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FEDERAL REPUBLIC OF NIGERIA

STAFF APPRAISAL REPORT

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

April 28, 1981

Regional Project Department
Western Africa Regional Office

CURRENCY AND EQUIVALENTS

Currency Unit	=	Naira (₦)	= 100 kobos (k)
₦ 1.00	=	US$1.82	
US$1.00	=	₦ 0.55	

UNITS OF MEASUREMENT

mm	=	millimeter	(1 mm	=	0.039 inches)
cm	=	centimeter	(1 cm	=	0.39 inches)
m	=	meter	(1 m	=	3.28 feet)
m^2	=	square meter	(1 m^2	=	10.76 square feet)
m^3	=	cubic meter	(1 m^3	=	264.2 US gallons = 35.3 cu. ft.)
km	=	kilometer	(1 km	=	0.62 miles)
km^2	=	square kilometer	(1 km^2	=	247.1 acres = 100 ha)
ha	=	hectare	(1 ha	=	2.47 acres = 10,000 m^2)
lcd	=	litres per head per day			

ABBREVIATIONS AND ACRONYMS

ANSG	Anambra State Government
ASWC	Anambra State Water Corporation
FGN	Federal Government of Nigeria
FMWR	Federal Ministry of Water Resources
ICB	International Competitive Bidding
LG	Local Government
MLG	Ministry of Local Government
MPU	Ministry of Public Utilities
MPW	Ministry of Public Works
OLG	Onitsha Local Government
OMIP	Operations and Management Improvement Program in ASWC
PPF	Project Preparation Facility
TCE	Tahal Consulting Engineers
WHO	World Health Organization
WHO/CP	WHO-Bank Cooperative Program

FISCAL YEAR

The Fiscal Year of ANSG, ASWC and OLG has hitherto ended on March 31. Because of the change in the fiscal year throughout Nigeria from January 1, 1981 there are two fiscal years for 1980. In this SAR the 12 months ended March 31, 1980 are referred to as FY 80 (12) and the 9 months ending December 31, 1980 as FY 80 (9).

NIGERIA - ANAMBRA STATE
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ANAMBRA WATER SUPPLY AND SANITATION PROJECT

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This report is based on the findings of a Bank appraisal mission which visited Nigeria in December, 1979 comprising Messrs. Motte (Sanitary Engineer), Andersen (Financial Analyst), Courtney (Urban Development Specialist), Katsu (Economist), and Densham and Mmes Cointreau and Leone (Consultants).

I. THE WATER SUPPLY AND WASTE DISPOSAL SECTOR

Background

1.01 Nigeria, with a 1980 population of approximately 80 million, is the most populous nation in Africa. Anambra State, which was created in 1976, lies around 6° latitude north of the equator and covers an area of 17,300 km^2 or 1.9% of the total area of Nigeria (see Map 1). The last census which serves as a basis of all population estimates and forecasts, dates back to 1963, and the present State population is estimated to be about 5 million or 6% of Nigeria's total population. Anambra State is one of the most densely populated areas of Nigeria. About 20% of the State population lives in the main centers of Enugu, Onitsha, Nsukka and Abakaliki and four other centers, while the remainder lives in high density rural areas. Anambra State was the center of the Civil War that took place between 1967 and 1970 and much of the infrastructure and services, though reconstructed, still bear the scars of the calamity and badly needs rehabilitation and extension.

1.02 The proposed project would be the second Bank involvement in the Nigerian water supply sector; the Kaduna State Water Supply project (Loan 1711-UNI) was approved in 1979. The Bank's first complete study of the water and sanitation sector in Nigeria began in Anambra and Cross River States in April 1979, and will continue on a state-by-state basis, as part of the Bank/WHO Cooperative Program (WHO/CP). This work follows from the rapid assessment reports prepared by sector officials in the framework of the International Drinking Water Supply and Sanitation Decade (see para 1.06).

National Aspects of Sector Developments

1.03 Under Nigeria's federal system of government, the 19 individual states have the primary responsibility for the development of the water supply and waste disposal sector. However, the recently appointed civilian regime of the Federal Government of Nigeria (FGN) has created a Ministry of Water Resources (FMWR) which is responsible for the national and international aspects of water resources allocation and for approving large water resource projects for which Federal Government financing is requested. At this stage, FMWR has insufficient staff and capabilities to exercise its responsibilities of overall strategy, planning, guidance for project preparation, and monitoring of projects. FMWR controls the eleven river basin authorities, created in 1976 by Federal decree, for the planning and development of water resources on a national basis throughout Nigeria. Since Anambra State straddles two different catchments, two river basin authorities, the Cross River and the Anambra-Imo, with headquarters in Calabar and Owerri respectively, have jurisdiction over the eastern and western parts of the State. These authorities are not yet able to fully discharge their responsibilities which consist of obtaining and recording basic hydrological, meteorological and hydrogeological data and allocating water resources for development schemes. Since no large development schemes have been designed in Anambra there has been no competition for the use of water resources by potential abstractors.

1.04 Nigeria's plans for economic development for the coming five years are under preparation by the new civilian administration and will be outlined in the Fourth National Development Plan 1981-85 for which approval is imminent. Each State will have its own plan for the same period, as part of the National Development Plan. During the previous Plan period (1975-1980) the objectives of the Federal Government for the sector aimed at (i) ensuring that all communities above 20,000 are provided with pipe borne water by 1980 and (ii) providing 115 litres (25 gallons) per capita per day in all urban centers. Since sector developments have taken place in an uncoordinated manner and because of serious financial constraints these objectives have not been achieved and the level of service has even deteriorated in many States.

1.05 The new civilian Federal Government has stated that it considers orderly urban development one of its highest priorities together with all the attendant infrastructural investment such as water supply, drainage and sewage disposal. Wishing to pursue harmonious development of water supplies in the various States, the Government has asked the Bank to participate in the financing of water supply programs in about 5 States, of which one is the State of Anambra, and to assist the coordinating and policy making Ministry (FMWR) in strengthening its capabilities in water resources planning and policy formulation for an orderly development of the water sector. Discussions are under way with FMWR to determine the most appropriate means of Bank assistance.

International Drinking Water and Sanitation Decade

1.06 In March 1977, the United Nations Water Conference held in Mar de la Plata, Argentina declared the period 1981-1990 the International Drinking Water and Sanitation Decade. All developing countries were requested to prepare by 1980 detailed investment plans including identification of necessary financial and manpower resources to provide all people with access to safe water and, to the extent possible with sanitation, by 1990. The investment plans and financial and human resources needed to achieve these plans would be reviewed by a special meeting of the Economic and Social Council of the United Nations (ECOSOC) in November 1980 and a plan prepared to mobilize these resources. The World Health Organization's thirtieth assembly resolved to collaborate with member countries during the initial stage and pledged WHO staff assistance to these countries for a rapid assessment of ongoing programs and their possible extensions. For Nigeria the rapid assessment exercise carried out by WHO/CP staff with assistance from Bank staff has yielded reports from 14 States which were transmitted to FMWR; a preliminary report for overall Nigeria has been drafted pointing out the constraints and the need for establishing meaningful programs for the 1981-85 plan period and establishing strategies to attempt to meet the onerous demand of the decade. This exercise and a sector survey produced state by state are expected to increase sector knowledge significantly and Governments' awareness of sector requirements and development activities.

Urbanization and Urban Services

1.07 Nigeria has the largest urban population in Africa, with an estimated 24 million people living in some 1,000 towns with a population over 20,000. Roughly a third of this urban population, about 8 million persons, live in the 20 largest cities and towns, including the federal capital at

Lagos with a population estimated to be 3.5 million in 1976. In contrast to an estimated annual national population growth rate of 2.5%, the urban population increased at an annual rate of about 7% between 1970 and 1975, with existing large centers continuing to grow, and many previously small centers rapidly doubling and tripling their size since 1975. The creation of a federal system of 12 states following the civil war and the 1976 addition of 7 new states has stimulated the dispersion of urban population into the new state capitals as well as to secondary centers within states. The rapid growth of urban employment opportunities throughout Nigeria, resulting from 1970-76 period of high oil revenues and massive public expenditures, has led to high urban income levels relative to returns to agriculture and induced large-scale migration to towns of all sizes.

1.08 The rapid growth of the urban population however, was not accompanied by a commensurate increase in the provision of urban services. Many Nigerian towns have vast slum areas, unconnected to existing infrastructure networks of piped water, stormwater drainage, sewage disposal, roads or transportation. While some urban master plans have been prepared, the focus of these plans like those recently commissioned for Onitsha and Enugu has often left major gaps in dealing with the near term problems of managing and improving the immediate urban environment and the related services of infrastructure.

1.09 A 1973 report 1/ on 20 urban centers assessing the amount of financial requirements to cover the current needs for urban services determined that 67% of the total should go towards housing as compared to 12% for roads, 6-8% for sewerage and lesser amounts for water supply, drainage and refuse collection. In spite of this ranking of urban service needs major deficiencies in water supply and sanitation exist in Anambra State, where in 1976, only 22% of the population in urban areas was served by a piped water supply system. Similar low percentages prevailed across the country apart from Lagos. Sewerage, drainage, refuse and human waste disposal is also a relatively neglected subsector in Nigeria. Urban areas generally have highly inadequate service systems. No one town has a modern or central sewerage system; yet under the Third Development Plan, this subsector was allocated only 1.3% of the total public sector capital expenditure program for 1975-80, whereas the allocation to water supply was 2.8%. Inappropriate methods of solid waste disposal are prevalent, domestic refuse clutters the streets because of irregular collection and disposal and flooding often occurs after storms because of inadequate or clogged storm drainage systems. In Anambra State approximately 4% of the urban population use septic tanks and pit latrines, 26% rely on bucket latrines with the remainder having no means for human waste disposal.

1/ Nigeria--Development Problems and Future Needs of Major Urban Centers--Twenty Urban Centers, Report No. 23, prepared by Doxiadis Associates Int. 1973.

1.10 The greatest impact of these shortages of urban services and housing is felt by the urban poor. The World Bank estimated absolute urban poverty threshold for 1978 is ₦283 or US$515 annual income per capita, implying monthly incomes of ₦24 or US$43 per capita. This is above the per capita income of ₦11 or US$20 for a household of six persons where the minimum monthly wage of ₦65 or US$118 is earned by a laborer in the Nigerian public sector. This minimum public wage, while usually serving as an indicator of the median of urban income distributions in most West African cities, does not serve this function in Nigeria; the high cost of living leaves such households with ₦65 per month well below the urban poverty threshold. While reliable urban income distribution data is lacking in Nigeria, partial data for some regions indicate that there are substantial differences in regional income levels.

Sector Organization in Anambra State

1.11 The principal authority is the Anambra State Government (ANSG) centered in Enugu and responsible to the elected Governor and State Assembly. Anambra's Ministry of Economic Development is concerned with the allocation of financial resources. Anambra State consists of 23 local government divisions including the capital city of Enugu. Local governments have prime responsibility for services of a local nature (town planning; local roads and drainage; disposal of solid and liquid wastes; town markets; etc...) but most lack the human and financial resources to plan and finance their development effectively.

1.12 In Anambra the main water supply agency is the Anambra State Water Corporation (ASWC) created in 1976 with the basic function of developing and providing water for public, domestic and industrial purposes throughout the State. ASWC's organization and activities are discussed in paras 5.01 to 5.21. ASWC is answerable to and controlled by the newly created Ministry of Public Utilities (MPU).

1.13 The new assignment of responsibilities between State Ministries gives Ministry of Public Works (MPW) responsibility for the planning and construction of drainage and sewage disposal facilities, while local Governments retain the responsibility for operating and maintaining these facilities together with solid wastes disposal. MPW will monitor progress of the master plans for sewerage, drainage and flood control of Enugu and Onitsha, awarded to separate joint ventures of consultants in 1979. Preliminary reports for sewerage and storm drainage have been completed for Onitsha. Since other Governmental agencies are also affected by proposed developments arising from these master plans, ANSG has set up an interministerial advisory committee, to jointly review progress of the studies.

1.14 The Ministry of Health is marginally involved in the sector. It monitors the quality of water provided by ASWC to its consumers. It has discharged its main responsibility of monitoring health and providing related shelter and curative health services without being financially able to expand its role to education of the public on the prevention of diseases.

Water Resources in Anambra State

1.15 Rainfall in Anambra State varies from about 1,600 mm per annum along the northern boundary of the State to over 2,000 mm per annum in the South-eastern section. The wet season extends from April through October with rainfall peaking often in September. Runoff from the western section of the State flows into the Niger and the delta rivers, while the section east of Enugu has all streams and rivers flowing in a southeasterly direction towards the Cross river. The main rivers are perennial which indicates that their base flow originates from groundwater. While groundwater resources have not yet been explored in detail they are believed to be available in limited but sufficient quantities to allow development of groundwater for water supply schemes. Prospects for high yield boreholes as would be required for irrigation or larger scale water supply are uncertain and will require field investigation.

Water Supply and Sanitation in Anambra State and Levels of Service

Water Supply

1.16 As part of the WHO/CP, a study of the water and sanitation sector in Anambra State was carried out in April 1979. This study shows that the seven largest centers in Anambra State, with a total 1979 population of about one million, have about 15,500 registered house connections and 400 standposts which would give access to about one quarter and one third of the total population respectively 1/. Overall access to service is thus likely to be about 60% of total population. Access to service in Onitsha (1979 population 276,000) is about the same as the average for the seven largest centers in the State. Because of the intermittent operation of the services 2/, the amount of water supplied (allowing for 30% losses) to those with access to service ranges from a high of 60 lcd in Enugu to 30 lcd in Onitsha, to 6 lcd in the five other large urban centers. Service in 29 other centers managed by ASWC is similar to these last five urban centers.

Sanitation

1.17 There are no water borne sewerage services in the State; however, existing legislation requires that every house be constructed with a septic tank. In fact, this only occurs in newly built, well developed and high income urban areas. The remainder of the urban population depends on bucket latrines, the rural population on pit latrines or nothing. Refuse collection is the responsibility of local governments and is grossly inadequate as evidenced in the two major towns of Enugu and Onitsha where the population dumps its refuse into the streets. The technology used makes it difficult to serve densely populated areas without paved roads and the population not receiving service is usually among the lower income groups.

1/ Assuming 15 persons/house connection and 800/standpipe.

2/ 6 to 8 hours/day in Enugu and Onitsha; 4 hours in each of remaining 5 larger centers.

Sector Priorities and Programs

1.18 No overall detailed planning had been carried out nationally or statewide prior to preparation of the proposed project; nor had financing and manpower availability been taken into consideration in setting sector objectives. In order to address this shortcoming in Anambra, a water supply sector planning exercise financed by the Project Preparation Facility (PPF; para 3.02) was carried out during 1979 by Consultants jointly with the ASWC. For the urban water supply sector, it showed that depending on the selected levels of service, annual capital investments would range from ₦13 million to ₦17.5 million over the next 5 years, excluding operating costs which would add about ₦3.4 million per year. For rural water supply development, annual capital investment costs were estimated in the range of ₦18 million to ₦42 million, depending on the selected pace of development and levels of service for the 1981-1985 period. Additionally, about ₦6.6 million would be required for annual operating costs since no appropriate mechanisms of cost recovery have been established for the rural schemes. The consultants' reports have been discussed within the Corporation and with the Ministry of Economic Development which intended to use the results to request funds for the water supply sector in the forthcoming five-year plan. Priorities are being determined by the new civilian State Government as part of its fourth five year plan preparations. ASWC has formed a Planning Committee to update the sector planning exercise and to maintain the initial momentum.

1.19 A planning exercise similar to the one completed for water supply is expected to be carried out for the sanitation sector to provide acceptable investment alternatives to MPW for medium sized and small centers as well as for rural areas. Clearly the level of investment involved in waterborne sewerage would be too high, but other alternatives remain acceptable in most areas. During negotiations discussions were held with ANSG to ensure that the five year investment plan and yearly budget will be adjusted as necessary to adequately reflect the proposed levels of investment of the planning reports prepared by ASWC and MPW.

II. THE PROJECT AREA

Location

2.01 Onitsha is the second largest city of the State of Anambra. It is located on the eastern bank of the Niger River about 700 km east of Lagos, Nigeria's federal capital (see Map 1), and at about 110 km west of Enugu, the state capital city. Enugu and Onitsha have had a continuous significant growth, with Enugu at a lesser rate because of the transfer of administrative responsibilities to Owerri following the split of the former East Central State into Anambra and Imo States. Onitsha continues to expand as a regional

trading center. The two cities account for 77% of the commercial establishments and 81% of the industries in the State. 1/ Historically, Onitsha's development first took place close to the river ford and gradually extended radially landward from the river and along the main road to Enugu. Thus the present urban area constituting Greater Onitsha extends eastwards into the area under the jurisdiction of the Idemili Local Government. Areas of the Onitsha and Idemili Local Governments covered by the Project represent approximately 35 and 25 sq km respectively, and are included in a potential water supply service area for Greater Onitsha of about 120 sq.km.

Population and Regional Development

2.02 Onitsha is located on the eastern bank of the Niger River, at the only Niger River road bridge downstream from Jebba/Lokoja, about 1 km south of the confluence with the Anambra River. This strategic position favoured Onitsha's rise to one of the most important national trade centers and to becoming the gateway to the Eastern States of Nigeria. Onitsha's infrastructure, especially its water supply system, was particularly hard hit during the 1967-70 Civil War. Nevertheless, and in spite of the slow pace of its rehabilitation, its attraction as a trading center was rapidly re-established. The resumption of immigration has further compounded the problems created by congestion and inadequate, almost non-existent, urban services, particularly water supply and sanitation.

2.03 There is considerable uncertainty about the current level of Onitsha's population, particularly in view of the disruptive effects of the 1967-70 period, and the unsettled situation immediately thereafter. Massive short term migratory movements were a consequence of the war along with a declining birth rate and an increased death rate. It is apparent, however, that despite this war-related decrease population subsequently reached a level higher than that of 1966. The last census carried out in 1963 indicated a population of 163,000. In the framework of preparation of the urban Master Plan for Onitsha (para. 1.08), the consultants conducted a population survey. Their estimate appears somewhat conservative, an opinion shared by local officials. Tahal Consulting Engineers Nigeria (TCE), the consultants retained by the ASWC for the preparation of the Onitsha Water Supply Project, conducted another survey to reflect the unique population structure of Onitsha (see para 2.04). The revised estimates, judged to be realistic, and accepted by State officials, indicate a population of 276,000 in 1979. Using this estimate, population growth for Onitsha has been reconstructed as follows:

	1952		1963		1979
Total Population (000)	76.9		163.0		276.0
Average Annual Growth Rate		7.1%		3.4%	

1/ As per the Directories of Distributive Trades and Services and of Industrial Establishments published respectively in 1975 and 1977 by the State Ministry of Finance and Economic Development.

Of the three alternatives envisaged for the population growth over the 1980-2000 period TCE adopted the medium projection which assumes a population growth of 5% p.a. from now until 1990, tapering off to 3.7% p.a. after 1990. On this basis Onitsha's present population would double by year 1993. These figures include the transient population (para. 2.04) which uses the city's infrastructure just as much as the residents.

	1980	1990	2000
Adopted Population Projection	291,900	475,200	683,400

2.04 The transient population is made up principally of the night guests and the daytime only population. The former consist of single persons or small families who, as traders, workers or day laborers, reside in Onitsha during work days and return to their villages during the weekends. The latter are persons who commute to Onitsha from rural areas daily. The transient population is estimated at about 30% of Onitsha's total population. Although this pattern may enhance the importance of Onitsha's economic status, it has been accompanied by some negative aspects. This transient population has contributed to serious loosening of the traditional community feeling, while no modern institution has been able to take its place.

2.05 This weak community feeling is readily identifiable in Onitsha, and can be regarded as one of the reasons for the continuous decay of urban services e.g. water supply systems. As many people do not regard Onitsha as their home, or home-town, there is little interest in rehabilitating the physical environment by people's active contribution. The progressive decay of the environment then deters newcomers from moving their families to Onitsha and prevents the rekindling of some kind of community feeling. The rehabilitation of urban services such as water supply and environmental sanitation and health would help to break this vicious circle. Carefully planned restoration of the urban infrastructure would contribute to an orderly growth in conjunction with proper application of land use controls and traffic/transportation development.

Residential Patterns

2.06 Residential areas in the older parts of Onitsha are mixed in both quality of housing and wealth of the occupants without any obviously poor neighborhoods, except Okpoko (Map 2). There is no sewerage and inadequate night soil collection in the places that do have bucket latrines. Streets in many areas are inadequately paved and drainage is not satisfactory. Living conditions throughout Onitsha--except in the new and high cost residential areas like American Quarters and the Government Residential Area (GRA)--are generally poor. While of solid construction, houses are not adequately maintained, a situation which is not helped by the transient nature of a large part of the population.

2.07 In parts of the city, particularly Otu, Fegge, Okpoko and Odoakpu, residential densities are relatively high with Fegge at 532 persons per hectare and Odoakpu at 408 persons per hectare. Many of the poor are interspersed among the higher income residents. Housing is in compounds with landlords

often occupying one dwelling unit and tenants the others. As a comparison, densities in the GRA range from 14 to 36 persons per hectare. Okpoko occupies an area of approximately 120 hectares on which 42,000 people reside in approximately 1,100 single story compound structures, 5-7 per room. At least half of the population falls below the urban poverty threshold. The area at present lacks basic water and sanitation services as well as essential access roads, drainage and solid waste collection.

Water Supply Conditions and Demand

Existing Facilities and Levels of Service

2.08 Onitsha's first public water supply system was constructed in the 1940s and extended in the early 60s to cope with a fast growing city. Neighboring centers now part of the Greater Onitsha area have been served by independent and rudimentary facilities since the 1960's. The water supply works currently produce 11,000 m^3 daily and consist of a plant of a daily capacity of 5,400 m^3 treating surface water from a small impoundment site on the Nkisi river and of 5 boreholes tapping ground water of high iron content producing the balance. Storage and treatment facilities have deteriorated and need rehabilitation to supply safe water. The latest significant extensions of the distribution system date back to the early 1960's and many small diameter cast iron pipelines, now corroded, account for much of the system leakage loss and incidence of burst pipes. Parts of the Onitsha water supply zone are served by extensions carried out piecemeal and receive little flows even when the system is under pressure. Because the current supply is insufficient to cope with existing demand, service is provided intermittently twice daily for about 4 hours. With OLG financial assistance, ASWC is implementing a crash programme of 4 boreholes plus rehabilitation of existing facilities to increase the daily water production by about 18,000 m^3. This programme is expected to provide continuous service to the existing system until 1983.

2.09 Onitsha has about 6,900 registered connections and some 140 standpipes of which only about 60 are functioning. About 300 connections are metered, most of them with faulty meters. Since many connections serve multistorey houses and compounds, the distribution network is estimated to serve intermittently 60% of the Onitsha population. In some areas the inhabitants use private or collective shallow wells, the quality of the water from which is hardly ever monitored. Almost all the large water consuming industries are located in the southern part of the district and depend on their own boreholes which tap good quality water from the Niger alluvium.

2.10 In Onitsha as well as in smaller centers the standard of maintenance of plant, equipment and structures is generally poor. Many installations have been operated part-time mostly because of lack of fuel. Distribution systems are not mapped, no systematic inspection of mains is carried out and pipes are often left exposed following erosion on unsurfaced roads. Laboratory control is minimal and too remote from centers of operation to be efficient. Several pumps and diesel generators are broken down and are inadequately repaired or maintained to provide standby capacity. Workshops are cramped and without

basic tools. Severe shortages of transport are evident in rural zones and in the Mechanical and Electrical section in Enugu, preventing quick liaison with the zones and repairs by Headquarters. ASWC has no adequate communication system between Headquarters and the various zones. Almost all production, distribution and customer meters are broken, many connections are unregistered and unaccounted for water is thought to be high.

Future Water Demand

2.11 Projections of water consumption, sales and production, and of future capacity are shown in Annex 2.2. These projections indicate that water sales would increase three fold by 1985 and double again in the next 5 years. Annex 2.1 summarizes the projected future average and peak daily water demand in Onitsha. Since Onitsha's present population and demand patterns are not well known, projections of future demand for services are necessarily uncertain.

