



1. Project Data

Project ID P149377	Project Name Water Service & Institutional Support II	
Country Mozambique	Practice Area(Lead) Water	
L/C/TF Number(s) IDA-57830,IDA-D1100,IDA-D4910	Closing Date (Original) 31-Oct-2022	Total Project Cost (USD) 162,347,979.40
Bank Approval Date 29-Mar-2016	Closing Date (Actual) 30-Jun-2025	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	165,000,000.00	0.00
Revised Commitment	162,831,682.00	0.00
Actual	162,347,979.40	0.00

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2. Project Objectives and Components

a. Objectives

The Project Development Objectives in the Financing Agreement for the loan (p.6) are to: "(a) increase water service coverage in key cities in Mozambique's territory; (b) strengthen the institutional and regulatory capacity for water supply services in the Northern, Central, and Southern regions of Mozambique; and (c) support Mozambique to respond promptly and effectively to an Eligible Crisis or Emergency." The objectives formulation in the PAD (p. 4) is identical. The ICR did not separate the PDO for strengthening institutional and regulatory capacity for water supply services. Since institutions for delivering water supply services are distinct from regulatory functions, and the project had distinct components supporting institutions for service



delivery and regulation, this review has assessed the PDO achievement in terms of the following four objectives:

1. Increase water service coverage in key cities in Mozambique's territory
2. Strengthen the institutional capacity for water supply services in the Northern, Central, and Southern regions of Mozambique
3. Strengthen the regulatory capacity for water supply services in the Northern, Central, and Southern regions of Mozambique
4. Support Mozambique to respond promptly and effectively to an Eligible Crisis or Emergency

One of the three restructurings was additional financing, which increased the PDO targets. The other restructurings did not modify PDO indicators or targets. The project became more ambitious over time, and therefore, a split evaluation was not conducted.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

No

c. Will a split evaluation be undertaken?

No

d. Components

Component 1: Rehabilitation and Expansion of Water Supply Production and Distribution (US\$116.1 million at appraisal and US\$132.32 million at closing) Activities to be financed under this component included: (i) the rehabilitation, replacement, and construction of boreholes and wellfields, raw water intakes, water treatment facilities, and transmission infrastructure (e.g. pipelines, pump stations, and associated electrical, mechanical, and civil works), (ii) the rehabilitation and construction of distribution systems (including ground reservoirs and elevated water towers to increase storage and pressure), water supply networks, the installation of district meters and pressure control valves, and the provision of new household meters and materials for yard connections, and (iii) the supply of goods and equipment related to water supply and utility management, including computers, monitoring systems, office equipment, generators, pipes, valves, pumps, miscellaneous water treatment equipment, and transportation.

Component 2: Institutional Support (US\$18.9 million at appraisal and US\$25.97 million at closing) Activities to be financed under this component included: (i) technical assistance for establishing regional utilities and training/support during their initial operational stages, including the development of commercial operational systems (billing, commercial management, and customer service policies covering citizen engagement, gender, disability considerations, and complaints handling), (ii) technical assistance to establish corporate governance structures and human resources policies, and priority technical activities such as asset management systems and non-revenue water (NRW) reduction programs, and (iii) engineering, design, and supervision costs for the Component 1 infrastructure works, as well as broader technical assistance to the Water Supply Asset Holding and Investment Fund (Fundo de Investimento e



Patrimônio do Abastecimento de Água – FIPAG) for project management, training, audits, technical studies, preparation of follow-up projects, and environmental and social safeguards activities.

Component 3: Output-Based Payments for Low-Income-Household Connections (US\$6.0 million at appraisal and US\$1.86 million closing). Activities to be financed under this component included: (i) grant payments reimbursing connection fees to utilities for approximately 70,000 verified yard-tap connections. This financing was disbursed in two phases—70 percent upon installation of functioning yard-taps to eligible households and the remaining 30 percent after three months of demonstrated continued service and billing, (ii) an independent third-party verification process to confirm eligibility and results, (iii) beneficiary surveys to track socio-economic characteristics, service quality indicators, willingness and ability to pay, tariff review inputs, and sustainability risks. (PAD, p. 37)

Component 4: Contingent Emergency Response (CERC) (US\$0 million at appraisal and US\$7.53 million closing) Activities to be financed under this component included: (i) disaster-recovery needs in FIPAG water systems by providing immediate response to an eligible crisis or emergency, such as supply of critical parts and equipment, minor civil works rehabilitation, supply of fuel, rent of generators, and rapid transportation of chemicals and critical parts by express mechanism. (PAD, p. 38)

Component 5: Capacity Building and Operational Support to Water Regulatory Council (Conselho de Regulação de Águas - CRA (US\$5.0 million at appraisal and US\$4.86 million at closing). During project implementation, the CRA formally transitioned to the Water Regulatory Authority, Public Institute (Autoridade Reguladora de Água, Instituto Público – AURA IP). Activities to be financed under this component included: (i) establishment of performance reporting procedures for the regional water utility companies (ROCs) linked to the International Benchmarking Network (IBNeT) data management platform; (ii) scaling up of AURA IP's customer complaints platform (RECO) to the three ROCs with related software and computer equipment; (iii) creation of Local Regulatory Commissions (Comissão Reguladora Local – CORALs) with trained community representatives and focal points to monitor and enforce water regulations; (iv) studies evaluating subsidies for low-income customers and a tariff structure; and (v) project impact evaluation.

e. **Comments on Project Cost, Financing, Borrower Contribution, and Dates**

Financing: At appraisal, the IDA financing was estimated at US\$90 million, of which US\$66.5 million was credit and US\$23.5 million a grant. During implementation, an IDA grant of US\$75 million was added, bringing the total IDA commitment to US\$165 million (US\$98.5 million grant and US\$66.5 million credit). At the additional financing in June of 2019, the government of the Netherlands committed US\$26 million, bringing the total of external financing to US\$191 million. The borrower committed US\$8.8 million at the additional financing to bring the total commitment to US\$199.8 million.

The amount of IDA financing disbursed at closing was US\$162.35 million, of which US\$66.65 million was credit and US\$95.69 million was a grant, representing 98 percent of the total IDA combined credit and grant commitment. The amount of financing disbursed from the government of the Netherlands was US\$8.07 million, which was 31 percent of the US\$26 million commitment. (ICR, p. ii).

