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**Report No. 11518**

**PROJECT COMPLETION REPORT**

**NIGERIA**

**ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
(LOAN 2036-UNI)**

**DECEMBER 31, 1992**

**World Bank Resident Mission in Nigeria  
Western Africa Department  
Africa Regional Office**

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## Glossary

ASG	Anambra State Government
ASESA	Anambra State Environmental Sanitation Authority
M/M	Man-months
₦	Naira
OLG	Onitsha Local Government
PCR	Project Completion Report
SAP	The Federal Government Macro-Economics Structural Adjustment Program initiated in 1986
SAR	Staff Appraisal Report
SMH	Anambra State Ministry of Health

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THE WORLD BANK  
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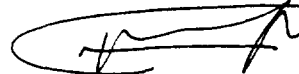
MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on Nigeria  
Anambra Water Supply and Sanitation Project (Loan 2036-UNI)

Attached is a copy of the report entitled "Project Completion Report on Nigeria - Anambra Water Supply and Sanitation Project (Loan 2036-UNI)" prepared by the Africa Regional Office. No contribution was received from the Borrower.

The project had too many components each of which was reduced in scope during implementation. The project only achieved part of its physical objectives due, in a large part to design and procurement deficiencies. The implementing agency's financial situation is very poor. Accordingly, the project outcome is rated as unsatisfactory and the sustainability of institutional improvements and other benefits achieved under the project (e.g. improved water supply and solid waste collection services) is rated as unlikely.

The Project Completion Report, prepared by the Bank's Resident Mission in Nigeria, is marginally satisfactory as it fails to highlight the Bank's inadequate preparation and appraisal performance. The project will be audited.



Attachment

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PROJECT COMPLETION REPORT  
NIGERIA  
ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
(Loan 2036-UNI)

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PROJECT COMPLETION REPORT  
NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
(Loan 2036-UNI)

PREFACE

1. This is the Project Completion Report (PCR) for the Anambra Water and Sanitation Project in Nigeria for which Loan 2036-UNI in an amount of US\$67 million was approved on July 7, 1981. The Loan was closed on July 31, 1991, 3 years and 10 months after the original closing date. An unutilized balance of US\$2,655.22 was canceled on September 6, 1991.
2. The Preface, Evaluation Summary, Parts I and III of the PCR were prepared by the Resident Mission in Nigeria with comments and contributions from current and previous staff members of the Infrastructure Division of the Western Africa Department. In August 1991, Anambra State was divided to create two new states: Anambra and Enugu. The assets of the old Anambra State, including the agencies responsible for implementing the project, are being divided up between the two new states. The authorities of the new States were invited to prepare a project review from the Borrower's perspective on November 7, 1991 and to this date no review has been received. In early February 1992 the same authorities were invited to comment on drafts of Parts I and III of this report with a request to prepare Part II by March 31, 1992. The comments to Parts I and III were received on June 5, 1992, however, no reply has been received to date with regards to Part II.
3. Preparation of the PCR was started in October 1991 and was based inter alia, on the following sources: the Staff Appraisal Report; the Loan, Project and State Agreements; supervision reports; correspondence and discussions between the Bank, state authorities and executing agencies and internal Bank memoranda.





PROJECT COMPLETION REPORT  
NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
(Loan 2036-UNI)

EVALUATION SUMMARY

Objectives

1. The project's overall objective was to enhance living conditions in Anambra State by improving water supply, solid waste collection and disposal, urban infrastructure and health education. The project's physical works addressed the needs of the State's second largest city, Onitsha, which was to serve as an example for other urban centers in the state. Though not mentioned in the legal agreements, an implicit objective was the establishment of autonomous institutions with the necessary human and financial resources to provide water and sanitation on a financially sustainable basis (Part I, paras 6 and 7).

Implementation Experience

2. Project implementation took almost four years longer than expected. The delay was due to a variety of factors which included: late releases of counterpart funds; initial delays in obtaining the necessary exchange control clearances to import equipment; frequent changes in Anambra State Government (ASG) officials, which sometimes resulted in misunderstandings on procurement issues that had to be resolved, and unforeseen developments during project implementation (Part I, para 13).

3. The most important unforeseen developments were in the water supply component which was the largest in the project. These were (i) siltation of treatment plant's raw water intake at the Nkisi river which required construction of a new intake 2.9 km upriver; (ii) an increase in demand for water in Onitsha resulting from higher than projected population growth, which required drilling of new boreholes and an extension of the water distribution system, and (iii) substantial devaluations of the naira which altered the relative costs of treated surface and borehole water and changed the Anambra State Water Corporation's (ASWC's) water development strategy (Part I, paras 15 to 18).

4. When the Onitsha Local Government (OLG) took longer than expected to start implementing the solid waste collection and disposal component, the State authorities established the Anambra State Environmental Sanitation Authority (ASESA) to assume responsibility for it. Project implementation made good progress thereafter (Part I, para 19).

5. The cost of urban drainage works proved to be substantially higher than estimated during appraisal and the scope of the component had to be reduced. However, the four strategically placed drains that were constructed greatly reduced the risk of flooding in Onitsha. Upgrading works in the Okpoko low-income area were not carried out because of unresolved differences with the Bank over procurement procedures and also to save costs (see Part I, para. 20).

6. Only a small part of the health education component was carried out as the State's Ministry of Health was fully occupied with other programs (Part I, para 21).

### Results

7. The project succeeded in substantially improving water supply, drainage and sanitation services in Onitsha and both the ASWC and the ASESAs improved their internal efficiency with technical assistance (Part I, paras 22 and 37-39). The scope of policy and institutional objectives was expanded during project implementation as commercialization of water and sanitation services was undertaken in Anambra State as a whole, rather than in Onitsha only, as originally intended (Part I, paras 19 and 23).

8. ASWC took early steps to improve its financial performance. Progress in the efficiency of billing and collections started in the early stages of project implementation. The ASG supported the necessary tariff increases to enable ASWC to recover higher proportions of operating costs and eventually gave ASWC the freedom to make limited tariff adjustments without reference to it. In spite of increases in operating expenses due to devaluations of the naira, ASWC increased its operating cost recovery ratio from 28 percent in 1983 to 91 percent in 1989. However, the ratio declined to 81 percent as costs increased faster than revenues in 1990. The objective of recovering part of capital costs from consumers was not met, initially because ASG was reluctant to approve sufficiently large tariff increases, but eventually because repeated devaluations of the naira made it impossible for ASWC to service the Bank loan, as provided in arrangements for the project (Part I, paras 24 and 25). ASESAs also made progress towards financial self-sufficiency up to 1988, but its performance declined somewhat the following year (Part I, para 26). The State has intervened and is servicing the foreign debt through its foreign currency earnings from the Federation account. The Borrower has therefore been advised to treat the foreign debt as equity from the State.