2.12 ASWC's consultants have estimated future water requirements for various categories of domestic consumers as follows: (i) consumers served by private connections initially between 154 lcd for low density areas and 108 lcd for medium and high density areas; (ii) consumers served by courtyard connections, 55 lcd; and persons served by standpipe, 25 lcd. The proportion of people served by private connections would slowly increase from 21% in 1980 to 27% in 1985 as the project provides equipment; at that time policies enabling increased access to individual connection would then be reviewed to bring this service to 45% in 1990. Correspondingly, people served by yard-tap connections and standpipes would initially jump from 7% and 12% in 1980 to 29% and 38% respectively in 1985. The number of people served by standpipes would thereafter begin to decline and would stabilize by 1990 at around 41% for yard-tap connections and 14% for standpipes. Although actual consumption averages 76 lcd for those now served, the calculated average demand is 30 lcd (assuming supply to all population). This demand is expected to increase to 94 lcd by 1990 as improvements in the standard of living take place, and social policies are implemented.

2.13 Industrial and commercial demand is expected to grow at about the same rate as the domestic demand. Such organizations are expected to connect to the public system progressively as their own existing private water facilities become obsolete and as confidence in the public water system builds up. Unaccounted for water, including losses and illegal connections, is estimated to decrease from about 30% of total water produced to 22.5% by 1985, when better monitoring and inspection of mains will have resumed.

Sanitation Conditions and Needs

Sewage Disposal

2.14 Onitsha has no sewerage system and its inhabitants rely on septic tanks, pail system or pit latrine for disposal of human wastes. About 28% of the population is served by septic tanks in areas where soil and groundwater conditions are suitable; however, there is no regular and reliable desludging service and consequently the overflowing sewage enters surface drains. Another 15% of the population is served by pit latrines mostly in

Inland Town and Okpoko areas. While the existing designs seem appropriate, they may cause serious health hazards in compounds which use groundwater from wells close to the latrines. Most of the remainder (50%) is served by bucket latrines, and local investigations have proved that the emptying system is currently very unreliable; less than 20% of the night soil is collected. OLG has subcontracted this activity to private contractors who have no special vehicles and who besides overspilling during collection and en route to the disposal site, often dispose the excreta on uncontrolled sites. A few public toilets had been installed at market areas prior to the civil war but service has been discontinued because of lack of water to maintain them.

2.15 Sewerage studies commissioned by MPW are at the preliminary design stage. The consultants conclude that the long term sewage disposal strategy for Onitsha consists of a combination of a piped sewerage system for medium and high density areas and the septic tank system for the low density areas; and that, since piped sewerage can only be implemented in stages, other interim disposal facilities have to be generated for the built up areas not initially sewered. These studies however lack review of financial and institutional aspects which will be investigated under the proposed project.

Drainage

2.16 Both the Nkisi and the Niger rivers serve as stormwater outfalls for the existing town and the Niger into which the Nkisi flows upstream of the city, has the capacity to absorb all the storm water. Most of Onitsha's drains are open lined drains, but only extend to less than half of the asphalted roads. All these drains and the natural channels converge in a big depression, Otumoye Creek, which divides the city. Because of its inadequate outlet to the Niger, the creek remains flooded for many months each year and provides shelter to mosquito breeding. Because of illegal dumping of refuse in the receiving water bodies many districts around the creek suffer from extensive flooding, which results in traffic congestion and unsanitary situations. Maintenance of existing lined drains is the responsibility of OLG's Department of Works which is unable to cope because of lack of equipment and organizational capacity.

Refuse Collection and Disposal

2.17 OLG's Department of Health is presently responsible for refuse collection and disposal (see para 5.25). Some institutions and major industries dispose of their own refuse. Only one fourth of Onitsha's residential and commercial waste is collected and less than one half of the market waste is collected. Within the urban area about 430 m^3 of solid waste are added daily to the backlog of uncollected waste, 70% then disappears through natural consolidation and biodegradation mechanisms. While each neighborhood receives service from 1 to 3 trucks, service levels vary from 10% to 80% depending on the length of trip to the disposal site. Low income areas within the southern portion of the city receive the lowest level of services while the high income areas closer to the disposal site are adequately served. The official town landfill site is not operated in accordance with acceptable sanitary landfill procedures. Although new Refuse Byelaws have recently been introduced they

have not been fully implemented. The regulations compel all households to use refuse containers, but there is still considerable dumping of refuse in unauthorized places and in surface water drainage channels. OLG considers that the reintroduction of customary courts will help speed up prosecution of refuse/litter offenders under the new regulations.

2.18 The market areas are the hub of the commercial activity of Onitsha, but are being strangled by traffic congestion and bad roads especially in Fegge area. Although the OLG has two vehicles stationed at the markets to take away refuse they cannot get around very easily and often only manage to make two trips each day. Access to the market for refuse collection is therefore generally limited to Sundays when traffic is reduced.

Existing Public Health Conditions

2.19 The health profile in Onitsha is very similar to that for the whole of Nigeria and reflects high levels of respiratory and intestinal infections due inter alia to impure water, poor sanitation and congested housing conditions. Malaria accounts for the largest proportion of illness followed by measles and dysentary. Reporting is likely to understate the problem since populations at risk are those who may not use health clinics. According to local Health personnel the majority of diseases in Onitsha involve a complex set of interlocking circumstances, including reduced resistance to infection because of malnutrition, poor absorption of nutrients because of diarrhoea, high level of respiratory and gastro intestinal diseases due to overcrowding, environmental degradation and poor personal hygiene. While illness could be reduced with continuous and safe water, education is needed to overcome malnutrition and poor personal hygiene.

Service to the Urban Poor

2.20 The urban poor in Onitsha are spread throughout the city, generally interspersed among the higher income residents. Of the 276,000 people in Onitsha in 1979, about 27% or 74,200 are below the poverty threshold. In the existing city most of them are concentrated in Fegge and Odoakpu, (47,000) and Otu, the mixed residential and commercial district which has an estimated 5,000 poor; and in Okpoko, the low income settlement in the south of the city, 22,000 or 50% of the people who can be considered at or below the poverty threshold. By 1985 this group is expected to grow to 96,000. Map 2 shows the locations of the low income areas. At the present time most of the poor population obtain their water from wells, rivers, streams, through water vendors and from the 40 functioning standpipes when these are properly located and supply water; the privately-owned wells in Okpoko provide water for 75% of the local population. Sanitation in low income areas is predominantly by bucket latrines and pit latrines; there is practically no collection of the night soil in the low income areas. The current system of refuse collection is not adapted to the narrow and unpaved streets and systematically limits collection in the inner parts of these areas, some of which like Okpoko are not served at all. Drainage conditions are no better, since many of the districts housing the poverty group are located in low lying areas subject to flooding and deprived of even the most simple natural drainage systems.

2.21 The infrastructure and services in Okpoko have not been developed because the area has always been considered a temporary living area for rural migrants. In spite of its unauthorized development status, Okpoko has been provided with a school and had a representative on the City Council. OLG officials agreed with Bank staff that the Okpoko area should receive official attention and should therefore be included in the urban master plan. The area could be easily upgraded and receive infrastructure once a development plan has been approved for both occupied and uninhabited zones. A consultant is now preparing a development plan that will be discussed and approved by the OLG, thereby formally establishing and integrating the Okpoko Community into Onitsha. As a condition of disbursement of the Urban Infrastructure Civil works component OLG would be required to submit the approved layout plan of Okpoko to the Bank.

III. THE PROJECT

Project Preparation and History

3.01 As part of the long-term association with the Bank requested by the FGN in the water supply and sanitation sector (see para 1.05), Nigeria originally sought Bank support for a water supply project in Onitsha and Enugu in late 1978 when a joint WHO/IBRD mission visited Enugu. Following FGN's endorsement of areas of possible assistance in March 1979 two preparation missions in May and September 1979 defined and reviewed complementary work to be done under a PPF approved by the Bank in May 1979. Also following the first preparation mission the Bank suggested that the preparation be enlarged to consider the sanitation aspects in Onitsha for possible inclusion in the project. The project was appraised in December 1979. During negotiations of the project ANSG requested that the Enugu component of the project be deleted since the State Government was obtaining separate external financing to complete the entire Enugu scheme.

3.02 The PPF approved in May 1979 amounted to $415,000; it covers the following aspects of Project preparation:

(i) feasibility studies for development of medium and long term water supply needs of Onitsha;

(ii) development planning exercises for urban and rural water supply subsectors;

(iii) assessment of a rehabilitation program for the existing facilities and of operations and maintenance needs for the next two years; and

(iv) inventory of existing assets and definition of appropriate accounting manuals, financial regulations and accounting systems, including billing and collection systems.

All these activities were carried out by consultants appointed by the ASWC and completed for the appraisal of the project.

3.03 Simultaneously a consortium of consultants, ENPLAN-GKW (Nigeria and Germany), completed the first stage of the Master Plan for sewage, storm water and solid wastes disposals in Onitsha. Their report suggested a series of early measures and investments to improve the currently bad sanitation condition of Onitsha. These were reviewed by the appraisal mission for possible inclusion in the proposed project.

Objectives

3.04 The foremost project objective is to assist State authorities (ASWC, MPU, OLG) in improving water supplies and the Anambra urban infrastructure, thereby contributing to enhanced living conditions. This will be achieved first in the city of Onitsha through an improvement of the basic community services. Onitsha has priority because of its importance in the development of the State; the Bank could assist more quickly here, than elsewhere, because of the availability of various studies. Although the Bank's involvement is primarily through water supply, it was found necessary to address various other sub-sectoral sanitation issues because of their close association with successful implementation of the proposed water supply project and which, if not dealt with, would have worsened and would have had an adverse impact on the environment in Onitsha. This water supply and urban infrastructure objective can be further detailed as follows:

(a) for water supply

(i) to improve and expand the Onitsha water supply system so that adequate supplies of safe water are provided in the Greater Onitsha metropolitan area;

(ii) to improve and strengthen the technical and financial capabilities of ASWC; and

(iii) to prepare through appropriate studies and assistance (a) a long term water supply development plan for Enugu; (b) an inventory of groundwater resources around Onitsha for their potential use in a later development stage of production facilities.

(b) for urban infrastructure

(i) to redress current deficiencies of the Onitsha sanitation conditions (drainage, sewage disposal and refuse collection) and assist the responsible authorities in better planning and management of their activities; and

(ii) to assist State Health authorities in setting up a pilot Health Education programme oriented towards the improvement of people's knowledge and practices when dealing with water.

Technological alternatives and service standards

3.05 While groundwater development from aquifers bordering the Niger River appeared to be an alternative sufficiently attractive to meet the Onitsha water needs over the next ten years the basic information was too limited to propose the use of the alluvium aquifer at this stage. Similarly, proposals consisting of using reliable surface water at a farther distance from Onitsha were abandoned for an alternative consisting of fully developing the existing Nkisi site currently tapped. The selected alternative will provide a long term water supply facility and simultaneously provide enough time for the full investigation of the groundwater alluvium before 1985 when the decision for construction of additional production facilities should be made; by adopting this alternative it will be possible to concentrate ASWC's limited human and financial resources on one location.

3.06 ASWC's service policy has always favored providing individual connections to all domestic consumers and limiting the service through standpipes because of their costly maintenance requirements. Yet it was recognized during the planning exercises (para 1.18) that (i) the service standard had to be related to basic needs and to the standards of existing in-house water and waste disposal facilities; and that (ii) because of financial and manpower contraints increasing reliance on standpipe service and on courtyard connection for low and possibly middle income areas had to be accepted for at least the next ten years.

3.07 Existing systems of refuse and night soil are inadequate to meet the needs of the lowest income areas of Onitsha. While existing curbside vehicles would be allocated to refuse collection in suitable neighborhoods, purchase of new equipment under the project will rely on vehicles such as containers and tractors to be used along narrow unpaved and congested commercial streets. Night-soil collection will be maintained and improved with the addition of slurry tankers to the fleet of tractors also purchased for refuse collection. OLG and MPW recognize that the bucket system is not the appropriate long term alternative to disposal of night soil; yet with the proposed improvements in equipment and organization of services the existing system constitutes the optimal medium term alternative over the next five year period pending construction of a centrally sewered system.

Anticipated levels of service and quality of service

3.08 About 333,000 people or 89% of the population are expected to be adequately served by the Onitsha water supply system upon completion of the project. This increase from the present service level of 60% is expected to arise both from the installation of 260 additional standpipes in the southern and poorer areas of the city and from a gradual buildup of the private connection programme. The strengthening of night soil collection in Onitsha by increase of vehicles and appropriate equipment would result in an increase of service from 100,000, many of which are now inadequately served, to about 270,000 by 1983. Construction of drainage canals would mostly improve living conditions of about 65,000 people of the southern areas while the rehabilitation of street drains around the market area would benefit all market users and ease traffic conditions.

Project Description

3.09 The principal elements of the various components of the Project are illustrated on Maps 2 and 3. The major components are as follows:

A) Water Supply

(i) Upgrading and extending the existing Onitsha headworks on the Nkisi River by modification of the raw water intake and weir structure to divert the maximum safe yield of the river estimated at 48,000 m^3 daily; and construction and equipment of a low lift pumping station capable of delivering 2,160 m^3 per hr.;

(ii) Extension/Upgrading of the Onitsha water treatment facilities at Nkisi with a nominal average day capacity of 40,000 m^3, to include flocculation, sedimentation and filtration units with subsequent disinfection. Diesel alternators will be provided at headworks to supply 100 percent standby capacity for all facilities;

(iii) Construction of a high lift pumping station at the Nkisi site, composed of two sets of pumps delivering water to three reservoirs, and supply and installation of rising mains of about 4 km in length;

(iv) Construction of four ground level reservoirs at different elevations, determining three zones of service and of one elevated water tower, as well as rehabilitation of the existing reservoir in the GRA area. Thus the total storage capacity of the Onitsha system would increase from the current 4,500 m^3 to about 45,000 m^3;

(v) Extension of Onitsha's existing transmission network by about 87 km of mains ranging in diameter from 150 mm to 750 mm to be installed in existing areas as well as in new areas scheduled for development between 1980 and 1985;

(vi) Reinforcement and expansion of the Onitsha distribution system. Preliminary estimates indicate that some 160 km of pipelines may be required over the project period, of which about 20 km for replacement of old and encrusted pipes in parts of the city. In addition to the distribution system expansion, about 260 new standpipes will also be installed in high density areas to supply population who cannot afford to have connections to the distribution network;

(vii) Supply of about 6,000 water meters and material for connections for private subscribers, corresponding to equipment required for the 1981-84 connection programme in Onitsha;

(viii) Construction and equipment of the following operating facilities i.e. (a) new headquarters in Enugu to bring together staff currently in dispersed and cramped offices; (b) zonal offices in Onitsha to accommodate staff presently scattered in small and non functional places; (c) expanded mechanical and metering workshops in Enugu, and

base workshops and stores in Onitsha; (d) 30 junior staff quarters and 6 managerial quarters in Onitsha and Enugu to allow operational staff to live closer to out of town and isolated water supply facilities; and

(ix) Supply and erection of a communications system between Headquarters and the Corporation's eight zones and communications with emergency crews in the field.

B. Training and Technical Assistance to ASWC and Operations and Management Improvement Program for ASWC

1. Training

(i) Services of an internationally recruited training expert (24 man-months) to help ASWC's newly appointed Chief Training Officer to produce an overall training program, design and implement training modules; and

(ii) Provisions for (a) an overseas training and skill development program (6 man-months) for the designated Chief Training Officer and the two superintendent instructors; (b) introducing and adapting the Kaduna Works Superintendent program into the Enugu Training program; (c) extending and upgrading the existing training school, and (d) training abroad through fellowships and attachments to overseas water sector utilities. Full details are in Annex 5.2.

2. Technical Assistance

(i) 222 man-months of internationally recruited expert services to assist ASWC in the area of a) project management for the first two years of project implementation (24 man months); b) finance and commercial activities (2 experts; 54 man months); mechanical and electrical maintenance (2 experts; 72 man months); distribution maintenance, water treatment and metering (3 experts; 72 man months) so that ASWC can restore appropriate operations and maintenance procedures and rehabilitate existing facilities. The operational experts should preferably be recruited from the same water supply entity to ensure that a systematic and uniform approach is adopted in setting up the operational procedures. The recruitment of the commercial expert, the Chief Training Officer and of the two mechanical and electrical superintendents should take place before September 1981 to speed up the initiation of commercial systems and implementation of the training proposals and of the 2 year rehabilitation programme;

(ii) Design and construction supervision of the water supply facilities for Onitsha and of the operating facilities; and

(iii) Feasibility studies of (a) the long term needs of the Enugu water supply and (b) the use of the Onitsha groundwater alluvium as a supply source for a second phase of the reinforcement of the production works.

3. Operations and Management Improvement Program (OMIP)

In order to achieve successful implementation of the water supply component as a whole, it is necessary for ASWC to take complementary action to improve its operations and management. During negotiations ASWC assured the Bank that it would pursue other measures as listed in Annex 7.1 and as to be agreed from time to time between the ASWC and the Bank.

C. Solid Waste and Night Soil

(i) Refuse and Night Soil Collection and Disposal:

(a) Supply of refuse equipment and vehicles such as tractors, containers, tow trucks and tippers to Onitsha Local Government to upgrade collection and disposal of the city refuse, particularly in areas now without collection;

(b) Design and implementation of parking, maintenance, and disposal facilities to efficiently utilize crews, vehicles and landfill sites;

(c) Supply of slurry tankers and tractors to provide appropriate handling of night soil in areas having mostly bucket latrine systems; and

(d) services for design of the solid wastes civil works and land disposal component.

(ii) 84 man months of technical assistance services in (a) urban sanitation disposal/treatment and vehicle maintenance to assist OLG in setting up its sanitation department with appropriate operating standards; (b) town planning and traffic issues; and (c) municipal finance. Further amplification on these services is given in para 5.26.

D. Urban Infrastructure and Health Education

(i) Drainage and sanitation: (a) construction of public toilet blocks at 4 market sites; (b) improvement of drain bottlenecks, in the downtown area and construction of about 3.5 km of road side drains in various parts of the city; (c) construction of approximately 4 km of main and secondary drains and of 1.4 km of large open canals in Onitsha's most populated districts, to help relieve systematic flooding of low lying areas and improve city traffic patterns; (d) services for construction supervision of the above works;

(ii) Infrastructure in the Okpoko district. In order to bring in basic services (water supply, solid wastes and night soil removal) described above, Okpoko infrastructure would require some improvements. This project component would consist of (a) providing improved vehicular and pedestrian access to existing dwellings by rectifying major current road tracks in built up areas, (b) establishing an appropriate layout in areas presently undeveloped and (c) constructing lined and unlined drainage channels along major roads;

(iii) Studies for complementing the first stage of Onitsha Urban Master Plan under completion by defining strategies to address high priority basic needs, costing the particular courses of urban growth and development, and evaluating economic implications of these courses; and

(iv) Establishment of a pilot program under the State Ministry of Health, consisting of (a) setting up a pilot zone office at the Onitsha district level staffed with sufficient health superintendents to expand the Ministry of Health's current activities to educate and create greater awareness of the Onitsha population through target groups (children attending school and women visiting health centers) on prevention of water related diseases; (b) reinforcing existing output of health superintendents by providing additional accommodation and classrooms to the State Health Superintendent school; (c) equipping all Onitsha primary schools with appropriate water supply and sanitation facilities to permit appropriate teaching of hygiene practice to school children; (d) technical assistance (6 man-months) to assist the Pilot Unit in dispensing appropriate messages to the target groups.

Cost Estimates

3.10 The total estimated cost of the project is ₦66.3 million including taxes and duties ($120.6 million) with a foreign exchange component of ₦36.8 million ($67.0 million) representing 55% of total costs. The summary cost estimate, which is shown below, is further detailed in Annexes 3.1 and 5.2.

3.11 Project costs are based on preliminary designs and on quotations obtained for similar works tendered for in Nigeria over the past year; all costs have been adjusted to reflect end of 1980 unit prices. Detailed design is under way for the water supply component and updated cost estimates have been made available in February 1981 following detailed site investigations for distribution and civil works. The cost estimates for technical assistance experts are based on an average unit cost of $8,500 per month and $2,000 for accommodation and utilities; estimates for consulting services are based on available quotations for some of the proposed services and on proposals for similar studies in Nigeria.

3.12 The foreign exchange component of project costs was estimated assuming that all equipment supply contracts would be won by foreign firms. Foreign, but locally established, contractors are expected to win most large civil works contracts. The foreign exchange component of technical assistance and consulting services are based on the nature of services to be performed and on the length of time the services would be required. Import taxes and duties on all directly imported goods currently average 10% and are included in the local cost component.

Summary Project Costs

	Foreign Costs	Local Costs	Total Costs	Foreign Costs	Local Costs	Total Costs	Percent of Total
	-in million Nairas--			-in million Dollars-			
A. Water Supply							
Equipment and plant for Onitsha	10.23	3.12	13.35	18.60	5.67	24.27	20.1
Civil Works for Onitsha	8.24	8.48	16.72	14.97	15.42	30.39	25.2
Buildings and Communications	1.14	1.60	2.74	2.07	2.90	4.97	4.1
Training and Technical Assistance	1.64	0.71	2.35	2.94	1.28	4.22	3.5
Design, Supervision and studies	2.94	1.12	4.06	5.35	2.05	7.40	6.1
Subtotal A Base costs	24.19	15.03	39.22	43.93	27.32	71.25	59.0
Physical and price contingencies	6.15	8.54	14.69	11.24	15.53	26.77	22.2
Subtotal A	30.34	23.57	53.91	55.17	42.85	98.02	81.2
B. Urban Infrastructure and Health							
Drainage and Sanitation	2.13	2.20	4.33	3.88	4.01	7.89	6.5
Refuse and night soil	1.14	0.92	2.06	2.08	1.67	3.75	3.1
Design, Supervision and studies	0.45	0.15	0.60	0.83	0.27	1.10	.9
Technical Assistance	0.37	0.12	0.49	0.66	0.22	0.88	.7
Infrastructure for the Okpoko area	0.71	0.73	1.44	1.29	1.65	2.94	2.4
Health Education	0.16	0.32	0.48	0.29	0.58	0.87	.7
Subtotal B Base costs	4.96	4.44	9.40	9.03	8.40	17.43	14.3
Physical and price contingencies	1.54	1.44	2.98	2.79	2.56	5.35	4.5
Subtotal B	6.50	5.88	12.38	11.82	10.96	22.78	18.8
Grand Total							
Base costs	29.15	19.47	48.62	52.96	35.53	88.49	73.4
Physical and price contingencies	7.67	9.98	17.65	14.04	18.09	32.13	26.6
Base Costs + Physical + Price Contin.	36.82	29.45	66.27	67.00	53.62	120.62	100
of which taxes and duties	-	2.60	2.60	-	4.28	4.28	3.5
Percent of total	55.5	44.5	100.	55.5	44.5	100.	

3.13 Allowance has been made on each component requiring physical works for physical contingencies ranging from 7 to 15% depending on the probability of unforeseen additional work. In addition allowance has been made for price contingencies at the rate of 15% p.a. for local cost components and rates of 10.5%, 10%, 9% and 8% for 1981, 1982, 1983 and 1984-86 respectively for foreign exchange components. Because the project is expected to extend through 1986, and, because of assumed high rates for increases in local prices, the total allowance for price increases effectively increases the estimated costs (expressed in December 1980 price levels) by 36%.

3.14 All project costs, expressed in dollars, are calculated on the assumption of a fixed rate of exchange of ₦0.55 to the US dollar, throughout the project period.

