventions for the Control of Diarrheal Diseases among Young Children: Improving Water Supplies and Excreta Disposal Facilities," World Health Organization Bulletin, 63(4), 1986 pp 757-772.**

6 From "Dracunculiasis in Africa: Geographic Extent and Incidence," by S. Watts, American Journal of Tropical Medecine and Hygiene, vol. 37, 1987,pp. 121-127.**

7. Richards and Hopkins, "Dracunculiasis, Africa, and the Water and Sanitation Decade," paper prepared for the Symposium on Water and Sanitation in Africa, May 1987; Hopkins, "Eradication of Dracunculiasis," in Bourne (ed.), Water and Sanitation: Economic and Sociological Perspectives, 1984, pp. 93-114.**

2.2.2.2 Water supply and sanitation are also known to be effective in controlling cholera, typhoid, giardiasis, and a variety of helminths diseases. One or more of these diseases is often a problem in African countries with high diarrheal disease rates. Schistosomiasis may be controlled by the provision of safe water in locations where people work and bathe. Observations in Egypt show a large and statistically significant reduction of schistosomiasis associated with the installation of community standpipes. Trachoma infection is the leading cause of loss of vision and blindness. Personal and public hygiene emphasizing the use of water is the most effective method for prevention or reduction of trachoma. The use of adequate amounts of water for personal hygiene also reduces the prevalence of scabies, other skin diseases, and louse-borne and fly-borne diseases.

2.2.2.3 Improvements in water supply and sanitation have been shown to aid and enhance other measures tending to ameliorate the nutritional status of communities. The prevention of diarrheal diseases improves nutrition because enteric infections decrease food intake and increase metabolic loss.

2.2.3 IMPACT ON URBAN DEVELOPMENT

Water supply and sanitation facilities are central to sustaining life in urban areas. The urban population of Africa is now growing at more than six percent per year. If this trend continues, 98 cities will have populations in excess of 1 million by the year 2020. In that same year, more than two-thirds of the continent's population will be living in urban centers. Two of the strongest public service demands of urban residents are for piped water supply and for effective waste removal.

2.2.3.1 Access to regular water supply is viewed as one of the fundamental service benefits of living in a city. In addition, connecting the house to the distribution system has enhanced household property values because it has been considered as a proof of tenure. When household water connections have been installed in poor, peri-urban areas, property values have risen often by more than the cost of installation and households have become much more likely to invest in improving their housing units.

2.2.4 IMPACT ON COMMUNITY DEVELOPMENT

Water supply and sanitation programs have facilitated community organization and development among rural populations. The efficient and effective design, implementation, and operation of these programs have also been direct expressions of community cohesion and involvement. Participation in rural water supply and sanitation projects has enhanced community involvement and fostered the community's willingness to apply its experience to other sectors, e.g., vaccination campaigns.

2.2.5 SOCIAL IMPACTS

Water supply and sanitation projects contribute to social and economic development as well. Provision of a reliable water supply relieves women and children of the time-consuming burden of fetching water. Studies have shown that in the rural areas and villages without regular water supply, women and children devote 15-25 percent of their time to obtaining water. Provision of water near or in the home has been known to free women to attend to other, more rewarding tasks, e.g., increased time for child care, food preparation, and agricultural production.

2.2.5.1 School attendance and farm labor rates have been shown to be reduced by water-borne worm infections and other deseases. The indirect benefits of improved domestic water supply and sanitation may be even greater than the direct benefits. For example, some studies have reported that the school drop-out rates of girls are directly linked to the time spent in water collection and other household chores. School attendance for girls is important not only for them but for their families, since family size, child health, and child schooling are all strongly related to mother's education.

2.3 DIVERSITY OF PROJECT SITUATIONS PRESENTED BY MEMBER COUNTRIES

2.3.1 PROJECT SITES

Investments in water supply and sanitation have been made by the Bank Group in rural, urban, and peri-urban sites throughout Africa. For the purposes of this document, urban centers are considered the continuous, built-up areas of the largest cities and towns. Peri-urban areas are found on the border of these same cities and towns, are in transition and will be the next sections to be incorporated into urban areas. The rural areas comprise dispersed settlements and villages, and the smallest towns. While all three sites have several elements in common, each site also has specific features that must be taken into account when planning, implementing, and evaluating the project, or operating the system installed. For example, in urban areas, beneficiary compliance and fee payment are essential, but beneficiary participation in the design and operation of the system is not critical. In rural areas, however, critical input on design and operation is required from the communities concerned to ensure the sustainability of any rural water supply and sanitation project.

2.3.2 WATER RESOURCES

The profile of rainfall in the member countries reveals a pattern of scarcity, plenty, or seasonality. This pattern has an influence on the quantity of water available for human consumption. In some member countries, especially those of the Sahel of North Africa, water is scarce, difficult to access, and expensive to exploit. In some other regions and especially those parts that touch the great river basins of Africa (Nile, Zambezi, Congo, and Niger), water is plentiful but requires treatment before

it is fit for human consumption, except in those areas where the subsoil is favorable for the drilling of wells.

2.3.2.1 While the character of water resources varies considerably within individual member countries and throughout the continent, the amount needed for human consumption is not large when compared with the demands of agriculture. Given the needs of populations and the water resource patterns of the member countries, only two broad approaches are available. One approach has been to invest in measures to increase the supply of water; the other has been to manage the demand so that available water is applied to the most urgent needs and utilized with optimum efficiency.

2.3.3 INSTITUTIONAL ORGANIZATION

The institutions in place in the member countries reflect the diversity and complexity of the societies in which they operate. Three general types of institutions have emerged in the member countries and are still in existence.

- Traditional, local institutions. In most cases these are found at the village level. These local institutions have played a very important role in organizing communities to participate in the design, construction, operation, and proper utilization of water supply and sanitation programs.
- National institutions. These structures, based on written statutes or articles, reflect the formal sector of the economies of the member countries. Included among these institutions are government structures, as well as private sector agencies, non-government organizations and private voluntary organizations. Some of the institutions in place are mature, effective, and highly valued for their competence in the sector. Others are poorly managed and ill-equipped to address the needs of the sector.
- International and regional institutions. These were and are largely regional development institutions or authorities, mainly responsible for coordinating and planning activities, e.g. in river basins that cross the frontiers of several of the member countries, or involving water resources that are or have to be shared among several countries.

2.4 THE WATER SUPPLY AND SANITATION SECTOR CONSTRAINTS AND ISSUES

2.4.1 PLANNING AND COORDINATION ISSUES

Planning and coordination in the water supply and sanitation sector have taken place at the international, national, project and local

levels. While national and project level planning and coordination have been most common, planning and coordination have also taken place at local and international levels. Communities have planned how project inputs would be used at the local level, e.g. village, neighborhood, etc. At the international level, sectoral analysis and planning have also taken place among national governments and major lenders, donors and providers of technical assistance in the sector.

2.4.1.1 Planning and Coordination at the International Level

The International Drinking Water Supply and Sanitation Decade (IDWS SD) has promoted sectoral analysis, planning, and coordination among national governments and the major lenders, donors and providers of technical assistance in the sector. At Mar del Plata in 1977, the United Nations Special General Assembly agreed upon a Plan of Action that has helped to guide the development of national action plans and the coordination of international assistance. The IDWS SD has provided impetus for the International Drinking Water Supply and Sanitation Consultations held in Konigswinter (1984), Paris (1985), and Interlaken (1987), and for three regional consultations. The one concerning the member countries was held at Abidjan in November 1985 and led to the All-Africa Seminar on Low-cost Rural and Urban-Fringe Water Supply, held at Abidjan in October 1986.

Given the enormous demands in the sector and the limited resources available to satisfy these demands, coordination and planning at all levels have been, and remain, critically important activities. Proper coordination and planning have ensured that donors and lenders, member countries and communities have analyzed the sector and become aware of the needs and constraints.

The lack of planning and coordination at the international level has hampered effective planning and coordination at the national and project level. The Interlaken Consultation recognized this problem and highlighted the need for greater coordination among external support agencies. Interlaken emphasized the need for the international donors, lenders and the recipients of grants and loans to agree on the priorities in the sector, and to establish guidelines for the allocation of funds and the use of resources. The Interlaken Consultation also agreed to establish a Consultative Council of donors, lenders, UN agencies, NGOs and developing countries to provide a collaborative framework for supporting expanded efforts in the sector after the end of the Decade.

International coordination has facilitated the exchange of information and ideas, helped to clarify the lessons learned in the sector, and provided valuable inputs needed in project planning. International coordination and collaboration have led to such activities as the UNDP/World Bank Handpump Project, WHO Secretariat functions for the

IDWS SD Steering Committee, UNDP coordination of external support agencies assistance to national programs, and the WHO Country External Support Information (CESI) system for sharing information on ongoing and planned projects in the sector.

2.4.1.2 Planning and Coordination at the National Level

Planning and coordination at the national level have proven to be prerequisites for success in the sector. Since water for human consumption is only one element of the management of water resources of a country, integrated planning has been required to ensure that all water demands are carefully assessed and satisfied, i.e., water for industry, agriculture, power generation, tourism, wildlife management, etc. In addition, since all the means needed to design, implement and operate water supply and sanitation projects are seldom centralized in one government agency, thorough coordination among the responsible ministries and other agencies involved in the sector has been essential.

The IDWS SD stressed the need for planning and coordination at the national level through the establishment of National Action Committees (NACs). All the member countries, and especially those in which water is in critically short supply, have acknowledged this need. However, for several reasons, the necessary studies have not always been carried out. At times, the need to plan has not been fully apparent; at other times, competent personnel and institutions have not been readily available. In still other situations, the funding needed to conduct the studies could not be obtained, member countries have been unable to make useful evaluations of their water resources, to calculate precise estimates of their immediate needs and future demands, to estimate the cost of exploiting their water resources and eliminating the wastewater generated, and to choose those methods that most appropriately satisfy the demand and are within their means. Since many member countries have not developed master plans for the sector using an adequate planning process and covering a reasonable planning horizon, the goals and objectives defined have at times been beyond their technical, institutional and financial capability.