### Findings and Lessons Learned

9. The project demonstrated that consumers are prepared to contribute to the cost of water provided that its quality is acceptable and its supply regular. Substantial progress was made during the project period towards the recovery of operating costs through water charges. The governments of the two states that have recently been created out of Anambra could build on the success achieved by ASWC by allowing their water utilities greater flexibility to set tariffs so that operating costs are fully recovered and an increasing proportion of capital costs to be recovered over a period of time. This would enable their water corporations to invest in further improvements of water services at a moderate cost to state treasuries (Part I, para 28).

10. Delays in providing State Government contributions to the project slowed down execution on several occasions. Means of assuring regular and uninterrupted counterpart fund contributions should be put in place by Federal and State authorities for future projects (Part I, para 34).

11. Loan closing date extensions were granted by the Bank one year at a time though in some cases it was evident that a longer time period was required to complete the project. The Bank should extend closing dates by longer periods than one year when there are good grounds for doing so (Part I, para 32).

PROJECT COMPLETION REPORT  
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ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
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PART I - PROJECT REVIEW FROM BANK'S PERSPECTIVE

1. Project Identity

Project Name: Anambra Water Supply and Sanitation Project

Loan: 2036 - UNI of US\$ 67 million dated November 13, 1981

RVP Unit: Africa

Country: Nigeria

Sector: Infrastructure

Subsector: Water supply and sanitation.

Background

2. Nigeria has the largest urban population in Africa. It is estimated that 35 percent of its total population of about 88.5 million live in urban areas, of which one quarter live in cities of one million inhabitants or more. While the overall rate of populations growth is estimated at 3.4 percent per annum, urban population is estimated to have increased at 6.2 percent per annum over the last decade.

3. The pace of urban population growth has overtaken the capacity of local authorities to provide the necessary services. Many Nigerian cities have extensive low income areas with limited piped drinking water services and no sewage disposal services; stormwater drainage and adequate transportation services are also frequently lacking. State governments have the primary responsibility for developing water supply services. At the time of appraisal of this project, water services were provided only in the principal urban centers and as a social service, with little attempt to recover costs from consumers. The extent of such services were consequently limited to the resources that state governments could provide from their budgets, which were (and continue to be) limited in relation to total development needs. Local governments were responsible for sanitation services, but they had even more limited resources and, in addition, lacked sufficient management capacity with the result that sanitation services were almost totally lacking in most parts of the country.

4. The Federal Government attached high priority to orderly urban development and in 1976-77 asked the Bank to review water supply needs and programs in several states. These reviews resulted in the identification of the first water supply project financed by the Bank in Nigeria: the Kaduna State Water Project for which a Loan was approved in 1979. The project reviewed in this PCR was the second financed by the Bank in the water supply sector. It was appraised in late 1979 and the Loan became effective in March 1982. As the Kaduna Water Supply project had only recently started implementation when this one was appraised, it was not possible to derive many lessons from it that could be applied to the Anambra project.

5. In Anambra State, more than three quarters of the urban population was not served by piped water at the time of appraisal. Sewerage, drainage, refuse and human waste disposal services were even more limited. There were no water borne sewerage services and only about 4 percent of the urban population used septic tanks and pit latrines. About one quarter relied on bucket latrines, with the rest having no systematic means of human waste disposal. By the late 1970s, the Anambra State Government (ASG) had determined that water supply and sanitation services should be significantly improved in Onitsha, the State's second largest city, which had suffered considerable damage during the 1967-70 Civil War. The difficulties caused by inadequate physical facilities, which had been severely damaged in the hostilities, were compounded by Onitsha's rapid population growth, which resulted from its favorable location as a trade center.

### Project Objectives and Description

#### Objectives

6. The project's overall objective was to enhance living conditions in Anambra State by assisting the authorities improve and extend water supply services, solid waste and nightsoil collection and disposal, urban infrastructure and health education in Onitsha.

7. Though not specifically mentioned in the Legal Agreements but nevertheless implicit in the Staff Appraisal Report, a principal objective of the Project was to develop autonomous institutions with the necessary management and technical expertise, and internal financial resources, to provide water supply and sanitation services on a sustained basis in Anambra State. The establishment of such institutions would make it possible to spread the benefits of the project to urban centers other than Onitsha.

#### Project Description

8. The project consisted of the following principal components to:

##### (A) for water supply

- (a) upgrade and extend the existing Nkisi intake and water treatment plant capacity from 11,000 m<sup>3</sup>/day to 40,000 m<sup>3</sup>/day;
- (b) increase service storage capacity from 4,500 m<sup>3</sup>/day to 45,000 m<sup>3</sup>/day;

- (c) add 87 km of transmission and 160 km of distribution mains;
- (d) install about 260 new public standpipes;
- (e) supply 6,000 water meters and materials to connect private subscribers;
- (f) construct and equip a new Anambra State Water Corporations (ASWC) headquarters in Enugu, zonal offices in Onitsha, workshops in Enugu and Onitsha and staff quarters for 6 managerial and 30 junior staff;
- (g) provide 246 man-months (m/m) of technical assistance for project management; commercial and financial operations; training; mechanical, electrical and distribution network maintenance, and water treatment and metering;
- (h) provide overseas training for ASWC senior staff and the development of a training section within ASWC;

**(B) for Solid Waste and Nightsoil Collection**

- (i) provide refuse vehicles, equipment and slurry tankers;
- (j) establish maintenance and parking facilities for vehicles;
- (k) design and construct a landfill disposal facilities;
- (l) provide 84 m/m of technical assistance for sanitation, vehicle maintenance, town planning, traffic management and municipal finance;

**(C) for Urban Infrastructure**

- (m) construct 1.4 km of large canals and 4 km of main and secondary drains to dispose of floodwater during the rainy season;
- (n) provide roadside drainage improvements in the Okpoko low-income area to facilitate water and sanitation services;
- (o) construct 3.5 km of roadside drains and remove drain bottlenecks;
- (p) provide public toilet blocks at four market sites;

**(D) for Health Education**

- (q) establish a pilot health office in Onitsha;
- (r) construct additional classrooms and accommodation in the State health superintendent school;

- (s) supply equipment to teach good hygiene practices in primary schools;
- (t) provide 6 m/m of technical assistance to the State Ministry of Health for the pilot office;

(E) General

- (u) provide consultancy services for the design and supervision of all components.

Project Design and Organization

9. There were two principal features of the project that were innovative in Anambra State. The first was that, up to the time the project was undertaken, ASWC's function was to ensure the physical delivery of water, while billing and collection of water charges were carried out by local governments. The efficiency of billing and collections was not high and local governments kept most of the funds collected to cover their own expenditures. On the other hand, ASWC's production costs were met with funds provided by the State treasury. Thus, water revenues were unrelated to production costs. As part of the project, and in order to recover the higher cost of treated surface water, ASG accepted that ASWC should commercialize its operations and assume responsibility for billing and collecting, with the ultimate objective of making ASWC financially self-sufficient. The second was that technical innovations in waste disposal were introduced with the sanitation component. The use of more appropriate equipment, such as night soil slurry tankers instead of buckets, and tractors to pull specialized refuse containers, was to greatly improve the efficiency of sanitation services.