Project Financing and Lending Arrangements

3.15 The proposed financing of the project would be as follows:

All costs expressed in US$ million units.
(Figures between brackets are in Nigerian currency - ₦ million)

	Total Costs	IBRD	Anambra State Govt.	ASWC Internal Cash Generation
1. Water Supply Investments' Technical Assistance	98.0 (53.9)	55.2 (30.3)	37.3 (20.6)	5.5 (3.0)
2. Drainage, Sanitation and Health Education	17.2 (9.5)	8.8 (4.9)	8.4 (4.6)	- -
3. Solid Wastes and Night Soil Collection	5.4 (2.9)	3.0 (1.6)	2.4 (1.3)	- -
Total	120.6 (66.3)	67.0 (36.8)	48.1 (26.5)	5.5 (3.0)

The proposed Bank Loan of US$67.0 million (₦36.8 million) would cover the foreign exchange cost of the project which is about 55% of total project costs. Counterpart costs would be met through contributions of US$48.1m (₦26.5 million) by Anambra State Government and US$5.5m (₦3.0 million) by ASWC.

3.16 The Federal Government of Nigeria would be the Borrower for the full amount of the Loan. All proceeds from the Loan would be on-lent to the Anambra State Government on Bank terms. Amounts of $55.2 million and US$3.0 million of the sub-loan corresponding to the foreign exchange components of the Water Supply and Solid Wastes and Night Soil components would be further on-lent to the ASWC and the OLG respectively, on Bank terms. Accordingly, the Bank would enter into a loan agreement with the FGN and project agreements with ANSG, ASWC and OLG.

3.17 ANSG and ASWC would provide all additional financing for the water supply and urban infrastructure components. During negotiations assurances have been obtained from ANSG and ASWC that they will provide counterpart funds of US$48.1 and US$5.5 million respectively, that ANSG will meet any possible cost overruns and that ANSG's yearly contributions to the implementing agencies will be timely allocated and no later than 3 months after the beginning of the fiscal year. A condition of effectiveness of the project would be the signing of subsidiary loan agreements between FGN and ANSG, ANSG and ASWC, and ANSG and OLG.

Implementation

3.18 Implementation would be under the general responsibility of the following entities:

A.	Water Supply Works	-	ASWC
B.	Water Supply Technical Assistance, etc.	-	ASWC
D.	Onitsha Drainage and Sanitation/Okpoko	-	MPW and OLG
C.	Onitsha Refuse and Night Soil	-	OLG
D.	Health Education	-	MPH

3.19 ASWC has requested TCE to prepare detailed design for the Onitsha scheme. Terms of reference were reviewed and judged acceptable by Bank staff prior to the signature of the contract; detailed cost estimates of the Onitsha scheme have been made available in January 1981 and tender documents will be ready for bidding by June 1981. MPW has a contract with GKW-ENPLAN for the detailed design and bidding documents of the first phase drainage investments. Since there are not enough qualified personnel to effectively supervise the implementation of these components, MPW and ASWC representatives indicated during appraisal, and confirmed during negotiations, that qualified consultants would be recruited to supervise the water supply and sanitation components in association with the responsible entities. The physical implementation of the project would start in early 1982 and extend to mid 1986, the main works being completed by mid 1985.

3.20 ASWC requires further consulting assistance to prepare designs, tender documents and supervise construction of the operating facilities included in the project (headquarters building, zonal offices and depots, training facilities and accommodation quarters). ASWC is in the process of selecting a short list of qualified Nigerian consulting firms and has agreed to submit the list and their terms of reference for review and agreement by the Bank before signing of the contract.

3.21 ASWC will also require technical assistance to proceed with establishing the commercial department and initiating operations improvement and rehabilitation programmes. Terms of reference for the experts who will most likely be recruited overseas, have been discussed and agreed with the Bank, and are being dispatched by ASWC to entities that could potentially second qualified staff.

3.22 OLG will require technical assistance to set up and operate the reorganized Sanitation Department, and to assist the Town Engineer resolve some of the planning and traffic problems in Onitsha. OLG has recently recruited a qualified Nigerian to head the Sanitation Department. Terms of reference for the experts and job specification for the Sanitation Department Manager have been prepared by Bank staff and submitted to OLG for discussion and selection of candidates. The recruitment of two of the internationally recruited experts should take place before September 30, 1981.

3.23 In order to ensure appropriate coordination and decision among the various agencies involved in the project implementation (ASWC, MPU, MPH, OLG) a Project Steering Committee has been set up by the Anambra State Government. The Committee is chaired by a MPU high official and composed of the project officers responsible for the project component in the respective entities as well as representatives from the Ministries of Finance and Economic Development. ANSG officials submitted draft terms of reference for this Steering Committee, which are satisfactory to the Bank (see Annex 3.4), and were subsequently published in the State Gazette. ASWC has appointed a project manager directly responsible to the General Manager and heading a Unit within ASWC responsible for the Water Supply component. Project management would also be provided with two man-years of expert assistance during the initial period of project execution. The staff allocated to the internal ASWC unit would also be responsible for assuring the logistical and administrative support of all project components.

Procurement

3.24 All contracts above US$500,000 for plant and equipment, and above US$1,000,000 for civil works would be awarded through ICB procedures in accordance with Bank guidelines. Contracts below these limits and above US$100,000 for plant and equipment and US$200,000 for civil works would be awarded through local competitive bidding procedures acceptable to the Bank. Local and international shopping with at least 3 quotations would take place for: (i) equipment up to US$100,000 aggregating to less than US$1 million, and (ii) civil works up to US$200,000 aggregating to less than US$2 million. Prior review by Bank staff would apply for all supply contracts above US$200,000 and civil works contracts above US$500,000. ASWC would carry out works by force account valued at US$0.5 million related to installation of connections in Onitsha. Their staff is qualified to carry out this work and their cost accounting presently undergoing improvement would be adequate to permit proper control of expenditures by the Bank. The aggregate amount of supply contracts awarded under ICB is estimated to reach US$33 million, out of which local suppliers are likely to win contracts totalling US$15 million for small diameter pipes, meters, refuse collection equipment and minor equipment. The value of major civil works, with contracts above the value of US$1 million is about US$22 million. These contracts would be awarded through international competitive bidding and are likely to be won by foreign, but locally established, contractors. Contracts for installation of pipes and drains would be packaged to enable local Nigerian firms to tender for sections of these. The aggregate amount of contracts let under local competitive bidding is about US$10 million.

3.25 Nigerian law requires that foreign contractors operating in Nigeria be incorporated in the country with local ownership of 60%. Many large foreign contractors are already established on this basis in Nigeria and will be strong competitors for obtaining project contracts. However the magnitude of a few contracts to be let is likely to attract additional foreign competition. During negotiations of the 5th Power Project (Loan 1766-UNI) in 1979 assurances were given that foreign companies executing Bank assisted projects

would not be affected by federal guidelines requiring incorporation within a year of their arrival in Nigeria. The bidding documents will require that all companies should employ Nigerian staff in order to promote the transfer of skills and technology from expatriate staff to Nigerians.

Prior Contracting and Retroactive Financing

3.26 The completion of detailed design and tender documents for water supply has been essential to the firming up of cost estimates and early start of the project construction; similarly the implementation of the long awaited rehabilitation program and commercial system is critical for the early improvement of ASWC's operations. Detailed design is now under way under terms of reference agreed by the Bank and the recruitment of operational experts under terms and conditions also agreed with the Bank is expected to take place in May 1981 subject to prior review of the candidates' qualifications and experience by Bank staff. It is proposed that the foreign exchange costs of these services estimated at US$0.9 million, of which US$0.8 million for detailed design, be financed retroactively with the proceeds from the proposed Loan. As shown on the implementation schedule (Annex 3.2), it is not expected that any other contract would be signed before the Loan is approved.

Disbursements

3.27 The proposed loan would be disbursed as follows:

	Category	Amount US$ million	Percentage of Expenditure Financed
Water Supply			
I.	Contracts for the supply of plant, equipment and materials	24.6	100% of c.i.f. costs of plant and materials or 80% of expenditures for items purchased locally
II.	Civil works contracts for water supply facilities	18.9	42% of total expenditures
III.	Consulting services, training and technical assistance	9.3	75% of total expenditures or 100% of foreign costs
IV.	Unallocated	2.4	
		55.2	
Urban Infrastructure			
V.	Contracts for equipment for solid wastes and night soil collection	2.6	100% of c.i.f. costs of plant and material or 62% of expenditures if procured locally

Category		Amount US$ million	Percentage of Expenditure Financed
Urban Infrastructure (cont'd)			
VI.	Civil works contracts for roads in Okpoko district and drains for Onitsha	5.5	42% of total expenditures
VII.	Technical assistance and consulting services	1.8	75% of total costs or 100% of foreign costs
VIII.	Unallocated	1.5	
		11.4	
Health Education			
IX.	Civil works and equipment contract	0.3	60% of total expenditures
X.	Technical assistance	0.1	100% of total expenditures
		0.4	

3.28 Disbursements will be fully documented. Work done by force account under category II would be against statements of expenditures certified by the Resident Engineer. All documentation would be retained by ASWC and provided upon request to Bank supervision missions.

The estimated schedule of disbursements of the loan is shown below. The closing date would be December 31, 1986.

Bank FY & Quarter	Cumulative Disbursement (US$ m)	Percentage of total	Bank FY & Quarter	Cumulative Disbursement (US$ m)	Percentage of Total
1982			1985		
1st Quarter	0	0	1st Quarter	52.4	78
2nd Quarter	0.4	1	2nd Quarter	55.0	82
3rd Quarter	2.7	4	3rd Quarter	57,0	85
4th Quarter	6.0	9	4th Quarter	58.9	88
1983			1986		
1st Quarter	7.7	11	1st Quarter	60.9	91
2nd Quarter	14.5	22	2nd Quarter	62.8	94
3rd Quarter	22.2	33	3rd Quarter	64.7	96
4th Quarter	26.2	39	4th Quarter	66.4	99
1984			1987		
1st Quarter	35.0	52	1st Quarter	67.0	100
2nd Quarter	41.2	61			
3rd Quarter	47.2	70			
4th Quarter	50.6	75			

IV. ECONOMIC AND SOCIAL ANALYSIS

4.01 The primary benefits of the proposed Project would be improvements in sanitary and general environmental conditions leading to improvements in health. The population of Onitsha will be able to rely on continuous supply of safe water instead of water served intermittently or taken from contaminated sources. Waste and storm water and solid waste would be removed from high density residential and commercial neighborhoods, and night soil collection practices upgraded, thus reducing the environmental health hazards presently permeating every aspect of life in Onitsha. As a necessary adjunct to the physical facilities to be provided, the public health education program would seek to maximize the health benefits by ultimately leading to improved sanitary practices. Improvements in health would lead to increased productivity and reduced medical cost.

4.02 Particular attention would be paid to the low income area of Okpoko, which presently does not enjoy any kind of municipal service. The project would provide the foundation for the orderly future development of this neighborhood through the introduction of basic water supply, night soil collection services and construction of surface drainage and access roads which would make these services possible.

4.03 Additional employment opportunities would be provided. At the peak phase of construction activity, the project construction force would comprise approximately 400 workers. Moreover, ASWC as well as OLG would require about 200 additional permanent employees to operate and maintain the expanded systems.

Water Supply

Least Cost Solution

4.04 Since groundwater could not be developed at this stage (para 3.05) two surface water production programs were considered with similar results as to the average incremental cost of producing water. The proposed project alternative to expand the existing Nkisi facilities and exploit the potential of this river to the fullest rather than constructing an entirely new surface water treatment plant was chosen given, (a) the uncertainty of the demand estimates; (b) a 30% lower investment to meet the production needs to 1988; and (c) a higher degree of flexibility of medium term investment decisions. Together with the other existing production sources, this additional production capacity of about 35,000 m^3 per day would satisfy the projected average demand up to 1988; this will permit ASWC to gather more information so that a clearer choice of groundwater versus a new surface water source and treatment plant could be made prior to 1985.

4.05 The project has been planned to provide minimum acceptable standards of service at the lowest possible cost. The layout of the distribution network would be designed primarily to encourage in-filling of existing areas rather than the development of new peripheral areas along main roads, and to account for new development areas under construction.

Average Incremental Cost and Pricing Considerations

4.06 Introduction of marginal cost pricing in conjunction with accelerated metering policies would enable the tariff to fulfill its role of reflecting the economic cost of water and possibly discourage water wastage. To cope with the expected growth in demand beyond 1988 up to the year 2000 a second substantial investment would have to be made in a few years' time. Hence, the marginal cost calculations also reflect these latter investments. The long-run marginal cost, as approximated by the Average Incremental Cost (AIC) of water production, treatment, and distribution to final consumers is estimated to be ₦0.40/m^3. 1/ Likely variations in demand growth will result in no major difference in the AIC. Details of the calculations are provided in the project file.

4.07 The present tariff for metered consumers averages only ₦0.28/m^3 (see Annex 4.1). Therefore implementation of substantial tariff increases will be required starting in 1982, and while future tariffs will be set primarily on financial grounds (see para. 6.06), the proposed increases would result in an average metered tariff of ₦0.42/m^3 (in 1980 prices), which is compatible with the AIC. Particularly, the large-volume consumers would be subject to metering (see para. 4.13) and the general tariff level would be set at the AIC level. Some reduction would appear to be required with regard to the monthly minimum charges to increase the proportion of total consumption subject to effective metering. Flat rate structures have to continue until all consumers are metered, but they should be adjusted in order to reverse a situation where the better-off consumers are charged less than people who cannot afford house connections.

4.08 During negotiations ASWC agreed to continuously review its tariff structure and levels. For this ASWC would be assisted by the Financial Advisor and the Commercial Expert and would benefit, to the extent applicable, from conclusions and recommendations of the tariff study initiated under the Kaduna Water Supply Project (Loan 1711-UNI).

Consumer Ability to Pay

4.09 Available information concerning average per capita or per family incomes in Onitsha as well as their distribution is limited to a survey carried out by TCE in April 1979. Local officials and TCE themselves believe that the findings of the survey appear to considerably underestimate the actual income levels. On the basis of these data, as well as data from a yet unreleased household expenditure survey conducted in 1975/76 by the Ministry of Finance and Economic Development of ANSG, the following income distribution was estimated:

1/ The AIC is calculated as the present value of all incremental cost during the period 1980-2000 divided by the present value of all incremental water sales during the same period at the discount rate (opportunity cost of capital). The opportunity cost of capital is currently estimated at 11% for Nigeria.

Per capita Income ₦/month	Per family income ₦/month 1/	% of Population	Cumulative %
0 - 9	0 - 79	4%	4%
10 - 19	80 - 159	15%	19%
20 - 29	160 - 234	33%	52%
30 - 39	240 - 319	26%	78%
40 - 49	320 - 399	8%	86%
50 - 59	400 - 477	4%	90%
above 60	above 480	10%	100%

4.10 The typical existing monthly water rate for a family of 8 served by courtyard connection at a consumption of 55 lcd has been estimated at ₦3.50; this would represent less than 2% of a monthly family income of ₦189 which has been estimated as the Urban Poverty Threshold for a family of this size. This level is not excessive, and appears affordable in the light of data from the above-mentioned Household Expenditure Survey on expenses for soft drinks, beer, alcohol, tobacco, etc. Future tariff levels adjusted to the AIC of 40 k/m^3 (at domestic prices) would then translate into a monthly charge of ₦5.28 for the same average family or about 3% of its monthly income, assuming the family income remains constant in real terms over the project period. This would still be within the affordable limit generally set at 5% of monthly family income. Lower income families will have access to water at no direct charge through standpipes for so long as they cannot afford house connections because of the prevailing high connection costs (para. 4.11).

Standpipe, Connection, and Metering Policies

4.11 It is generally considered that one month's income is the maximum amount affordable for a house connection. At present, the total cost to the consumer for a 20m connection amounts to about ₦ 250, which represents the sum of the labor cost and the cost of pipeline supplies. From the income data, it would appear that only about 40% of the households could afford a private connection. However considering that the cost for a connection in a courtyard would most likely be shared by more than two families, more than 80% of the population would have access to private or semi-private connections. Once the water production has been increased, the upgrading of service levels through accelerated house connection campaigns will become an important

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1/ a) Assuming an average family of 8 persons; no consideration is given to variation of family sizes correlated to income levels, as no data is available.

b) The statistical "average" family size would be 5.1 persons, according to the survey conducted by the consultants who prepared the Onitsha Master Plan. However, these results take into account the large number of single member households (estimated between 14 and 20%). The size of the more typical families have been found to be closer to 8 persons, an estimate which has been adopted here.

objective of the Project. Connection equipment, purchased in bulk, will be provided under the project, and this, together with contracting of installation operations on a large scale would bring about cost savings, of up to 15% which could then be passed on to the customer. In order to meet the basic needs of Onitsha's population, standpipes will play an important role during the project period, until the courtyard and household connecting programs come on stream. In the past, high maintenance cost to be shouldered by ASWC and the inability of OLG to pay for standpipe service led to a decay of this type of water supply to the extent that less than 30% of the total number of standpipes are functioning (para 2.09). Therefore, one area of the immediate action under the project will be to rehabilitate the existing standpipes and, additionally, install new ones in order to reach as many consumers as possible. During negotiations it was agreed that (i) all Local Governments would be obliged to pay the bills due to ASWC for water consumed at standpipes, as and when presented for payment after January 1981; and (ii) the Ministry of Local Government would underwrite payments for standpipe consumption if there is default by any of the 23 Local Governments after 60 days of being billed.

4.12 ASWC will not be in a financial situation to support subsidization of courtyard and private installation cost over the next few years. Taking this into account, the strategy for the medium term will be (a) to tap the high and medium income group with expressed demand and ability to pay the full cost; (b) to provide standpipes for the low income group and courtyard connections, as a halfway measure for the lower middle-income groups, and (c) to introduce at a later stage subsidized connections to phase out standpipes when ASWC's finances permit and its administrative capacity improves. During negotiations, assurances have been obtained that as part of the OMIP ASWC would in the meantime charge the full cost of connections, and proceed with the rehabilitation of existing standpipes and the installation of additional ones in areas of Onitsha where people are unlikely to afford connections.

4.13 Metering of domestic connections is virtually nonexistent at present. Under the Project, a metering campaign would be introduced by 1982 in conjunction with the proposed tariff increases to focus particularly on the large-volume consumers. It is expected that by 1985, 35% of the consumers with house connection will be metered, accounting for 70% of the total consumption in this category. By 1990, this should increase to 40% of all consumers in this category. Overall, by 1990, about 75% of the total water consumption in Onitsha would be metered. The increase in the percentage of domestic connections metered may not appear that high, however, this is explained by the overlapping period of high growth of house connections.

Internal Rate of Return

4.14 The internal economic rate of return (IERR) for the Onitsha Water supply component of this project takes into account: (a) as benefits, revenues associated with incremental water sales as a result of the project, and (b) as costs, the capital cost relating to the project and all incremental recurrent costs. The IERR in border prices is 2% with existing tariff levels (assuming constant 1980 prices).

4.15 This low IERR does not reflect the full benefits of the project, as consumers' surplus and external benefits (such as health improvement, increased productivity) have not been taken into account. Furthermore, the current demand price for water (which would more properly reflect the real value of incremental water consumption) is much higher than the present average tariffs as expressed in the consumers willingness to pay up to ₦30/m^3 to private vendors.

4.16 Implementation of future tariff levels as mentioned in para. 6.03 would result in an IERR of almost 9% and would be close to the shadow interest rate (the marginal productivity of capital) of 11%.

Sensitivity analysis on cost variations yield the following picture:

	IERR	
	Existing Tariff	Future Tariff
	(%)	
Base case	2.0	8.9
All capital cost up by 10%	0.8	7.8
down by 10%	3.2	10.1
All recurrent cost up by 10%	1.1	8.4
down by 10%	2.7	9.3
All foreign exch. cost up by 10%	0.8	8.0

The cost variations affect the rate of return by only ±1%. Other calculations indicate that the IERR is:

i) insensitive to changes in demand growth; a saturation period of 10 years instead of the anticipated 5 year period will affect the IERR by less than 1%; and

ii) highly sensitive to different schedules of tariff increase; two other alternative tariff schedules (Annex 4.2) illustrate the importance of an actual implementation of the proposed tariff increases also on economic grounds.

Further details of the IERR calculation and the sensitivity analysis are detailed in Annex 4-2.

Sanitation

A. Solid Waste Management

Least Cost Solution and Justification

4.17 The proposed alternative of providing tractors and trailers for extending waste collection and using existing land fill sites for disposal makes use of the existing equipment and already available technology, and relies as much as possible on labour-intensive strategies. A high degree of flexibility is maintained and permits introduction of new technology as road conditions improve and standards of living increase. Significant, but unquantifiable, public health benefits are expected to result from implementation of improved solid waste management under the project.

4.18 Uncollected municipal refuse clogs drains and hinders traffic flow particularly in those neighborhoods of Onitsha receiving less than 50% collection service. The clogged drains allow wastewaters to become stagnant and provide breeding sites for insect vectors of malaria and filariasis. The accumulated refuse provides breeding sites for flies which spread dysentery and other diseases. In conjunction with the acquisition of new equipment, the reorganization of the responsible department and creation of a sanitation department within OLG (see para. 5.26) will lead to improved efficiency in coping with these problems.

B. Night Soil Collection

4.19 As noted in para. 2.14, probably less than 20% of the night soil is collected, with the worst conditions prevailing in the lower income areas. The hazards of inadequate collection and haphazard disposal of night soil are significant.

4.20 The approach adopted in this component has been to provide a minimum acceptable standard at lowest possible cost by means of introducing a slurry tanker system organised by the OLG through its proposed Solid Waste Management Department. This method remains the least cost alternative for all low income areas lacking any means of sewage disposal, at least for the next 5 years pending the implementation of a currently planned sewerage network.

C. Drainage

4.22 Clogged drains present a particular environmental hazard in Onitsha. In the rainy season, large parts of the low-lying areas are exposed to floods because surface water is not able to run-off to the Otumoye Creek thereby causing sanitary conditions to deteriorate even further. The drainage component to be financed under the proposed project constitutes the first immediate measures programmed for the development of an improved and expanded storm water disposal and flood control system. As such, it focuses on bringing about relief to critical bottlenecks, carrying out most urgently required repairwork and reconstruction of existing drains, and implementation of erosion control measures.

Impact on the Urban Poverty Group

4.22 The present levels of service are described in para 2.20. It is estimated that by 1985 all the estimated and projected 96,000 urban poor would have access to safe water through standpipes, and that by 1990 about 50% of the increased urban poor population will rely on standpipes, while the other half would have access to courtyard connections assuming that the second phase development proceeds as planned in 1986-1988. Assuming a per capita consumption of 25 lpd for standpipes and 55 lcd for courtyard connection the urban poverty group (27% of total population) will consume 12% of the total domestic consumption by 1990.

4.23 The availability of safe water through standpipes and courtyard connections (following extension and reinforcement of existing distribution network) is only one component of the Project to benefit the urban poor, the other benefits resulting from city-wide sanitation improvements, namely solid waste and night soil management, drainage and a health education campaign. In Okpoko, where about 50% of the population is in the urban poverty group, the project would provide a package of basic environmental sanitation improvements including solid waste and night soil management. Following the preparation of an engineering and planning study, key access roads and drainage would be constructed as a start for the orderly expansion of Okpoko. About 8% or US$9.6 million of the project is urban poverty lending or funds exclusively benefitting the poor.

V. THE BENEFICIARIES

A. Anambra State Water Corporation

Organization

5.01 ASWC was constituted as a body corporate in April 1976 although its governing Edict was only enacted, with retroactive effect, in June 1978. Under this Edict, ASWC is responsible for all functions relating to the development, provision, conservation and distribution of water in the Anambra State for public, domestic and industrial purposes. It also has the power to borrow money and can implement the proposed project in accordance with Bank requirements. The ASWC is subject to financial control by ANSG which approves capital and recurrent expenditure budgets, water tariffs and procurement for all contracts above ₦250,000.

5.02 ASWC's Board comprises five part-time members nominated by the State Government and, until being dissolved after the civilian State Government took office, had met irregularly, but at least four times per annum, to review policies proposed by management. Whilst the former Board was conscientious in its deliberations, it was heavily constrained under the previous military regime and thereby inhibited from taking the steps necessary to enable the Corporation to provide adequate services to its consumers; lack of finance having been a particular limitation in these first four years of the Corporation's life.