When sector planning at the national level has taken place, it has also permitted private entrepreneurs to gauge the size of markets and to define their own investment plans.

The recent Inter-Agency Round Table on Water Supply and Sanitation in Africa (December 1987) identified weak national planning as one of the major problems in the sector. International donors and lenders have begun to provide assistance to several National Action Committees, composed of representatives of government departments and other agencies involved in the management of water resources. The objectives of the NACs have been to facilitate effective cooperation among the

responsible agencies, to develop policy and strategy documents for the sector that can be translated into operational plans, and to establish or strengthen institutions capable of implementing such plans.

Health impacts and development outcomes of water supply and sanitation projects have been achieved by affecting behavioral changes in the projects' beneficiaries. Since it is the proper use of water supply and wastewater facilities that provides the benefits, and not the hardware of the systems, effective and continuous coordination among health, education and social services sectors is essential.

Inter-ministerial coordination has proven to be especially important between the water supply and health ministries; most water supply agencies to not address sanitation and hygiene education while health ministries have field staff involved and experienced in community promotion as part of routine primary health care programs. In addition to increased coordination between water supply and health agencies, closer coordination with other government and non-government agencies involved in social affairs, rural or community development programs, has proven useful to ensuring and sustaining the benefits of water supply and sanitation projects.

2.4.1.3 Planning and Coordination at the Project Level

There has been a lack of an adequate supply of well-prepared projects ready for financing, as well as a dearth of the capacity required to appraise and implement projects in the member countries. While acknowledging that project planning should be integrated with and justified on the basis of the national plan, for some of the same reasons that planning has not taken place at the national level of the member countries, projects have not been properly prepared. Often, the projects selected for implementation have been those that are politically expedient or of interest to donors and lenders rather than those that are likely to provide the highest development benefits for the member country.

The process of planning projects for execution requires the verification of the data and the assumptions that were incorporated in the national plan and used to establish priorities among potential projects. However, since member countries have often not developed appropriate national plans for the sector, project planning has taken place without overall guidance and coherence. Where proper project planning has taken place, the member countries have received the feedback needed to draft and update the national plan. Projects defined in terms of a national plan, that has taken into account competing demands and priorities, have considered not only capital projections and recurrent costs, but also whether or not the targeted beneficiaries or participants are those most in need.

Most experience has been accumulated with coordination at the project level. This has been more easily accomplished than coordination at other levels because of the restricted objectives and target areas of most projects. In addition, external agencies (donors and lenders) have stressed the need for coordination at this level and provided the necessary support. When member countries have become aware of the need for coordination of project planning, project management teams, consisting of personnel from ministries and other agencies, have been assigned to a semi-autonomous project unit responsible for organizing and monitoring project implementation. Project coordination has been more complex in urban and peri-urban areas because it has to be consistent with urban development plans and involves a wide variety of institutions, including government, parastatal and private sector entities.

2.4.1.4 Planning and Coordination at the Local Level

One of the major lessons of the IDWS SD has been the need for active community participation in all stages of water supply and sanitation project development in rural and peri-urban areas. The IDW SD has produced compelling evidence that community participation in all stages of water supply and sanitation is a prerequisite of success. A sense of ownership, engendered by full involvement of the community in planning, design, construction, operation and maintenance, has been the best way to provide for satisfactory upkeep of installed facilities and sustained benefits. In effect, effective planning and coordination at the local level has depended on the degree of community involvement.

Many water supply and sanitation projects in the rural and peri-urban areas of the member countries have provided ample evidence of the value of community involvement in all aspects of project planning and coordination. Well-trained and supported project field staff have helped communities to assess their current situations, to identify, prioritize and analyze their problems and needs, and to make intelligent, informed decisions from the choices available. Some, and perhaps too many, projects have been planned by project planners and engineers without involving the community. All decisions concerning the use of project inputs at the local level have frequently been imposed. The community has been reduced to ratifying rather than making the decision.

2.4.2 SOCIAL ISSUES

The experience of water supply and sanitation projects in the member countries, especially in the rural and peri-urban areas, has provided a wealth of examples of the acute need to take social issues into account when designing, planning, implementing and evaluating projects. The active and full participation of project beneficiaries, especially women, in all aspects of the project, and stressing the

importance of user and hygiene education have been vital to project success. Where these elements have been given attention, cost recovery has been enhanced, systems have been used fully and maintained properly, and benefits associated with water supply and sanitation projects have been sustained.

2.4.2.1 Community participation

The final report of the Interlaken Consultation of 1987 has concluded that active and full community participation takes time and costs money, but yet is necessary to achieve optimum results. Indeed, the report concludes that while the time required to ensure that the community is actively involved in the project and may add a certain amount to the cost of the project, "the estimated gains from improved reliability are higher, especially if wider benefits are taken into account.... Projects must include a budget line for support of community participation and hygiene education activities."

2.4.2.2 The Role of Women

Experience in the member countries has shown that active participation of women is vital to the success of rural and peri-urban projects because women play a paramount role in the use of water and are primarily responsible for family hygiene and health. Evaluations of water supply and sanitation projects in the member countries have indicated a positive correlation between women's level of participation and the achievement of project objectives.

2.4.2.3 User Education

Some water supply and sanitation projects have included programs designed to educate beneficiaries on the proper use and maintenance of facilities. These programs have varied according to the objective of the project and the needs of the beneficiaries. In general, user education programs have been more extensive in rural and peri-urban areas, where community participation is greater, than in urban centers. Consumers in urban areas, for example, may have only received written instructions on tariff or fee regulations and how to obtain repair services from the operating agency. Rural and peri-urban residents with greater responsibility for the operation and maintenance of community systems have usually required more extensive training. User education programs have been shown to be most effective when their methodologies are consistent with accepted adult learning approaches which include active adult participation rather than passive reception of information.

2.4.2.4 Hygiene Education

Projects with health or sanitation objectives have conducted extensive hygiene education programs as regular project components, since it has been shown that health benefits can only be maximized by improving sanitary behaviors through hygiene education. Hygiene education has made communities aware of the need to protect water sources and to improve water supplies.

2.4.3 INSTITUTIONAL ISSUES

The caliber of institutions responsible for the implementation of projects and the operation and maintenance of the systems installed has been one of the most critical factors in determining success in the water supply and sanitation sector. Many of the public and parastatal institutions in the sector are inefficient, weak, and in need of strengthening. These institutions are afflicted with poor management practices, overstaffing with poorly motivated and trained personnel, inadequate equipment and technical expertise, and meager financial resources. These institutions have had difficulty recruiting and retaining skilled staff. In addition, training has been limited by lack of funds. When available, usually through external assistance, the training provided has been inappropriate to the need.

2.4.3.1 Organizational Aspects

Institutions in the sector vary considerably among the member countries. English, French and Portuguese-speaking nations with different colonial histories, legal systems and admnistrative traditions have produced different institutional arrangements for handling development in the sector. French-speaking countries often have a national agency responsible for urban areas and a government unit within a Ministry of Agriculture or Rural Development responsible for rural areas. Most English-speaking countries in West Africa have state-wide institutions responsible for both areas, while those in East Africa confer responsibility for urban systems to municipalities and have national institutions responsible for rural areas. In cases, peri-urban communities are usually the responsibility of the urban institution even though the most appropriate approaches for servicing them are more developed in the institutions handling the rural areas. There is also a great deal of diversity throughout the continent in terms of institutional capacities and the resources for institutional development.

a) A key factor in explaining differences in institutional capacity has been the degree to which an organization is financially autonomous from the national budget. Authorities that derive the greatest share of their revenues from user payments (e.g. water and sewerage fees, connection charges, specialized taxes), also possess the greatest stability. SONEDE in Tunisia, REGIDESO in Zaire, SODECI in the Cote d'Ivoire, the Water Supply Department of Nairobi and other agencies with their own substantial

revenue bases have been able to recruit and retain superior staff and to carry out long-term development plans. On the other hand, agencies with high dependence on central government subsidies have found themselves in precarious conditions. These have been frequently in financial arrears, unable to retain qualified and committed staff, incapable of resisting external interference in the management of their operations, and unable to provide reliable, high quality services to beneficiaries. Financial autonomy based on independent sources of revenues from user payments has been more common in agencies primarily responsible for urban systems than those responsible for rural or peri-urban systems. The ability of rural and peri-urban residents to pay for the entire costs of their systems has been limited.

b) The operating agencies that are autonomous or semi-autonomous from government have often had the opportunity to define their own policies and procedures. This has allowed them to establish higher pay scales than the regular civil service, to set service standards, to operate under commercial accounting systems, and to propose service fee levels that permit a substantial degree of cost recovery. Although these fees have been subject to governmental review and approval, the commercial goals of the public utility enterprises have been accepted as legitimate and have permitted them to increase rates ensuring higher levels of cost recovery than those found in water systems directly managed by government.

c) However, the choice of transferring all services from government agencies to financially independent parastatal or private enterprises has not been a viable option in many cases, especially in the rural areas. Improving efficiency and effectiveness of these public services has been the major focus of institutional development efforts, and has included such interventions as:

- modifying the organizational structure of the institution
- clarifying or altering the institution's policies and procedures
- improving managerial or administrative systems
- increasing job performance by improving staff skills through human resource development programs
- improving the level of equipment and technical procedures.

d) Decentralization has been one significant organizational and policy change that has proved to be effective in improving service delivery, especially in rural areas. Decentralization has required handing over responsibility and authority over the system to regional offices or other institutions, such as local governments or national agencies with greater capacities at the local level. The central agency has continued to set standards and provide budgetary and technical assistance, but the local unit has maintained a presence in the community. Decentralization

has allowed beneficiaries to have a stronger presence in the project, and encouraged qualified staff to remain in the field, where they have been essential in establishing rapport between government and beneficiaries.

e) Successful programs of decentralization have been carried out under very different institutional regimes among regional member countries. In the Cote d'Ivoire, SODECI, a private firm, has implemented full administrative decentralization of its operations. In Zaire, REGIDESO in 1985 implemented a decentralization plan that allowed each Regional Director to hire personnel and carry out the other measures necessary to achieve the goals agreed to in the annual negotiations between the central agency and each region. One benefit of decentralization in Zaire has been a reduction in personnel in several regions, where Regional Directors have found the labor force in excess of needs.