Borrower Contribution: The Borrower committed US\$8.8 million in counterpart financing at the additional financing and spent US\$2.12 million at project close. (ICR, p. ii)



Dates: The Project was approved on March 29, 2016, and became effective on April 19, 2017. The project closing date at appraisal was set to October 31, 2022, for an expected implementation period of 6 years and 7 months. The actual closing date was extended by 32 months (i.e. 2 years and 8 months) to June 30, 2025, for a total implementation period of nine years and three months. The Mid-Term Review (MTR) was conducted in October 2022. The project had three restructurings that included the following, none of which involved changing the PDO:

- In May 2019, a level 2 restructuring reallocated funds to the CERC to facilitate an immediate response to water supply damage caused by Cyclone Idai in March 2019 in project and non-project cities.
- In June 2019, a second level 2 restructuring provided additional financing of US\$75 million, increased PDO targets, reduced the scope of some activities to account for reallocation of funds (US\$10 million) to the CERC, and extended the closing date from October 31, 2022, to October 30, 2024.

In November 2024, a third level 2 restructuring extended the closing date by an additional eight months from October 30, 2024, to June 30, 2025, to allow for completion of works and signing lease contracts between FIPAG and utilities.

3. Relevance of Objectives

Rationale

Mozambique is a low-income country in Sub-Saharan Africa with a population of approximately 34.6 million (as of 2024), with about 64 percent of the population living in rural areas. The Country Partnership Framework (CPF) FY23-27 identifies water supply as a basic service gap, particularly in the north and center of the country. The CPF states that the government is committed to expanding infrastructure services in the north and center of the country, which have historically suffered from underinvestment, as a way of addressing regional imbalances, and that the government is committed to ensuring that 61 percent of the population in the provinces of Niassa, Nampula, Cabo Delgado, and Zambezia have access to improved water supply services. (CPF, p. 36) The PDO is directly aligned with CPF's Objective 6: Expanded infrastructure services and the project directly contributes to the CPF's core indicator 6.1: number of additional people provided with access to improved water. Likewise, the project's investments are located in the center and north of the country aligned with the government's priorities.

This project builds on a long history of the World Bank supporting the sector, which has ranged from infrastructure development to strengthening institutions. The government passed key reforms in 1995, and since then, the World Bank has supported the government to strengthen services and institutions through a variety of projects that included the National Water Development Project (MZ-PE-39015) in 1998, and in 2011, the National Water Resources Development Project (P107350). These projects were followed by the first Water Services and Institutional Support Project (WASIS, P104566), which aimed to strengthen Water Supply Asset Holding and Investment Fund (Fundo de Investimento e Patrimônio do Abastecimento de Água, - FIPAG) and the Water Regulatory Council (Conselho de Regulação de Águas – CRA) capacity and address infrastructure gaps in central and northern areas. This project aimed to build on WASIS and



continued to strengthen the regulatory capacity of CRA and service delivery capacity in new institutions, particularly in the center and north of the country.

The PDOs for increasing water service coverage, strengthening capacity to deliver services, and regulatory capacity were pitched at appropriate level considering the level of development of the country, and the state of the sector, given Mozambique remains in a low-income status is classified as a Fragile and Conflict-affected Situation (FCS). A key challenge is that the decentralized approach to service delivery promoted under the project is not directly aligned with the current government's vision, which is oriented at consolidation of service delivery. (ICR, p.17)

Overall, the relevance rating is Substantial.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

Increase water service coverage in key cities in Mozambique's territory

Rationale

The theory of change (ToC) in the Implementation Completion and Results Report (ICR, p. 2) identified the outcome to be increased water service coverage in key cities in Mozambique's territory.

The inputs were financing of the following activities: (i) rehabilitation, replacement, and construction of boreholes and wellfields, raw water intakes, water treatment facilities, and transmission infrastructure (e.g. pipelines, pump stations, etc.), (ii) the rehabilitation and construction of distribution infrastructure such as storage, water supply networks, district meters and pressure control valves, and household meters, (iii) output based grant payments to reimburse connection fees to utilities for approximately 70,000 verified yard-tap connections, (iv) an independent third-party verification process contracted FIPAG to confirm eligibility and results, (v) beneficiary surveys to track socio-economic characteristics, service quality indicators, willingness and ability to pay, tariff review inputs, and sustainability risks. (PAD, p. 28-37)

The expected outputs were: (i) water supply production, transmission, and distribution facilities and infrastructure rehabilitated/constructed, (ii) household connections installed, (iii) water loss control (e.g. meters, valves, etc.) installed, and (iv) beneficiary surveys conducted.

These outputs were expected to lead to outcomes such as expanded access and improved quality of services (e.g. continuity, reliability), particularly among poor households,



These outcomes, in turn, are expected to lead to the PDO of increased water service coverage in key cities, contributing to higher-level outcomes of improved health, living conditions, and resilience to climate change.

