



1. Project Data

Project ID

P143996

Project Name

EC Manta Public Services Improvem Proj.

Country

Ecuador

Practice Area(Lead)

Water

L/C/TF Number(s)

IBRD-82890

Closing Date (Original)

30-Jun-2018

Total Project Cost (USD)

99,999,116.08

Bank Approval Date

08-Aug-2013

Closing Date (Actual)

31-Dec-2020

IBRD/IDA (USD)
Grants (USD)

Original Commitment

100,000,000.00

0.00

Revised Commitment

99,999,116.08

0.00

Actual

99,999,116.08

0.00

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2. Project Objectives and Components

a. Objectives

The objective of the Project is to support the Borrower in increasing the quality and sustainability of public services for water, sanitation, and urban mobility. (Loan Agreement, Schedule 1, dated November 20, 2013 and Project Appraisal Document dated July 9, 2013). The Borrower was the Municipality of Manta.

The Project Appraisal Document (PAD) further states that the objective would be achieved by (i) increasing the availability of water supply and efficiency of water and sewerage services; (ii) improving urban mobility and accessibility through improvements to the street network, including sidewalks; and (iii) enhancing the



capacity of the municipal government in planning and managing the provision of water and sanitation and urban transport services. (PAD para.20).

For the ICRR, the objective is parsed as follows:

Objective 1: To Increase the quality of water supply and sanitation services in the Municipality of Manta.

Two associated sub-objectives are:

Sub-Objective 1.1: To increase the quality of water supply services in the Municipality of Manta.

Sub-Objective 1.2: To increase the quality of sanitation services in the Municipality of Manta. .

Objective 2: To increase the sustainability of water supply and sanitation services in the Municipality of Manta,

Objective 3: To increase the quality of urban mobility services in the Municipality of Manta.

Objective 4: To increase the sustainability of urban mobility services in the Municipality of Manta.

The original objective was not changed during implementation. During restructurings, there were some changes in the Results Framework, including in intermediate results indicators (IRIs) and associated targets. However, the project's level of ambition remained the same and the changes were not of such magnitude as to result in a change in the rating of the overall project outcome. Consequently, a split evaluation is not carried out for the ICRR.

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

Yes

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

Yes

Date of Board Approval

30-Jun-2016

c. Will a split evaluation be undertaken?

No

d. Components

(Reference PAD paras. 15 to 18 and ICR paras. 14 to 21).

The project components at appraisal are indicated below. Changes in these components during project restructurings were not significant and are discussed later in this section under restructurings. During implementation, a fifth component "Emergency Response" was added to respond to the GoE's request for Bank assistance in addressing the impact of the earthquake in 2007.



Component 1: Investments in Water Supply and Sewerage: (appraised cost US\$44.0 million; actual cost at completion US\$38.93 million)

This component would support (i) increase of water storage capacity and rehabilitation of water networks in Selected Districts through rehabilitation of primary and secondary networks; installation of household connections and meters; and (ii) rehabilitation of sewerage networks in Selected Districts through rehabilitation of networks, rehabilitation of a pumping station, and installation of household connections.

Component 2: Investments in Road Improvement: (appraised cost US\$49.9 million; actual cost at completion US\$47.37 million),

This component would support improvement of urban areas in Selected Districts through, inter alia, (a) carrying out of urban street upgrading works; (b) resurfacing of urban streets; (c) construction and reconstruction of sidewalks with pedestrian facilities.

Component 3: Institutional Strengthening: (appraised cost US\$7.6 million; actual cost at completion US\$3.09 million).

This component would support the institutional strengthening of EPAM (Empresa Publica Aguas de Manta), the public water utility in Manta, through: (a) development and implementation of a management improvement program; (b) development and implementation of a medium term strategic plan; (c) development of a household connections program for both water and sewerage; (d) development of a water and sewerage quality control program, including development of a monitoring plan; construction of a small laboratory to measure water quality; and provision of technical assistance to improve maintenance of the existing wastewater treatment plant; and (e) preparation of a water resources integrated management plan.

Component 4: Project Management: (appraised cost US\$14.1 million; actual cost at completion US\$16.77 million).

This component would support the Project Management Unit (PMU) for (i) monitoring and evaluation (M&E) activities; (ii) environmental and social safeguards management; (iii) contract management; and (iv) carrying out communications campaigns.