2.4.3.2 Human Resource Development

Improving the quality of job performance within the institutions of the sector has been a major objective of Governments, donors and lenders. Training programs have been initiated to achieve this objective. When conducted properly and within the institution, rather than overseas, these have increased staff motivation and overall quality of performance. In-house, national and regional training has been generally more effective than overseas training because it was better tailored to the learning needs of the participants. Overseas training has been found to be more expensive and of longer duration during which important staff positions have been vacant. In addition, the training has very often focused on technologies and procedures that have not been relevant to the in-country situation.

Several agencies in the sector have developed in-house training programmes which have been integrated into their operations. Since these programs have been a highly visible vehicle for skill acquisition and promotion, they have imparted relevant skills and approaches to local conditions and served to motivate staff to improve job performance. Some regional member countries have developed outstanding institutions as well as excellent training programmes in water supply, sanitation, rural community development, and appropriate technology. The opportunity to exchange information on training programs and to establish a regional approach to training exists but has not been fully exploited.

Training alone, however, has not been sufficient to improve personnel performance in sector institutions. When training has been combined with other measures, e.g., budgets for spare parts, new accounting procedures, etc., there has been improvement in the performance of the institutions.

In many of the institutions of the sector, especially public sector institutions, salary levels have been significantly lower than

those found in the private sector. Effective institutions have developed and maintained staff through providing sufficient incentives, compensation, employee benefits, and promotional opportunities.

2.4.3.3 Use of Expatriate Professionals

Some institutions have had difficulty recruiting qualified personnel because of the shortage of skilled professionals at the national level. Engineers, for example, are in demand in several sectors, e.g., infrastructure, industry and agriculture, in addition to the water supply and sanitation sector. Where shortages have occurred, expatriate professionals have often been brought in. In some cases, the number of expatriates has exceeded a third of senior staff. While this approach has solved some problems temporarily, it has created some others, for example:

- expatriates may undermine the motivation of national staff by holding the highest level positions;
- expatriates sometimes have two employers whose interests may conflict;
- expatriate pay scales are far in excess of public sector salaries and renforce the inadequacy of the latter;
- expatriates have sometimes been unwilling to take long-term assignments in rural areas or smaller cities.

Experience in the member countries has amply demonstrated that shortages of qualified staff cannot be met in the long-term by employing expatriates. National staff need training to be able to fill a variety of positions throughout the sector. Managerial and administrative staff, and field staff responsible for promoting community participation and implementing hygiene and user education programmes need training as well. In addition, as more women are recruited to fill these positions, training will need to be tailored to fit their learning needs and employment conditions.

2.4.4 FINANCIAL ISSUES

Substantial investments have been made by both donors and member countries to design and build water supply and sanitation systems. However, these large investments in system development have been jeopardized by the fact that, on the one hand, the funds available to operate and maintain the systems have often been less than adequate, and on the other, the management of the operating agencies has been inefficient. Frequently, the institutions of the member countries have been unable to generate revenues or control costs in a manner sufficient to cover operations. Most have had to request subsidies from their Governments. Governments in turn have recognized the importance of increasing tariffs and other revenue generating systems but have also

stressed the need to reduce (or control) costs and have been largely unable to persuade consumers to pay more (or anything) without providing a concomitant improvement in the quality of service. The result has been poor service, due to inadequate revenue generation, and cost containment, and insufficient revenue generation, owing to the unwillingness of consumers to pay for a low quality of service. This has placed the Governments of the member countries in the unenviable position of subsidizing to an ever-greater extent an already inefficient level of service that becomes increasingly overstretched due to the rising demands generated by a rapidly growing population, especially in the urban and peri-urban areas.

2.4.4.1 Financial Viability

The potential financial viability of water supply projects in urban and peri-urban areas of the member countries has been generally satisfactory. In many member countries, the majority of the urban population has not been directly supplied by service connections, but by vendors or standpipes. Urban and peri-urban residents have been found to pay water vendors several times the rates paid by those served by piped water; this fact tends to indicate that social resistance to tariff increases and full cost recovery might only be apparent. Urban dwellers have been shown capable of paying the operations and maintenance costs of many water systems.

However, most wastewater systems of the member countries, and especially water-borne sewerage, have not been financially viable. Per capita investment costs for these systems have been substantially greater than those for water supply and cost recovery has proven to be much more difficult. The member countries have found that while most people have been prepared to pay a significant portion of their income for improved water supply, willingness to pay for wastewater removal has often been much less. Since many of the benefits of sanitary investments in urban areas accrue to the community as a whole, rather than to the individual household, individuals have been reluctant to contribute to sanitation facilities. In addition, the operational efficiency of wastewater institutions in the member countries has been significantly less than that of the operating agencies for water supply. As a result, wastewater services have been handicapped by inadequate revenue generation and a poor quality of service.

2.4.4.2 Cost recovery

Cost recovery has been a paramount concern of the member countries. Issues of who should pay, how much should be paid, and whether the Government should subsidize part of the costs for water supply and sanitation services have been repeatedly discussed. The member countries have readily agreed that an efficiently designed and

operated water supply or sanitation project requires attention to be paid to financial management, and especially to the issues of recovering the full cost of the investment and generating the revenues needed to maintain the infrastructure in good operating condition. In practice, however, full cost recovery has been extremely difficult to attain.

a) Several member countries have moved progessively toward full cost pricing without major consumer resistance. Urban consumers have generally proved willing to pay for specific levels of service in water supply, as long as the long-term policy has been clearly explained, and cumulative, gradual adjustments, e.g., three to five years, have been made in fee levels.

b) Since tariffs are almost always defined by Governments that are reluctant for political reasons to adjust for rising costs, agencies have had difficulty balancing expenses with income. One approach that has been employed to minimize political effects and provide incentives for operating agencies to manage facilities and systems more efficiently has been to establish performance contracts between the operating agency and the Government that has allowed the agency to raise tariffs without government approval if it performs satisfactorily within the limits fixed in the contract (e.g., Senegal).

c) It should be noted that the payment record of the government agencies of the member countries has often been very poor. In some countries, certain public sector administrations have been three or more years in arrears. Since these government agencies did not pay for the water, consumption was far in excess of need. This waste, combined with unauthorized connections and other unpaid consumption for water, have reduced the financial efficiency of the operating agencies and increased the amount of water that must be produced to maintain normal service levels. These losses have been known to range between 20% and 40%. A similar problem has occurred in some of those municipalities responsible for installing and maintaining public standpipes and for paying for the water consumed. Frequently, these obligations have not been met, resulting in lack of revenue and high water losses.

d) The most common means to recover costs have been user fees and tariffs. In general, tariffs have been designed to protect the poorest consumers and to encourage sustainability of systems. The "block rate" structure is one tariff that has been used in urban areas to accomplish these objectives. This approach to cost recovery has called on consumers to pay a basic rate for a standard volume of water; the volume selected has been defined by the minimum daily need. This has allowed the poorest segment of the urban population to have access to water at an affordable price. Higher fees have been charged for higher levels of consumption and paid by those who could afford to pay more. Since water use may have been at the discretion of the consumer, this

tariff structure has provided some disincentives to excess consumption. This approach has allowed cross-subsidization by which large consumers of water (e.g., hotels, industries etc...) actually have paid more than the full cost and have covered the costs not paid by those consuming less. Without widespread metering, however, this approach cannot be used. The block rate structure has been implemented in several cities of the member countries, e.g., Tunisia (8).

e) In the rural areas, some type of subsidy has been used to cover the cost of water supply. In these areas, households have less income and more limited ability to pay and, because population densities are lower, the per capita cost of piped water systems may be higher than in urban areas. Nevertheless, a minimum goal has been to recover the costs of operation, including the generation of sufficient funds to ensure adequate maintenance and repairs of the water distribution system.

f) In rural areas (as elsewhere), successful cost recovery approaches have been designed with affordability in mind. Where approaches have been successful, rural communities have been involved in the planning and design of these approaches to ensure their commitment to pay for operations and maintenance. One approach has been to require the community to buy the handpump and to provide for operation and maintenance, including the purchase of spare parts. The member countries' involvement has been limited to financing the drilling of the borehole or assisting with the digging of the well. The Government has also nonetheless monitored operations and provided support when conditions were beyond the communities' control.

g) Special charges or taxes for household connections have been another area of cost recovery. These have been levied on consumers to recover the capital costs of hooking up a house to the urban water distribution or sewerage system. Charges for hook-ups have usually been priced at full cost but member countries have also used special measures, like revolving loan funds or deferred payment systems, to reduce the immediate cost burden on the lowest income families. Cote d'Ivoire went as far as providing free connections, which led to a 300% increase in the number of connections in a 10 year period.

h) Household connections to the water supply distribution system have been considered very important because their addition to the system increases the future revenue base of the operating facility and provides maximum health benefits.