OUTPUTS

- 527.5 kilometers (km) of water supply network laid under the project and operational (Original target was 540) (**substantially achieved**). This indicator measured the length of the water distribution network installed to increase access to unserved areas. There were 154.4 km installed in the Beira-Dondo system, 11 km in the Tete-Moatize system, 178.5 km in the Pemba system, and 183.6 km in the Nacala system. (ICR, p. 21)
- 31,000 cubic meters (m3) of increased capacity of the water systems (treatment, production, and transport) (Original target was 47,000 m3) (**partially achieved**). This indicator measures the volume of additional water to be treated, produced, and transported as a result of project-funded rehabilitation and expansion works. The increase in water production is: (i) Nacala – 12,000 m3/day, (ii) Beira-Dondo - 10,000 m3/day, (iii) Tete-Moatize -11,000 m3/day, and Pemba - 10,000 m3/day. The Nacala works are ongoing and are being financed by the government of the Netherlands, while the works in Tete have been picked up the successor project financed by the World Bank. Once the works in Nacala and Tete are completed, an additional 15,000 m3/day will be added to the system, taking the total increase to 46,000 m3, substantially meeting the target. (ICR, p. 21 and ICR Interview with Task Team April 30, 2026)
- 20,221 subsidized house connections installed (Original target was 20,000 cubic meters) (**achieved**). This indicator tracked the result of the poor-household connection program. The results were verified by an independent verification agent. The breakdown by location is: (i) 9,248 connections in Beira, (ii) 752 connections in Moatize, (iii) 6,300 connections in Pemba, (iv) 2,000 connections in Tete, and (v) 1,921 connections in Nacala. The project financed 80 percent of the connection costs. (ICR, p. 24)
- 107,171 low-income (poor) beneficiaries of the output-based connection subsidy (Original target was 106,000 people) (**achieved**). This indicator tracked the number of people benefiting from the low-income household connection program. The breakdown by location is: (i) 49,014 people in Beira, (ii) 3,986 people in Moatize, (iii) 33,390 people in Pemba, (iv) 10,600 people in Tete, and (v) 10,181 people in Nacala. Of those, 53,693 are females based on a national female ratio of 50.1 percent. (ICR, p. 24)
- 93,382 new piped household water connections that are resulting from the project intervention (Original target was 70,000) (**exceeded**). This indicator measured the number of new connections installed, including poor household connections and new connections under the CERC. The breakdown by location is 30,789 new water connections in the Beira-Dondo system, 18,070 new water connections in the Tete-Moatize system, 21,854 new water connections in the Pemba system, 9,021 new water connections in the Nacala system, and 13,648 new water connections in other cities under the CERC. (ICR, p. 21)
- 45,245 piped household water connections that are benefiting from rehabilitation works undertaken by the project. (Original target was 131,014) (**not achieved**). The breakdown by location is: (i) 10,973 households in Beira-Dondo systems, (ii) 7,055 households in Tete-Moatize system, (iii) 4,300 households in the Pemba system, (iv) 600 households in the Nacala system, and (v) 22,317 households in other cities that were served by the CERC activation. This target was not achieved because the budget gap in Beira and Tete resulted in the noncompletion of two contracts in Tete and one contract in Beira at closing (ICR, p. 13), the dropping of rehabilitation works in Pemba, and the



delays to the works in Nacala (ICR, p.14). Once the Nacala and Tete works are completed it is expected that more progress will be made against this target (ICR Interview April 30, 2026)

OUTCOMES

- 494,926 people in urban areas were provided with access to improved water sources under the project (Original target was 371,000) (**exceeded**). The ICR (p. 19) reported that this indicator measured the number of people who benefited from new piped household water connections, including beneficiaries of the low-income household connection program. The ICR reported that the average household size is 5.3, as per the National Institute of Statistics. The breakdown by location is (i) 163,182 people connected to the Beira-Dondo system, (ii) 95,771 people connected to the Tete-Moatize system, (iii) 115,826 people connected to the Pemba system, and (iv) 47,811 people connected to the Nacala system. The project also made new connections in other areas served by the CERC that benefited 72,336 people. Of those newly connected, the ICR reported that 247,958 were females using the current national average of 50.1 percent.
- 20,221 subsidized house connections with continuous water services for three months (Original target was 20,000) (**achieved**). This indicator provided a short-term measure of the sustainability of services that were provided to poor households by measuring the number of verified connections that continued to receive service after a three-month period. ICR, p. 24)
- 80 percent customer satisfaction index for water supply services in the project cities (Original target was 80) (**achieved**). The ICR (p. 25) reported that the IVA carried out a satisfaction survey among beneficiaries of the pro-poor household connection programs, and that 80 percent of respondents interviewed reported being satisfied or very satisfied with the subsidized connections. The survey reflected a sample of 25 percent of households across the six participating cities. This survey was limited to households that participated in the subsidized connection program. A beneficiary survey was conducted across the broader population that benefited from the project, but the quality was poor, and it was not able to report on the satisfaction of users. (ICR Interview April 30, 2026)
- The project set targets for the average hours of water supply per day in four locations: Pemba, Beira and Dondo, Tete and Moatize, and Nacala. (Original target for Pemba was 14, Beira and Dondo was 16, Tete & Moatize was 20, and Nacala was 16). The baselines for this indicator were: Pemba 6 hours/day, Beira & Dondo 14 hours/day, Tete & Moatize 19 hours per day, and Nacala 12 hrs/day. The achievements in each locality are: (i) Pemba – 11 hrs/day (**partially achieved**), (ii) Nacala – 14 hrs/day (**partially achieved**), (iii) Beira & Dondo – 16 hrs/day (**achieved**), and (iv) Tete & Moatize – 17.5 hrs/day (**partially achieved**). Looking at the distribution of new connections benefiting from the project across these localities, the project *fully achieved* its target to improve the hours of services among 39 percent of the new household connections, *partially achieved* its target among 38 percent of the new household connections, and did *not achieve* its target among 23 percent of the new connections. The ICR (p.22) reported that the result in Tete-Moatize, which was below its baseline, reflects 40 percent capacity of the new WTP in Tete due to the non-completion of works at closing and the decommissioning of the old WTP. Once this WTP is completed under the successor project, it is expected that the hours of service will be improved, reaching the target. (ICR Interview April 30, 2026)
- The number of direct beneficiaries reached by the project was 734,725 people. (Original target was 959,374 people) (**partially achieved**). This indicator reflects the population that directly benefited from new water supply connections (494,926 people) and existing customers (239,779 people) benefiting from rehabilitated connections. The breakdown of beneficiaries by location is: (i) 58,157 beneficiaries



of rehabilitated connections in the Beira-Dondo system, (ii) 37,392 in the Tete-Moatize system, (iii) 22,790 in the Pemba system, (iv) 3,180 in the Nacala system, and (v) 118,280 beneficiaries of other rehabilitation works under the CERC. Of these, 368,096 were females, using the current national average of 50.1 percent. (ICR, p. 19)

An outcome that did not have an indicator or target in the results framework, but that is reported in the ICR is:

- The ICR (p. 12) reported that the preliminary findings from the impact evaluation conducted by Emory University found microbiological and chemical improvements in water consumed in Beira compared to non-beneficiary households. The study's findings on health outcomes are forthcoming.