5.03 ASWC is presently being managed by an Interim Board comprising the Commissioner of ASWC's parent Ministry, the new Ministry of Public Utilities as chairman of the board, the Permanent Secretary of the Ministry of Public Utilities, and the General Manager and the Chief Engineer (Construction) of ASWC. The distinct roles of Government and Board specified in the Edict are becoming blurred. Whereas ASWC management has in the past generally operated autonomously on routine matters within policies agreed with the Board, this prerogative is being undermined and is adversely affecting its ability to plan, organize and operate in accordance with proper public utilities practices. During negotiations, ANSG representatives confirmed that they intended to restore appropriate Board membership, in conformity to the principles of ASWC's Edict.

5.04 During the preparation and appraisal of the project extensive discussions were held between ASWC, their engineering and financial consultants and Bank staff about the weaknesses of the existing Headquarters and Zonal organization structure; inadequacy of staffing; staff recruitment difficulties; deficiencies in the present operational and financial systems; lack of office and depot facilities and limited training activities.

5.05 The problem areas referred to in para 5.04 are partly due to the very severe financial constraints in which the ASWC has been operating, as tight financial control systems have been imposed by Headquarters over the zones. Several members of the management team have often been involved in too much detail as part of these controls. The ASWC has recognized the counter productive nature of some of these controls and simultaneous with the development of internally generated funds it intends to adopt a more realistic operating regime and budgetary control system for the Zones. Although the present departmental and zonal framework appears substantially as in the proposed new structure set out in Figure 5.1 there are important changes relating to reporting responsibilities of the zones to the new post of Deputy General Manager, to the allocation of functions within HQ Departments and between Departments, and to the creation of properly staffed Commercial Department, Training Unit and Performance Evaluation and Audit Unit. These improvements will enable progression into reasonably independent zones each headed by a Zone Manager supported by senior engineering, accounting and administration staff. The zones will work within policy guidelines, budgets, systems and to standards determined by or agreed with Headquarters. These new organizational and system developments such as incurring expenditure without recourse to Headquarters within prescribed budgetary control limits and others referred to in para 5.12, would be introduced in Onitsha Zone first and then subsequently to other zones.

5.06 The General Manager of ASWC is a qualified engineer. The other members of the management team, the Financial Controller, Secretary and three Chief Engineers are also qualified in their respective professions. Apart from these people only a few have the qualifications needed to undertake their allotted tasks. As of September 1979 the staff employed by ASWC totalled about 1,300. Of these, 130 are located in the Enugu Headquarters, 65 in the central Construction Department and a further 100 in the Mechanical and Electrical Division. The remaining staff of 1,000, being mostly low paid operatives, are dispersed among the 8 Operating Zones - 170 are located in

Onitsha Zone, the second highest after Enugu with 400 staff and operatives. Of the Corporation's 63 senior positions, one third (22) are vacant and this places considerable stress on the management of the Corporation. Additionally, there are over 300 other established vacancies. With a forecast doubling of ASWC's manpower requirements during the next decade, recruitment and training (see paras. 5.16 to 5.21) will be a major task.

5.07 The significant amount of technical assistance and training included in the proposed project is essential to ensure that ASWC (and OLG) have the capacity to execute the project, raise their operating standards and train on the job the Nigerian counterparts who should take over the technical assistance positions upon completion of their respective assignments. In spite of its numerous recruitment drives, the Corporation is having difficulty in attracting new staff at middle or senior management positions. Senior staff positions are already insufficiently manned (para. 5.06), mostly because of the uncompetitiveness of ASWC (and other State Water Corporations) with the compensation packages of the private sector. Training under the project will improve the qualification of water works operators and junior staff, but hardly solve the present shortage of supervisory and senior staff. State officials consider that it could be possible to upgrade these latter staff categories by redefining the positions. During negotiations it was agreed that (i) as part of the OMIP ASWC would undertake a review of job classifications and remuneration, comparing these with private sector conditions by December 31, 1981; and that (ii) ANSG would approve a personnel statute based on this review and prepared in consultation with the Bank, within 6 months of ASWC's completion of the review and in any case not later than June 30, 1982.

5.08 Additionally, the critical importance of an efficient management for the institutional developments and execution of the project have been emphasized in discussions of the OMIP component (see Annex 7.1). During negotiations, agreement was obtained from ANSG that future appointments to the position of General Manager would be notified to the Bank. An undertaking was also obtained from ASWC during negotiations that the Bank would be consulted prior to the appointment of staff into the new posts of Project Manager, Commercial Manager and Chief Training Officer.

Operation and Maintenance

5.09 Lack of finance, spare parts, supervisory staff, fuel, training and operating manuals have been prevalent since the creation of ASWC. They have prevented satisfactory performance in the operation and maintenance of the Corporation's water supply facilities. At the time of the Bank's first involvement during 1979, the decay of the system was already evident. It is reported that this overt decline, due essentially to financial constraints, has been a contributing factor towards a lowering of morale among operatives through their frustration at being unable to do much about arresting this decline or improving water supplies to the populace.

5.10 During project preparation, a consultants' report identified need for rehabilitation work estimated at ₦4.5 million (US$7.5 million) of which about ₦1.2 million was for Onitsha alone. These consultants examined what was needed to be done to bring ASWC's water supply facilities back into full operation and what level of budget was necessary to provide adequate manpower, vehicles, chemicals, electricity, fuel, and spare parts in order to adequately maintain all facilities once put back into operation. The State Government has realized the importance of these actions to adequately redress operations and maintenance of existing assets as a commitment towards maintaining the proposed Bank financed assets; it has provided the sum of ₦1.0 million for 1981 for water supply facility rehabilitation in a special fund managed by ASWC. Funding of the balance would be reviewed yearly as part of ASWC's commitment to complete the rehabilitation program by end 1983 and to adequately budget for operations and maintenance expenditure - as expressed in the OMIP (Annex 7.1). Since the implementation of the rehabilitation program is dependent on the internationally recruited mechanical and electrical superintendents (para. 3.09 B2), their appointment is a condition to the loan and they should be appointed no later than September 30, 1981.

Management Systems

5.11 Until recently, there has been no regular control information on the financial position of the Corporation as a whole or of its individual activities, apart from the annual accounts which in any case have been issued too late to be of any help. The determination and operation of authorized expenditure levels and other matters having a financial implication (appointment of staff, stockholding, etc.) has been adversely affected by a number of factors:-

(i) lack of a comprehensive document specifying authorization and approval levels;

(ii) administrative bottlenecks in approving and processing disbursement requests or payments; and

(iii) general lack of funds which has necessitated senior management involvement in essentially routine matters.

5.12 The ASWC has begun to remedy the above mentioned weaknesses relating to its management systems with the help of financial consultants funded through the PPF. Basic activities covered by PPF involved the preparation of financial regulations, an accounting manual, stock recording system and a structured coding system. The report was completed in February 1980 and remains to be implemented. The system recommendations, when implemented, will result in a number of reports intended to provide management and the Board with the necessary information to monitor the performance of the Corporation on a regular basis. The purpose of these reports is to show the results of the various activities of the Corporation at monthly/quarterly intervals and to indicate whether the results are in line with predetermined plans or budgets. The actual frequency of the reports will depend largely on the Corporation's success in implementing improvements in the accounting systems

and in recruiting the requisite staff for both Headquarters and the Zones. The improvement of ASWC financial management and the introduction of satisfactory accounting systems has been agreed with ASWC during negotiations and included in the OMIP.

Billing and Collection

5.13 One of the more urgent activities for implementation relates to the billing and collection of water sales and of other amounts due to the Corporation. For various sound reasons, ASWC decided to dispense with the former billing and collection agency operated by the 23 Local Governments for domestic water supplies. ASWC's new tariff approved by the State Government and in operation since January 1, 1980, assumes the direct billing of consumers by ASWC. However, the new tariff for unmeasured supplies has no means of being implemented because the billing system was only in the design stage at that time. However, it is the financial consultants' view that because of lack of basic consumer records, appropriate numbers and quality of staff and inadequate office accommodation plus the need for staff training, it could take ASWC up to 21 months to become properly geared up to the complete billing and collection system requirements of all its eight zones. The availability of comprehensive property valuation registers (para 5.31) may help to improve on this timing and Onitsha Zone would be the first one in which the new system would be implemented and could possibly be operational by late 1981.

5.14 Implementation of the newly developed billing and collection systems requires the immediate appointment of a competent Commercial Manager and the support of an internationally recruited Advisor. ASWC agreed to recruit two such persons under terms of reference and on conditions acceptable to the Bank. These appointments are viewed as critical to internal cash generation and to the ultimate financial viability of the Onitsha Zone, in particular, as well as to the improved performance of the ASWC as a whole. For these reasons the appointment of the Commercial Manager is expected to be made in May 1981; and the recruitment of his advisor, a condition to the loan, should take place no later than September 30, 1981.

Fixed Assets

5.15 Consultants were retained under the PPF to identify, schedule and value all assets of the ASWC on a zone by zone basis. This exercise was completed in November 1979 and the assets at their revalued prices, will be brought into the accounts for FY80(12). The survey gives the following data for fixed assets status: -

Location	Assets in Operation	
	Present Replacement Cost Value	Notional Written down value
	₦000	₦000
Whole of ASWC	46,463	21,565
Onitsha Zone only	8,155	3,365

The ASWC has undertaken to write up an assets register and to annually index the asset values to reflect current prices by using appropriate inflation indices to be agreed with the Bank.

Training

5.16 With a few exceptions, ASWC staff training is done on-the-job. However, the ASWC's management is aware of the need for manpower training and development, and has established several training activities on an ad hoc basis. One and three month courses are provided for plumber/pipe fitters and pumper/plant operators, and there have also been occasional short seminars for accounting/clerical, stores and other staff. In 1978, a small training school was opened by ASWC and plans are in hand for additional training for craftsmen and semi-skilled personnel.

5.17 There are several deficiencies in the existing training situation. On-the-job instruction alone generally does not produce an adequate standard of competence, for example, many staff are unable to diagnose and repair simple problems in the equipment they operate. The formal training that is provided does not result from a systematic identification of ASWC's needs; rather, people are simply nominated to attend whatever courses may be offered by the Training Department. The courses tend to be based on government trade tests rather than the ASWC's specific skill requirements, and there is a lack of teaching equipment and materials. The school is underutilized because there is no accommodation for out-of-town staff. Staff members who are responsible for instruction have themselves received no training in instructional methods.

5.18 A study of the water supply sector in Nigeria carried out in 1979 under the IBRD/WHO Co-operative Program forecasts that the ASWC will have a training load of 500 staff per year, excluding security and unskilled workers. This comprises new recruitment of about 260 people per year, plus refresher training for about 20% of the existing staff per year. A strong training unit will be required to service these requirements. Other additional key training needs have been identified such as training in management and supervisory skills for sub-professional staff; expansion and improvement of training programs for operational, administrative and support staff; and development of systems to forecast manpower and training needs for each zone and department of the Corporation.

5.19 The proposed training program, which is detailed in Annex 5.2, would be designed and implemented under the direction of a Chief Training Officer (CTO) at the senior management level. The appointee would be acceptable to the Bank and should be in post no later than September 1981. The CTO would be assisted by a training consultant or consultancy firm acceptable to the Bank. Consultancy services amounting to 24 man-months would begin in January 1982, after the CTO returns from a three-month overseas course. The CTO and the consultants would undertake a detailed review of the ASWC's short and long term manpower and training requirements. They would produce an overall training plan for all staff. This plan would have regard to internal, state, national and overseas training and education facilities, in both the public and private sectors, including the services to be provided by the Federal Water Resources Centre at Kaduna.

5.20 Additional full and part-time instructors would be appointed to ASWC training staff and they would receive training in instructional techniques. The training school would be expanded and upgraded, and additional training equipment would be acquired. The school would play to a limited extent, the role of a regional water supply staff training centre, and a strategy for attracting trainees from other water authorities would be developed, including establishment of fees payable to ASWC to cover costs related to trainees from outside the State. The one-year Assistant Works Superintendent courses offered by the Kaduna State Water Board, which is to be revised under the Kaduna Water Supply Project (Loan 1711-UNI), could then be introduced at the ASWC Training School and made available to staff from other water authorities in the eastern region of Nigeria. The project would also provide for higher level ASWC staff attachments to well-established overseas water supply authorities or fellowships at other overseas institutions.

5.21 The particular short term training needs of the Onitsha zone would be met by an intensive course for operational personnel who have not received off-the-job training. At least two operational personnel would be selected to attend the Assistant Works Superintendent Program in Kaduna.

B. Onitsha Local Government

Organization

5.22 OLG is one of twenty-three LGs set up by Anambra State in 1976. It is responsible for the Onitsha Urban area and the adjacent Ogbarau District, which itself includes 15 small settlements. Although the LGs are bodies corporate, they are treated very much as if they were still Divisions of the Ministry of Local Government based in Enugu. The main functions of LGs relate to Education; preventive health; construction, repair and maintenance of roads (other than Federal and State roads) as well as sanitary inspection, sewerage, refuse and nightsoil disposal, public conveniences and other normal municipal activities. LGs can provide and maintain works and services and enter into contracts, but are permitted to borrow money only within Nigeria. However, in respect of the solid waste management program to be financed by the Bank, no amending legislation would be required because the FGN would be the borrower.

5.23 Until recently, OLG had a Council consisting of 28 representatives elected for each electoral division in the area. At the present time, the Chairman and three supervisory councillors nominated by the new Government are overseeing the business of the Council on a caretaker basis pending local government elections. Normally the Council is required to meet regularly every month and to operate through a series of committees for Finance, Education, Works and Health each chaired by a supervisory councillor.

5.24 The Secretary of OLG, a career civil servant, is the chief executive and is the principal adviser to the Council of OLG. He is responsible for the supervision and control of all employees of the Local Government and for coordinating all activities of the departments of OLG. The principal departments apart from the Secretary's own are Education, Health, Works and Treasury (see Annex 5.3). Each of the departmental heads also reports on policy matters to a specified supervisory councillor.

5.25 An unsatisfactory organization for solid waste management has resulted in acute problems in refuse and night soil collection and disposal (Para 2.17). These solid waste management activities have hitherto been the responsibility of OLG's Medical Officer of Health, but have featured very low in the hierarchy of priorities or organizational status. Supervision has been ostensibly by middle grade Health Department Superintendents, but in practice predominantly by 6 low grade Refuse Disposal Overseers and their assistants. There are in excess of 100 operators at the lowest salary grade who undertake the actual refuse collection and subsequent disposal at large ravine land fill sites.

5.26 As part of the development of the solid waste management component in the project, OLG agreed with Bank staff's recommendations that a new Sanitation Department should be set up under a full time Manager having Chief Officer status. Such a person is expected to be appointed in May 1981. The proposed departmental structure is shown in Annex 5.4. The new Department would be initially strengthened with the services of at least two or three internationally recruited experts in the fields of landfill treatment, solid wastes collection and mechanical workshop organization and supervision (para 3.22). Besides the technical assistance to the Sanitation Department, a further 12 man-months of technical assistance would be provided to the Town Engineer to help resolve some of the traffic congestion problems in Onitsha (see para. 3.09 C ii).

5.27 OLG employs nearly 3,000 people of whom over 60% (1830) are engaged in education. The Secretary's and Works' Departments each have about 350 employees; Health Department 270; Treasurer's 130 and Agriculture 50.

5.28 Middle grade and senior staff are frequently moved at short notice by the Ministry of Local Government from one Local Government Office to another. This unsettling practice for the staff results in inefficient manpower utilization. All staff have been asked to decide by March 31, 1981 whether they wish to be permanently assigned to Local Governments or to the Ministry; there is the danger that OLG may lose several of its already depleted senior staff group. Any substantial movements of senior staff from OLG will undermine its performance and so any return to the Civil Service should be regulated. Discussions would be held during project implementation with ANSG to explore avenues for remedying the staff turnover and improving the overall staff performance of OLG.

Financial Management & Systems

5.29 OLG, in common with other Local Governments, is required to operate financial management and accounting systems in accordance with a comprehensive document known as the Financial Memoranda which was prepared by MLG in 1976 following substantially the earlier edition. The requirements and concepts are rather outdated, but do nevertheless dictate that Vote Books - a municipal accounting record related to recurrent and capital expenditure allocations (votes) made in the State Budget - be written up to date and that monthly accounts be produced. The late approval of votes for each LG by the ANSG (five months into the financial year for the last two years) has meant that OLG has been unable to write up its Vote Books until

after that time or to produce any kind of relevant financial information. Only a simple schedule of receipts and payments, listing each payer or payee has been produced each month for the Council Meetings.

5.30 The last set of annual accounts are those for FY77 and these are only in draft form. OLG has set up a special task force to prepare the annual accounts for FY78 and 79. The use of the budget allocation as a basis of analysis for receipts and payments does not lend itself to determining costs of the various services that the Local Government provides. The main financial document in OLG is the Annual Budget prepared from September onwards and which pursues a protracted process lasting several months until it receives final agreement by ANSG. The budgets for FY79 and FY80(12) 1/ are set out in Annex 6.5 and provide the only financial scenario available for OLG (see paras 6.16 to 6.22).

5.31 The revenues are primarily derived from government grants, market fees/tolls, and property taxes in that order of importance (paras 6.17 to 6.19). But, the accounting system does not provide any clues regarding whether the right costs are being charged to the right service and hence correctly recovered. Similarly, the property tax system, although now based on comprehensive valuation lists prepared by firms of chartered surveyors in 1979, is not being used to full advantage and the community (per capita) tax collection is very weak.

5.32 Discussions on how to overcome these problems have been held with MLG and OLG. Confirmation was received during negotiations, that as part of the project expert assistance would be sought under terms and conditions satisfactory to the Bank. Such expertise would ensure the installation of appropriate accounting and cost recovery systems in OLG and develop the Property Rate Unit of OLG into a properly controlled billing and collection activity. Additionally, assistance would be provided to the OLG Town Treasurer whom it was agreed at negotiations would be appointed by OLG by September 30, 1981.

Reporting and Monitoring

5.33 Specific reporting procedures which would keep ASWC and OLG management and the Bank informed of progress on the project, including meeting institutional and financial objectives were discussed and agreed during negotiations. Monitoring criteria to be included in the reporting requirements are listed in Annex 5.5.

1/ See Inside Front Cover regarding Nigeria's Fiscal Year.

VI. FINANCIAL ANALYSIS

A. Anambra State Water Corporation

Past and Present Financial Performance

6.01 At the time of its creation in 1976 the ASWC took over various assets and liabilities from the East Central State Water Board. For various reasons, ASWC's records have been deficient from the outset. The State Auditor General who had audited the 1977 Accounts agreed with the ASWC to have these re-audited, and the 1978 and subsequent accounts audited by independent professional auditors. The auditors were appointed in February 1980 but their reports have not yet been received. Available records of past operations reflect accounting weaknesses, suffer serious gaps and lack commercial orientation. Existing accounts do not therefore form an adequate basis for a meaningful assessment of ASWC's past financial performance. During negotiations, it was agreed that ASWC would continue to use a firm of independent professional auditors. Furthermore, it was also agreed that there would be a more timely preparation and audit of ASWC's accounts and the production of separate accounts and audit for Onitsha Zone.

6.02 In the past, the ASWC has received operating subsidies from the ANSG. These have been justified on the grounds that the ASWC was providing a basic need without adequate cost recovery mechanism. While corrective actions are underway and would be reinforced by the proposed OMIP (Annex 7.1) the need for subsidies can be expected to continue for some time. Consultants have determined that at FY80 prices, ASWC's recurrent expenditures should amount to some ₦6.5 million, made up of ₦3.2 million for normal operations and maintenance, ₦2.6 million for Headquarters and zones salaries and wages, and ₦0.7 million for other charges. For the 9 months of April 1 to December 31, 1980, and after allowing for price increases, this is equivalent to ₦ 6.2 million (₦1.7 million for Onitsha Zone). Expected revenues would leave a ₦4.5 million gap. However, it will take some time before the ASWC is geared to incur this level of expenditure. The ₦2.7 million provided by ANSG for FY80(9) is probably closer to ASWC's absorptive capacity. During negotiations agreement was reached for the continuation of annual State Government recurrent expenditure subventions, pending revenue generation improvement by the ASWC.

Tariffs

6.03 The aspects of economic pricing, in relation to present tariff structures and expected new tariff levels have already been dealt with in paras. 4.06 to 4.08. From a financial point of view, substantial improvements in the operating efficiency, rigorous debt recovery, optimal use of the production capacity, and annual tariff increases of about 25% per annum for several years after an initial 50% increase in FY1982 will be required for the Project area (Onitsha Zone) to attain financial viability. Given the very low level of existing tariffs, the proposed increase would result in levels which would still compare favorably with those of neighboring countries.

Financial Strategy

6.04 Neither the ASWC as a whole, nor any of its Zones, is presently financially viable. As the main thrust of the Bank investment would be in the Onitsha Zone, improved financial performance would be pursued in that Zone first, gradually extended to other Zones and then to the Water Corporation as a whole. It is anticipated that the Onitsha Zone would not move towards financial viability until FY83, and state subventions will be necessary for the Onitsha Zone during this interim period. Because of the transition from being heavily dependent upon Government for subvention to meet its operating expenses to one of financial self sufficiency, the financial strategy would be targetted over the period of project execution. Financial viability in Onitsha Zone would eventually be achieved by adopting the cash generation approach and financial discipline set down below. The same discipline would be extended to Enugu Zone in FY82, to Nsukka and Abakaliki Zones in FY83 and to other zones by dates to be agreed during project execution. During negotiations, it was agreed with ASWC:

(i) that the total revenues of the Onitsha Zone would be deposited in a separate bank account and used giving priority to the payment of the capital and operating expenditures of that zone, including a reasonable share of the operating expenditures of the Water Corporation's headquarters, meeting working capital requirements and the servicing of the debt for the Onitsha part of the water supply component in the project;

(ii) that an exercise would be undertaken annually (commencing Fall 1981) in consultation with the Bank to ensure that tariffs are adjusted as necessary to generate each year in Onitsha, aggregate revenues sufficient to meet at least 40% of its operational expenditures (including debt service and working capital requirements) in FY1981; to meet 80% of its operational expenditures in FY1982, and thereafter to meet 100% of its operational expenditures and contribute a minimum of 5%, 10% and 30% towards the average capital expenditures of the Onitsha Zone for FY1983, FY1984 and for FY1985 onwards respectively; for Onitsha Zone the target is an average 23% of the capital expenditure of that zone for FY1983-86;

(iii) that additional debt would not be incurred in the Onitsha Zone, or in other selected zones, unless their combined internal cash generation covers their maximum future debt service, 1.5 times; and

(iv) that the gradual incorporation of additional zones would be done by agreement between the Corporation and the Bank.

6.05 The above strategy is appropriate for ASWC, since it proposes attainable, realistic targets while contemplating the eventual integration of all zones under the same financial discipline. The cash generation covenant outlined above is also well indicated because:

(i) its implementation recognizes the continued financial support required by the ASWC from the State Government in the early years of project execution;

(ii) it is more readily understood by ASWC and ANSG officials who are used to the Federal and State Governments' approach of budgeting to meet cash flow requirements;

(iii) its implementation requires a lower level of sophistication of ASWC's management and accounting staff; and

(iv) it addresses the crucial aspects of forward financial planning more directly, requiring ASWC to forecast operating costs and investment plans at least two years in advance and to establish its tariffs in relation to those forecasts.

Financing Plan

6.06 In line with the financial strategy described in paras 6.04 and 6.05, the financial projections which appear in Annexes 6.2 to 6.5 relate to the Onitsha Zone. They are based on (i) an in-depth analysis of ASWC's records and operations by its consultants, and (ii) various assumptions as shown in Annex 6.1. Mainly it has been assumed that tariffs would increase by 50% from January 1, 1982 and by 25% per annum in the four succeeding years. These percentages and the timing reflect increased costs and inflation estimated since the previous tariff increase as well as the availability of more water to consumers. It is also expected that unaccounted for water in Onitsha Zone would fall from about 30% in FY1980(9) to about 22.5% by FY1985 (para 2.13). Operating and capital expenditures have been adjusted to reflect expected local and international inflation. Interest payments on the proposed loan during the grace period would be met by ANSG to ease the cash flow position of both ASWC as a whole and its Onitsha Zone.