10. Given that 40,000 m<sup>3</sup>/day of raw water were required for the level of treated water supply services envisaged for Onitsha by 1988, three possible sources of supply were considered during appraisal. One was to extract groundwater from aquifers bordering the Niger River, but this was discarded because of insufficient data on the aquifers. The other was to use surface water from a more reliable source on the Idemili River; this was, however, at a greater distance from Onitsha and therefore more costly to develop. It was rejected during appraisal in favor of the third alternative, which was to fully develop the existing intake on the Nkisi River. This seemed preferable given: a) the uncertainty over demand estimates; b) that use of the Nkisi intake resulted in investment costs that were 30 percent lower; and c) that it provided greater flexibility to select future investment sites, giving ASWC sufficient time to decide whether the next service expansion should be based on groundwater or treated surface water. This decision was to prove controversial during implementation and is further discussed in para 15 below.

11. On the whole, the project was well prepared. As part of preparation, a state-wide planning program was carried out by ASWC with the assistance of consultants. Its main purpose was to establish the likely costs of improving water and sanitation to various levels of service in several centers. Estimated costs for the water supply component were based on detailed designs that were prepared after thorough investigation of the distribution and works sites and on quotations obtained for similar works tendered over the year preceding appraisal. However, cost estimates for the solid waste management and drainage components were only based on preliminary proposals.

12. There was broad consensus on the project when it was appraised. There was agreement on the volumes of water to be provided, the kinds of clients to be served and on objectives for the sanitary and drainage components. The roles that the ASG; the ASWC (which had been established as an autonomous corporation in 1976) and the Onitsha Local Government (OLG), as well as the consultants would play in implementing the project were understood and agreed upon. The following risks were identified in the Staff Appraisal Report (SAR):

i) that project implementation would be complex. Several different State ministries and a larger number of units within these ministries would be involved. A Project Steering Committee chaired by a Permanent Secretary was established to deal with this difficulty;

ii) that there was a shortage of suitably qualified and experienced staff in the institutions that would be involved in project execution. In the short term this was to be addressed by extensive technical assistance and in the longer term by training;

iii) that the amount of time normally allowed by the Bank for project supervision was insufficient for a project of this complexity. Additional resources were accordingly requested.

### **Project Implementation**

13. A delay of almost four years in completing the project was due to a variety of factors which included late releases of counterpart funds; initial delays in obtaining the necessary exchange control clearances to import equipment; frequent changes in ASG officials which sometimes resulted in misunderstandings on procurement issues that had to be resolved, and unforeseen developments during project implementation. The water supply component was the largest in the project and received a major part of supervision mission attention.

14. During 1982 and 1983 savings of about \$ 12 million of the Loan amount were made on procurement of capital investments, principally machinery. ASG proposed in early 1984 that Loan savings be applied to increasing the disbursement percentage of Bank funds for civil works and that, in addition, a portion of them be set aside to purchase foreign spare parts, lack of which was adversely affecting ASWC's operations. After reaching understandings with the ASG on its future contributions to the cost of capital investments and on the magnitude of subventions, the Bank agreed to increase its share of civil works costs from 42 percent to approximately 60 percent (100 percent of the foreign cost and 20 percent of the local cost) and to create a new Loan Category for spare parts with an allocation of \$ 750,000. These amendments were made on March 1, 1985 and helped to reduce shortages of counterpart funds until project costs increased due to unforeseen developments discussed below.

15. Water Supply. Choice of the Nkisi River water intake alternative, discussed in para 10 above, resulted in serious raw water supply problems during implementation. Unplanned and uncontrolled building development in the Nkisi River's catchment area with inadequate drainage facilities caused unforeseen soil erosion, siltation and an increase in the river bed's elevation at the intake point. By late 1987, it became evident that the intake would have to be relocated 2.8 km upriver to enable the amounts of water required for the new plant to be abstracted from the Nkisi River, as available supply had been reduced to less than one quarter of the amount needed. The cost of this intake, which was commissioned in 1989, gravity mains to the treatment plant site and additional engineering and supervision services added \$ 5.8 million equivalent to the project's cost, of

which the Bank financed \$ 3.3 million from the Loan. By late 1990, it appeared that additional works would be required to protect the pumping station from the effects of flooding caused by continued siltation of the Nkisi River. The nature and extent of these works were being considered by ASWC and its consultants at the Closing Date.

16. In early 1987, two unexpected developments caused ASWC to completely reassess its strategy for water supply development. Firstly, population in the project area was growing at a faster rate than the 5 percent per annum anticipated during appraisal and it became evident that there was a real danger of prolonged water shortages unless urgent measures were taken to improve the efficiency of the supply system and new sources of supply were developed. Secondly, the first of several devaluations of the naira associated with the Federal Government's economic Structural Adjustment Program (SAP) trebled the naira cost of imported capital goods, chemicals and other inputs used in the treatment of surface water. This dramatically altering the relative costs of treated surface water on the one hand and borehole water on the other, to the detriment of surface water.

17. In the light of these developments, ASWC decided to: i) almost double the length of distribution works in the project to serve a larger number of clients, ii) initiate leak detection programs to realize savings in the cost of chemicals and electricity, iii) install a greater amount of water meters than previously planned, as metered consumers were found to make more efficient use of water, iii) carry out emergency borehole drilling programs in the Onitsha and Enugu regions to increase the supply of lower cost borehole water in these areas, iv) adopt a policy of making moderate yearly tariff adjustments to ensure recovery of at least recurrent costs, and v) carry out a socio-economic tariff study.

18. To support adjustment to these new conditions, the Bank agreed to help finance the cost of leak detection programs, extensions of the transmission and distribution systems, additional water meters, a borehole drilling program near Onitsha, a treatment plant to extract iron from borehole water, erosion control works in the Nkisi catchment area and an additional stock of water treatment chemicals. Implementation of all these components required ASWC's full attention during the 46 month period between the Loan's original Closing Date (September 30, 1987) and the one agreed to for the fourth extension (July 31, 1991). These new components not only altered the water supply element of the project considerably but added to its cost, even though some components of the original project valued at \$ 5.8 million were not carried out. These included the urban upgrading works in the low-income Okpoko area, hydrogeological investigations in Onitsha, construction of ASWC headquarters buildings and workshops, and communications and training facilities for ASWC. In spite of these savings, the ASG had outstanding payments to contractors for the water supply component amounting to ₦ 23.5 million (\$ 2.9 million) at the Closing Date.