The ToC's activities, outputs, and outcomes were generally adequate to achieve the PDO. The results framework tracked a series of appropriate indicators to measure progress on production capacity, distribution systems, and physical connections. Likewise, the results framework captured an element of reliability of services through the number of average hours services are provided. Moreover, the project explicitly incorporated a pro-poor component to extend services to verified low-income households through a third-party verification agent. The project measured satisfaction among low-income households in the subsidized connection program but was not able to complete a satisfaction survey for the entire project by project close. The critical assumptions in the ICR (p. 2) were (i) policies, systems, and procedures are endorsed and pursued, (ii) utilities are timely and operational to implement the installation program, (iii) allocation of sufficient O&M budget by utilities, and (iv) that there are effective tariff policies and collection systems. These critical assumptions were less relevant for PDO 1 than for PDO 2 and 3, as PDO 1 focused on the ability of the FIPAG (the asset-holding company) to execute works on behalf of the utilities to expand services. The project achieved or exceeded its targets on new household connections, did not achieve its target for households benefiting from rehabilitated systems but progress toward the target will be made once the works in Nacala and Tete are completed. The project achieved its targets on subsidized household connections and partially achieved or achieved its targets on hours of services. As a result, the PDO 1 rating is **Substantial with moderate shortcomings**.

Rating

Substantial

OBJECTIVE 2

Objective

Strengthen the institutional capacity for water supply services in the Northern, Central, and Southern regions of Mozambique

Rationale

The ToC in the ICR identified the outcome to be the strengthened institutional capacity for water supply services in the Northern, Central, and Southern regions of Mozambique.

The inputs were financing of the following activities: (i) technical assistance for establishing regional operating companies and lease contracts (ii) development of commercial operational systems (billing, commercial management, and customer service policies covering citizen engagement), (iii) technical assistance to



establish corporate governance structures and human resources policies, and (iv) technical activities such as asset management systems.

The expected outputs were: (i) technical assistance delivered and three regional operating companies (ROCs) are legally corporatized, (ii) lease contracts between FIPAG and ROCs signed, (iii) ROCs have installed commercial systems for billing, collection, and customer services, (iv) human resource policies have been developed, and (v) asset management systems installed.

These outputs were expected to lead to outcomes such as ROCs are (i) delivering drinking water services, (ii) billing and collecting payments from water users, (iii) managing user complaints, (iv) and (v) improving operational efficiency.

These outcomes, in turn, are expected to lead to the PDO of strengthened institutional capacity for water supply services in the Northern, Central, and Southern regions of Mozambique, contributing to improved financial sustainability, improved service delivery, improved health outcomes, and living conditions.

OUTPUTS

- The project supported four water utilities. (Original target was three) (**exceeded**). The ICR (p. 22) reported that the project provided the following to all four ROCs (Northern Region Water Utility (Águas da Região Norte - *AdRN*), Central Region Water Utility (Águas da Região Centro - *AdRC*); Southern Region Water Utility (Águas da Região Sul - *AdRS*), and the Greater Maputo Region Water Utility (Águas da Região Metropolitana de Maputo, *AdRMM*): (i) transactional advisory assistance to inform private sector engagement for four ROCs; (ii) training in financial management, human resource management, O&M and energy efficiency, commercial management, and management of non-revenue water; (iii) provision of performance-based grants, and (iv) training on a grievance redress system called Responding to Customer Expectations (Respondendo as Expectativas dos Consumidores- RECO). The project also provided technical assistance for the preparation of a water supply master plan for *AdRN*; technical and management trainings for *AdRN and AdRC*; and gender and social inclusion trainings for *AdRN, AdRC, and AdRS*.
- Four regional utilities are legally incorporated entities (Original target was three) (**exceeded**). The four ROCs were incorporated as regional utilities by the Council of Ministers in May 2021, and their statutes were published in the Official Gazette in September 2021. However, to complete the institutional arrangements for service delivery, the project envisioned that lease agreements would be signed between FIPAG and the ROCs. At project close, however, these were not signed, hence service standards and obligations of each entity were not formally adopted. The ICR reported (p. 14) that simplified lease contracts with regulatory frameworks were ready near project close, but the new government reinitiated discussions on the delegated service model, and the process was put on hold. Nevertheless, the ICR reported that the ROCs are implementing the draft frameworks despite not being signed. A key issue for the project is that government elected in 2024 is considering consolidating the ROCs into one national utility with eleven operational areas (ICR, p. 17), which could reverse the progress made on having more autonomous ROCs.
- Three commercial systems are operating in regional utilities (Northern, Central & Southern) (Original target was three) (**achieved**). The ICR (p.9) reported that this indicator tracked the customization or installation of a new commercial system in each utility, which includes billing and commercial management functions, customer service policies and procedures, and citizen engagement and



complaints recourse mechanisms. In 2023, the three new ROCs (*AdRN*, *AdRC*, and *AdRS*) developed independent and customized systems and transitioned from the previously central system in FIPAG. The systems have the capability to produce reports and performance analyses. The ICR (p.9) reported that the project supported AdRMM in customizing its system in 2024 with the above functions and by introducing an application to facilitate user interaction.

- There were four corporate equal opportunity policies/procedures developed and implemented, addressing gender and disability issues in particular. (Original target was three) (**exceeded**). The project financed technical assistance to support the ROCs in developing and implementing equal opportunity policies/procedures. The ICR (p.24) reported that in October 2024, the Ministry of Public Works, Housing and Water Resources developed and approved a 2024-2034 National Gender Strategy for the water sector, including social inclusion. With project support, FIPAG trained its planners and budgeters on integrating gender issues into planning and budgeting, and the ROCs established conceptual foundations for gender and social inclusion. Two of the ROCs (*AdRC* and *AdRMM*) hired two people with physical disabilities, suggesting that the policies may have influenced hiring practices. The World Bank provided training to the ROC's gender focal points, front offices, and technicians on gender issues and on awareness and sensitivity in serving people with physical disabilities.
- There were four completed and independently audited annual financial statements. (Original target was four) (**achieved**). The ICR (p. 9) reported in October 2022, the ROCs were officially created with licenses, tax registration, and bank accounts, and in 2023 began producing independently audited (by international auditing companies) annual financial statements with unqualified opinions.