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8. One variation of this approach in the urban areas has been to meter all large consumers and to have standpipes within the remainder of the area of supply. This ensures that everyone is within 400 meters of a supply point. Large consumers pay according to consumption and a flat rate is charged on all premises that are not metered, e.g., Freetown, Sierra Leone.**

i) Since the benefits from wastewater collection accrue primarily to the community rather than to the individual user, it has been very difficult to implement a viable system of consumer charges. Wastewater discharge is more difficult to measure than potable water consumption, and cutting off access to the wastewater collection system if households do not pay their service fees is not an available option. Education campaigns have been launched to increase consumer acceptance of these charges, but households have been very reluctant to pay voluntarily the full costs of wastewater disposal.

j) Under these circumstances, special approaches to tariffs have been implemented. One strategy, employed successfully by SONEDE in Tunisia, has been to add a charge for wastewater services to the household water consumption bill. This has made measurement of service usage easier, and created the potential for cutting off water service if bills are unpaid. It has also been made clear that the cost of wastewater disposal is part of the true cost of water usage. Another strategy, based on the premise that the benefits from safe wastewater disposal are collective rather than personal, has been to recover a portion of the sewerage costs from water fees and the remaining portion from local taxes.

k) In rural and low density urban and peri-urban areas, on-site disposal methods have been used. The cost of installing and operating these systems has been generally paid for by the households. Programs for promoting the use of improved household latrines are becoming more established in a number of member countries. For example, in Lesotho and Rwanda, individual households have been willing to pay the total costs of latrine installation and a high degree of coverage has been achieved.

2.4.5 TECHNICAL ISSUES

In recent years organizations working in the water and sanitation sector realized that traditional solutions were emerging as too expensive to construct and too difficult to maintain. Efforts were made to develop alternative technologies which were less costly and easier to maintain. Two major results of this work were simple hand pumps and the VIP (ventilated improved pit) latrine. Other advances include rain-water roof catchment schemes, gravity fed pipe supply, tube wells for near-surface groundwater, and more portable drilling rigs (both mechanical and manually driven). These technological developments are allowing regional member countries to stretch the impact of investments to bring water supply and sanitation services to more people.

2.4.5.1 Choice of Technologies

In many of the member countries work is underway to make these new technologies respond better to local conditions. In Ethiopia, the Indian MK. II pump is being redesigned to incorporate native expertise in

brass casting and manufacture. Government research labs in Zimbabwe are producing low-cost, low-maintenance variants of the "Bush Pump" which has been in use in the country since 1933. Similar work is being done with the basic design of the VIP latrine to make it more responsive to locally available building materials and techniques.

a) Much of the work on appropriate technology has been focused toward rural application and the most developed examples of low-cost solutions appear to be well-suited to the rural environment. Many of these solutions have not been widely replicated in low-income urban areas and more applied research and field studies are needed to transfer the results of low-cost rural sanitation technologies to urban settings.

b) In urban areas, it has been shown that capital savings can be achieved by designing systems from the outset so that they accommodate future upgrading. Piped water systems in peri-urban areas may initially support standpipe supply, but be designed so that at a future date the system can provide household connections using the same basic distribution network. Sanitation systems can be designed so that, initially, households discharge wastes into common septic tanks; then, as densities increase and household willingness and capacity to pay for sanitation services increase, the system can be converted to a full sewerage scheme, without abandoning most of the initial capital investment. The capital investment requirements of providing piped water supply and full waterborne sewerage collection to every urban household are too great for member countries to finance. Therefore, emphasis must be given to providing access to safe drinking water and safe waste disposal through alternative technologies that can be upgraded in the future.

c) To make any new technologies acceptable to individual users, attention has been paid to explaining and demonstrating their benefits fully. In many member countries work is underway to make these new technologies respond better to local conditions. Successful designs have incorporated simple operating and maintenance requirements, and responded to local, social and cultural requirements. In such cases community participation has played an important role.

2.4.5.2 Operations and Maintenance

Operations and maintenance (O&M) is considered by most development institutions to be the top priority issue in the water supply and sanitation sector. Every developing country can point to some examples of inadequate maintenance which led to wasted investment and costly renewal of broken down facilities. Water supply and sanitation systems have often been successfully constructed without giving sufficient attention to O&M needs, in either water utility enterprises or the design of rural projects.

a) Policy-makers have not been fully aware of the economic and social benefits of WS&S and of the role of O&M in sustaining these systems. Policies have not been adopted that led to standardization in equipment and designs so that workable technologies could be duplicated. Many countries have, for example, allowed a large variety of handpumps to be imported, which has made O&M difficult.

b) Often issues related to O&M have not been considered when designing projects, and not enough consideration has been given to realistic assessment of available financial and human resources. For example, the capacity of rural and peri-urban communities to manage, maintain and pay for the system has sometimes not been taken into account. At the same time, the training required to operate and maintain the chosen technologies has been missing. in urban areas, for example, complex computer-driven systems have been installed without providing adequate training and support.

c) The institutions involved in O&M are as diverse as government agencies, urban water authorities, local communities, and private sector groups. However their roles have not been clearly delineated and they have found it difficult to perform O&M in regional member countries. Some have explored opportunities for contracting out maintenance responsibilities. Since capital requirements are relatively small and contractors can work under the supervision of responsible agency personnel, systems operation and maintenance could be gradually shiften to private firms under public regulation. The initiatives taken to date recognize the fundamental reality that public authorities often need help in carrying out the very large financing and management responsibilities they possess. Selective use of private firms often led to improvements in sector performance.

d) Very often funding for O&M, required to maintain the systems in the long run, has been neglected. At times, planning has not considered the recurrent costs involved in operations and replacement of system components. In addition, funds have not been programmed by operating agencies to meet these costs because they were unable to retain sufficient revenues generated from the sale of their services. Inventories of needed spare parts and equipment have not been maintained at levels sufficient to avoid delays in repairing breakdowns. Also, in rural communities, the need to mobilize local funds and other resources for O&M as well as the need to provide assistance in training water committees to manage the water systems and bookkeeping of their financial resources has not been met.

e) Women in rural areas have been found to be important in O&M, since they are the primary users of water delivery systems. In some cases, women have been given particular attention during the design and evaluation stages of projects, have been trained as pump mechanics, and selected as members of water management committees.

2.4.5.3 Rehabilitation of Existing Capital Facilities

Most of the major urban centers of Africa have already in place water-distribution and sewerage collection systems that represent large-scale capital investments. Many of these systems have aged prematurely; almost all stand in severe need of maintenance and repair.

Often, far greater returns have been obtained from preserving, maintaining, and rehabilitating existing capital facilities than from investing the same resources in new facilities. It is not unusual to find that the yield of drilled wells, and the capacity of treatment facilities and pumping stations have declined over time by a significant amount. The restoration of these facilities to their rated capacities has produced improvements for lower per unit costs than the installation of new equipment.

2.4.5.4 Design and Construction Standards

In general, successful system design has been based on those standards and those technologies that offered the probability of achieving the maximum extent of coverage of populations in need within the context of limited resources. In these situations, the quality and quantity of water supply and sanitation services made available have been defined by the objectives the system had to achieve.

Domestic water supply projects have involved a variety of technologies, service levels, and implementation methods. The city center usually enjoys full service from house connections supplying treated water to full plumbing. In the lower income peri-urban areas, water has often been supplied through public standpipes or yard taps. In the rural villages, groundwater has been tapped by open dug well or borehole and handpump. Where spring water has been available, it often has been economical to pipe it under gravity over several kilometers to village standpipes. Increasingly, household storage tanks have been employed to collect rainwater from rooftops for use on domestic needs.

Like many other aspects of capital investment in the water supply and sanitation sector, the design of appropriate capital facilities for urban sewerage and drainage have varied by region and local conditions. In Tunisia it has made it possible to combine collection of wastewater and storm water. In other countries, storm water drainage has not been the urgent priority. By contrast, urban centers in countries with very high volumes of rainfall have become paralysed during rainy seasons unless they had adequate drainage facilities. Moreover, in these locations it was more appropriate to build separate storm water collection systems and on-site wastewater disposal. Conditions unique to countries and regions, and the coverage objectives and resources (human and financial) of the national governments, dictated the standards for design and construction.

2.4.5.5 Water Quality and Quantity Standards

Realistic standards are needed to guide developmental efforts in water supply and sanitation in member countries. For water supply the standards can be characterized by four elements:

- quality,
- quantity,
- reliability, and
- accessibility.

a) In rural areas, the main risks to water quality have tended to be bacteriological contamination from human and animal wastes. In urban areas, there are additional risks from toxic chemicals and other industrial contaminants. Water treatment processes have been designed to remove contaminants from the water and thereby reduce the risk to health. However, treatment has been expensive and complex, restricting its application mainly to urban centers. In certain circumstances, this reality has limited the possibility of achieving the standards adopted, especially in smaller systems. In attempting to comply with the standards adopted, some countries allocated the bulk of the available resources to a small number of projects serving a limited number of communities and restricted their ability to achieve a lower but perceptible improvement in the water supply of a larger number of communities.

b) The quantity of water is dependent upon availability and the type of technology employed. The World Health Organization has estimated that the minimum required daily consumption of water is 30 liters per capita. Actual consumption rates are highly variable and tend to be considerably lower than most current design standards. In some cases, only 10 to 15 liters per capita per day have been consumed, suggesting that it is advisable to adopt consumption levels that are affordable and attainable.

c) The reliability of water systems can be viewed as primarily the duration of system operation without serious malfunction and breakdown. Many water distributions systems have operated on an intermittent basis because of inadequate supply sources, seasonal water fluctuations, lack of fuel, or poor maintenance. Intermittent service is especially hazardous to health because of alternating periods of pressure and non-pressure. When service is interrupted, water pressure can become negative, and contaminated groundwater can be drawn into the system through leaks in the pipelines.

d) Water supply accessibility is the ease of obtaining water, measured most simply as the distance between the water tap and the location where the water is to be used. In many areas, critical constraints (cost, water shortages, etc.) have made house connections inappropriate,

and public standpipes or taps have been used. Public taps have the advantage of bringing good quality water closer to the household. A maximum one-way walking distance of roughly 200 meters has often been used for design purposes.