19. Sanitation. It was agreed during negotiations that the OLG would be responsible for improvements in solid waste and night soil collection under the project. However, because OLG took a long time to start implementing this component, the ASG established a sanitation task force which quickly succeeded in bringing about significant sanitary improvements in Onitsha. In view of the task force's success, it was transformed into the Anambra State Environmental Sanitation Authority (ASESA) in July 1985 with a mandate to provide sanitation services in the State's five main urban centers, including Onitsha. Responsibility for carrying out the sanitation component of the project, which was redefined with the assistance of a consultant in 1985, was formally transferred to ASESA on January 31, 1986. Because of delays in initiating this component, equipment for solid waste disposal did not arrive on site until late 1988; however, by mid-1989 supervision missions were



already reporting remarkable improvements in Onitsha's sanitary condition. The monthly volume of refuse collected increased from 5,264 cubic meters during the first quarter of 1989 to 16,745 cubic meters during the last quarter of the same year and averaged 13,415 and 13,785 cubic meters per month in 1990 and 1991 respectively.

20. Urban Infrastructure. The cost of drainage works to prevent flooding in Onitsha during the rainy season proved to be substantially higher (by about 40 percent) than estimated during appraisal. While provision had been made to construct six drains, only four were built, but these were strategically located and reduced the risk of flooding. One drains the central area of Onitsha and prevents blockage of the important Onitsha-Enugu expressway. The upgrading works in the Okpoko low-income area were tendered but not carried out because of unresolved procurement issues between the ASG and the Bank. The savings were applied to carry out additional works for water supply.

21. Health Education. Responsibility for this project component was given to the State Ministry of Health (SMH), which did not give the component much priority because it was fully occupied with other programs. An order was, however, placed with a foreign supplier for hygiene teaching aids and these were ready for shipment in September 1984. However, the aids were not received until 1990 because of long delays in obtaining import authorizations. Other parts of this component were not carried out.

### Project Results

22. The project succeeded in substantially improving water supply, drainage and sanitation services in Onitsha. Because records on the evolution of water supply and sanitation services in Onitsha were mislaid when ASWC and ASES were divided up between Anambra's successor States during the second half of 1991, quantitative information on the improvements brought about by the project is scarce. The limited data that is available is shown in Table 4.

23. Cost Recovery. Because ASWC's accounting standards and financial performance were still poor at the time of appraisal, the SAR recommended that a gradual approach be adopted towards commercialization of water services, with recovery attempted first in the Onitsha zone, extending it to other zones as experience was gained. The SAR anticipated that the Onitsha zone, which would have its own water tariffs and accounts, would recover 40 percent of recurrent expenditures in 1981 and 100 percent from 1983 onwards, obtaining additional contributions from consumers towards the cost of capital expenditures averaging 23 percent of capital costs over the 1983-86 period. In the event, it was not found practicable to maintain separate water tariffs and accounts for Onitsha and an understanding was reached with the Bank that comparable improvement in ASWC's overall financial performance would be pursued instead.

24. ASWC took early steps to improve its financial performance. Starting from a low level of billing and collection efficiency, improvements were realized during 1983 and 1984 with the help of consultants. These, and a 75 percent tariff increase in 1983, resulted in ASWC's operating cost recovery ratios <sup>1/</sup> increasing from 28 percent in 1983 to 72 and 76 percent respectively in 1984 and 1985. However, with the commissioning of new water supply works and the need to purchase

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<sup>1/</sup> Revenues from sales over operating costs and overhead; but excluding from the latter depreciation, interest charges on the Bank Loan and foreign exchange losses.

chemicals for water treatment, many of which were imported, ASWC's operating expenses increased substantially in 1986 and 1987 when the naira was devalued as part of the SAP. ASWC accordingly proposed tariff increases to ASG, but approval was delayed and limited increases were only granted with effect on January 1, 1987 and 1988. Operating cost recovery ratios accordingly declined to 55 and 44 percent in 1986 and 1987 respectively and only recovered to 69 percent in 1988. Thereafter, ASWC was allowed to make yearly tariff adjustments of up to 20 percent without reference to ASG. This policy, and the strategy of developing lower cost water from boreholes discussed in paras. 16 and 17 above, enabled ASWC to gradually improve its financial performance. By 1989, ASWC's operating cost recovery ratio had increased to 91 percent. However, provisional accounts for 1990 indicate that the ratio declined to 71 percent that year as costs increased faster than revenue. (Annex A shows highlights of ASWC's financial performance between 1983 and 1990 and Annexes B and C show, respectively, ASWC's projected and actual revenue accounts and balance sheets.)

25. Under arrangements made for the project, ASWC was to be fully responsible for servicing the Bank Loan and carry the associated foreign exchange risk. The extent to which ASWC should recover capital costs from water consumers (in addition to recurrent costs) was discussed on several occasions by supervision missions with ASG authorities and no clear understandings were reached on the necessary tariff adjustments. The matter was largely overtaken by events as repeated devaluations of the naira after 1986 substantially increasing ASWC's naira liabilities and made it impossible for ASWC to service the Bank Loan from water revenues.

26. ASES also made progress towards financial self sufficiency. Its income from sanitation and other fees accounted for 84 percent of recurrent cash expenditures in 1988 with ASG subventions accounting for the balance. However, a sharp increase in costs the following year (mostly in wages) required an increased subvention as ASES's own revenues only covered 74 percent of recurrent costs.

27. Economic Rate of Return. As it is difficult to quantify the benefits of the sanitation and drainage components, an economic rate of return was calculated for the water supply component only. The principal assumption made was that consumers are willing to pay ₦ 4 per cubic meter of treated water. This is consistent with a study on consumer willingness to pay for water carried out by consultants in 1988<sup>2</sup>. At this price, the economic rate of return is 9.6 percent, compared with the SAR base case estimate of 8.9 percent.<sup>3</sup>

### Project Sustainability

28. Prior to the project, Anambra consumers had grown to believe that piped drinking water was provided as a virtually free public service, but knew that in practice it was available to only a few citizens and that its supply was uncertain. The project succeeded in demonstrating that consumers of widely varied income are prepared to contribute towards the cost of piped water provided that its

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<sup>2</sup> / "Willingness to Pay for Water and Water Vending in Anambra State", two volumes, Donald T. Lauria, Dale Wittington and Xinming Mu, December 1988.

<sup>3</sup> In fact the value of actual collections was much less. If water is valued at the actual price charged (₦ 2 per cubic meter) and collected, the rate of return would be in the region of 4.8 to 5 percent.

quality is acceptable and its supply regular. Up to and including 1989, ASWC made substantial progress towards recovering operating costs though the limit imposed by the ASG on yearly tariff increases did not allow ASWC to keep up with rising costs in 1990 or to begin to recover capital costs. These setbacks do not negate that substantial progress was made during the project period. The Governments of the new States that have recently been created out of Anambra could build on the success achieved by ASWC by allowing their water utilities more flexibility to set tariffs so that operating costs may be fully recovered and an increasing proportion of capital costs to be recovered over a period of time. This would enable their water corporations to invest in further improvements in water services at moderate cost to their state treasuries. ASESAs financial performance also demonstrates that Anambra's citizens were willing to pay for effective and regular sanitation services rather than not have any services at all.