OUTCOMES

- The project had an average 73.1 percent audited collection ratio (annual billings less change in gross receivables/annual billings) for all three ROCs. (Original target was 90) (**partially achieved**). The project set targets for audited collection ratios in three ROCs: *AdRN*, *AdRC*, and *AdRS*. (Original target for *AdRN* was 90 percent, *AdRC* was 90, and *AdRS* was 95). The baselines for this indicator were: *AdRN* - 68 percent, *AdRC* was 76, and *AdRS* was 94). The achievements at closing were: *AdRN* - 91 percent (**achieved**), *AdRC* was 56 (**not achieved**), and *AdRS* was 88 (**not achieved**) with both *AdRC* and *AdRS* dropping below their baselines. While the project anticipated improvement due to the technical solutions provided, other non-technical factors played a role such as economic slowdown and political influence (ICR, p. 14)

The ToC's activities, outputs, and outcomes were generally adequate to achieve the PDO. The ICRR separated the regulatory from the service delivery functions in this PDO. The output indicators captured relevant metrics such as legally corporatized entities, billing, collection, and customer feedback systems installed, financial audits, and technical training on human resource policies. The PDO was restricted to one outcome measure, which was the collection ratio, and is metric of commercial efficiency. The project originally planned to invest in household and district area metering to help manage non-revenue water, but these were not discussed in the ICR and would have served as an indicator of operational efficiency. The outcome indicator under PDO 1 on hours of service is a metric of reliability that is considered, but it only gives a partial picture since it is constrained to a few cities in each ROC service area and is limited to *AdRN* and *AdRC*. Nevertheless, there were partial improvements to the hours of service in *AdRN* and parts of *AdRC* but also worsening conditions in other parts of *AdRC*. The critical assumptions articulated under PDO 1 remain



relevant, particularly the ones related to policies, systems, and procedures that are endorsed and pursued by the government. As the ICR (p. 17) notes, the government administration that took over in 2025 has articulated a different vision for the sector that was pursued under this project and the predecessor projects of decentralizing service delivery to regional autonomous companies. As a result, the signing of lease contracts between FIPAG and the ROCs has not advanced, raising the question of whether the advancements under the project will be sustained. The project achieved or exceeded its PDO 2 output targets and partially achieved its outcome target. As a result, the rating is **Substantial with moderate shortcomings**.

Rating

Substantial

OBJECTIVE 3

Objective

Strengthen the regulatory capacity for water supply services in the Northern, Central and Southern regions of Mozambique

Rationale

The ToC in the ICR identified the outcome to be the strengthened regulatory capacity for water supply services in the Northern, Central, and Southern regions of Mozambique.

The inputs were financing of the following activities: (i) consultancies and technical assistance to establish performance reporting procedures for the new ROCs linked to the International Benchmarking Network (IBNeT) data management platform; (ii) consultancies and technical assistance to scale up AURA IP's RECO system to the three ROCs with related software and computer equipment; (iii) technical assistance to support the creation of Local Regulatory Commissions (Comissão Reguladora Local – CORALs) with trained community representatives and focal points to monitor and enforce water regulations; (iv) studies evaluating subsidies for low-income customers and a tariff structure; and (v) project impact evaluation. Note that the additional financing paper reported that the project would not finance the impact evaluation, and that the funding would come from the US National Institute of Health. (Additional financing paper, p. 44)

The expected outputs were: (i) technical assistance delivered and AURA IP expanded IBNet and RECO to three ROCs with required hardware and software, (ii) CORALs have been trained and established, (iii) studies and surveys completed to inform dialogue on pro-poor subsidies and tariffs, and (iv) impact evaluation completed at the end of the project.

These outputs were expected to lead to outcomes such as ROCs are (i) reporting on operational and commercial key performance indicators, (ii) ROCs addressing complaints filed through the RECO, (iii) AURA IP, FIGPAG and ROCs are implementing pro-poor subsidy programs and tariff structures, and (iv) impact evaluation has informed policy dialogue.

These outcomes, in turn, are expected to lead to the PDO of strengthened regulatory capacity for water supply services in the Northern, Central, and Southern regions of Mozambique, contributing to improved service delivery, operational and commercial efficiency, improved health outcomes, and living conditions.



OUTPUTS

- Four ROCs implemented "Citizen Voice" tools and RECO procedures (Original target was three) (**exceeded**). This indicator tracked how AURA IP's RECO platform was rolled out and scaled up to the ROCs through AURA IP's website and has been operating since June 2023. The system produces public semi-annual reports on appeals and complaints and includes a module on grievances responded to and/or resolved within a time standard as planned. The ROCs were trained on the RECO, and computers and tablets were provided at the ROCs. (ICR, p. 25) The rollout was accompanied by national radio campaigns, large posters in CORALs, and advertisements in expos in 2024 and 2025, informing the public about the platform. (ICR, p.10) The RECO has allowed AURA IP to track the number and type of complaints and their status and approach the ROCs on ways to improve their service, tariff setting, and invoicing. (ICR, p.10)

Outputs that were relevant to the ToC and reported in the ICR, but not measured in the results framework and hence have no target values, included:

- Development and installation of AURANet and training workshops to familiarize users with the platform, which is based on the World Bank's International Benchmarking Network (IBNeT). (ICR, p. 10)
- Customers without internet access are able submit complaints directly to CORALs or by telephone, and AURA IP is currently working on making RECO accessible on non-smart mobile phones using USSD code. (ICR, p. 10)
- 20 CORALs were established in districts outside the cities where infrastructure investments were made with local staff who manage complaints, monitor ROCs' quality of service, and produce reports to AURA IP and local authorities. The CORALs are co-financed by AURA IP and the local authorities. The project financed equipment and training for the CORALs. (ICR, p.10)
- Studies conducted under the project looked at alternative financing models for the CORALs to improve their cost-effectiveness, as well as AURA IP's tariff model, which was to set annual tariffs. (ICR, p. 10)

OUTCOMES

- There were four regulatory frameworks that were implemented and monitored with four ROCs (Original target was four) (**achieved**). The baseline reflects the concession agreement between FIPAG and the Maputo Region Water Utility (Águas da Região de Maputo-ADM) before it was incorporated as AdRMM. The ICR (p.10) reported that the four ROCs submitted performance data to AURA IP on an annual basis, and AURA IP carried out inspection and monitoring visits to the four regions on a monthly basis to verify the data. An AURANet platform was established and used to store and monitor ROCs' performance data and inform the production of performance reports, which were produced annually. (ICR, p.10)