2.4.6 ENVIRONMENTAL ISSUES

2.4.6.1 Water Resource Management

To ensure that populations have access to an adequate supply of good water, the governments of Africa have begun to develop policies and to implement programs designed to protect water resources. The measures in effect have focused on such problems as the control of disease (e.g., guinea worm and onchocerciasis eradication,) control of floods (e.g., Aswan dam) and soil conservation (e.g., reforestation programs of the Sahel). While disease transmission, flooding and soil erosion remain major concerns, pollution of the water sources from urban sewage, animal waste, agricultural fertilizers and commercial pesticides is increasing. As the pace of modernization quickens in Africa, governments have come to recognize the fragility of ecosystems and the need to secure and manage existing water resources and to protect populations. Programs dealing with wastewater treatment and disposal, as well as solid and toxic waste collection and disposal, have received increasing attention and are essential to achieve these objectives.

2.4.6.2 Wastewater treatment and disposal

Water used for latrine and toilet flushing, clothes and dish washing, cooking, bathing, and personal hygiene becomes wastewater. Where piped water is provided, increases in water use and the volume of wastewater to be disposed of follow. Potential health hazards will increase unless provision is made for proper wastewater disposal. It has been estimated that current wastewater production is 75 to 80 percent of total water use.

The wastewater disposal method chosen has depended on the location of the wastewater, the amount to be removed, the resources available and, in many areas, the condition of the soil. Where municipal sewerage has been available, connections have often been made to the public sewer. Where a public sewer has not been not available or anticipated, the method of collection, treatment, and disposal has been on site. Where the soil has been suitable, the disposal of wastewater has been simple, economical, and efficient. The most frequently employed methods have been cesspools or septic tanks with absorption fields.

As a general rule, the majority of communities in member countries are pre-industrial or have little industrial activity. However, there is great interest in industrial development and there are many centers of

industrial change and growth. A by-product of industrial development, and that includes the processing of agricultural products by modern industrial methods, is the generation of wastewater that contains potentially dangerous pollutants. While this is a small problem in most countries, substantial amounts of toxic wastes are being generated by some industries on the continent.

2.4.6.3 Solid Waste Disposal

Solid waste disposal has become an increasingly important aspect of the water supply and sanitation programs of the member countries. Solid waste management has been required to reduce or eliminate the breeding grounds of those insects and rodents that pose risks to public health, to protect drinking water supplies, and to improve the overall quality of the environment.

In some regional member countries where solid waste is a glaring problem, no provision has been made for organized waste collection and disposal, even in major urban centers. Urban or town solid waste disposal on an organized, community-wide basis can be an expensive, labor-intensive undertaking. In many rural villages and peri-urban areas, however, solid waste disposal has been a relatively minor problem, especially where scavenging and re-use of waste materials (e.g., composting) are common practices.

2.4.7 THE ROLE OF THE PRIVATE SECTOR

The private sector has had a checkered history in the water supply and sanitation sector of the member countries. There has been some participation in the sector by entrepreneurs traditionally involved in the provision of water and wastewater services, e.g., water vendors, cesspit emptying, household connections, etc. However, member countries have not yet utilized the full potential of the private sector to address the range of issues pertinent to the sector, e.g., design, execution, and operation of facilities, the definition of tariffs, the training of the staff of water and wastewater utilities, community participation, etc. Private sector participation has varied from country to country, depending upon the capabilities of private firms, consumer abilities to pay for services, and the ability of public sector institutions to meet water supply and sanitation goals on their own. In general, the private sector has been involved in four distinct areas:

- installation of capital facilities
- service provision to consumers
- operation and maintenance
- manufacturing of materials (pumps, pipes, etc.)

All of these initiatives have recognized the fundamental reality that public authorities often need assistance to carry out their very large financing and management responsibilities. Selective use of private firms has often improved sector performance. In some rural and peri-urban communities, international and local private voluntary organizations (PVO) and other non-governmental organizations (NGO) have been involved in organizing communities to contribute to the planning, construction and maintenance of WS & S improvements. Many PVOs and NGOs have considerable experience in community development and animation in Africa and are well suited for promoting community participation in such projects. Several bilateral and multilateral donors have used them as sole implementing agencies or as key players in collaborative projects in the sector.

2.4.7.1 Installation of Capital Facilities

In certain locations the private sector has been involved in the installation of capital facilities of the member countries. In developed urban areas, private site developers have financed and installed water distribution and sewer connection lines or other sanitation facilities before housing was built or lots sold for residential development. In these cases, the public agencies have ensured that appropriate design and construction standards were met.

Opportunities have varied by member country. In the Cote d'Ivoire, for example, the private operator of the country's water system, SODECI, has been negotiating with the government the terms under which it could also finance the capital expansion of water networks. The use and maintenance of privately raised capital for this purpose could reduce the heavy demands on the government's limited capital budget.

2.4.7.2 Service Provision to Consumers

On a far smaller scale, individual entrepreneurs have been used in several member countries to operate and maintain public standpipes, with public sector monitoring of their services. In return for overseeing consumer use and maintenance of a standpipe, the entrepreneur keeps a percentage of standpipe revenues, frequently paid by coin deposits. For cities that may have more than 1,000 standpipes, this reliance on decentralized initiative relieves the water authority of a very large potentiel management burden.

Opportunities for private service participation have also been explored in solid waste collection. In some countries with cities with a population of over 1,000,000 and no public sector trash collection e.g., Kinshasa, efforts have made to encourage service provision by private operators (some of whom already are active). In these cases, the role of

the public sector has been to increase efficiency by providing safe dumping places and enforcing regulations designed to ensure that dumping occurs only where authorized.

2.4.7.3 Operation and Maintenance

The private sector has long been active in assisting local communities and public institutions to operate and maintain completed systems. While this has most often been occurring on a small scale, (e.g. maintenance of low cost technologies by local mechanics) in some member countries, e.g., Cote d'Ivoire, the principal urban water supply systems are operated and maintained by a private firm. In other member countries, opportunities may exist for greater private sector involvement. Where this has occurred, private contractors have often been supervised by public institutions established to protect public investments and consumer interests.

2.4.7.4 Manufacturing

Member countries have a large demand for pipe, plumbing, ceramic ware, handpumps, etc. This demand has offered opportunities for local private sector participation. Among the products needed by the sector, handpumps have been considered very appropriate for production by private sector manufacturers in member countries. At the moment, the recently developed Afridev pump is now being manufactured in Kenya and Malawi, and the India Mark II is being produced in Mali and Kenya.

Many of these pumps are considered superior to imported pumps because they are more suitable for the conditions found in the member countries. The Afridev pump, for example, was specifically developed to be maintained and repaired with local resources.

CHAPTER 3

THE BANK GROUP'S EXPERIENCE WITH SECTOR PROJECTS

3.1 GENERAL OVERVIEW OF THE LENDING OPERATIONS

3.1.1 INTRODUCTION

The Bank Group has made loans to the water supply and sanitation sector since 1968 and has accumulated considerable experience in financing these projects and in working with member country institutions to implement them. The issues in the sector that have been of general concern to the Bank Group and have formed an important part of its experience have been discussed in Chapter 2. The present chapter considers the issues that pertain directly to the project cycle of the Bank Group.

3.1.2 LOANS TO THE SECTOR

Table 2 summarizes the Bank Group's participation in the sector. From a small base of 21.5 M UA invested in eight projects from 1970-1974, funding increased more than tenfold to 234.0 M UA in the period 1975-1979. Since 1980 loans to the sector have increased but diminished as a percentage of overall Bank Group lending. In 1985-86 lending for water supply and sanitation was half of the proportion of total Bank Group lending in the period 1975-79.

Table 2

Bank Group Lending to the Water Supply and Sanitation Sector

	1985-87	1988-90	1979-74	1975-79	forecast 1980-84
Funding (M UA)	21.5	234.0	339.1	248.2	522.3
No. Projects	8	43	36	24	41
Average Funds/ Project (M UA)	2.7	5.4	9.4	10.3	12.7
Percent of Total Bank Group Lending ..	N/A	14	11	7	14

3.1.3 BANK GROUP'S SHARE OF LENDING TO THE SECTOR

Viewed from another perspective, between 1970 and 1984 total external support funds for the water supply and sanitation sector in the member countries amounted to US $4.9 billion. The World Bank contributed US $1.8 billion and the Bank Group just under US $600 million. More recently, the Bank Group has financed a steadily growing share of the total sectoral investment. With the recent agreement to increase the Bank Group's capital, funding for the sector should grow dramatically. The Bank Group is likely to become a major external influence on water supply and sanitation investment in the member countries.

3.1.4 LENDING BY SUB-SECTOR

Tables 3 and 4 below review approved and projected financing by the African Development Bank and the African Development Fund for the period 1970-1990 broken down by subsectors: water supply, sanitation and mix. A review of Table 3 would suggest that the African Development Bank has focused on lending in the water supply sub-sector. In the period 1970 to 1990, only 12% of the projects are in the sanitation sub-sector; 4% are mixed projects that include a sanitation component. The data presented in Table 4 indicate that financing by the African Development Fund is more diversified: 64% are in water supply; 28% are sanitation projects, and the remaining 8% are mixed projects. The ADB has appeared to focus on lending in the water supply sub-sector while the majority of the Bank Group's lending for sanitation has been financed through ADF. Given the greater potential for cost recovery from urban water supply systems and the fact that ADB financing is available at a higher rate of interest, this distribution is logical.