### **Bank Performance**

29. With the possible exception of the decision taken at appraisal to abstract raw water from the Nkisi River, the Bank's performance was good on the whole. Project supervision missions were frequent and of high caliber and they helped to identify problems and address them at an early stage. The Bank demonstrated flexibility in resolving issues and adapting the project to new circumstances, as when changes were made in 1987 to cope with increased consumer demand and altered relative water costs. However, these changes added to the project's cost and the Loan proved to be insufficient to finance the foreign exchange cost of the last components to be implemented, which the ASG was left to finance.
30. The decision taken at the time of appraisal to draw raw water from the Nkisi rather than the Idemili River, as recommended by the consultants, was controversial and the Bank was heavily criticized when erosion problems and siltation reduced water intake significantly. Yet, on the basis of the information available at appraisal and given that the Bank has a mandate to adopt a least-cost solution to project design, the decision does not appear to have been faulty. There was no way to anticipate at the time of appraisal that the Nkisi River basin would be developed to the extent that it was over the following years, or that development would take place in an uncoordinated and uncontrolled manner that would result in heavy siltation and blockage of the raw water intake.
31. As noted in para 25, arrangements for the Loan provided that ASWC should assume responsibility for servicing that part of the Loan that financed water supply costs, including the foreign exchange risk. In retrospect, this proved to be an unrealistic arrangement as ASWC could not possibly generate the naira resources necessary to meet this obligation after the SAP devaluations took place. This was recognized by the ASG, which did not require ASWC to service its part of the Loan. It should be noted that when the Bank financed a third water supply project in Nigeria (Borno State Water Supply Project - Loan 2528-UNI of February 1986), the agreements did not require that the water utility assume the foreign exchange risk associated with borrowing Bank funds.
32. The decisions to make important alterations to the project discussed in paras 17 and 18, were taken shortly before the Loan's original Closing Date of September 1987 and almost certainly in the knowledge that the added works could not be completed during the one-year extension period granted. Because of the Bank's policy of extending closing dates by one year at most, three additional extensions were required before the Loan could be fully disbursed. This policy seems unrealistic under the circumstances presented by this project and it is recommended that the Bank should have greater flexibility to extend closing dates by more than one year when there are good grounds for

doing so.

### Borrower Performance

33. The Federal and State Governments gave good support to the project throughout its complete cycle. During appraisal and negotiations, the ASG accepted the principle that water supply services should be provided in Onitsha on a cost recovery basis. During implementation it extended this principle to the State as a whole and to sanitation services as well, though the issue of what proportion of capital costs should be recovered from consumers was not resolved at Closing. Though with some delay, ASG acceded to ASWC's requests for tariff increases as the recurrent cost of providing water went up, and subsequently delegated responsibility for limited tariff adjustments to ASWC itself. In addition, ASG established ASESAs as an autonomous entity with the right to charge consumers realistic fees for extended and improved sanitation services.

34. Delays in State Government contributions to the project were experienced from the initial stages of implementation. By mid-1983, supervision missions were reporting that implementation of four civil works contracts and two pipe supply contracts was behind schedule because the local currency portion of mobilization payments had not been made, that no counterpart contributions for the project's investments had been made for 18 months, that agreed recurrent cost subventions were in arrears and that payments to ASWC for local government water bills, which the ASG had undertaken to meet, were also in arrears. Delays in ASG contributions to the project were experienced throughout construction even though cost sharing arrangements were altered so that the Bank financed a larger proportion of costs than initially planned. At the Closing Date, the State Treasury had significant overdue payments to contractors and, while it can be argued that these were largely for items that were added to the project after appraisal, it must be recalled that several components were dropped during implementation in order to contain costs. On balance, the State Government's readiness and/or ability to provide counterpart funding did not match its eagerness to see the project completed. Means of assuring regular and uninterrupted counterpart fund contributions should be put in place by state and Federal authorities for future projects.

35. The autonomy of ASWC and ASESAs to run their day-to-day operations was, on the whole, respected during project implementation. Their respective Boards and managements had considerable freedom from the start, and gained independence as their reliance on State subventions diminished<sup>4</sup>. On the other hand, both ASWC and ASESAs' capacity to take capital procurement decisions were hampered by frequent involvement of state officials in decision making; many officials were not familiar with Bank procurement guidelines, in part because of the high turnover among their ranks. In addition, State regulations required that all procurement in excess of ₦ 250,000 should be referred to State Tenders Board. This provision became increasingly restrictive as the real value of the naira diminished. On several occasions there were differences between ASG and the Bank on contract awards. Though in most cases these differences were eventually settled, in others (e.g. an urban upgrading contract and another for engineering design of a follow-up project) contracts were not awarded to the detriment to the project.

36. Auditors' Reports. There were frequent reminders to ASWC, ASESAs and State authorities

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<sup>4</sup> ASWC's Board was dissolved in September 1990 but it is understood that the new states will name boards for their water utilities.

from supervision missions about standard Loan Agreement provisions on auditors' reports and accounts. Auditors' reports on accounts were never provided within the allowed period of six months after the end of the fiscal year and were usually sent after considerable delay. This may be because State agencies were not used to having their accounts examined by external auditors and there was no established procedures for appointing auditors. However, the ASG has now adopted procedures for appointing auditors to review the accounts of parastatals.

### Consultant Services

37. Technical assistance for institutional development in ASWC was provided between 1982 and 1988 by the National Water Council of the U.K. and its successor British Water International, as well as North West Water. Assistance was provided to improve management, including distribution, metering and project management and electrical installation and maintenance. The program was successful largely because good working relations were developed between ASWC's Management and the technical assistance team. The greatest achievement was the installation of a billing and collection system. Others included improvements in project management, training and equipment maintenance.

38. The contract for technical assistance to ASES was awarded in September 1987 to GKW Consult of Germany in association with GKW Nigeria Ltd., Otto BV and Coopers and Lybrand Associates. It provided for assistance to design and assist operate a sanitary landfill for Onitsha; rationalize and improve the efficiency of refuse collection; improve financial management, including accounting, budgeting, billing and collection; establish and operate a vehicle and equipment repair workshop; prepare a study on industrial waste and train counterpart staff to assume responsibility for all the above operations. The tasks were completed successfully, with supervision missions and other visitors to Onitsha noting during 1990 that sanitation standards had improved substantially since new methods had been introduced. The consultants' final report recommended measures to maintain service standards.

39. Engineering services for design and supervision of the water supply scheme were of good quality. Tahal Consulting (Nigeria) Ltd. in association with Tahal Consulting Engineers of Israel provided services for the Nkisi river scheme while Wardrop Engineering Inc. of Canada was retained to develop ground water sources. Both firms maintained good working relations with the client.