An outcome that was relevant to the ToC and reported in the ICR, but not measured in the results framework and hence have no target values, included:

- AURA IP reports 98 percent user satisfaction with the RECO platform and a 24-hour average response time. (ICR, p.10)



The ToC's activities, outputs, and outcomes were moderately adequate to achieve the PDO, but the results framework had shortcomings to fully test the ToC. The ICRR separated the regulatory function from the institutional service delivery function in the PDO, creating PDO 3. The project was built on prior work to establish the CRA, which was converted to AURA IP during implementation. This evolution demonstrates that the regulatory environment was maturing and becoming formalized. The project supported AURA IP to strengthen its capacity to execute its functions by monitoring key performance indicators and benchmark regional providers through the development and implementation of AURANET. The project also supported the rollout of a citizen voice and complaint mechanism to the new ROCs, strengthening the feedback loop between water users, water providers, and AURA IP. The critical assumptions listed under PDO 1 are relevant for PDO 3, particularly policies and procedures that are endorsed and pursued. The risks identified for PDO 2 are similar for PDO 3. Given the context, it appears that the project was able to help strengthen the regulatory capacity to oversee the new ROCs both through CORALs and via AURA IP. The results framework did not have indicators on new tariff structures adopted, which tend to be highly political decisions and difficult for projects to control, but an output indicator could have been tariff studies completed. Future projects could build upon AURANET and RECO to establish baselines and targets for commercial and operational key performance indicators. Although significant changes in the behavior of ROCs are not yet feasible to measure at this stage, the project's focus was to help establish the new ROCs and install regulatory systems, which were achieved. As a result, the rating for PDO 3 is **Substantial**.

Rating

Substantial

OBJECTIVE 4

Objective

Support Mozambique to respond promptly and effectively to an Eligible Crisis or Emergency

Rationale

The ToC in the ICR identified the outcome to be to support Mozambique to respond promptly and effectively to an Eligible Crisis or Emergency.

The inputs were financing of the following activities: (i) disaster-recovery needs assessments in FIPAG water systems, and (ii) supply of critical parts and equipment, minor civil works rehabilitation, supply of fuel, rent of generators, and rapid transportation of chemicals and critical parts.

The expected outputs were: (i) needs assessments completed, (ii) goods such as chemicals, sand and chemicals for water treatment chemicals, specialized vehicles, and equipment for O&M of the cities' supply systems and services procured, and (iii) equipment and water supply repaired and rehabilitated.

These outputs were expected to lead to outcomes such as restoration of drinking water services.

These outcomes, in turn, are expected to lead to the PDO of responding promptly and effectively to an emergency (Cyclone Ida) and ensuring water supply services have been reestablished.



Due to the nature of the CERC as an emergency response mechanism, there were no formal indicators or targets introduced except for the restoration of production capacity in the results framework of the project. The ICR reports the following outputs and outcomes supported by the CERC.

OUTPUTS

- 49,500 m³ of water supply production capacity restored across four localities (Original target was 49,500 m³) **(achieved)** (ICR, p. 39) This indicator was added at the additional financing phase.
- 13,648 new piped household water connections that resulted from the project intervention. (ICR, p. 39) No formal target, but this indicator was tracked for CERC activities.
- 22,317 household connections benefiting from rehabilitation works. (ICR, p. 40) No formal target, but this indicator was tracked for CERC activities.
- 38 boreholes were restored.

OUTCOMES

- 72,336 people benefiting from new household connections (ICR, p. 39) No formal targets.
- 118,280 people benefiting from rehabilitated water systems (ICR, p. 39) No formal targets.

The restoration of services occurred in approximately 19 districts in and outside of the project areas. Unused CERC funds were to establish and rehabilitate additional domestic water connections in the five project cities and in 13 more cities, since they were within FIPAG's service area and affected by cyclones.

The ToC's activities, outputs, and outcomes were adequate to achieve the PDO. While the project did not set specific targets in the results framework, the project's M&E system was able to track achievements. The component fulfilled its function in allowing the government to respond and restore water supply services in the aftermath of Cyclone Ida. The rating for PDO 4 is **High**.

Rating
High

OVERALL EFFICACY

Rationale

Under the original PDOs, PDO 1 and PDO 2 is rated Substantial with moderate shortcomings, PDO 3 is rated Substantial; and PDO 4 is rated High, resulting in an overall rating of **Substantial with moderate shortcomings**.

Overall Efficacy Rating



Substantial

5. Efficiency

Ex Ante Economic Efficiency: The project's appraisal team conducted a cost-benefit analysis (CBA) to determine the economic feasibility of the project and used standard industry approaches at appraisal with the following benefit streams: (i) incremental value of water provided via new household connections; (ii) the health benefit through reductions in cost, disease incidence, and burden for newly-connected households; and (iii) the economic benefit from improved economic means or extra earnings of households based on the associated gains in wages from time savings from fetching water, (iv) for those households with existing connections, the benefits were added based on increased water consumption which is a result of improved reliability and continuity of service with the project. (PAD, p.60). The analysis estimated an economic rate of return (ERR) at appraisal of 19.3 percent and at additional financing of 18.6 percent. The ICR (p. 35) noted that the NPVs calculated in those analyses were incorrectly calculated and could not be replicated. The discount rate of 12 percent was applied at appraisal.