6.07 Based on the foregoing assumptions the Onitsha Zone Sources and Applications of Funds Statements, which appear in Annex 6.2 may be summarized as follows (in million Nairas):

Item/FY	1981	1982	1983	1984	1985	1986	1981 to 1986	% of Total
Sources								
Cash Generation	0.3	0.6	1.6	2.2	4.6	8.2	17.5	31%
Debt Service	0.2	0.2	0.2	0.2	0.2	2.3	3.3	6%
Net Cash Generation	0.1	0.4	1.4	2.0	4.4	5.9	14.2	25%
Proposed IBRD Loan (Onitsha Only)	0.2	5.5	11.1	5.1	2.6	1.4	25.9	45%
Govt. Contributions	1.1	6.1	7.2	1.3	0.9	0.5	17.1	30%
Total	1.4	12.0	19.7	8.4	7.9	7.8	57.2	100%
Requirements								
Proposed IBRD Project	1.3	11.6	19.3	7.4	4.5	1.9	46.0	80%
Other Projects	-	-	-	-	1.0	4.5	5.5	10%
Total Investments	1.3	11.6	19.3	7.4	5.5	6.4	51.5	90%
Working Capital Incr.	0.1	0.4	0.4	1.0	2.4	1.4	5.7	10%
	1.4	12.0	19.7	8.4	7.9	7.8	57.2	100%

6.08 On this basis, the Onitsha Zone would generate about 25% of its total capital requirements, the Government 30%, and the Bank 45%. After utilizing ₦5.7 million for desperately needed working capital increases in Onitsha Zone, ₦8.5 million would be available towards capital investment in the project and in the start up of phase two expenditure in FY1985. Because of ASWC's financial situation, internally generated funds would not contribute to investment in Onitsha Zone until FY1983.

6.09 During negotiations ANSG agreed that, during the project period, it would allocate the amounts necessary to meet the financing requirement of the proposed project including any cost overruns. This would be after taking into account the amounts available from the proposed IBRD loan and the internal cash generation of the Onitsha Zone. ANSG also agreed that such budgetary allocations would be deposited, in advance each quarter, in the special bank account to be used exclusively by ASWC for the capital expenditures of the water supply components of the proposed project.

6.10 Current projections indicate that net cash generation as a percentage of total investments will be lower in the early years of project execution than in the latter years. However, the financial strategy set down in 6.04(ii) ensures a steady development and improvement in internal cash generation. In FY1985 the percentage rises to over 30% (₦2.0m) which reflects the combined results of expected tariff action, increased water sales, improved billing and collection and reduction in unaccounted for water. Debt service is covered at least 2 times in FY86 and FY87 when the full burden of servicing its share of the IBRD loan falls on Onitsha Zone's finances.

Future Financial Performance

6.11 The Onitsha Zone projected Income Statements appear in Annex 6.3. These may be summarized as follows (in million Nairas):

	1981	1982	1983	1984	1985	1986
Revenues 1/	2.3 2/	2.9 2/	4.2	6.2	9.3	13.7
Expenses 1/	2.0	2.2	2.5	4.0	4.7	5.5
Gross Income	0.3	0.7	1.7	2.2	4.6	8.2
Depreciation	1.2	2.0	3.1	5.1	6.7	8.2
Operating Income (Deficit)	(0.9)	(1.3)	(1.4)	(2.9)	(2.1)	-
Interest	0.1	-	-	-	-	1.5
Net Income (Deficit)	(0.8)	(1.3)	(1.4)	(2.9)	(2.1)	(1.5)

1/ Excluding Rehabilitation Program.

2/ Including Subvention of ₦1.1 m (FY81) and ₦0.2 m (FY82).

6.12 Operating costs (excluding depreciation) exceed revenues during FY81 and are marginally less than revenues in FY82 - these are expected to be the last two years in which recurrent expenditure subvention should be required for Onitsha Zone. Thereafter operating costs (excluding depreciation) are not expected to exceed 65% of revenues.

6.13 Although net deficits are forecast, the Onitsha Zone could be in a healthy cash position by the end of the project period (see para. 6.10). The main reason for the deficit position is the high annual depreciation provisions resulting from the revaluation of fixed assets. The annual revaluation has been calculated on a basis consistent with the local and foreign inflation factors used in costing the project. The rate of return on average revalued net fixed assets in operation during project execution would be negative or bordering on zero (FY86) at the forecast tariff levels. During negotiations, the ASWC agreed (i) to maintain its assets at current prices through annual revaluation using valuation methods acceptable to the Bank, and (ii) to provide for annual depreciation based on revalued assets.

6.14 The Onitsha Zone projected Balanced Sheets appear in Annex 6.4. These are summarized as follows (in million Nairas):

Item/FY	1981	1982	1983	1984	1985	1986
ASSETS						
Fixed Assets (Revalued)	6.3	17.3	35.3	40.2	44.9	50.7
Current Assets	0.6	1.0	1.5	2.4	4.8	6.3
Total	6.9	18.3	36.8	42.6	49.7	57.0
LIABILITIES						
Current Liabilities	0.4	0.5	0.6	0.7	1.4	2.3
Long-Term Debt	0.8	6.0	16.9	21.8	23.5	23.2
Equity	5.7	11.8	19.3	20.1	24.8	31.5
Total	6.9	18.3	36.8	42.6	49.7	57.0

6.15 In Onitsha Zone the value of fixed assets will grow by eight times during project execution from 1981 to 1986, an annual compound increase of 50%. Current ratio is not expected to fall below 1.5 and debt to debt and equity ratio would not go above 52% (FY84).

B. ONITSHA LOCAL GOVERNMENT

Financial Performance

6.16 As indicated in para 5.30 recent financial performance cannot be assessed for Onitsha Local Government due to lack of annual accounts. The only available data are annual budgets (see Annex 6.5). OLG's three main sources of income derive from grants, taxes and other charges; for FY80 (12) these were forecast to amount to ₦4.1 million, ₦1.0 million and ₦2.9 million respectively. They are discussed below.

6.17 OLG's main source of income consists of government grants. Of the funds allotted by the Federal and State Governments to local government, 25% is allocated equally between the 23 Local Governments in Anambra State and 75% on the basis of their respective population (projected from 1963 for each local government). For FY80 (12) the amount of State Government grant was not known until June 1979, which prevented the annual estimates from being approved until August 1979 -- some five months after the year had started. Steps have been taken at both the Federal and State levels to try and improve on the budgetary allocation system. Additionally, a new revenue allocation formula has been developed by FGN which will improve the financial status of most LGs throughout Nigeria.

6.18 Taxation revenues include the property and the community rates. The present property rate is 10 kobos per ₦1 of annual value. The determination of this annual value is the responsibility of the MLG who in 1978 retained a firm of surveyors to assess properties in all urban areas of Anambra. Property rates were expected to produce ₦360,000 in FY80 (12) including recovery of arrears of ₦100,000. The Community Rate of ₦10 is a per capita tax on all employed people of 16 years and upwards; collection is hit and miss but was expected to produce ₦300,000 in FY80 (12) including ₦50,000 from previous years.

6.19 The third source of income derives from the application of charges for various services and licences. The largest single source of revenue is from the operation of the markets which produce ₦1.8 million in stallage fees and ₦0.3 million in market tolls. Motor park fees amount to ₦0.15 million and liquor license fees to ₦0.35 million. Although these are substantial revenues, the OLG has no way of knowing from its accounts whether or not it is covering all the costs incurred in the operation of its markets or for any other OLG service.

6.20 Of all recurrent expenditure (₦6.03 million), 80% relates to employee costs (₦4.84 million); the cost analysis between departments is similar to the employee analysis in para. 5.27 with the Education Department accounting for over 60% of all costs.

6.21 The capital expenditure budget for FY80 (12) included inter alia: (i) the second ₦0.5 million installment of a ₦1.0 million loan to Anambra State Water Corporation; (ii) the provision of ₦0.6 million for construction of roads, bridges and drains in places to be specified by the Town Engineer; (iii) ₦1.0 million for the purchase of plant associated with construction of roads, bridges and drains and (iv) ₦0.2 million for night-soil disposal equipment.

6.22 Until the annual accounts have been produced, accounting systems reviewed, budgetary control introduced and cost recovery mechanisms worked out, no reliable future financial performance can be predicted for OLG. An undertaking was given by OLG at negotiations that these matters would be properly addressed with expert assistance (para. 5.32).

Cost Recovery for Sanitation Components

6.23 During appraisal of the project, discussions were held with MLG and OLG regarding financial arrangements to support the operation and maintenance, replacement and debt service requirements of the solid waste management program. The approach considered most appropriate was the annual allocation of funds in OLG budget commencing FY81 to meet all operational costs and to create funds adequate to meet debt service and asset renewal. By FY83, the third and final year of project execution total costs are expected to be approximately ₦0.87 million and ₦0.7 million for the refuse and night soil programs respectively; these are equivalent to per capita costs of about ₦2.9 for refuse and ₦2.3 for night soil. It is expected that costs would be recovered by improved revenue billing and collection (including property tax, stallage fees, market tolls, motor park fees, and liquor license

fees) by the OLG. Additionally it is believed that the population of Onitsha, resident and itinerant, has the capacity to pay higher property taxes and market fees and tolls. During negotiations, OLG agreed that adequate funds would be earmarked and provided for in the annual budget of OLG to ensure the effective operation of the solid waste management programs to be introduced by the project.

VII. CONCLUSIONS AND RECOMMENDATIONS

Project Merit and Risks

7.01 The proposed water supply components will provide Onitsha with a reliable supply of safe water, eliminate present shortages and strengthen the system substantially. During the project approximately 260,000 additional people, most of them low-income, will for the first time have access to piped water as a result of the project. The sanitation component for Onitsha will bring about substantial benefits to most of the urban population by the operation of regular refuse and night-soil collection in many low-income areas. The health education program will increase awareness of the Onitsha population to the incidence of diseases from bad habits in the use of water supply and its disposal.

7.02 The risks of implementing a complex project are being reduced by the establishment of a Project Steering Committee in Anambra State comprising all sub-project responsible officers and representatives of ministries involved in the project. Certain risks arise from the preliminary nature of the cost estimates for the drainage and solid wastes component. Detailed designs of the Onitsha water supply component are now available for the largest items to be implemented and have been accounted for in the revised cost estimates.

7.03 The scarcity of qualified and experienced senior staff in ASWC has caused management deficiencies. Staff shortages must be corrected if ASWC is to implement this project efficiently and become financially less dependent on the State. However, appointment of senior Nigerian and expatriate staff, for which recruitment is under way is encouraging indication that ASWC is taking appropriate action and ANSG is supporting this approach. Similarly development and implementation of the training program is expected to provide adequately qualified staff at the operating levels. Since the required expertise remains limited and much sought after in Nigeria, the project carries some risk of ASWC not being able to attract or retain competent management and staff in sufficient numbers despite the relevant provisions of the project.

7.04 Because of its complexity, the Project will require considerably higher and more varied manpower inputs for supervision, particularly in the early stages of implementation, than allowed for by existing Bank supervision coefficients. While staff will try and schedule missions to Nigeria so as to optimize use of time - as for instance supervising the project in conjunction with preparation of another project, etc. - the resulting time available for this Project will still be insufficient unless the supervision coefficient is raised substantially.

Agreements Reached

7.05 During negotiations agreements were reached on the following points:

(i) from Federal Government of Nigeria

the proposed lending and onlending arrangements (para. 3.15-3.16);

(ii) from Anambra State Government

(a) the onlending arrangements (para. 3.15-3.17);

(b) project financing including cost overruns; timely availability of yearly budget allocations to the implementing agencies, no later than three months after the beginning of each fiscal year (para 3.17); and quarterly and in advance transfer of all contributions for the water supply component to a bank account managed by ASWC (para 6.09);

(c) discussion and endorsement of mutually agreed recommendations on personnel statute for ASWC before June 30, 1982 (para. 5.07);

(d) undertaking of any action required for the water sector regarding:

(e1) restoration of an ASWC Board of members and operations in accordance with ASWC Edict 1978 (para 5.03);

(e2) notification to the Bank of changes in the post of General Manager (para. 5.08);

(e3) meeting shortfalls in operating expenditure for all ASWC zones until revenue is sufficient (para. 6.02);

(e4) endorsement of necessary tariff levels and structures agreed with ASWC to generate desired cash flow (para. 6.06);

(e) recruiting consultants for the construction supervision of the sanitation component (para. 3.19);

(f) undertaking to meet costs of standpipe consumption should LGs default (para 4.11).

(iii) from Onitsha Local Government (OLG)

(a) recruitment of (i) a competent head of the Sanitation Department at an early date; (ii) at least two technical experts (para. 5.26), and a Town Treasurer (para 5.32) before September 30, 1981; and (iii) experts for improving traffic control and accounting systems (para 5.26 and 5.32);

(b) timely and appropriate release of funds to ASWC for the payment of standpipe water consumption (para. 4.11);

(c) allotment of appropriate budget requirements for operations and maintenance of the solid wastes and night soil activities including debt service and equipment replacement (para. 6.23);

(d) implementation of improved accounting systems as agreed between MLG, OLG and the Bank arising out of an expert review (para. 5.32).

(iv) from Anambra State Water Corporation

(a) opening of a bank account into which would be deposited quarterly and in advance all ANSG budgetary allocations for the water supply component (para 6.09);

(b) extension of the financial discipline and cash generation approach to zones other than Onitsha by agreed dates (para. 6.04);

(c) opening of a separate bank account for Onitsha Zone into which would be deposited all revenues of that Zone and out of which would be met capital and operating expenditures of that zone, a reasonable share of ASWC Headquarter expenses and servicing of debt for the Onitsha part of the water supply component (para 6.04);

(d) reviewing annually with the Bank a three year rolling average of its cash requirements and taking the consequential tariff action (para. 6.04);

(e) refraining from incurring additional debt unless the internal cash generation of Onitsha Zone (and aggregated with other zones as agreed from time to time) covers future debt service 1.5 times (para. 6.04);

(f) recruitment of (i) a commercial adviser (para. 5.14); (ii) chief training officer (para 5.08) two mechanical and electrical superintendents (para 5.10) all appointed before September 30, 1981; and (iii) five additional operations experts (para 3.09 B2), and a training expert (para 5.19);

(g) early appointment and retention of a project manager (para 3.23) and a commercial manager (para 5.14) both having qualifications and experience acceptable to the Bank; and

(h) endorsement of the Operations and Management Improvement Program as specified in Annex 7.1 (para 3.09 B3).

7.06 It is recommended that the following points be condition of:

(i) Effectiveness

Signing of subsidiary loan agreements between FGN and ANSG; ANSG and ASWC, and between ANSG and OLG;

(ii) Disbursement for the Urban Infrastructure Civil Works Component

Submission to the Bank of an approved layout plan of Okpoko (para 2.21).

Recommendation

7.07 On the basis of these agreements and conditions, the project is suitable for a Bank loan of US$67.0 million at the current rates for interest and commitment fees to be repaid over 20 years including a 5-year grace period.

NIGERIA

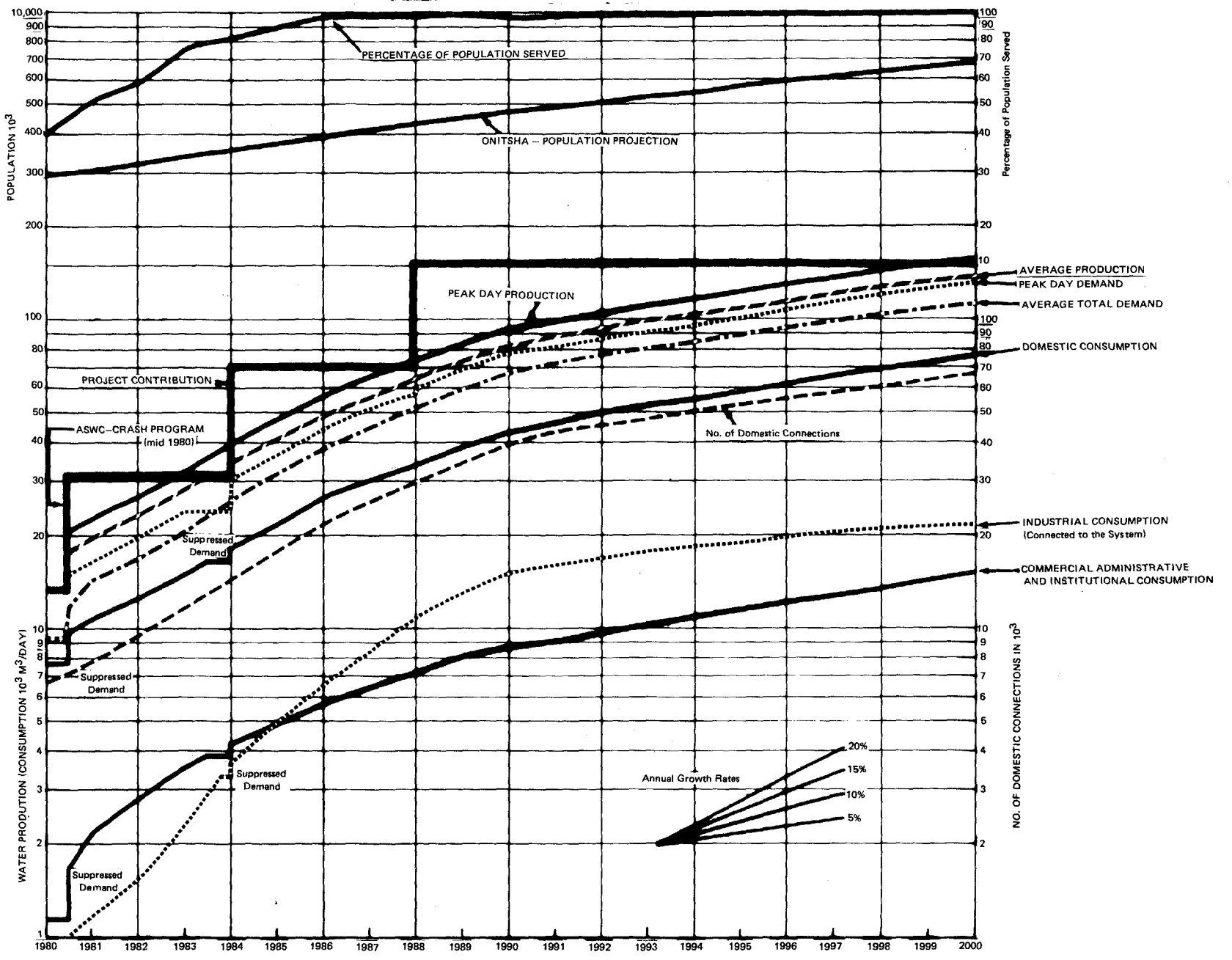
ANAMBRA STATE WATER SUPPLY PROJECT

ONITSHA WATER CONSUMPTION PROJECTIONS

ASWC : ONITSHA REVENUE PROJECTIONS

YEAR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
POPULATION											
X.POP	291900	306300	321200	336200	354600	372300	391100	410500	431000	452600	475200
DOMESTIC CONSUMPTION											
PRIVATE HOUSE CONNECTION											
NO. OF CONN.	5600	6300	7300	8600	10200	12300	14600	17100	19900	22700	25700
PER CAPT.CONS.(CU M/DAY)	0.112	0.114	0.117	0.121	0.125	0.130	0.135	0.139	0.142	0.147	0.151
PERSONS PER CONN.	11	11	10	9	8	8	8	8	8	8	8
NO.OF PEOPLE SERVED	61600	69300	73500	80200	85800	101700	122000	143700	159200	181600	205600
SUBTOT. CONS.(CU M/DAY)	6899	7900	8620	9678	10743	13222	16447	19949	22658	26745	30968
COURTYARD CONNECTIONS											
NO. OF CONN.	1000	1340	1990	2800	3900	5200	6600	8100	9700	11500	13500
PER CAPT.CONS.(CU M/DAY)	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
PERSONS PER CONN.	20	20	20	20	18	18	18	17	17	16	15
NO OF PEOPLE SERVED	19900	26620	38840	54800	71850	91200	116000	133700	160100	178600	197400
SUBTOT. CONS.(CU M/DAY)	1095	1464	2136	3014	3952	5016	6380	7354	8806	9823	10857
STANDPIPES											
NO. OF STANDPIPES	60	100	140	240	340	400	400	350	300	250	200
PER CAPT.CONS.(CU M/DAY)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
PERSONS PER STANDPIPE	600	600	521	500	400	350	350	340	335	330	323
NO. OF PEOPLE SERVED	36000	60000	72940	120000	136000	140000	140000	119000	100500	82500	64600
SUBTOT.CONS.(CU M/DAY)	900	1500	1824	3000	3400	3500	3500	2975	2513	2063	1615
TOTALS											
TOTAL NO. OF CONN.	6660	7740	9430	11640	14440	17900	21600	25550	29900	34450	39400
TOTAL NO. OF PEOPLE SERV	117500	155920	185280	255000	293650	332900	378000	396400	419800	442700	467600
TOT.DOM.CONS.(CU M/D)	8894	10864	12580	15692	18095	21738	26327	30278	33976	38630	43440
PERCENT.PRIV.CONN.	0.211	0.226	0.229	0.237	0.242	0.273	0.312	0.350	0.369	0.401	0.433
PERCENT COURTYARD	0.068	0.087	0.121	0.162	0.203	0.245	0.297	0.326	0.371	0.395	0.415
PERCENT STANDP.	0.123	0.196	0.227	0.355	0.384	0.376	0.358	0.290	0.233	0.182	0.136
PROPORT. OF POP.SERVED	0.403	0.509	0.577	0.754	0.828	0.894	0.967	0.966	0.974	0.978	0.984
COMM.&INSTIT.CONSUMPTION											
CONSUMPTION	1315	2173	2810	3589	4257	4928	5700	6460	7200	8100	8680
CONNECTED INDUSTRIES											
CONSUMPTION	500	1191	1508	2334	3667	5008	6500	8300	11000	12900	15245
TOTAL CONSUMPTION	10709	14228	16898	21615	26019	31674	38527	45038	52176	59630	67365
TOTAL NO. OF CONNECTIONS	6945	8065	9800	12055	14897	18408	22160	26159	30558	35148	40139
NO. OF CONNECTIONS METERED											
(% OF TOTAL CONNECTIONS METERED)	285 (4%)	325 (4%)	2910 (30%)	4119 (34%)	5311 (36%)	6958 (38%)	9144 (41%)	11283 (43%)	13676 (45%)	16261 (46%)	19119 (48%)
VOLUME METERED											
(% OF TOTAL CONSUMPTION)	1815 (17%)	3364 (24%)	10558 (62%)	13265 (61%)	16272 (63%)	20397 (64%)	25663 (67%)	31368 (70%)	37114 (71%)	43691 (73%)	50501 (75%)
SYSTEM EFFICIENCY											
AVERAGE DAY	0.700	0.715	0.730	0.745	0.760	0.775	0.790	0.800	0.810	0.820	0.820
PEAK DAY	0.710	0.725	0.740	0.755	0.770	0.780	0.790	0.800	0.810	0.825	0.825
AVERAGE DAY	15298	19900	23148	29013	34235	40870	48768	56297	64415	72720	82152
PEAK DAY	19276	24720	28655	35755	41864	50157	60153	69216	78726	88245	99555