## PART II - PROJECT REVIEW FROM THE BORROWER'S PERSPECTIVE

40. The Borrower did not respond to the Bank's invitation of November 7, 1991 to prepare Part II of the Report.

PROJECT COMPLETION REPORT  
NIGERIA

ANAMBRA WATER SUPPLY AND SANITATION PROJECT  
(Loan 2036-UND)

PART III - STATISTICAL INFORMATION

Table 1. Related Bank Loans and Credits

<u>Project Loan</u>	<u>Purpose</u>	<u>Year Approved</u>	<u>Present Status</u>
Loan 1711-UNI Kaduna State Water Supply Project	Expand water supply in Kaduna and improve management of sector.	1979	Completed
Loan 2528-UNI Borno Water Supply Project	Provide surface water treatment plant for Maiduguri, expand distribution and improve management, including cost recovery.	1986	Under implementation. Main issues are lack of counterpart funds and institutional constraints.
Loan 2985-UNI Lagos State Water Supply Project	Double capacity for potable water, extend distribution system and improve management, including cost recovery.	1989	Under implementation. Main issue is institutional constraints to project execution.
Loan National Water Rehabilitation Project	Provide funding to all states to improve capacity utilization, institutional improvements including cost recovery.	1991	Loan signature pending but implementation underway.
Credit Multi-State Water Supply Project I	Improve and expand water supply in Kaduna and Katsina States.	1992	Negotiated, awaiting approval of Executive Directors.

Table 2. Project Time Table

<u>Item</u>	<u>Planned Date</u>	<u>Actual Date</u>
Identification		late 1978
Preparation	Mid 1979	May & Sept 1979
Appraisal	December 1979	December 1979
Loan Negotiations	July 1980	January 1981
Board Approval	November 1980	June 1981
Loan Signature	December 1980	November 13, 1981
Loan Effectiveness	February 13, 1982	March 1982
Loan Closing	Sept. 30, 1987	July 31, 1991
Project Completion	Sept. 30, 1986	January, 1991

Table 3. Loan Disbursements

		<u>Cumulative Disbursements (in \$ mns.)</u>		
Bank Fiscal Year and Quarter		Estimated Amount	Actual Amount	Actual as % of Estimated
1982				
	1	0	0.9	1.4
	2	0.4	1.9	2.9
	3	2.7	1.9	2.9
	4	6.0	2.0	3.0
1983				
	1	7.7	2.0	3.0
	2	14.5	5.2	7.8
	3	22.2	5.6	8.4
	4	26.2	6.2	9.3
1984				
	1	35.0	6.7	10.0
	2	41.2	11.3	16.9
	3	47.2	12.6	18.8
	4	50.6	13.2	19.7
1985				
	1	52.4	16.6	24.8
	2	55.0	19.8	29.6
	3	57.0	21.2	31.7
	4	58.9	23.6	35.2
1986				
	1	60.9	24.1	36.1
	2	62.8	26.0	38.9
	3	64.7	30.0	44.8
	4	66.4	30.6	45.7
1987				
	1	67.0	31.0	46.3
	2	67.0	31.8	47.5
	3	67.0	34.5	51.5
	4	67.0	36.4	54.4
1988				
	1	67.0	40.2	60.0
	2	67.0	44.3	66.1
	3	67.0	48.2	72.0
	4	67.0	52.5	78.3
1989				
	1	67.0	55.1	82.3
	2	67.0	56.2	83.9
	3	67.0	58.2	86.9
	4	67.0	60.2	89.9
1990				
	1	67.0	61.7	92.0
	2	67.0	64.1	95.8
	3	67.0	65.1	97.2
	4	67.0	66.9	99.9
1991				
	1	67.0	67.0	100
	2	67.0	67.0	100
	3	67.0	67.0	100



Table 4. Targets Achieved by Project Completion

<u>Indicators</u>	<u>Appraisal Estimate (Onitsha)</u>	<u>Actual (1990)</u>
<u>Water Supply (ASWC)</u>		
Total number of connections	40,139	n.a.
Number of metered connections	19,119	7,582 <sup>5</sup>
Total volume of production <sup>6</sup>	82,152	n.a.
Total volume of consumption <sup>5</sup>	67,365	n.a.
domestic	43,440	n.a.
institutional	8,680	n.a.
connected industries	15,245	n.a.
Metered consumption <sup>5</sup>	50,501	9,865
% metered consumption	75	n.a.
<u>Financial Performance</u>		
Revenues/recurrent costs	> 1.0	0.81
% of capital cost covered	over 23	0.00
<u>ASESA</u>		
People served by night soil collection	270,000	324,256 <sup>7</sup>
People served by improved drainage	65,000	n.a.

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<sup>5</sup> / May 1991.

<sup>6</sup> / Average cubic meters per day.

<sup>7</sup> Assuming 8 persons per house served.

Table 5. Project Cost and Financing

A. Project Costs  
( in millions of US\$ )

	<u>Appraisal Estimate</u>			<u>Actual</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
<u>Water Supply</u>						
Onitsha works	21.0	33.5	54.5	12.7	44.2	56.9
Building & Communic.	2.9	2.1	5.0	-	0.2	0.2
Training & T/A	1.3	2.9	4.2	-	1.9	1.9
Design, Sup. & Studies	2.0	5.4	7.4	0.9	5.8	6.7
<u>Urban Infrastructure and Health</u>						
Onitsha Draing & San.	5.7	5.9	11.6	5.7	11.8	17.5
Design, Sup & Studies	0.3	0.8	1.1	0.1	0.9	1.0
Tech. Assistance	0.2	0.7	0.9	0.1	1.9	2.0
Okpoko Instr.	1.6	1.3	2.9	-	-	-
Health Educat.	<u>0.6</u>	<u>0.3</u>	<u>0.9</u>	<u>-</u>	<u>0.1</u>	<u>0.1</u>
Base Cost	35.6	52.9	88.5			
Physical Contin.	4.1	4.7	8.8			
Price Contin.	<u>13.9</u>	<u>9.4</u>	<u>23.3</u>			
<b>TOTAL COSTS</b>	<b><u>53.6</u></b>	<b><u>67.0</u></b>	<b><u>120.6</u></b>	<b><u>19.5</u></b>	<b><u>66.8</u></b>	<b><u>86.3</u></b>

B. Project Financing  
( in millions of US\$ equivalent )

<u>Source</u>	<u>Planned</u>	<u>Actual</u>	<u>Comment</u>
Items financed by Bank Loan	67.0	67.0	
Anambra State Government	48.1	19.3	Devaluation of naira reduced ASG contribution
Anambra State Water Corp.	5.5	0.0	ASWC had no current surpluses
<b>TOTAL</b>	<b><u>120.6</u></b>	<b><u>86.3</u></b> <sup>8/</sup>	

<sup>8</sup> Devaluation of the naira during the period of implementation reduced project cost and ASG's contribution when expressed in dollar terms.

Table 6. Project ResultsA. Economic Impact

	<u>Appraisal Estimate</u>	<u>Actual Full Development</u>
Economic Rate of Return	8.9 %	9.6 %

Assumptions:

Benefits were based on the assumption that consumers are willing to pay ₦ 4 per cu. mt. of delivered treated water; this is consistent with the findings of the "Willingness to Pay..." report listed in Part B below. The calculation was made over a 30 year period in 1988 naira and yearly maintenance costs of 2 percent of plant costs were added to actual operating costs in 1988. System losses of 40 percent were assumed; this is consistent with probable losses for 1988. Rehabilitation investments of ₦ 0.6, ₦ 2.5 and ₦ 11.8 million were assumed in 1993, 1996 and 2000 respectively.