Table 3

ADB Financing by Sub-Sector*

	1985-87	1988-90	1970-74	1975-79	forecast 1980-84
Water:					
Funding (M UA)	7.9	73.1	99.4	109.7	174
% of total Funds ...	66	78	91	100	78
Sanitation:					
Funding (M UA)	0	5.0	10.0	0	49
% of total Funds ...	0	5	9	0	22
Mixed:					
Funding (M UA)	4.0	15.3	0	0	0
% of total Funds ...	34	16	0	0	0

* Note. For the period 1970-1984, only those projects for which complete data are available have been included. For the period 1985-1987 all projects have been included. For the period 1988-1990, the figures presented have been taken from the Three-Year Programm (1988-1990),prepared by the African Development Bank in December 1987.

Table 4

ADF Financing by Sub-Sector*

	1970-74	1975-79	1880-84	1985-87	forecast 1988-90
Water:					
Funding (M UA)	6.0	46.0	114.6	110.4	203
% of total Funds ...	63	51	50	80	68
Sanitation:					
Funding (M UA)	0	24.8	74.6	24.7	81.3
% of total Funds ...	0	27	33	18	27
Mixed:					
Funding (M UA)	3.6	17.5	21.6	3.5	15
% of total Funds	37	19	9	3	5

(See note Table)

3.1.5 RURAL VERSUS URBAN PROJECTS

While the Bank Group has financed projects in the rural, urban and peri-urban area, governments and institutions classify projects as either urban or rural. Peri-urban projects are included among urban projects. Table 5 presents the projects financed according to the following classification: urban centers (populations in excess of 300,000); secondary cities (populations between 30,000 and 300,000); and rural centers (towns and villages with less than 30,000 inhabitants). For the period 1970 to 1990, ADB financing is principally in the urban centers; most of ADF financing is in secondary cities and rural areas. This again reflects the logical division of financing between ADB and ADF. The table also indicates that lending for projects in the rural areas is the smallest percentage of overall Bank Group lending in the sector. Countries seem to prefer to support rural projects through grant funds rather than loans.

Table 5

Project Funding by Project Location*

	1970-74	1975-79	1980-84	1985-87	forecast 1988-90
Major Urban Centers ..					
% of ADB Lending ...	75	41	32	62	69
% of ADF Lending ...	0	36	18	16	38
% of Total	41	39	22	36	51
Secondary Cities					
% of ADB Lending ...	25	52	24	38	20
% of ADF Lending ...	58	48	40	63	36
% of Total	40	50	36	52	29
Rural and Rural Towns					
% of ADB Lending ...	0	6	44	0	11
% of ADF Lending ...	42	16	42	20	26
% of Total	19	11	43	12	20

3.1.6 REHABILITATION PROJETS

In recent years circumstances have prompted a shift in Bank Group financing from a predominant focus on new construction to a more balanced emphasis that includes the rehabilitation of existing water supply and sanitation systems. Before 1985, only 12% of the Bank Group's projects involved rehabilitation. In the period 1985-87, 7 of 18 projects (39%) included rehabilitation of existing systems, especially water distribution lines. The Bank Group has come to be very supportive of projects that include rehabilitation of existing facilities as a prerequisite for system expansion.

3.2 PROBLEMS ENCOUNTERED IN FINANCING PROJECTS

The Bank Group has encountered difficulties in financing projects in the sector, ranging from project identification through appraisal and implementation to final evaluation. In general, the Bank Group identified two major areas of difficulty. The first relates to the inability of most of the institutions involved in the sector to prepare plans, to implement and supervise projects, and to operate facilities. The second concerns the fact that the Bank Group often became involved in the project too late in the project development cycle. Often, apparaisal was carried out before the detailed design and bidding documents needed to implement the project were well underway. As a general observation, experience has shown that when the Bank Group is involved at the earliest stages of project preparation, the design of the project is strengthened and the documents submitted are in close compliance with Bank Group standards.

3.2.1 PRE-LENDING ACTIVITIES

During project identification, the Bank Group has had difficulty capturing the data and other information needed to determine the degree of importance of the project submitted. Often, the project presented has not incorporated the data needed to assess the financial and institutional requirements, and to estimate project returns, measured in financial and socio-economic terms. In addition, the project has frequently not been presented according to its rank within the national plan of the member country.

3.2.1.1 The Bank Group has found these difficulties to be particularly acute when reviewing projects from those member countries that have no detailed plans for the water supply and sanitation sector or where the plans prepared have not been followed. On the contrary, when identifying and reviewing projects from those countries that have a national plan, containing at least a list of proposed projects, ranked by priority, with reasonable cost estimates, and the source of project funding, the Bank Group has encountered fewer difficulties.

3.2.1.2 When appraising projects the Bank Group has had a mixed experience in assessing costs and estimating returns. At times, detailed design and bid documents were not prepared until after the loan was approved. In these cases, cost estimates had to be based on ratios for similar projects in the country (or the region) and led to inaccurate estimates of the true cost. In other cases, specific components of some projects and the scopes of others had to be modified after loan approval. In such cases, the cost estimates, pertaining to the modified components, became largely irrelevant. In still other cases, some other submitted projects contained completely outdated estimates, based on detailed designs. These estimates were, however, not actualized using current unit prices for materials and construction. In such cases, project costs estimated were inaccurate.

3.2.1.3 In estimating the potential return of the projects the Bank Group has had a tendency to overestimate the number of connections and the rates of consumption. The capacity of the implementing agencies to recover costs has been lower than assumed. Also, institutional and tariff reforms have often not been implemented as quickly and completely as initially planned. As a result, the return on some projects has been significantly lower than anticipated.

3.2.2 COORDINATION OF PROJECT START-UP

The experience of the Bank Group has shown that many projects have had delays in getting started. The delays have resulted mainly from late preparation of detailed design and bidding documents. Inaccurate cost estimates and the selection of consultants and

contractors have also delayed project initiation. On some occasions, bids by contractors exceeded the costs estimates. The project had to be re-appraised and scaled back, and procedures had to be started again. It has also become apparent that some borrowers have not understood fully the Bank Group's procedures and requirements, and have had difficulty meeting the conditions precedent for the loan. On occasion, discussions about procedures, such as the selection of consultants and contractors, have delayed implementation. In general, however, these delays have diminished as countries and executing agencies have become more familiar with the procedures of the Bank Group.

3.2.3 PROJECT IMPLEMENTATION, MONITORING AND POST-PROJECT EVALUATION

Post-project evaluation have indicated that some delays in implementation have risen out of conflicts between the executing agency and the contractors or consultants. The Bank Group documents have indicated that delays have resulted from the executing agency's late payment of invoices, slow appointment of qualified personnel, and failure to make promised equipment or materials available in a timely manner. Where the Bank Group has payed a very active monitoring role, these problems have not been as severe. In general, many of the problems and delays incurred could have been avoided, or their impact minimized, by adequate project monitoring by the Bank Group and through closer collaboration among all the parties involved during preparation and implementation. The evaluation of projects in the sector have suggested that this monitoring and collaboration could be achieved through closer contact with the field on the part of the Bank Group and through the timely submission of properly focused reports on the part of the borrower.

3.2.3.1 As noted above, some projects in the water supply and sanitation sector have undergone changes between the time of loan approval and implementation. Keeping track of these changes and ensuring that these are in accordance with the loan agreement has required action on the part of both the Bank Group and the borrower.

3.2.3.2 Experience in the sector has indicated that effective operating institutions are essential to sustain the systems financed by the Bank Group and implemented by the borrowing member country. The Bank Group has found that many of these institutions are weak and has attached conditions to loans designed to bring about institutional reform. In general, these conditions have obligated the borrower to implement tariff reforms and to bring about the restructuring and strengthening of its operating institutions. The conditions defined by the Bank Group and agreed to by the member countries have been designed to improve the ability of the operating institutions to increase revenue generation and decrease the cost of operations. The conditions have also required the

borrower to establish staffing levels needed to achieve optimum institutional efficiency and to put in place incentives designed to retain qualified staff. However, in most cases, the conditions were only partially implemented.

3.3 RECOMMENDATIONS ON PROCEDURES AT THE OPERATIONAL LEVEL

3.3.1 LOAN APPLICATIONS

All applications from regional member countries for project financing should include:

i) A brief description of how the proposed project fits the national development strategy for the water supply and sanitation sector, together with a listing that includes a brief description and cost estimate of other major sectoral projects and their sources of financing;

ii) A project cost estimate, based on unit costs for similar projects currently underway or completed within the last year, or where there are no similar projects, on current contractor cost estimates; and

iii) Detailed desings sufficiently advanced so that bidding can take place immediately following loan approval.

3.3.1.1 Where a regional member country does not possess items (ii) and (iii) above, it may apply for a project development loan to develop this information. The Bank Group will arrange loans to support the development of projects which, based upon preliminary information provided, fit the regional member country's sectoral development strategy and hold promise of meeting the criteria for final project approval.

3.3.2 APPRAISAL

In project appraisal, the Bank Group will assign special importance to:

1. The compliance of the project with Bank Group policy as defined in this document;

2. The measures taken by the government of the borrowing country that indicate its interest in the sector and the project;

3. The priority of the project within the country's sectoral development strategy;

4. The readiness to proceed with the project, as judged by the clarity of its scope, and the preparation of detailed designs and other documentation;

5. The capability of the institutions involved to implement the project, as judged by their current strength and the record of performance on Bank Group projects, and the capacity of other sectors to provide necessary inputs for project success; and

6. The potential of the systems, established by the project, to sustain themselves.

3.3.3 MONITORING

Once approved, projects will be monitored on a regular basis. A quarterly reporting format will be specified for each project, together with a schedule of Bank Group field visits. Both the reporting and field visits will measure project progress against the initially proposed project schedule. The Bank Group intends to negotiate procedures for monitoring and overcoming project bottlenecks with each implementing agency, so that delays in taking corrective steps can be minimized. The Bank Group will give special importance to monitoring the timely implementation of the terms and conditions agreed to in the loan agreement.