NIGERIA: ANAMBRA STATE WATER SUPPLY AND SANITATION PROJECT
ONITSHA – DEMAND PROJECTIONS



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NIGERIA

ANAMBRA WATER SUPPLY & SANITATION PROJECT

DETAILED COST ESTIMATES

Items	Base Costs+Physical+Price Costs					
	Foreign Costs	Local Costs '000 N	Total Costs	Foreign Costs	Local Costs	Total Costs
				Cost in US$ 000		
A. Water Supply						
A1. Equipment						
Supply and Erection of Treatment Plant	1,270	600	1,870	2,309	1,091	3,400
Supply and Erection of Pumping Plant	2,500	1,230	3,730	4,545	2,237	6,782
Supply of Pipes-Rising & Primary Mains	2,700	400	3,100	4,909	727	5,636
Supply of Pipes:Secondary Mains and House Connections	3,360	840	4,200	6,109	1,527	7,636
Supply of Meters and Standpipes	400	50	450	728	90	818
Sub-Total Base Costs	10,230	3,120	13,350	18,600	5,672	24,272
Physical Contingencies (8%)	1,003	389	1,392	1,824	707	2,531
Price Contingencies	2,287	1,736	4,023	4,207	3,156	7,363
A2. Civil Works						
Civil Engineering for Headworks	2,785	1,315	4,100	5,063	2,391	7,454
Reservoirs	2,000	1,580	3,580	3,636	2,873	6,509
Laying of Rising and Primary Mains	410	1,660	2,070	745	3,018	3,763
Laying of Secondary and Tertiary Mains	3,000	3,290	6,290	5,454	5,982	11,436
Rehabilitation and Connections Programs	-	575	575	-	1,045	1,045
Boreholes Drilling	40	60	100	73	109	182
Sub-Total Base Costs	8,235	8,480	16,715	14,971	15,418	30,389
Physical Contingencies	905	1,248	2,153	1,645	2,269	3,914
Price Contingencies	812	4,006	4,818	1,476	7,284	8,760
A3 Buildings & Communications						
Interzonal Radio System	260	60	320	473	109	582
Onitsha Zonal Offices	150	300	450	273	545	818
Enugu Headquarters	270	460	730	491	836	1,327
Construction of Staff Quarters	220	530	750	400	964	1,364
Construction & Equipment of Workshops in Enugu & Onitsha	240	245	485	436	445	881
Sub-Total	1,140	1,595	2,735	2,073	2,899	4,972
Physical Contingencies (10%)	154	200	354	280	364	644
Price Contingencies	274	648	922	498	1,178	1,676
A4 Training & Technical Assistance						
Training Component	620	449	1,069	1,127	816	1,943
5 Technical Assistants	645	215	860	1,173	390	1,563
Project Management Assistant	124	41	165	225	75	300
Project Preparation Facility	250	-	250	455	-	455
Sub-Total	1,639	705	2,344	2,940	1,281	4,221
Physical Contingencies	43	32	75	78	58	136
Price Contingencies (T.A.)	216	60	276	392	109	501
Price Contingencies (Training)	157	99	256	285	180	465
A.5 Design, Supervision and Studies						
Detailed Design Onitsha	650	200	850	1,182	364	1,546
Detailed Design Enugu	170	30	200	309	55	364
Supervision Onitsha & Enugu	1,200	500	1,700	2,182	909	3,091
Detailed Design and Supervision for Buildings	165	55	220	300	100	400
Enugu Feasibility Studies	450	150	600	818	273	1,091
Onitsha Ground Water Alluvium	310	190	500	564	345	909
Sub-Total	2,945	1,125	4,070	5,355	2,046	7,401
Price Contingencies	305	125	430	555	227	782
Sub-Total A / Base Costs	24,189	15,025	39,214	43,939	27,316	71,255
Physical Contingencies	2,105	1,869	3,974	3,827	3,398	7,225
Price Contingencies	4,051	6,674	10,725	7,413	12,134	19,547
	30,345	23,568	53,913	55,179	42,848	98,027

Revised 1/27/81

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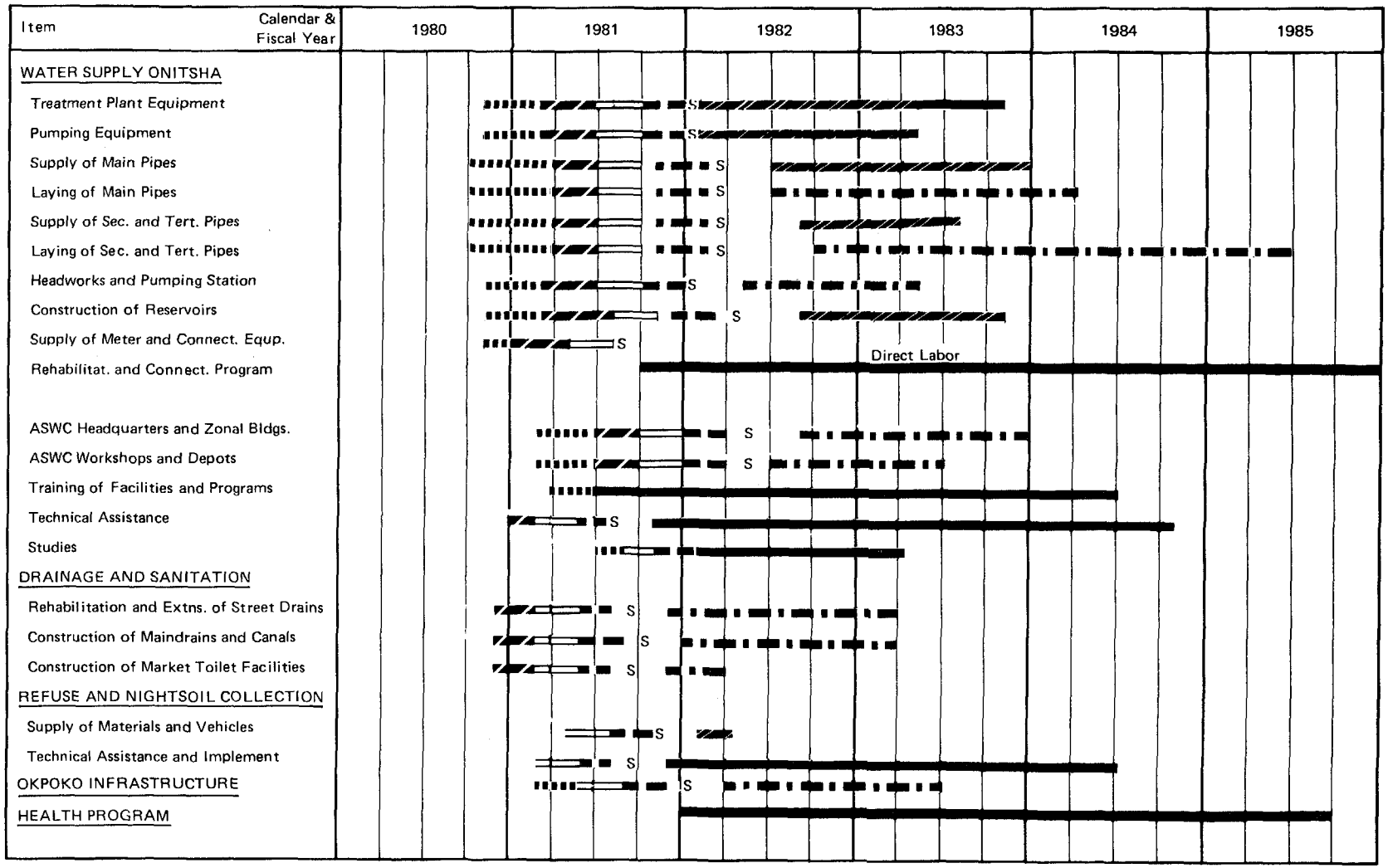
	Foreign Costs	Local Costs	Total Costs	Foreign Costs	Local Costs	Total Costs
	'000 N			Cost in US$ '000		
B. Urban Infrastructure & Health						
B1. Drainage and Sanitation in Onitsha						
Construction of Public Convenience	40	70	110	73	127	200
Construction of Rehabil. of Road Side Drains	480	500	980	873	909	1,782
Construction of Drains and Canals	1,613	1,632	3,245	2,932	2,968	5,900
Sub-Total	2,133	2,202	4,335	3,878	4,014	7,892
Physical Contingencies	220	240	460	400	436	836
Price Contingencies	493	443	936	897	805	1,702
B2. Refuse and Night Soil						
Supply of Drainage Trucks & Equipments	56	14	70	102	25	127
Supply of Refuse Equipments & Vehicles	863	215	1,078	1,569	391	1,960
Supply of Sluny Tankers	140	560	700	255	1,018	1,272
Construction of Depots & Garages	25	45	70	45	82	127
Land Preparation for Waste Disposal	58	87	145	105	158	263
Sub-Total	1,142	921	2,063	2,076	1,674	3,750
Physical Contingencies	128	74	202	232	135	367
Price Contingencies	226	166	392	411	302	713
B3. Design Supervision and Studies						
Engineering of Civil Works for Refuse	40	10	50	73	18	91
Supervision of Drainage Works	225	75	300	409	136	545
Extension of G & G Urban Report	187	63	250	340	115	455
Sub-Total B3	452	148	600	835	269	1,104
Price Contingencies	100	30	130	183	55	238
B.4 Technical Assistance						
3 Technical Assistants to OLG	165	55	220	300	100	400
Adviser to Town Engineer	38	12	50	69	22	91
Municipal Financing Adviser	164	52	216	297	94	391
Sub-Total B4	367	119	486	666	216	882
Price Contingencies	88	31	119	159	56	215
B.5 Infrastructure for the Okpoko Area						
Improvement of Access Roads to and within Area	525	580	1,105	945	1,055	2,000
Construction of Drains along Main Roads	185	151	336	366	600	936
Sub-Total B5	710	731	1,441	1,291	1,645	2,936
Physical Contingencies	70	66	136	126	120	246
Price Contingencies	152	266	418	276	418	694
B.6 Health Education						
Staff for Pilot Zonal Office	08	80	88	15	145	160
Health Educational Training Equipments	60	80	140	109	145	254
Technical Assistance	38	12	50	69	22	91
Extension of Health School	36	84	120	65	153	218
Construction of Water Facilities in School	16	66	82	29	120	149
Sub-Total B6	158	322	480	287	585	872
Physical Contingencies	32	64	96	58	117	175
Price Contingencies	32	64	96	58	117	175
Sub-Total B / Base Costs	4,962	4,443	9,405	9,020	8,395	17,415
Physical Contingencies	450	444	894	817	807	1,624
Price Contingencies	1,091	1,000	2,091	1,984	1,752	3,736
	6,503	5,887	12,390	11,821	10,954	22,775
Total (A+B)	29,151	19,468	48,619	52,959	35,531	88,490
Base Costs	2,525	2,313	4,838	4,644	4,205	8,849
Physical Contingencies	5,142	7,674	12,816	9,397	13,886	23,283
Price Contingencies						
GRAND TOTAL	36,818	29,455	66,273	67,000	53,622	120,622

1 US$ = 0.55N

5-15-80
Revised 8-11-80
Revised 4-10-81

ANAMBRA
WATER SUPPLY AND SANITATION PROJECT
Implementation Schedule



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NIGERIA

ANAMBRA STATE WATER SUPPLY & SANITATION PROJECT

THE PROJECT STEERING COMMITTEE

A. Terms of Reference

The terms of reference of the Project Steering Committee are as follows:

(1) The Steering Committee shall administer and manage the World Bank Loan in respect of the following project components:

A. Water Supply

A.1 Equipment (Onitsha)
A.2 Civil Works (Onitsha)
A.3 Buildings and Communications (ASWC)
A.4 Training and Technical Assistance (ASWC)
A.5 Design, Supervision and Studies

B. Urban Infrastructure and Health

B.1 Drainage and Sanitation
B.2 Refuse and Night Soil
B.3 Design Supervision and Studies
B.4 Technical Assistance (Onitsha Local Government)
B.5 Infrastructure for the Okpoko Area
B.6 Health Education

The Committee shall ensure that the loan is utilized for the purpose for which it is meant. In this regard, the Committee shall be responsible for overall supervision and coordination of the project components. The Project Unit shall have executive responsibility for the components and the Project Manager shall report to the Project Steering Committee regarding progress of project, and attend its meetings.

(2) The Committee shall ensure that contracts awarded in respect of the projects by the State Government and its agencies and the Onitsha Local Government are properly and efficiently executed.

(3) It shall be the duty of the Committee to coordinate the activities of all agencies of the State Government and Onitsha Local Government concerned with the project and ensure that all obstacles and unnecessary delays are removed and eliminated.

(4) The Committee shall ensure that all contractual obligations, financial or otherwise, entered into with the World Bank, consulting and construction firms, and field experts engaged in the various schemes are fully and promptly met.

(5) In all policy matters in respect of the loan and project execution, the Committee shall act as an advisory body to the State Government.

(6) The Committee shall take all other necessary measures conducive to the speedy and efficient completion of the project.

(7) The Ministry of Public Utilities shall provide administrative and Secretarial services to the Steering Committee.

(8) In all the above matters, it shall be the duty of the Committee to forward regular reports to the Commissioner for Public Utilities, at least once a month. It shall also ensure that the periodic reporting requirements fo the world Bank are met on a timely basis.

B. Composition of Project Steering Committee

(1) Permanent Secretary, Ministry of Public Utilities (Chairman) (Mr. G. A. Ugwuegede)

(2) Principal Planning Officer, Ministry of Economic Development (Vice Chairman) (Mr. M. S. Anyaegbo)

(3) Chief Health Officer, Ministry of Health (Dr. H. U. Ozoh)

(4) Chief Planning Officer, Ministry of Local Government (Dr. P. N. Agbalaka)

(5) Secretary for Development, Ministry of Finance (Mr. O. N. Mbanefo)

(6) Under Secretary, Onitsha Local Government (Mr. C. C. Obinegbo)

(7) Assistant Chief Engineer, Ministry of works (Mr. J. C. Ndupuechi)

(8) Chief Engineer, Anambra State Water Corporation (Mr. E. N. Okongwu)

(9) Project Manager, of ASWC World Bank Project Unit

ANNEX 4.1

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

ASWC: Existing Tariffs as of 1/1/1980

Category	Charge/m^3 2/	Monthly Minimum Consumption Charge	Monthly Meter Service Charge
1. METERED SUPPLY:			
i) Industry and Commerce	35K/m^3	₦ 50	₦ 10
ii) Government offices, Institutions (e.g. Boarding Schools, Hospitals, Armed Forces)	25K/m^3	₦ 5	₦ 5
iii) Domestic consumption including churches, schools, and charitable organizations	20K/m^3	₦ 5	₦ 2

Category	Typical flat rate/month	Average price/m^3 2/	Assuming a Household size of 1/	Assuming a Per capita consumption of
2. UNMETERED SUPPLY:				
i) Standpipe consumption	--	--	--	--
ii) Courtyard connections	₦ 3.50 for 2 rooms	32K 27K	8 8	45 lpcd 55 lpcd
iii) Private connections- Apartment	₦ 7.00	33K 23K	7 10	100 lpcd 100 lpcd
iv) Private connections- Duplex	₦ 15.00	47K	7	150 lpcd
v) Single House	₦ 30.00	61K 50K	8 10	200 lpcd 200 lpcd

1/ Assuming no sharing of connection.
2/ 100 K = ₦ 1 = US$1.82

Water Tariffs in Selected Western African Countries

Country	City/Town	Year	Number of Inhabitants	Price by cubic meter in U.S. $ by bands scaled in cu.m./month	Tariffs for standpipes (from supplier to municipality)	Access 1/ of User (F=Free W=Water Seller)
CAMEROON	20 centers, incl. Douala, Yaoundé	1980	1,750,000	.475 | .625 | .6 | .575 | .55 | .525	.38	F
IVORY COAST	Abidjan, Bouaké	1978		.485 | .745 of which 11% sewerage surcharges | .655 | .445 | .29	.36	F
GABON		1977		.6 | .775 | .875		F
UPPER VOLTA	Ouagadougou Bobo Dioulasso	1979	216,000 140,000	.35 | .37 | .6 | .85	.35	W
SENEGAL	Dakar-Cap Vert Kaoleck Others	1979 1979	984,660 106,879	39.78 39.78 38.27 .703 .578 .563	.40 .27 .26	F F F
LIBERIA	Monrovia	1979	350,000	.642 of which 37% sewerage surcharges | .642 of which 37% sewerage surcharges | .872 of which 37% sewerage surcharges	.402	F
GUINEA	Conakry	1979	500,000	.50 of which 12.5% sewerage surcharges	Annual Lump Sum	F
NIGERIA	Kaduna Onitsha	1977 1980	762,000 292,000	domestic: 0.31 industrial: 0.56 domestic unmetered: 1.93-3.08/room domestic metered: 0.38 industries: 0.64	0.31	F

1/ People using standpipes pay the water seller. There is no official tariff, but the unit price is often multiplied by 5.

US$1 = CFAF 200

Dec. 1980

I. INTERNAL ECONOMIC RATE OF RETURN

ONITSHA: TOTAL COST/BENEFITS (IN ₦ 1000) IN BORDER PRICES[1/]

(A) At existing tariffs

PERIODS	TOTAL INCREMENTAL BENEFITS	TOTAL INCREMENTAL COSTS	NET INCREMENTAL BENEFITS
1	0.0	1065.8	-1065.8
2	0.0	3052.9	-3052.9
3	161.4	11032.7	-10871.3
4	279.9	4872.7	-4592.8
5	1495.0	3267.1	-1772.1
6	1803.1	1135.5	667.6
7	1913.4	874.5	1038.9
8	2166.8	953.5	1213.3
9	2445.4	1211.4	1234.0
10-13	2710.2	1107.7	1602.5
14	2710.2	1282.8	1427.4
15	2710.2	1107.7	1602.5
16	2710.2	1293.7	1416.5
17-22	2710.2	1107.7	1602.5
23	2710.2	1293.7	1416.5
24	2710.2	9832.3	-7122.1
25-26	2710.2	6680.2	-3970.0
27-28	2710.2	1107.7	1602.5
29	2710.2	1293.7	1416.5
30-33	2710.2	1107.7	1602.5
34	2710.2	5849.9	-3139.7
35-41	2710.2	1107.7	1602.5

PRESENT VALUE AT OCC OF 10.0%	NPV AS A % OF PRESENT COSTS AT OCC OF 10.0%	INTERNAL RATE OF RETURN
-9595.7	-37.144%	1.969%

(B) At future tariffs

PERIODS	TOTAL INCREMENTAL BENEFITS	TOTAL INCREMENTAL COSTS	NET INCREMENTAL BENEFITS
1	0.0	1065.8	-1065.8
2	0.0	3052.9	-3052.9
3	161.4	11032.7	-10871.3
4	279.9	4872.7	-4592.8
5	1880.9	3267.1	-1386.2
6	2430.9	1135.5	1295.4
7	2863.0	874.5	1988.4
8	3269.2	953.5	2315.7
9	3709.3	1211.4	2497.9
10-13	4127.7	1107.7	3020.0
14	4127.7	1282.8	2844.9
15	4127.7	1107.7	3020.0
16	4127.7	1293.7	2834.0
17-22	4127.7	1107.7	3020.0
23	4127.7	1293.7	2834.0
24	4127.7	9832.3	-5704.6
25-26	4127.7	6680.2	-2552.5
27-28	4127.7	1107.7	3020.0
29	4127.7	1293.7	2834.0
30-33	4127.7	1107.7	3020.0
34	4127.7	5849.9	-1722.2
35-41	4127.7	1107.7	3020.0

PRESENT VALUE AT OCC OF 10.0%	NPV AS A % OF PRESENT COSTS AT OCC OF 10.0%	INTERNAL RATE OF RETURN
-1737.3	-6.725%	8.891%

1/ For the relevant shadow prices and country parameters, see: NIGERIA - Social Cost - Benefit Analysis, by Mustapha Rouis, WAL, July 6, 1979, the main conversion factors used are: standard conversion factor: 0.83, capital investment goods/construction conversion factor: (wighted average) 0.84, electricity conversion factor: 0.85, skilled labour conversion factor: 0.83, consumption conversion factor: 0.72, marginal productivity of capital 10%.

Note: Details of the cost/benefit streams are provided in the Project File.

II. SENSITIVITY ANALYSIS

1. Sensitivity analysis with respect to variations in demand growth yielded the following results:

	No. of years up until use of full capacity	IERR	
		Existing Tariffs	Future Tariffs
Base Case	5 years (ġ = 17%)*	2.0%	8.9%
Variation A	4 years (g = 22%)	2.1%	9.1%
Variation B	3 years (g = 30%)	2.2%	9.4%
Variation C	6 years (g = 14%)	1.9%	8.8%
Variation D	7 years (g = 12%)	1.8%	8.5%
Variation E	8 years (g = 10%)	1.8%	8.5%
Variation F	9 years (g = 9%)	1.6%	8.2%
Variation G	10 years (g = 8%)	1.5%	8.1%

* g = average annual growth rate.

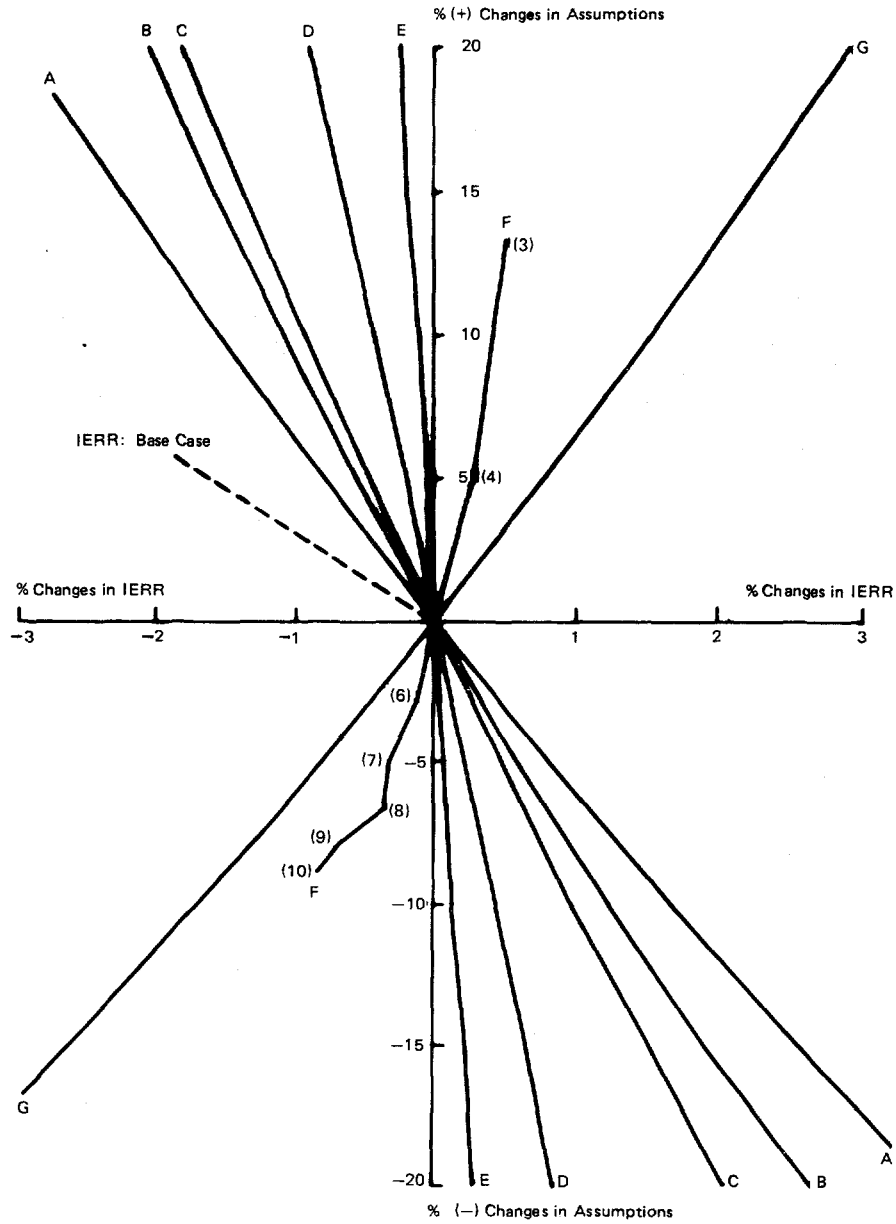
2. The graph on page 3 demonstrates the sensitivty of the project IERR with regards to various cost/demand variations.