Comment:

The actual economic rate of return could be higher as system losses are reduced as a result of leak detection and repair programs.

	<u>Purpose at Appraisal</u>	<u>Status of Study</u>	<u>Impact</u>
"Willingness to Pay for Water and Water Vending in Anambra State" (Dec. 1988, two volumes)	help set tariffs	concluded 12/88	recommendations partially adopted
Onitsha Solid Waste Management	help improve management	concluded 4/86	recommendations adopted

Table 7. Status of CovenantsAnambra State Agreement

<u>Section</u>	<u>Description</u>	<u>Comment on Compliance</u>
2.04	ASG to provide counterpart funds quarterly in advance.	Substantial depreciation of the naira after appraisal resulted in much larger needs than anticipated. Counterpart funds frequently provided with delay.
2.05	ASG to approve new job classification and salary scale for ASWC.	Compliance not feasible during austerity program introduced with SAP.
2.07	ASG to provide adequate subventions for recurrent costs.	Subventions sometimes provided late but their need decreased over time as ASWC's financial performance improved.
2.08	ASG to ensure that both private and public sector represented on Board.	Condition met, though Board now dissolved.
2.09	ASG to ensure that local governments pay water bills or ASG to pay for them.	Condition met though sometimes with some delay.

ASWC Project Agreement

<u>Section</u>	<u>Description</u>	<u>Comment on Compliance</u>
2.02	ASWC to establish and maintain project unit	Condition met.
4.02	ASWC to segregate cash flow for Onitsha zone.	Compliance waived since it was found not to be practicable.
4.04	Generate 25 percent of capital needs in Onitsha.	Tariff autonomy within limits allowed by ASG but capital costs not being recovered.
4.05	ASWC not to take on more debt unless revenues are at least 1.5 greater than service needs.	Since foreign exchange risk of Bank Loan assumed by ASWC, it was unable to keep within this limit after large devaluations of naira took place. However, ASG is not requiring ASWC to service loan.
4.06	Revalue assets annually.	This proved not to be practicable.

Table 8. Use of Bank ResourcesA. Staff Inputs

<u>Stage of Project Cycle</u>	<u>Planned</u>	<u>Final</u>	<u>Comment</u>
- Through Appraisal		78.8	
- Appraisal through Board Presentation		104.7	
- Other		30.7	
- Supervision		<u>196.4</u>	
<b>TOTAL</b>		<b>410.6</b>	

B. Missions

<u>Stage of Project Cycle</u>	<u>Month/Yr.</u>	<u>No. of Persons</u>	<u>Days in Field</u>	<u>Kind of Expert<sup>9</sup></u>	<u>Performance Rating &amp; Status</u>	<u>Type of Problem<sup>10</sup></u>
Sup. 1	7/83	2	2	E,F	2/1	F
Sup. 2	11/84	2	2	E,F	2/1	D,F
Sup. 3	3/85	2	4	E,F	2/1	D,F
Sup. 4	9/85	1	6	F	2/1	D,F
Sup. 5	11/85	2	3	E,F	2/1	D,F,I
Sup. 6	2/86	2	8	E,F	2/2	D,F,I
Sup. 7	6/86	2	4	E,F	3	D,F,I
Sup. 8	10/86	2	7	E,F	3	D,F,I
Sup. 9	2/87	3	6	E,F,Ec	3	D,F,I
Sup. 10	6/87	3	20	E,F,Ec	2	D,F,I
Sup. 11	9/87	2	4	E,F	2	D,E,I
Sup. 12	11/87	2	1	E,F	2	D,E,I
Sup. 13	2/88	2	7	E,F	2	D,E,F
Sup. 14	6/88	2	6	E,F	2	P,F,I
Sup. 15	8/88	1	4	E	2	P,F,I
Sup. 16	12/88	3	7	E,E,F	2	E,P,I
Sup. 17	2/89	1	7	E	2	E,P,I
Sup. 18	4/89	1	4	E	3	E,P
Sup. 19	6/89	2	10	F,E	3	E,P,F
Sup. 20	10/89	2	4	F,E	2	E,F
Sup. 21	7/90	1	5	E	2	D
Sup. 22	11/90	3	3	E,E,F	1	D,E

<sup>9</sup> E=Engineer; F=Financial Analyst; Ec=Economist.

<sup>10</sup> D=Disbursements; F=Financial; I=Institutional; E=Engineering; P=Procurement.

Anambra Water Supply and Sanitation ProjectProject Completion Report

## ANAMBRA STATE WATER CORPORATION

FINANCIAL HIGHLIGHTS 1983 - 1990

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u> Draft
Net op. revenue (₦ mn)	-4.8	-1.9	-1.8	-4.7	-10.4	-5.5	-1.7	-7.2
Operating Cost Coverage (%)	28	72	76	55	44	69	91	75
Accounts Recbl/Sales (%)	na	120	27	19	19	34	38	50
Depreciation (₦ mn)	2.4	2.3	2.2	7.4	6.3	6.5	8.2	7.1
LT loan int (₦ mn)	--	--	--	11.3	11.2	17.2	33.1	na
Exchange losses	--	--	--	--	7.0	53.0	128.6	na
Operating revenue losses, including depreciation, charges on IBRD Ln & exch losses (₦ mn)	7.2	4.2	4.0	23.4	34.9	82.2	171.6	na

Source: ASWC audited accounts for years 1983 to 1989, and draft accounts for 1990.  
(Final audited accounts for 1990 and 1991 not yet available.)

## ANAMBRA STATE WATER CORPORATION

## PROJECT COMPLETION REPORT

## REVENUE ACCOUNT

(Naira Thousand)