3.3.3.1 It is not in the interests of the Bank Group or of the regional member countries to have scarce funds tied up in projects that are not moving forward. Therefore, the Bank Group will undertake a special assessment of all projects on the third anniversary of projet approval. Projects that have not met the conditions precedent or have not disbursed a substantial share of the funds by this date, will be analyzed to determine the underlying causes and may be terminated by the Bank Group to allow the funds to be re-programmed.

3.3.4 EVALUATION

In addition to monitoring the projects in the course of implementation, the Bank Group will give special importance to the conduct of a post-project evaluation. The evaluation will be designed to assess the degree to which objectives defined for the project, when submitted for appraisal by the Bank Group, have been met. The evaluation will also attempt to assess the impact and cost of the intended and unanticipated outcomes of the project. The Bank Group wants the post-project evaluation to be carried out by the regional member country so that the country can draw the principal conclusions.

CHAPTER 4

BANK GROUP'S LENDING POLICY IN THE WATER SUPPLY AND SANITATION SECTOR

4.1 GOALS FOR THE SECTOR

Since the fundamental purpose of the Bank Group is to contribute to the economic development and social progress of the member countries, the sectoral goals in water supply and sanitation will be directed toward providing adequate water supply and sanitation services to the greatest number of people residing in the member countries taking into account the potentialities of the member countries and the beneficiairies. In collaboration with the member countries, the Bank Group will seek to achieve the greatest possible coverage of services within the means available in order to:

- improve public health;
- enhance the quality of life;
- promote community organization; and
- contribute to social and economic development.

4.1.1 PURPOSE OF THE SECTORAL LENDING POLICIES

The Bank Group is committed to working with the member countries to strengthen their activities in the water supply and sanitation sector, and recognizes the need to formulate a framework that can shape lending in the sector. The Bank Group has, therefore, defined policies designed to

- inform the member countries of the elements that should be incorporated in the projects that the Bank Group is predisposed to support in the sector;
- facilitate national sectoral planning by the member countries and long term collaboration between them and the Bank Group;
- provide a frame of reference for the Bank Group to apply when appraising projects that have been submitted for financing; and
- coordinate the Bank Group's efforts with the activities and priorities of other external support agencies operating in the sector in the member countries.

4.1.2 LENDING OBJECTIVES AND PRIORITIES

The Bank Group will use its lending program as an instrument to influence the sectoral policy of regional member countries in a manner that is compatible with the objectives. The Bank Group will continue to finance regional programs and projects in water supply and sanitation in the urban, rural, and peri-urban areas of the member countries. To achieve the greatest possible mobilization of resources the Bank Group will seek to co-finance projects with other donors and lenders who have the same development objectives. To focus its resources on the achievement of its policy goals, the Bank Group will assign high priority to projects that have taken the following issues into account:

- Planning and Coordination:
  - establishment of national project priorities
  - sectoral and institutional assessments
  - the preparation of national sectoral master plans
  - coordinated regional sectoral plans

- Social issues:
  - human resource development initiatives
  - promotion of community participation and enhanced
  - roles of women
  - integration of user and hygiene education programs

- Institutional, Financial and Technical issues:
  - institutional assessment and strengthening
  - improved and more equitable cost-recovery
  - improved system operation and maintenance
  - rehabilitation of existing capital facilities
  - involvement of the private sector
  - development and utilization of low-cost technologies

- Environmental issues:
  - integrated water resource management
  - wastewater treatment and disposal
  - solid and toxic waste disposal

4.2 POLICIES ON SECTORAL LENDING IN WATER SUPPLY AND SANITATION

The discussions in Chapters 2 and 3 above analyzed the principal characteristics, constraints and problems pertinent to the water supply and sanitation sector in the member countries. Below appear the approaches that Bank Group will apply when considering projects for financing.

4.2.1 PLANNING AND COORDINATION POLICIES IN THE SECTOR

The Bank Group will encourage activities that facilitate effective planning and coordination among all institutions, agencies and communities operating at all levels throughout the water supply and sanitation sector. The Bank Group is supportive of those activities that assess sectoral needs and resources, incorporate user participation, analyze the unique characteristics of project sites, and emphasize the importance of achieving sustainability of the water supply and sanitation systems.

4.2.1.1 Planning and Coordination on the International Level

The Bank Group supports, and will participate in, sectoral planning on international and regional levels. It recognizes the value of collaborating and participating with the external support agencies and member countries in international programs, conferences, seminars and assemblies. The Bank Group intends to play a much more active role in support of planning that coordinates external assistance to national sectoral programs.

4.2.1.2 Planning and Coordination on the National Level

The Bank Group considers it urgent for member states to formulate their own strategies for sectoral development and to establish long-term (five to ten years) project priorities based on a national assessment of water supply needs. The Bank Group assigns high priority to the preparation in each member country of sectoral assessments and master plans. These documents should take into account the critical linkages between water supply and sanitation and the other sectors, especially health and education. The preparation of these documents should be coordinated between the agencies responsible for the sector and those responsible for health and education. In cases where member countries have not prepared sector assessments or detailed master plans, the Bank Group stands ready to assist them by providing the financing required to implement selected studies that will contribute to such plans (e.g., resource studies, tariff studies, water supply/demand studies, manpower studies, etc.). The Bank Group supports increased institutional coordination and cooperation in the sector. It encourages member states to develop collaborative relationships among national operating agencies, private sector groups, and community organizations.

4.2.1.3 Planning and Coordination on the Project Level

The Bank Group will give preference in loan applications to those projects submitted by the member countries that reflect compliance

with the completed sectoral assessments and master plans. The Bank Group encourages the submission of projects that outline in detail the achievement of the objectives of the water supply and sanitation sector of the member country, clearly justify the expected return on investment, measured in financial, institutional, and social terms, and spell out steps for implementing, monitoring, evaluating the project and operating the system installed. Bank Group approval of loan applications will be based on appraisal of project documents containing sufficient design detail to allow the estimation of the true costs and the projected return of the project. The Bank Group stands ready to assist member countries to prepare project documents that meet these criteria.

4.2.1.4 Planning at the Community Level

The Bank Group recognizes the important role played by the community in planning rural and peri-urban project activities at the local level. The Bank Group will give priority to projects that permit local choice, establish specific objectives for achieving community participation, allocate resources for the promoting involvement by members of rural and peri-urban communities, present clear strategies for implementing promotional tasks, and develop training and supervision programs for project promoters.

4.2.2 SOCIAL POLICIES IN THE SECTOR

The Bank Group endorses the conviction that the sustainability and impacts of the systems installed are enhanced by and related to the degree to which communities, women, are involved, and programs in user and health education are implemented. The importance of these activities cannot be overemphasized.

4.2.2.1 Community Participation

The Bank Group recognizes the indispensable role of rural and peri-urban beneficiaries in developing sustainable water supply and sanitation projects. Sectoral projects serving rural and peri-urban populations should promote the full and active participation of all project beneficiaries in planning, implementation and evaluation. The Bank Group will support rural and peri-urban projects that include applied research on strategies to promote community participation and components designed to facilitate community involvement.

4.2.2.2 The Roles of Women

The Bank Group underscores the special role played by women in successful water supply and sanitation projects in the member

countries. As the principal beneficiaries and primary managers of project outputs especially in the rural and peri-urban areas, women are indispensable for ensuring that project benefits are obtained. The Bank Group will give priority to projects that promote the active participation of women in all stages of project development. The Bank Group also encourages the recruitment and training of women as project promoters and community educators, and the involvement of women's associations in implementing the social and health components.

4.2.2.3 User Education

Beneficiairies living in the rural and peri-urban areas often have to learn how to operate the equipment and must understand the benefits to be derived from the proper use of water supply and sanitation facilities. In addition, some community members need to ensure that systems are properly operated and maintained. The Bank Group is supportive of incorporating user education components in projects for rural and peri-urban areas of the member countries.

4.2.2.4 Hygiene Education

The health benefits of water supply and sanitation projects in the rural and peri-urban areas are maximized through improved personal and community sanitary behaviors. Achieving behavioral change requires the active participation of project beneficiaries, especially women, in hygiene education programs. The Bank Group encourages the submission of rural and peri-urban projects that include hygiene education components. These components should be linked to community participation, user education, and existing primary health care programs.

4.2.3 INSTITUTIONAL POLICIES

The Bank Group recognizes that institutional and human development can be more fundamental to the achievement of sectoral goals than physical investment. The institutions that operate complex water supply and sanitation systems in urban areas require considerable strengthening. In the rural areas there is a need to develop institutions, where none are in place, or to employ to the fullest extent possible, organisations that already exist, e.g. PVOs, NGOs. The Bank Group also stresses the need to clarify the responsibilities of the various institutions involved in the sector.

4.2.3.1 Performance of Operating Institutions

The Bank Group recognizes the need to enhance the capacity of operating institutions to ensure the long-term sustainability of the

systems installed. In collaboration with the governments of the member countries, the Bank Group will appraise the capacities of the operating institutions to manage the systems in place. These appraisals will assess the framework in which the institution operates, their technical and managerial capability, their degree of organizational autonomy and their experience and potential for containing cost and generating revenue. The Bank Group favors projects in water supply and sanitation that incorporate components supporting institutional development. These components will be defined through a joint review by the Bank Group and the member contries of the conclusions of the appraisals conducted.