Ex Post Economic Efficiency: The economic analysis at project completion applied the same benefit streams considered in the cost-benefit analysis at appraisal and at the additional financing but expanded the geographic scope with the additional financing. The ERR of the project at close was 17.2 percent with an NPV of US\$25.8 using a discount rate of 12 percent. (ICR, p. 35)

Operational and Administrative Efficiency: The project was approved on March 29, 2016, and became effective on April 19, 2017. The project closing date at appraisal was set to October 31, 2022, for an expected implementation period of 6 years and 7 months. The actual closing date was extended by 32 months (i.e. 2 years and 8 months) to June 30, 2025, for a total implementation period of nine years and three months. The level of readiness was adequate, building on the predecessor project, but the project experienced initial delays in meeting effectiveness conditions as the International Monetary Fund needed to confirm the country's debt ceiling before the financing agreement could be ratified. The project faced currency exchange rate fluctuations, resulting in financing gaps and the inability to complete some works by the project's close. Other factors outside the control of the implementing agency were security risks in Pemba, which delayed works by 10 months, and reduction in the scope of work. This reflects Mozambique's FCS status. In addition, the drought from 2014-2018 resulted in the suspension of works in the Maputo area, which delayed implementation until 2023. Other factors were related to procurement and changing some major works from a design/build contract to separating the contracts. (ICR, p.14)

Conclusion. The project's ex-post ERR was slightly lower than estimated at appraisal and at the additional financing, but still greater than the social discount rate of 12 percent recommended by the World Bank. The project largely met its increased targets, accompanied by the additional financing. The project was able to spend about 98 percent of the IDA commitment with the additional financing. The implementation period was over 9 years and three months but includes additional financing that almost doubled the original IDA commitment. Considering this period also faced a series of unforeseen constraints, such as COVID and Cyclone IDA in March 2019. Therefore, the efficiency rating is **Substantial**.

Efficiency Rating

Substantial



a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	19.30	0 <input checked="" type="checkbox"/> Not Applicable
ICR Estimate	✓	17.20	0 <input checked="" type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The project's relevance was rated Substantial. The results framework and associated indicators were adequate to measure the PDOs. The efficacy was substantial with moderate shortcomings and efficiency rating were Substantial. The overall outcome as Moderately Satisfactory.

a. **Outcome Rating**
Moderately Satisfactory

7. Risk to Development Outcome

The risks to the development outcomes are primarily linked to:

Financial risk: The ICR (p.17) identified the financial risk as the main threat to the sustainability of the investments made under this project. The ROCs' low collection rates constrain their ability to operate and maintain infrastructure and equipment. This is exacerbated by rapid urban growth that puts demand on water systems as well as the government's low fiscal capacity. The ICR identified that the government's current vision for the water supply sector to consolidate the four ROCs into one national utility with eleven operational areas may be less financially sustainable because each new area would be responsible for a smaller consumer base with lower payment capabilities. This direction diverges from the historical reform efforts and may make private sector investment less attractive.

Exposure to natural disaster risk: Mozambique is highly prone to climatic events such as cyclones. Since Cyclone Idai in March 2019, which caused billions in damage and significant fatalities, the country experienced Cyclone Kenneth in April 2019, Cyclone Freddy in February 2023, Cyclone Chido in December 2024, Cyclone Dikeledi in January 2025, Cyclone Jude in March 2025, and Cyclone Fytia in January 2026. The frequency and magnitude put basic infrastructure services at risk of damage, and those constructed under this project. Resilience planning for future infrastructure projects in the sector, along with flood mitigation projects, may help reduce risks and avert damage.



8. Assessment of Bank Performance

a. Quality-at-Entry

The project was substantially relevant and aligned with national priorities at appraisal to fill gaps in water service delivery. The design was based on the predecessor project (WASIS I) and drew upon the expertise within the sector in the country, as well as the relationships with the government. The readiness of the project was bolstered by WASIS I and was able to continue work started under the prior project. Preparation of WASIS II started 16 months prior to WASIS I closing, ensuring there would be a smooth transition. The design of the project included an explicit focus on poor households and incorporated connection subsidies and flexible payment options to help those households connect. The project also incorporated the CERC, which was a new option that the World Bank was offering clients who were prone to natural disasters. The PDOs were clear, and the results framework indicators were generally adequate. The Bank Task Team carried out FM, procurement, and safeguard assessments.

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The World Bank provided active implementation support through 18 supervision missions over the course of nine years that informed project adjustments. The project benefited from having resident staff located in the country to help ensure oversight and communication with the client. The Bank team carried out high-level dialogue with the government as well as technical discussions to keep the project on track. Supervision missions consisted of fiduciary reviews, field visits, and environmental and social instrument reviews. When challenges arose and high-level government support was required, the Bank team elevated issues through the CMU and management letters. The Implementation and Status Results (ISRs) were used to document progress, results in the results framework, and challenges. The Bank team was able to bridge the funding gap identified at appraisal by securing co-financing. Funding gaps that emerged during implementation were addressed through additional financing, and remaining gaps were addressed by incorporating unfinished projects into the follow-on Urban Water Security Program (P178653). The team was responsive and flexible to meet the government's needs, particularly during Cyclone Idai, which triggered the CERC component, and also the COVID-19 pandemic. The team worked with the client to process restructurings as needed to support project implementation.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory



9. M&E Design, Implementation, & Utilization

a. M&E Design

The project's PDOs were clearly specified, and the results framework generally had an appropriate mix of output and outcome indicators. The project was able to draw upon the prior project and studies to have baseline indicators for some key performance indicators of water utilities, such as hours of service and collection ratios. The project intended to undertake an impact evaluation in partnership with the Emory University, which obtained additional funding from the US government when a budget shortfall occurred.

The PDO related to the CERC did not have indicators, but one was added at the additional financing to capture the nature of the investments. FIPAG, AURA IP as the regulator, and the IVA, for the low-income subsidized connections, were responsible for collecting data, carrying out surveys, and developing progress reports.

The M&E arrangements were comprehensive, consisting of data collection by FIPAG and AURA IP staff, IVAs for the low-income household connection program and the PBGP, baseline and impact surveys to measure AURA IP's outcomes, semi-annual progress reports, and annual satisfaction surveys. There were minor weaknesses with a few intermediate results indicators not providing meaningful insights into whether the PDOs were achieved, such as the number of utilities supported or the number of beneficiary surveys conducted.

b. M&E Implementation

The monitoring and evaluation was carried out by FIFAG and AURA IP. These entities leveraged the Bank supported Geo-Enabling for Monitoring and Supervision (GEMS) and kobo-toolbox to track progress across locations, demonstrating good practice. The ICR reported that the consolidated quarterly progress reports and the completion report were submitted in a timely manner and were comprehensive. The Bank Task Team used the data from the monitoring system to update the Implementation Status and Results Reports throughout implementation. The ICR reported that the impact evaluation conducted by Emory University found microbiological and chemical improvements in water consumed in Beira compared to non-beneficiary households, but the study's findings on health outcomes were still forthcoming at the time of writing the ICR.