3. The project's sensitivity towards changes in the tariff increase schedules is illustrated below:

	I					II	III	IV	V
	Assumption (nominal increases)					1986 Tariffs in nominal terms	Compound Effect of inflation at 15% p.a	1986 Tariffs in constant 1980 prices	IERR
	1982	1983	1984	1985	1986	(1980 = 1.00)	(1980 = 1.00)	(1980 = 1.00)	
Base Case	50%	25%	25%	25%	25%	3.66		1.58	8.9%
A	25%	25%	25%	25%	25%	3.05	2.31	1.32	6.2%
B	50%	-	25%	-	25%	2.34		1.01	2.1%

Sensitivity Analysis for Base Case with Future Tariffs (IERR = 8.9%)

Changes in Cost/Benefit Stream Assumptions (Vertical Axis, in %) and Resulting Variations in the IERR (Horizontal Axis, in %)



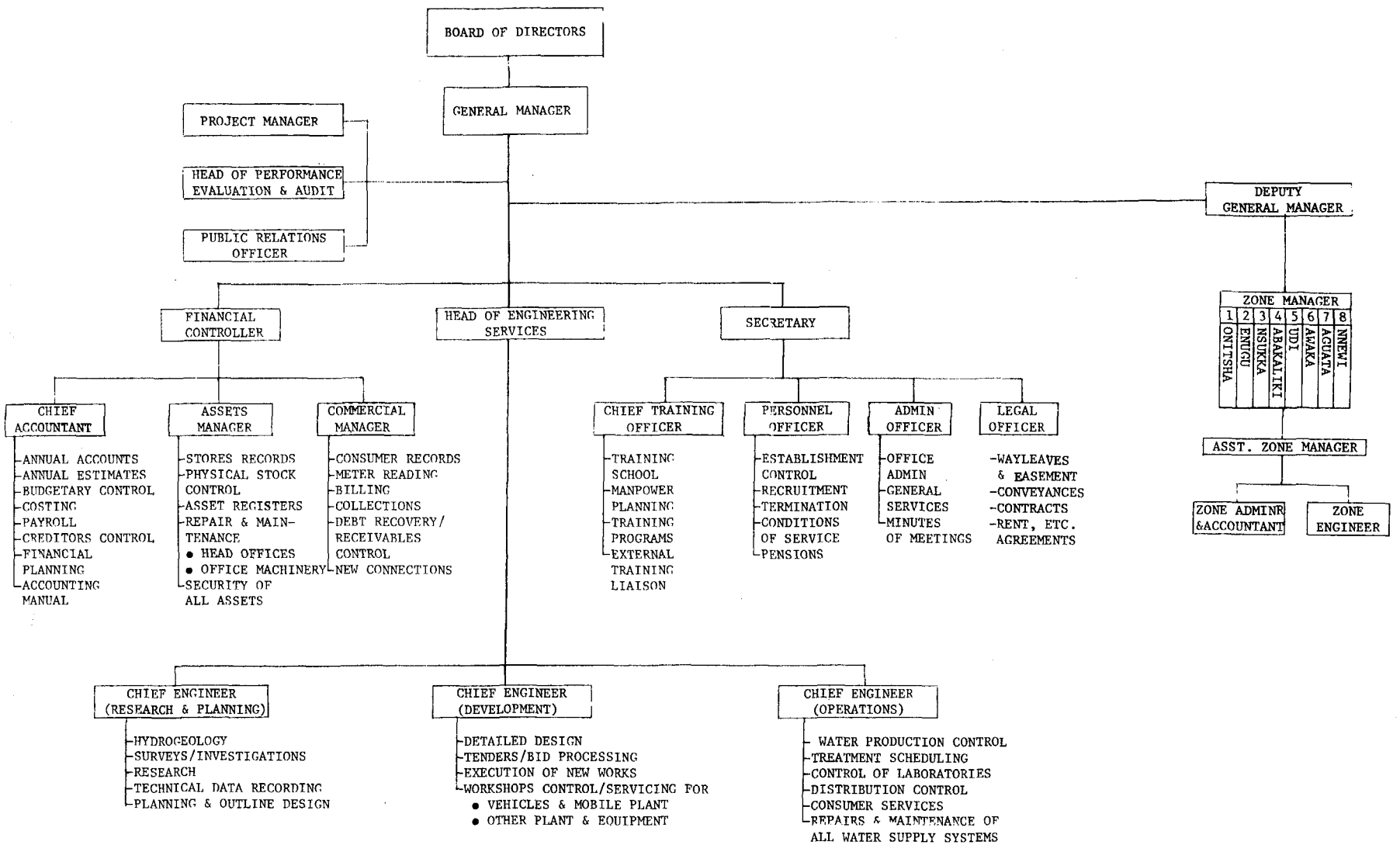
A = All Cost
B = Capital Cost
C = Foreign Exchange
D = O & M Cost
E = Electricity

F = Change in Average Annual Growth Rate of Demand up until Full Capacity is reached. Numbers in ( ) indicate number of years up until arrival at the full capacity (base case = 5 years).
G = All Benefits

World Bank – 21963

ANAMBRA STATE WATER CORPORATION

PROPOSED ORGANIZATION



ANAMBRA WATER SUPPLY AND SANITATION PROJECT

Water Supply--Training Component

The training program to be designed and implemented under the project consists of the following elements:

(1) The ASWC will appoint a Chief Training Officer (CTO) who would be directly responsible to either the General Manager or the Secretary. The person appointed would immediately attend an overseas course for Training Specialists for approximately three months. The CTO will be responsible for the design and implementation of the training program outlined below.

(2) The CTO would be assisted by, and receive on-the-job training from, a consultant or team of consultants specializing in training and with a good understanding of the water supply sector. Twenty-four man-months of consultant services would be provided by a person or firm, and under terms of reference, that are acceptable to the Bank.

(3) The CTO, with the assistance of the training consultants, would review the existing manpower of 1300 personnel, currently grouped into approximately 100 occupational categories, in order to obtain a more uniform structure for manpower utilization, forecasting and the planning of training activities. They would make a detailed assessment of technical, financial and administrative sub-professional staff to determine their training needs based upon a comparison between job requirements and observed levels of competence. An annual training plan and budget would be prepared based on manpower and training need forecasts produced by Zonal and Department heads.

(4) The CTO and the consultants would design and conduct seminars for supervisors on training and manpower planning principles of manage ment and work planning.

(5) The strength of the training school staff would be increased from three to five by the appointment of two extra instructors from the Higher/Senior Superintendent grades. The two new instructors and the existing Higher Works Superintendent (Training) will attend an overseas instructor training programme in a water sector training organization. Four or more part time instructors would be appointed to cover specialist areas i.e. Accounts, Administration, Stores and Plant/Equipment Maintenance, as and when training programmes in their areas are arranged. The four or more who are selected, plus the two existing full time instructors, will need to attend a tailor-made in-house program in instruction techniques. This can be conducted by the Industrial Training Fund (ITF) of Nigeria or similar type of local organization.

(6) The training staff, after their overseas training, would produce a series of training modules designed to develop the appropriate skills, knowledge and attitudes required by sub-professional staff.

The design of the modules should include training aids, instruction plans and programs, and a module for the induction of new entrants.

(7) The existing training school will be upgraded to allow a minimum of 1200 man-weeks of training per annum (eventually it should be capable of nearly double this figure). The existing building will be converted and expanded to contain three classrooms, an office, a store, and canteen facilities. Two workshops, a hard standing area for practical work and equipment demonstration, and an accommodation facility for 40 trainees will be constructed. Training and demonstration equipment will be designed and developed by the staff of the training unit after their overseas training. A mini-bus for the exclusive use of the school for transporting trainees on field visits will be acquired.

(8) The successful Assistant Works Superintendent (AWS) one year program of the Kaduna State Water Board is to be revised under the Bank-financed Kaduna Water Supply Project. The revised program would be introduced into the ASWC school to provide, on a limited scale, a much needed program for senior sub-professional staff of the Corporation and other Water Authorities in the Eastern region of Nigeria. Six man-months of training consultants' services would be required for the adaptation and introduction of this program, which would take place toward the end of the project period.

(9) For the staff of the Onitsha Zone, an intensive course will be provided at the Training School and/or at a suitable venue in the Zone, for the categories of Filtration Attendant, Plumber S.S.L. and Pumper/Plant Operator and those Plumbers and Plant Operators who have not received off-the-job training. Two operational personnel suitable for promotion to Assistant Works Superintendent (AWS) will be selected to attend the Kaduna AWS program.

(10) Provision for training abroad by (a) fellowships for water supply graduates and other ASWC staff at training institutions, and (b) attachments to overseas water sector utilities.

These proposals were discussed and agreed with the ASWC during the appraisal of the project and confirmed at negotiations.

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

ASWC TRAINING COMPONENT - IMPLEMENTATION SCHEDULE

ITEM / 2 MONTHLY PERIODS Jan.-Dec.	1981	1982	1983	1984
Chief Training Officer (Overseas Course)				
Training Consultant for 24 man-months				
3 Superintendents Instructor Training Overseas 6 man-months				
Part-time Instructor Training				
Training Consultant for Kaduna Programme				
Civil Work on Training School and Training Equipment				
Attachments/Fellowships Overseas				

NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

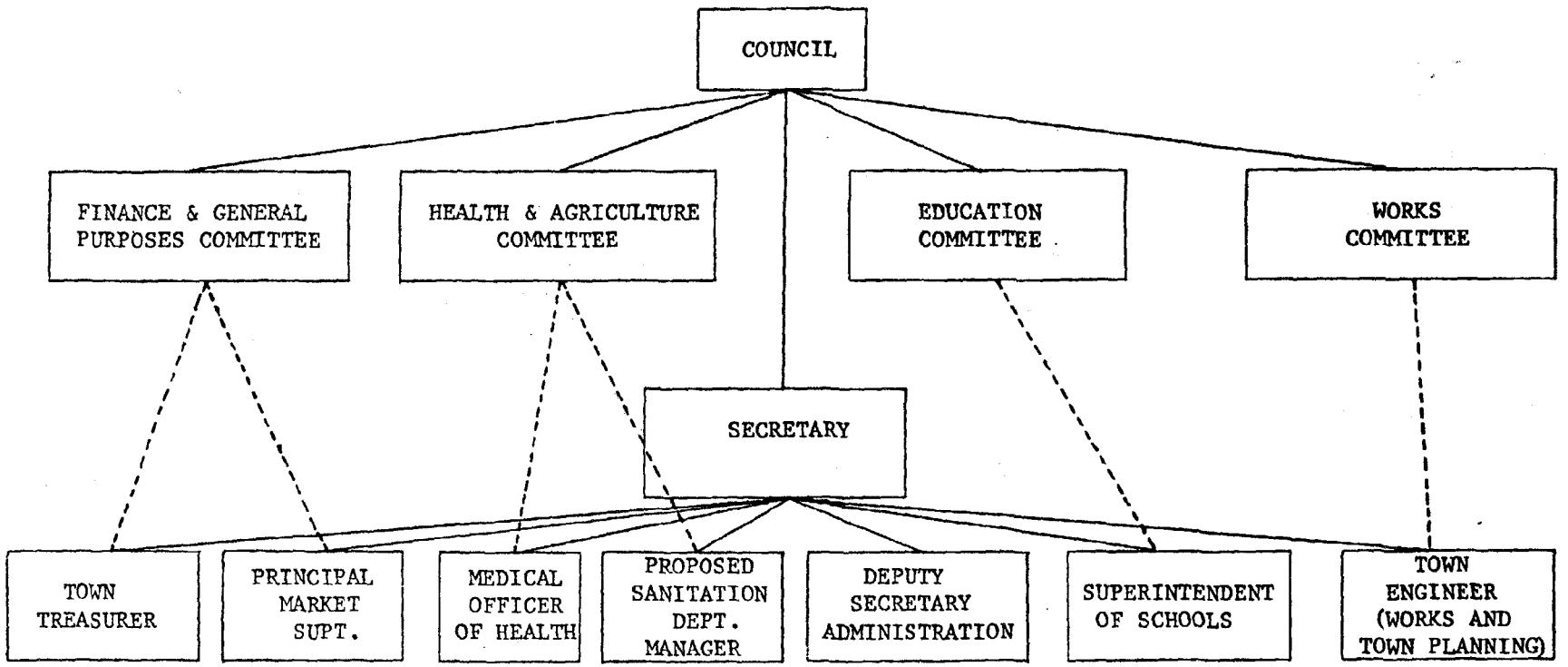
Training Component - Cost Estimates

Item	Foreign Costs	Local Costs	Total Costs
		000 ₦	
(a) Training Consultants: remuneration for 24 man-months (all in costs) - Manpower utilization and performance assessment - Design of training manuals, programmes and facilities for sub-professional staff - Formulation and scheduling of overall training plan for all staff - Briefing seminars for Managers and Supervisors - Assisting Chief Training Officer with role development	120		120
(b) Consultants' local support/services/ transport costs		10	10
(c) Chief Training Officer Training specialist programme in an overseas water sector training organization: 3 man-months	8	-	8
(d) 3 Higher/Senior Superintendents Instructor training and skill development programme in an overseas water sector training organization (3 x 6 man-months) 18 man-months	30	-	30
(e) Training Consultants: remuneration for introduction of Kaduna A.W.S. revised programme. 6 man-months split into 3 x 2 man-months periods (all in costs)	30	-	30
(f) Consultants'local support/services/ transport costs	-	4	4
(g) Training of part-time instructors by Industrial Training Fund (Nigeria) or similar local organization (2 man-weeks)	-	2	2
(h) Attachments/Fellowship to overseas water sector/utilities education and training institutions:fees and travel per diem	120	-	120
(i) Cost of Civil work for extension/upgrading of training school			
a. Conversion of existing building into - 3 classrooms(total area 278 m^2) - Office, store and canteen facilities (total area 167m)	28	42	70
b. Construction of 2 workshops (total area 600m^2)and Hard standing area(333m^2)	110	165	275
c. Construction of an accommodation facility for 40 trainees(total area 800m^2)	134	201	335
(j) Training and demonstration equipment	25	12	37
(k) Printed and consumable training materials	1	3	4
(l) Provision of mini-bus for transporting trainees	15	-	15
(m) Nominal cost for local training and retraining of semi-specialized and non-specialized staff	-	10	10
	820	449	1069
Physical Contingencies	43	32	75
Price Contingencies	157	99	256
	820	580	1400

April 1, 1980

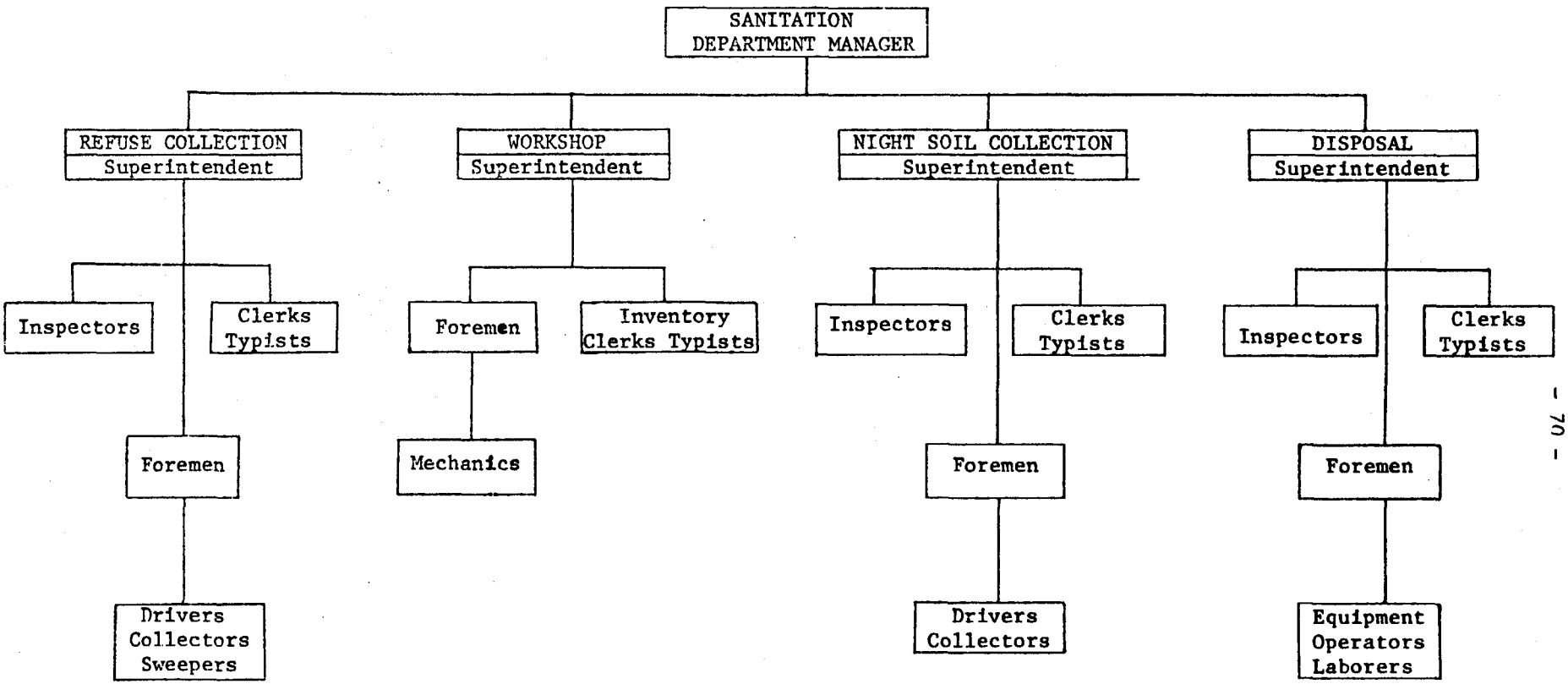
ONITSHA LOCAL GOVERNMENT

ORGANISATION CHART



ONITSHA LOCAL GOVERNMENT

Recommended Organization for Solid Waste Management



ANNEX 5.4

PROPOSED MONITORING INDICATORS

A series of indicators for monitoring project implementation, operating and financial performance and developments pertaining to the project were discussed and agreed during negotiations and will be included, inter alia, in the requirements for regular reporting to the Bank (para. 5.33). The principal criteria agreed are as follows:

A. Anambra State Water Corporation

I. Project Area Development (Annually)

(i) Total Population of Onitsha; and

(ii) Population served by:

a) Private connections; and
b) Standpipes.

II. Project Area Operating Statistics (Monthly)

(i) Volume of water produced from various sources and total;

(ii) Volume of water billed by customer category (domestic metered, standpipe, industrial/commercial and institutional) and total;

(iii) % unaccounted for water;

(iv) % estimated/measured physical losses (leakage); and

(v) New distribution pipes laid (Kms).

III. Project Area Commercial Indicators (Monthly)

(i) Collection as % of billing by consumer category and total;

(ii) Number of service connections by consumer category and total; and

(iii) Number of standpipes.

IV. Financial Indicators (Annually)

(i) Audited balance sheet-ASWC;

(ii) Audited income statement-ASWC total and Onitsha Zone.

(iii) Audited funds flow statement-ASWC total and Onitsha Zone.

(iv) Projected funds flow statement for subsequent three years; and

(v) Current schedule of water charges.

V. Project Implementation (Quarterly)

(i) Revised project construction schedule;

(ii) Revised project cost estimates;

(iii) Revised construction schedule Emergency Program; and

(iv) Status of training program.

VI. General (Quarterly)

(i) Number of employees by category (management, professional, technician, labourer and "daily paid"); and

(ii) Average daily flows in the Nkisi and Ekulu Rivers at the water obstraction intakes.

B. Onitsha Local Government

I. Project Operating Data (Monthly)

(i) Volume of Refuse Collected;

(ii) Volume of Land fill layering material used;

(iii) Volume of night soil collected:

(iv) No. and percentage of total houses served (monthly)

(a) for refuse collection by OLG; and
(b) for night soil collection by OLG.

(v) Length of drainage channels (Kms); and

(vi) Length of drainage channels inspected (Kms).

II. Financial Indicators

(i) Audited Annual Accounts for OLG (Annually)

(ii) Collection as % of Billing for (a) Market Fees (b) Property Tax and (c) Community Tax (Monthly)

(iii) Projected Funds Flow for OLG and separately for Sanitation Dept. (Annually).

ANNEX 6.1

ANAMBRA STATE WATER CORPORATION

ONITSHA ZONE

Data Sources and Main Assumptions for Financial Forecasts

1. Data Sources

(i) Analysis of ASWC data and records for the three years FY77-79 by the ASWC engineering consultants who prepared the project feasibility study financed through the PPF;

(ii) Assets register data (location, description, normal life, remaining useful life, renewal cost, present worth and annual depreciation) prepared in November 1979 by ASWC consultants financed through the PPF;

(iii) Operations and Maintenance Budget data prepared in November 1979 by water supply operations specialists financed through the PPF;

(iv) Ad hoc data produced by ASWC for FY80 budget and actual performance;

(v) Crash programme and other project related expenditure.

2. Main Assumptions

(i) IBRD finance based on 5 years grace and 15 years loan repayment. Interest at 9.6% p.a. ANSG to carry Debt Service on IBRD loan during grace period for all components.

(ii) Local inflation at 15% per annum.
Personnel emoluments at 10% per annum.
Chemicals at 10% (FY79) reducing to 7% perannum for FY 1982 onwards.

(iii) Weighted average of foreign and local costs inflation reflected in rate of 11.6% p.a. used to revalue assets for FY81 onwards.

(iv) Average depreciation rate of 4.7% indicates weighted average 21 years life for project components.

(v) Tariff increases have been incorporated as follows:

effective 1 January 1982 (FY82) - 50%
effective 1 January 1983 and four consecutive years (FY83 - FY86) - 25% per annum.

A.S.W.C. - ONITSHA ZONE

SOURCES & APPLICATIONS OF FUNDS STATEMENT (₦000)

	ITEM / FY	1980(12)	1980(9)	1981	1982	1983	1984	1985	1986	1987	1988
	SOURCES										
1.	Net Income Before Interest	-	(472)	(859)	(1,352)	(1,403)	(2,908)	(2,091)	4	(376)	(749)
2.	Depreciation	-	571	1,181	1,981	3,035	5,090	6,684	8,196	9,827	11,617
3.	Internal Cash Generation	-	99	322	629	1,632	2,182	4,593	8,200	9,451	10,868
	Less: Debt Service 1/										
4.	- Principal	-	-	200	200	200	200	200	860	1,720	1,720
5.	- Interest	-	-	46	36	26	16	7	1,460	2,350	2,190
6.	Total Debt Service	-	-	246	236	226	216	207	2,320	4,070	3,910
7.	Net Internal Cash Generation	-	99	76	393	1,406	1,966	4,386	5,880	5,381	6,958
	Borrowings:										
8.	Onitsha Local Government	1,000	-	-	-	-	-	-	-	-	-
9.	Proposed IBRD Loan	-	-	190	5,460	11,080	5,100	2,570	1,400	-	-
10.	Total Borrowings	1,000	-	190	5,460	11,080	5,100	2,570	1,400	-	-
11.	Government Contributions - Project Local Costs	-	-	1,100	6,120	7,160	1,300	870	510	-	-
12.	Government Contributions - Crash Programme	-	500	-	-	-	-	-	-	-	-
13.	Total Sources	1,000	599	1,366	11,973	19,646	8,366	7,826	7,790	5,381	6,958
	APPLICATIONS										
	Investments										
14.	Proposed IBRD Water Component	-	-	1,520	13,630	22,630	8,700	5,220	2,200	-	-
15.	Deduct: ASWC HQ, etc.	-	-	230	2,050	3,390	1,300	780	290	-	-
16.	IBRD Project (Onitsha Only)	-	-	1,290	11,580	19,240	7,400	4,440	1,910	-	-
17.	Crash Programme	750	750	-	-	-	-	-	-	-	-
18.	Other (2nd Stage)	-	-	-	-	-	-	1,000	4,500	6,500	4,500
19.	Total Investment	750	750	1,290	11,580	19,240	7,400	5,440	4,500	6,500	5,500
20.	Working Capital Increase (Decrease)	250	(151)	76	393	406	966	2,386	1,380	(1,119)	1,458
21.	Total Applications	1,000	599	1,366	11,973	19,646	8,366	7,826	7,790	5,381	6,958

1/ Debt Service on IBRD loan to be met by ANSG during grace period.