4.2.3.2 Human Resource Development

Since human resource development and staff training are vital to improve technical and managerial performance, the Bank Group will encourage technical assistance and training exchanges among the water supply and sanitation institutions of the member countries. The Bank Group will target key institutions for development and help to establish a regional resource base composed of specialized institutions. of proven effectiveness who are ready to assist sister institutions. The Bank Group will encourage direct institution-to-institution assistance among regional member countries so that improvement in operating performance can be directly observed. This institutional cooperation will be aimed at improving:

- financial and organizational autonomy
- decentralized organizational structures
- institutional policies and procedures
- managerial and administrative systems
- technical and managerial job performance

Opportunities for linkage with regional institutions of higher learning and centers for management training that have relevance to the sector will be sought. Development of in-house staff training capacities, where appropriate, will be supported.

4.2.3.2.1 The Bank Group recognizes the important relationship between retaining staff, reducing the rate of turnover and achieving institutional effectiveness in the long-term. Providing incentives that attract and retain competent staff is also considered to be directly related to achieving this objective. The Bank Group will support the conduct of manpower studies and assessments of training and human resource development needs in regional and national institutions, project management structures, and beneficiary organizations.

4.2.4 FINANCIAL AND COST-RECOVERY POLICIES

The Bank Group has observed that the resources available to the member countries are insufficient to finance operations at present levels much, less to expand services to reach those people still requiring water supply and sanitation services. The Bank Group, therefore, encourages cost recovery from users through community or household contributions in cash or in kind. The Bank Group acknowledges that consumer and community willingness and ability to pay vary greatly across urban, rural and peri-urban populations.

4.2.4.1 Urban and Peri-urban Cost Recovery for Water Supply

The Bank Group endorses the policy that urban and peri-urban consumers should finance all costs of operation, maintenance and future asset replacement, and that operating institutions should finance a substantial portion of capital expansion from internally generated funds. The Bank Group endorses the incorporation in sectoral plans of the principle of full cost recovery. The Bank Group supports urban projects that encourage households to connect to the system because connections secure the revenue base of the water entity, ensure that maximum health benefits are derived and may, in certain cases, permit water use fees to cover wastewater disposal costs. It seeks to discourage the long-term public sector subsidization of recurrent costs. However, cross-subsidization of peri-urban services by urban consumers is supported by the Bank Group.

4.2.4.2 Rural Cost Recovery for Water Supply

The Bank Group recognizes that full cost recovery for rural water supply projects is difficult to attain. However, the Bank Group supports the policy that such projects should collect payments from beneficiaries at least equal to the cost of operation and maintenance. In addition, the Bank Group expects member countries to incorporate in their sectoral plan a provision for moving toward partial financing of capital costs from beneficiary contributions.

4.2.4.3 Cost Recovery for Sanitation

The Bank Group recognizes that full cost recovery for water-borne sanitation systems in the urban areas is difficult to attain. The Bank Group supports the development and implementation of revenues mechanisms (user fees, subsidies from water fees, fees in coordination with general taxes) that are designed to recover some of the costs of sanitation systems. The Bank Group advocates the use of low-cost sanitation technologies to reduce overall system costs whenever possible.

4.2.4.4 User Fees and Tariffs

The Bank Group supports cost recovery systems composed of consumption charges, connection fees, specialized local taxes, etc. It recognizes that the establishment and adjustment of such fees must be based on the ability and willingness of the consumers to pay which are influenced by the level of service and consumers' understanding of the benefits. The Bank Group will support water supply and sanitation projects in which tariffs are designed to ensure that the poorest consumers have access to the system. By ensuring that these consumers are made to pay, they become aware of cost and spillages may be avoided. This can be achieved through block rate structures for house connections and charges for public standpipes.

4.2.4.5 Return on Investment

The member countries have not given due priority to investments in the water supply and sanitation sector on the grounds that the sector is not productive, However, the apparent lack of productivity is actually the result of the difficulty of calculating a precise rate of return or in quantifying the benefits on health status and quality of life attributable to the interventions. Even given this difficulty, the Bank Group can only support those projects that ensure the expected rates of return, measured as equal to or more than the weighted cost of capital. It encourages the member countries to gather and analyze the data needed to estimate the expected rate of return on projects. In addition, the Bank Group is prepared to work with the member countries to prepare the required documentation.

4.2.4.6 Investment Priorities

The Bank Group supports projects submitted by member countries that have high priority in the sector and are in accord with the policy objectives defined in the national plans. The Bank expects to receive and appraise project documents and to support projects that reflect their priority measured in quantified terms relative to other projects in the sector.

4.2.5 TECHNICAL POLICIES IN THE SECTOR

The Bank Group discourages the use of high-cost technologies, where less expensive, effective alternatives exist. It will review project proposals with an eye toward stretching the investments in water supply and sanitation to bring a given level of services to as many people as possible. Centralized wastewater systems are several times more expensive, per capita, to build than piped water distribution systems. As a

result, the Bank Group considers the installation of conventional sewerage systems justified only in urban areas of high population densities and large sewerage volumes. For other situations, the Bank Group gives preference to decentralized systems (e.g., latrines, septic tanks). These require less capital investment, have lower operating costs and are easier to maintain. In peri-urban areas, the Bank Group considers it useful to consider technologies that can either be upgraded as the area becomes more urbanized or can be easily replaced. The Bank Group will support efforts to make technologies respond better to local conditions.

4.2.5.1 Operations and Maintenance

The Bank Group concurs with member countries and others involved in the development of the water supply and sanitation sector that operation and maintenance (O&M) is one of the top priorities. The Bank Group encourages member countries to develop national policies for the standardization of equipment such as handpumps, for the participation of the private sector in certain O&M tasks, and for the increased involvement of rural and peri-urban communities in O&M. The Bank emphasizes the need to design projects in view of their requirements for operations and maintenance.

4.2.5.2 Rehabilitation of Existing Facilities

The Bank Group is aware that many of the water supply and sanitation systems have aged prematurely and are in need of maintenance and repair. The Bank Group recognizes that far greater returns on investment can be obtained from preserving, maintaining, and rehabilitating existing facilities than from investing the same resources in new facilities. The Bank Group will give priority to requests for loans to rehabilitate existing facilities where appropriate. These projects will be eligible for Bank Group financing only after the causes that led to the need for rehabilitation have been analyzed and agreed upon, and after a plan outlining the measures needed to correct the situation has been developed and accepted by the borrower.

4.2.5.3 Design and Construction Standards

The Bank Group supports the definition and adoption of standards and technologies that offer the probability of achieving the maximum coverage of the population, especially the segment most in need, with essential services. It encourages the utilization of low-cost technologies and the establishment of realistic goals with respect to levels of service.

4.2.5.4 Water Quality and Quantity

The Bank Group recognizes that compliance with the generally accepted standards for water quality and quantity is difficult to achieve and will sometimes only be attained through gradual improvements. In order to ensure maximum coverage with the resources available, the Bank Group will, in certain cases, support projects employing technologies that will not ensure total compliance with the standards at all times. However, these projects will have to offer a significant improvement over the existing situation, and future upgrading of the systems that are built must be possible.

4.2.6 ENVIRONMENTAL POLICIES IN THE SECTOR

As co-signer of the "Declaration on Environmental Policies and Procedures Related to Economic Development (1981)," the Bank Group is committed to addressing the problems of waste disposal and water quality. Collection and disposal of solid waste and ensuring proper drainage are major concerns in urban and peri-urban areas. In some rural areas, agricultural toxic wastes are becoming a serious problem.

4.2.6.1 Water Resource Management

Wastewater and solid waste disposal projects submitted to the Bank Group should contain an analysis of the impact of the intervention on water resources. Water supply projects submitted to the Bank Group should contain an assessment of the quality of the water sources to be developed and a study of the measures to be taken for their protection.

4.2.6.2 Wastewater Disposal

Since wastewater disposal is critical to improved quality of life and health in urban and peri-urban areas, the Bank Group will continue to support projects that rehabilitate and extend existing urban facilities and construct new ones. The Bank Group will finance projects that use low-cost technologies for wastewater and human excreta disposal in low-density urban areas and rural communities. It will also support studies to identify new approaches for safe, cost-effective disposal technologies for urban and peri-urban areas.

4.2.6.3 Solid Waste Disposal

The Bank Group recognizes that solid waste disposal, especially in urban areas, is necessary to ensure health and quality of life. The Bank Group encourages member countries to incorporate provisions for the collection and disposal of solid waste disposal in water supply and sanitation projects, and to outline the role that the private sector could play in providing these services.

4.2.6.4 Toxic Waste Disposal

Industrialization and agricultural development are reaching the point in some member countries to raise the Bank Group's concern for the disposal of toxic wastes. Chemical contamination of water supplies and pollution from industrial by-products and from the growing use of agro-chemicals are becoming a clear and present danger to health. The Bank Group will support studies to plan and implement toxic waste disposal programmes in the member countries.

4.2.7 POLICY ON THE PARTICIPATION OF THE PRIVATE SECTOR

The Bank Group encourages regional member states to collaborate with private enterprises in implementing sectoral investment plans and in managing and maintaining water supply and sanitation facilities. It will give favourable consideration to project proposals that assign new roles to the private enterprises and NGOs and that are consistent with national development objectives.

4.3 APPLICATION OF THE POLICY

The Bank Group intends to become involved in the project preparation process at an early stage and recognizes that standardized procedures are necessary throughout the project cycle.

The Bank Group intends to prepare guidelines for project preparation and appraisal for projects in the water supply and sanitation sector. These guidelines will be a useful tool for both the Bank Group and the member countries in applying the present policy.

The Bank Group is also of the opinion that policies evolve and that it will be necessary to evaluate periodically those presented in this document and to take into account new tendencies, changes and circumstances.

Printed in April 1990
CEPR / Imprisud - Abidjan