The impact evaluation was carried out independently from the project with only preliminary results publicly available. The project carried out a beneficiary survey across all project areas, but the quality of survey was poor and did not produce usable information. (ICR Interview April 30, 2026)

c. M&E Utilization

The ICR indicated that the data produced from the monitoring and evaluation system informed implementation and prioritization of activities, for example the IVA reports informed targeting of households and payments to the ROCs. The monitoring and evaluation data was used to inform restructurings, identify which areas required more attention from the Bank team and implementing agencies, as well as which issues required management attention. The ICR Interview (April 30, 2026)



noted that the M&E systems and specialists in FIPAG were particularly strong, and the quality of information produced is high.

The information informed annual work plans and budgets, with underachieved results receiving priority by the clients, and the IVA reports determined household targeting and payments to the ROCs. The World Bank used the information to identify challenges, such as delays in the achievement of the household connections and system capacity targets, discuss restructuring, focus its implementation support, and report project status and issues needing high level attention to World Bank management, such as delays in the creation of the ROCs.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

Environmental: the project was classified as Category B. The following environmental safeguard policies were triggered: Environmental Assessment (OP/BP 4.01), Physical Cultural Resources (OP/BP 4.11), Involuntary Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37), and Projects on International Waterways (OP/BP 7.50).

Before appraisal, the WASIS I Environmental and Social Management Framework (ESMF) and resettlement policy framework (RPF) were updated and disclosed in-country on August 12, 2015, September 21, 2015, and February 16, 2016, and on the World Bank's website on February 11, 2016. The RPF was disclosed in-country on September 21, 2015, and on the World Bank's website on February 11, 2016. Site-specific environmental and social impacts assessments and plans were prepared during implementation as needed. (ICR, p. 16). The implementing agency prepared ESMF and an RPF before activating the CERC and updated the appraisal ESMF and RPF to include investments in Nacala, which was added at the additional financing stage. The ICR noted that the ESMF added a dam safety plan to be prepared prior to the launch of the works, but it was developed with delays and had quality issues. (ICR, p. 16)

The ICR reported that nine cases of occupational health and safety and gender-based violence incidents were recorded, and three fatal incidents. The World Bank and FIPAG agreed on a post-closure action plan to monitor ongoing works and the resolution of the incidents.

Social: The ICR (p.16) reported that project caused the economic displacement of 893 people in Pemba and Tete and that the project affected people (PAPs) were compensated. The project's grievance redress mechanism registered 238 complaints at closing, which were mostly about delays in payment of compensation and wages, labor disputes, mistreatment by contractors, and two sexual exploitation and abuse/sexual harassment-related grievances. The ICR reported that complaints were addressed with support from the World Bank task team.



b. Fiduciary Compliance

Financial Management (FM): The FM performance rating at project closing was Moderately Satisfactory. Financial audits were completed on time and without qualifications. The implementing agencies carried out interim unaudited financial reports, which were submitted with delays. (ICR, p. 16) The ICR reported weaknesses in the fixed asset registers and recording of payments in both implementing agencies (FIPAG and AURA IP).

Procurement: The ICR reported that there were procurement delays throughout implementation due to a government requirement to have all procurement processes reviewed by the Administrative Tribunal. The ICR reported that this step was not properly factored into procurement timelines. Given that this project built on the experience from WASIS I this appears to have been an oversight of the implementing agency and Task Team. The ICR also noted that there were insufficient staff within FIPAG to manage procurement until mid-2022. The project contracted an international consultant. The implementing agency also had to contend with different procurement policies between the World Bank and the Dutch government’s Invest International for works in Nacala, which complicated planning and execution. The ICR also noted weaknesses in the management of contracts and supervision of infrastructure works. (ICR, p. 16)

c. Unintended impacts (Positive or Negative)

None

d. Other

None

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

Subsidized connection programs coupled with flexible payment plans can significantly improve connection rates for low-income households. An important lesson that is applicable to water (and sewerage) projects is that output-based funding programs, such as those used in this project, can successfully extend services to poor households, helping them overcome financial



barriers of high connection costs. The project not only reduced the barrier to connecting by providing a subsidy (80 percent of the costs), but the ROCs also introduced flexible payment schemes for low-income households to repay the remaining 20 percent. Learning from this project should be noted for other water projects looking to explicitly extend water services to poor households. An enabling factor that allowed this approach to be successful is that the ROCs established units with focal points to manage the low-income connection program. This approach has direct applicability to sewerage connections as well, even though they were not part of this project.

Inclusion of a CERC in projects can facilitate response and recovery efforts after a natural disaster. The project demonstrated that the idea of the CERC can add value to governments in accessing resources to attend to immediate needs post-disaster. The CERC in this project appeared to be confined to the existing implementing agencies and needs in the water sector. Other World Bank financed projects that have included and activated CERCs have also allowed for resources to be used outside of the sector needs of the project. Evaluating the implementation of CERCs across countries and sectors could help refine policies that enable improved implementation. This project appears to provide a successful case study when the CERC is confined to sector and existing implementing agencies.

Reform efforts are a dynamic process that can be influenced by politics. Despite or in spite of decades of effort to build the institutional capacity to improve service delivery in the water sector, newly elected government administrations can change the course of reform efforts. The World Bank has supported reform efforts since the 1990s that are aligned with the government's decentralization and deconcentration policies, trying to strengthen service delivery providers who are closest to the people being served, and create accountability mechanisms and institutions such as AURA IP to provide oversight of service delivery. This project builds on decades of implementation experience, government policy, and analytical work to justify the historical reform agenda. Recent shifts by the government that are considering centralizing functions appear to be at odds with the historical reform process that was promoted under this project. Active dialogue with newly elected government officials to discuss the merits and risks of the different visions along with experience from other countries, can inform this debate.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR provides a comprehensive and detailed overview of the project. The narrative supports the ratings and is based on available evidence. The ICR is candid, concise, focused on measuring the project development objective, and generally follows the guidelines. The sources of information were adequately documented, and the shortcomings were candidly reported. The annexes in the ICR were clear and well-documented with photographs. The quality of evidence and analysis was adequate, and the lessons are relatively clear. The ICR quality rating is Substantial.



a. Quality of ICR Rating
Substantial