YEAR	1983	1983	1984	1984	1985	1985	1986	1986	1987	1987	1988	1988	1989	1990
	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	ACT	ACT	ACT	ACT
<b>OPERATING REVENUES</b>														
Water Sales	3833	1669	5766	4642	8714	5399	13057	5465	15152	7009	17520	11830	16259	20401
Other	348	190	437	234	548	245	629	348	708	1333	809	328	1431	846
<b>Total Revenue</b>	<b>4181</b>	<b>1859</b>	<b>6203</b>	<b>4876</b>	<b>9262</b>	<b>5644</b>	<b>13686</b>	<b>5813</b>	<b>15860</b>	<b>8342</b>	<b>18329</b>	<b>12158</b>	<b>17690</b>	<b>21247</b>
<b>COSTS</b>														
Direct Oper. Exp.	1674	1614	2469	1806	2921	2096	3478	5364	4115	6569	4843	9779	9581	15125
Est. and Admin.	467	4969	612	4919	673	5285	741	5100	815	5834	896	7233	8395	11348
Fin. Charges	582	52	924	46	1078	39	1266	49	1479	6364	1722	625	1471	2040
<b>Total Oper. Costs</b>	<b>2723</b>	<b>6635</b>	<b>4005</b>	<b>6771</b>	<b>4672</b>	<b>7420</b>	<b>5485</b>	<b>10513</b>	<b>6409</b>	<b>18767</b>	<b>7461</b>	<b>17637</b>	<b>19447</b>	<b>28513</b>
<b>Net Op. Revenue</b>	<b>1458</b>	<b>-4776</b>	<b>2198</b>	<b>-1895</b>	<b>4590</b>	<b>-1776</b>	<b>8201</b>	<b>-4700</b>	<b>9451</b>	<b>-10425</b>	<b>10868</b>	<b>-5479</b>	<b>-1757</b>	<b>-7266</b>
<b>Av. Net Assets</b>			<b>42645</b>	<b>140392</b>	<b>46178</b>	<b>149283</b>	<b>53389</b>	<b>193787</b>	<b>59406</b>	<b>238720</b>	<b>64584</b>	<b>266813</b>	<b>313764</b>	<b>395236</b>
<b>Ratios</b>														
<b>R of R</b>		neg	0.05	neg	0.10	neg	0.15	neg	0.16	neg	0.17	neg	neg	neg
<b>Op. Costs Coverage</b>	<b>1.54</b>	<b>0.28</b>	<b>1.55</b>	<b>0.72</b>	<b>1.98</b>	<b>0.76</b>	<b>2.50</b>	<b>0.55</b>	<b>2.47</b>	<b>0.44</b>	<b>2.46</b>	<b>0.69</b>	<b>0.91</b>	<b>0.75</b>

SOURCE: ASWC Audited Accounts from 1983 to 1989 and draft accounts for 1990

## ANAHARA STATE WATER CORPORATION

## PROJECT COMPLETION REPORT

## BALANCE SHEETS

(Naira Thousand)

	1984	1984	1985	1985	1986	1986	1987	1987	1988	1988	1989	1990
	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	ACT	ACT
<b>Assets</b>												
Gross Fixed Assets	50553	35403	66127	114236	77879	114259	88692	115118	103310	116272	115348	116558
Accumulated Depreciation	16648	12296	23332	14511	31528	21651	41355	27742	52972	34231	40366	46359
<b>Net Fixed Assets</b>	<b>33905</b>	<b>23107</b>	<b>42795</b>	<b>99725</b>	<b>46351</b>	<b>92608</b>	<b>47337</b>	<b>87376</b>	<b>50338</b>	<b>82041</b>	<b>75182</b>	<b>70199</b>
Construction In Progress	6340	104966	2070	43328	4400	121968	9120	144661	10290	186204	243048	352734
<b>Total Fixed Assets</b>	<b>40245</b>	<b>128073</b>	<b>44865</b>	<b>143113</b>	<b>50751</b>	<b>214576</b>	<b>56457</b>	<b>232037</b>	<b>60628</b>	<b>268245</b>	<b>318230</b>	<b>422933</b>
Long-Term Assets												
Current Assets	2400	12319	4846	15061	6316	14823	5287	16003	6795	17340	23713	25595
<b>Total Assets</b>	<b>42645</b>	<b>140392</b>	<b>49711</b>	<b>158174</b>	<b>57067</b>	<b>229399</b>	<b>61744</b>	<b>248040</b>	<b>67423</b>	<b>285585</b>	<b>341943</b>	<b>448528</b>
<b>Equity and Liabilities</b>												
Capital Fund	16868	114016	17738	128406	18248	136897	18248	145053	18248	148198	150939	167758
Capital Grants	0	14389	0	8491	0	8155	0	3145	0	2740	10268	-51
Deposits For Capital Works	0	871	0	871	0	871	0	871	0	871	1030	1444
Asset Revaluation	10291	17851	16138	17851	23810	17851	32843	17851	43131	17851	17851	17851
Accumulated Surplus/(Deficit)	-6994	-22248	-9085	-23967	-10541	-63671	-13257	-88839	-16206	-165971	-329762	-336728
<b>Total Equity</b>	<b>20165</b>	<b>124879</b>	<b>24791</b>	<b>131652</b>	<b>31517</b>	<b>100103</b>	<b>37824</b>	<b>78081</b>	<b>45173</b>	<b>3689</b>	<b>-149674</b>	<b>-149728</b>
Long Term Debt	21830	12519	23540	24229	23220	97853	21500	122589	19780	204603	349066	451294
Current Liabilities	630	2694	1380	2293	2330	31443	2420	47270	2470	77293	142551	146960
<b>Total Equity and Liabilities</b>	<b>42645</b>	<b>140392</b>	<b>49711</b>	<b>158174</b>	<b>57067</b>	<b>229399</b>	<b>61744</b>	<b>248040</b>	<b>67423</b>	<b>285585</b>	<b>341943</b>	<b>448528</b>
Debt/Equity Ratio	52:48	9:91	49:51	16:84	42:58	16:84	36:64	61:39	61:39	97:3	175:100	180:10
Current Ratio	3.7	4.6	3.5	6.6	2.7	0.5	2.2	0.3	2.8	0.2	0.2	0.2
Accounts Receivable/Sales		1.20		0.27		0.19		0.19		0.34	0.38	0.50

SOURCE: ASWC Audited Accounts from 1983 to 1989 and draft accounts for 1990



Annex DAnambra Water Supply and Sanitation ProjectProject Completion ReportANAMBRA STATE WATER CORPORATIONCONNECTIONS, BILLINGS AND COLLECTIONS, 1986 to 1990

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Connections	23,054	27,030	30,183	24,443	25,784
of which metered:	107	275	2,613	6,854	6,597
Billings (₦ million)	12.0	22.6	20.8	23.2	20.8
Collect. (₦ million)	5.7	7.3	9.1	11.7	16.0
Collect. (percentage)	48	32	44	50	77

WATER PRODUCTION (in millions of cubic meters)

	<u>1980</u>	<u>1982</u>	<u>1986</u>	<u>1990</u>
Total ASWC	23.1	24.6	32.6	154.7
Onitsha	4.2	5.2	3.5	11.2

Source: ASWC

Anambra Water Supply and Sanitation ProjectProject Completion Report

## ANAMBRA STATE WATER CORPORATION

STAFFING CONTINGENT BY LEVEL

	<u>1980</u>	<u>1982</u>	<u>1984</u>	<u>1986</u>	<u>1988</u>	<u>1990</u>
Senior Staff	66	121	n.a	257	n.a	288
Intermediary Supervisory	110	175	n.a	148	n.a	156
Junior Staff	1,539	1,560	n.a	1,267	n.a	1,363
Daily	5	-	n.a	-	-	-
	<u>1,720</u>	<u>1,856</u>	<u>n.a</u>	<u>1,672</u>	<u>n.a</u>	<u>1,807</u>

Source: ASWC