Revised: March 1981

ASWC - ONITSHA ZONE

FORECAST INCOME STATEMENTS (₦000)

ITEM / FY	1980(12)	1980(9)	1981	1982	1983	1984	1985	1986	1987	1988
REVENUES										
1. Water Sales	500	600	1,080	1,617	2,039	2,464	2,974	3,569	4,140	4,787
2. Connection Fees	50	50	112	174	226	284	351	375	400	440
3. Meter Service Charges	-	-	26	91	122	153	197	253	308	369
4. Future Tariff Increases	-	-	-	809	1,794	3,302	5,740	9,488	11,012	12,733
5. Total Internal Sources	550	650	1,218	2,691	4,181	6,203	9,262	13,685	15,860	18,329
6. Government-Ops. Rehabilitation	-	100	400	500	200	-	-	-	-	-
7. Government-Operating Deficit	246	754	1,121	204	-	-	-	-	-	-
8. Total All Sources	796	1,504	2,739	3,395	4,381	6,203	9,262	13,685	15,860	18,329
COSTS										
9. Personnel	312	263	386	424	467	612	673	741	815	896
10. Energy	125	416	637	733	843	1,317	1,582	1,922	2,317	2,770
11. Chemicals	24	85	125	134	144	335	399	475	555	644
12. Repairs	70	240	368	424	487	817	940	1,081	1,243	1,429
13. Ops. System Rehabilitation	-	100	400	500	200	-	-	-	-	-
14. Total Direct Costs	531	1,104	1,916	2,215	2,141	3,081	3,594	4,219	4,930	5,739
15. Other (Inc. HQ Expenses)	265	301	455	515	582	924	1,078	1,266	1,479	1,722
16. Depreciation		571	1,181	1,981	3,035	5,090	6,684	8,196	9,827	11,617
17. Total All Costs	796	1,976	3,552	4,711	5,758	9,095	11,346	13,681	16,236	19,078
18. Income Before Interest	-	(472)	(813)	(1,316)	(1,377)	(2,892)	(2,084)	4	(376)	(749)
19. Interest	-	-	46	36	26	16	7	1,460	2,350	2,190
20. Net Income (Deficit)	-	(472)	(859)	(1,352)	(1,403)	(2,908)	(2,091)	(1,456)	(2,726)	(2,939)

Revised: March 1981

A.S.W.C. - ONITSHA ZONE

PROJECTED BALANCE SHEETS (N000)

ITEM / FY	1980(12)	1980(9)	1981	1982	1983	1984	1985	1986	1987	1988
ASSETS										
Fixed Assets										
1. Gross	8,155	10,364	11,566	15,447	23,148	50,553	66,127	77,879	88,692	103,310
2. Depreciation	4,790	5,361	6,582	8,523	11,558	16,648	23,332	31,528	41,355	52,972
3. Net Assets in Operation	3,365	5,003	4,984	6,924	11,590	33,905	42,795	46,351	47,337	50,338
4. Work in Progress	604	-	1,290	10,330	23,660	6,340	2,070	4,400	9,120	10,290
5. Total Fixed Assets	3,969	5,003	6,274	17,254	35,250	40,245	44,865	50,751	56,457	60,628
Current Assets										
6. Cash	250	149	225	458	714	1,040	3,076	4,246	2,907	4,145
7. Accounts Receivable	300	250	240	360	550	830	1,100	1,300	1,500	1,650
8. Stores	100	120	150	220	290	520	670	770	880	1,000
9. Total Current Assets	650	519	615	1,038	1,554	2,400	4,846	6,316	5,287	6,795
10. Total Assets	4,619	5,522	6,889	18,292	36,804	42,645	49,711	57,067	61,744	67,423
LIABILITIES										
Equity										
1. Government Contribution	688	1,188	2,288	8,408	15,568	16,868	17,738	18,248	18,248	18,248
2. Accumulated Surplus (Deficit)	-	-	(472)	(1,331)	(2,683)	(4,086)	(6,994)	(9,085)	(10,541)	(13,267)
3. Current Year Surplus (Deficit)	-	(472)	(859)	(1,352)	(1,403)	(2,908)	(2,091)	(1,456)	(2,726)	(2,939)
4. Revaluation Reserve	2,731	3,586	4,702	6,047	7,812	10,291	16,138	23,810	32,843	43,131
5. Total Equity	3,419	4,302	5,659	11,772	19,294	20,165	24,791	31,517	37,824	45,173
Long Term Loans										
6. Foreign - IBRD	-	-	190	5,650	16,730	21,830	23,540	23,220	21,500	19,780
7. Local - Onitsha L.G.	1,000	800	600	400	200	-	-	-	-	-
8. Total Loans	1,000	800	790	6,050	16,930	21,830	23,540	23,220	21,500	19,780
Current Liabilities										
9. Accounts Payable	200	220	240	270	380	450	520	610	700	750
10. Short term maturities	-	200	200	200	200	200	860	1,720	1,720	1,720
11. Total Current Liabilities	200	420	440	470	580	650	1,380	2,330	2,420	2,470
12. Total Liabilities	4,619	5,522	6,889	18,292	36,804	42,645	49,711	57,067	61,744	67,423

Revised: March 1981

ANNEX 6.5

ONITSHA LOCAL GOVERNMENT APPROVED ESTIMATES
FY79, AND FY80 (12)
SUMMARY STATEMENT

Vote Head	Details	Revised Estimates FY79 ₦	Estimates FY80(12) ₦
	REVENUES		
I	Rates (Property, Community)	623,780	946,290
II	Water Rate Commission	13,000	15,020
III	Fees (Inc. Markets, Parking)	2,584,040	2,885,840
IV	General (Inc. Rents)	32,220	59,620
V	Economic Projects (Sales of Products)	360	3,760
	Total Internal Revenues	₦3,253,900	₦3,910,530
VI	Grants	4,603,450	4,117,270
VII	Loans	-	-
	Grand Total Revenues	₦7,857,350	₦8,027,800
	EXPENDITURE - RECURRENT		
I	Administration, Market and Motor Park Management	590,150	927,090
II	Finance (Treasury) Dept.	181,040	251,310
III	Works Department	417,030	566,110
IV	Health and Social Welfare Dept.	301,560	429,980
V	Education Department	3,148,370	3,754,010
VI	Agriculture and Animal Health Extension Services Department	58,160	102,280
	Total Recurrent Expenditure	₦4,696,310	₦6,030,780
	EXPENDITURE - CAPITAL		
I	Administration, Market and Motor Park Dept.	200,020	1,112,190
II	Finance (Treasury) Dept.	5,000	2,000
III	Health & Social Welfare Dept.	166,030	310,010
IV	Education Department	406,030	610,020
V	Works Department	1,453,530	1,769,010
VI	Agriculture & Natural Resources Dept.	56,000	145,000
	Total Capital Expenditure	₦2,286,610	₦3,948,230
	Grand Total Expenditure	₦6,982,920	₦9,979,010
	Revenue Surplus	₦872,430	
	Excess of Expenditure Over Revenues to be met from Balances		₦1,951,210

NIGERIA

ANAMBRA STATE

Water Supply and Sanitation Project

Operations and Management Improvement Plan with ASWC

As part of project execution, ASWC will undertake the following measures to improve its operations and management:

1. Management

(i) Implement organizational changes in ASWC Headquarter and in the Zones with effect from July 1, 1982 to improve decentralization of functions and to foster more effective and efficient service to ASWC's consumers. Such changes shall be based on the report (November 1979) of TCE as are agreed between ASWC and the Bank (para 5.05); and

(ii) Implement improved management information, control systems and reporting procedures with effect from April 1, 1982, as may be agreed between ASWC and the Bank and based on the report (February 1980) of Coopers and Lybrands (para. 5.12).

2. Operations - Physical

(i) Follow a policy of providing metered connections to large domestic consumers of Enugu and Onitsha at economic costs and in case of non affordability of private connection to low income groups, agree to consider installation of yard tap and/or standpipe connections (para. 4.11 and 4.13);

(ii) Rehabilitate broken standpipes and install about 260 additional ones in Onitsha (para. 4.11);

(iii) Reduce the unaccounted for water in Onitsha to 22.5% by 1985 (para. 2.13); and

(iv) Complete the Rehabilitation program requirements by December 31, 1983 (para. 5.10).

3. Operations - Financial

(i) Introduce improved financial management and accounting systems including billing and collection (para. 5.13 and 5.14) with effect from January 1, 1982;

(ii) Prepare and maintain asset registers (para. 5.15); and

(iii) Undertake a tariff study by December 31, 1981 (para. 4.08);

4. Others

(i) Undertake a review of job classifications and salaries and prepare personnel statute before December 31, 1981 (para. 5.07); and

(ii) Periodically report to the Bank on ASWC's operational and managerial activities according to criteria commonly agreed in annex 5.5 (para. 5.33).

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

List of Documents in the Project File

1. Technical Reports

1.1 Feasibility study of the Greater Onitsha Water Supply Scheme by Tahal Consultants, Nigeria, Nov. 1979.

1.2 Preliminary design for sewerage, storm water drainage and flood control systems for Onitsha, ENPLAN-GKW, Undated.

1.3 Onitsha Solid Waste Management Component - Report of Jan. 30,. 1980, by Sandra J. Cointreau.

1.4 Health Education Component Report of Jan. 3, 1980, by Susan Leone.

1.5 Training Component Report, by John Densham, Industrial Training Service.

1.6 Financial Regulations and Accounting System Recommendations - Report of Financial Consultants, Coopers and Lybrand.

1.7 ASWC: An Assessment of Operations and Maintenance Needs - Report by R. Watson and D. Sims of Severn - Trent Water Authority.

1.8 Urban Water Supply Sector Investment Planning Report - by Tahal Consultants December 1979.

1.9 ASWC: Registration and Monetary Evaluation of Fixed Assets - Report by Tahal Consultants December 1979.

1.10 Design and Preparation of Tender Documents for the Greater Onitsha Water Supply Scheme: Contract between ASWC and Tahal Consulting Engineers - November 1980.

1.11 Surface Water Drainage: Interim Report by ENPLAN/GKW - November 1979.

1.12 ASWC Review of Water Treatment Processes at Onitsha and Enugu - Report of Renato Pinheiro - December 1979.

2. Legislation and Official Memoranda

2.1 Excerpts from 1975/1976: ANSG, Ministry of Economic Development and Finance, Onitsha Household Survey.

2.2 Local Government Accounting: Financial Memoranda Volume issued under Anambra State Edict No. 9 of 1979.

2.3 Anambra State Government: Anambra State Water Corporation Edict No. 16 of 1978.

2.4 Onitsha Local Government: Standing Orders - March 25, 1977.

2.5 ANSG: Local Government Edict No. 9 of 1976.

2.6 ANSG: Onitsha Local Government Establishment Instrument 1977.

2.7 ANSG: Local Government (Amendment) Edict No. 1 of 1977.

2.8 ANSG: Official Gazette No. 10 Vol. 4 - April 5, 1979 containing:

(i) OLG (Motor Park) Byelaws 1978;
(ii) OLG (Obstructions and Nuisances) Byelaws 1978.

2.9 ANSG: Control of Rents Edict No. 4 of 1973.

2.10 ANSG: Control of Rents Edict No. 3 of 1977.

2.11 ANSG: The Land Use Edict No. 2 of 1979.

2.12 Federal Republic of Nigeria Official Gazette No. 14, Vol. 65 containing - Land Use Decreee No. 6 of 1978.

2.13 "Understanding the Land Use Decree" ASG publication.

3. Budgets

3.1 ASWC - Recurrent Budget FY80 (12).

3.2 ASWC - Recurrent Budget FY80 (9) Submission to Govt.

3.3 ASWC - Capital Budget FY80 (9) Submission to Govt.

3.4 ASWC - Capital Budget FY80 (9) Government Budget Allocations.

3.5 Onitsha Local Government: Estimates 1979/80.

4. Staff Papers

4.1 Population growth assumptions (Onitsha).

4.2 Detailed calculations - Consumption forecasts.

4.3 Detailed calculations (Onitsha Water Supply).

a. Economic Characteristics (IERR, NPV)
b. Average Incremental Cost (AIC).

4.4 Revenue projections - background papers.

4.5 Aide-memoire - Enugu, Dec. 1979.

5. Terms of Reference

5.1 Sanitation Department Manager
5.2 3 Technical Assistance personnel for OLG Sanitation Department
5.3 Project Unit

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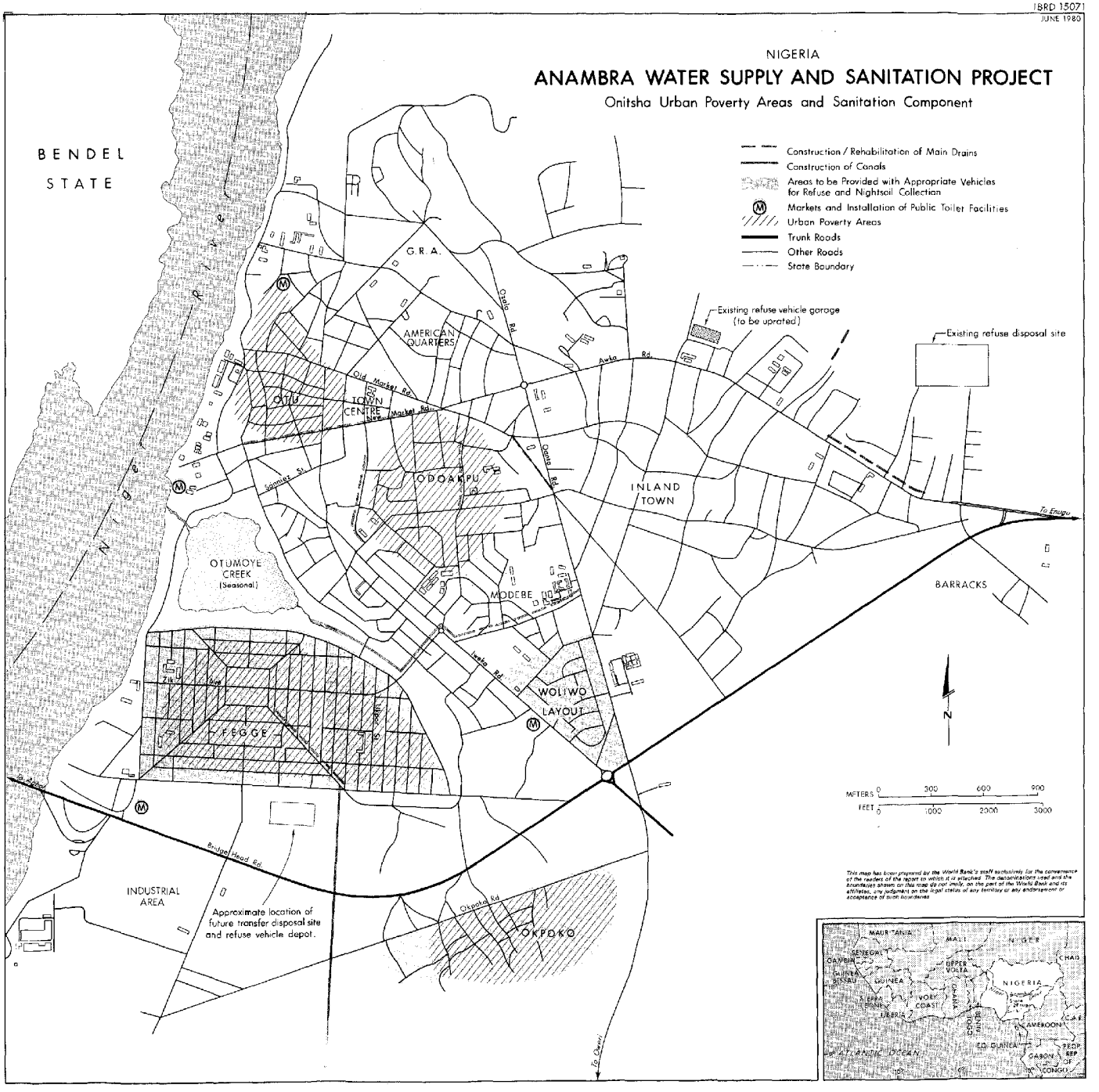
JUNE 1980

NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

Onitsha Urban Poverty Areas and Sanitation Component



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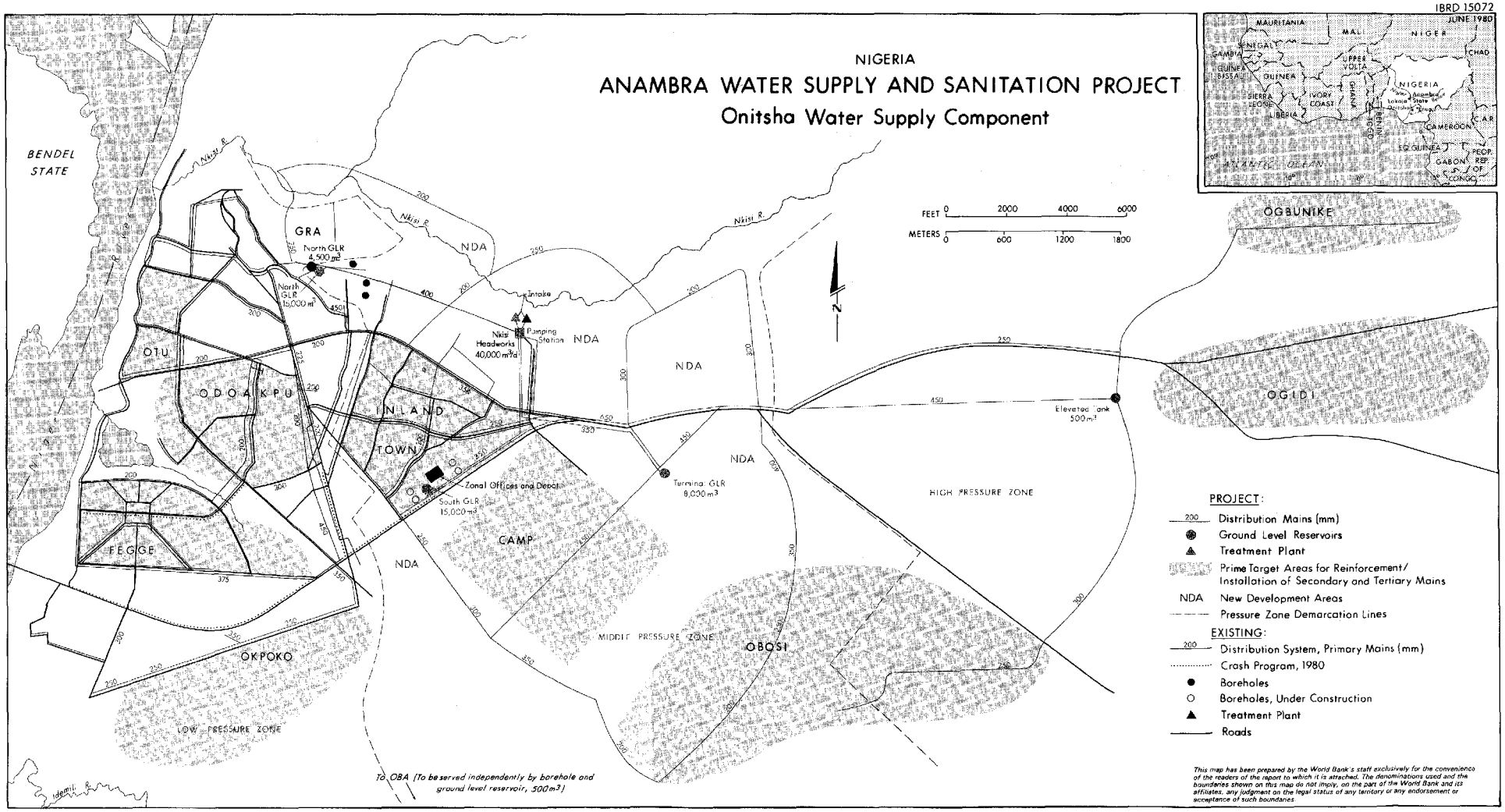
NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT

Onitsha Water Supply Component



PROJECT:

- 200 Distribution Mains (mm)
- Ground Level Reservoirs
- Treatment Plant
- Prime Target Areas for Reinforcement/ Installation of Secondary and Tertiary Mains
- NDA New Development Areas
- Pressure Zone Demarcation Lines

EXISTING:

- 200 Distribution System, Primary Mains (mm)
- Crash Program, 1980
- Boreholes
- O Boreholes, Under Construction
- Treatment Plant
- Roads

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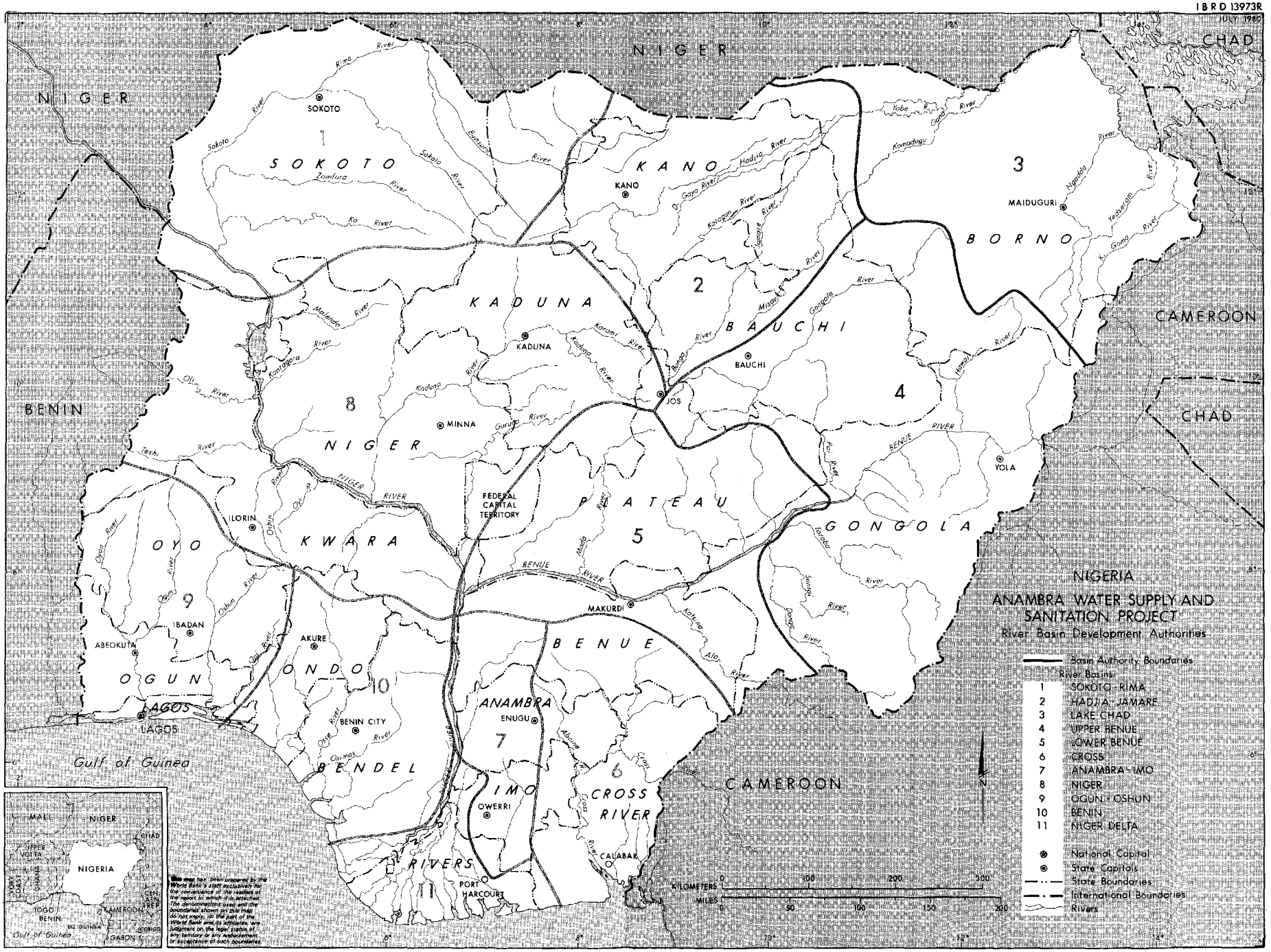

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