During implementation, a fifth component was added to respond to the GoE's request for emergency assistance following a severe earthquake in April 2016.

Component 5: Emergency Response: (appraised cost US\$10.3 million; actual cost at completion US\$9.44 million).

At the request of the City of Manta and the GoE, this component was to finance urgent needs and critical repairs to restore the water supply and sanitation (WSS) system which was damaged during the 2016 earthquake.



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

Project Cost: At appraisal, the total project cost was estimated at US\$115.60 million. At completion, the actual cost was US\$115.60 million (ICR Annex 2).

Financing: At appraisal, the project cost was financed by a World Bank loan of US\$100 million. At project closing, US\$99.999 million had been disbursed.

Borrower Contribution: At appraisal, the planned contribution from the Borrower was US\$15.60 million. The actual Borrower contribution was US\$15.60 million.

Dates: The project was approved on August 8, 2013 and became effective on July 18, 2014. The original closing date was June 30, 2018. The actual closing date was December 31, 2020.

Mid-Term Review (MTR): The Mid-Term Review (MTR) was carried out in June 2016..

Restructurings: During its implementation period (2013 to 2020), the project underwent six restructurings. The original project development objective (PDO) was not changed but there were changes in some PDO indicators as follows:

- The target for the PDO indicator regarding the working ratio (operational expenses divided by operational revenues) was lowered from 60% to 70% due to lower collection rates and higher costs due to the 2016 earthquake.
- Two intermediate results indicators (IRIs) were recategorized to PDO indicators to measure (i) achievement of urban mobility and (ii) achievement of the quality of sanitation service.
- Three new indicators were added in regard to improvements in urban mobility including (i) walkability of upgraded streets; (ii) travel time spent in public transport along the Par Vial; and (iii) number of people provided with paved access to their homes in low-income neighborhoods.

Other changes under the respective restructurings were as follows:

First Restructuring: (June 30, 2016; disbursed amount US\$5.0 million): This was a Level 2 restructuring which took place after an earthquake. The restructuring included introduction of an emergency response component for financing reconstruction services to restore water supply and sanitation services. Associated changes included reallocations from other components and introduction of relevant indicators in the Results Framework.

Second Restructuring: (May 9, 2018; disbursed amount US\$54.14 million): This was a Level 2 restructuring involving (i) a one-year extension in the closing date; (ii) reallocations between components to adjust for variations in costs; (iii) changes in the implementation schedule; and (iv) changes in the RF to better capture results and positive impacts, including a change in the methodology for economic analysis of project costs and benefits.

Third Restructuring: (March 22, 2019; disbursed amount US\$93.76 million). This was a Level 2 restructuring under which the Regional Vice President approved the use of loan proceeds for land acquisition related expenditures to compensate landowners affected by reconstruction of the Via Barbasquillo. Some reallocations were made between components and there were some changes to the implementation schedule.



Fourth Restructuring: (June 30, 2019 disbursed amount US\$93.76 million): This was a Level 2 restructuring involving: (i) extending the closing date by six months; (ii) updating the implementation schedule; and (ii) making some reallocations between components.

Fifth Restructuring: (November 19, 2019; disbursed amount US\$93.76 million): This was a Level 2 restructuring involving (i) extension of the closing date by six months; (ii) updating the implementation schedule; and (iii) some reallocations between components.

Sixth Restructuring: (June 29, 2020; disbursed amount US\$94.27 million): This was a Level 2 restructuring to adjust for the COVID-19 related impacts and involved (i) extension of the closing date by six months; (ii) reallocations between components; (iii) some changes in the RF; and (iv) updating the implementation schedule.

3. Relevance of Objectives

Rationale

(Reference PAD paras. 1 to 8 and ICR paras. 1 to 8)

Country Context: At appraisal in 2013, Ecuador was in a period of robust growth. Strong economic growth was accompanied by high urbanization rates including in Ecuador's medium and small sized cities. Among other priorities, the Government of Ecuador (GoE) focused on investing in public infrastructure aimed at improving basic services. Although poverty had declined considerably and the middle class was growing, more than half of the population remained poor or vulnerable to falling back into poverty. Investments at the sub-national level, particularly in water and sanitation (WSS) and transport, were identified as key requirements to further reducing poverty rates.

Sector and Institutional Context: In regard to the WSS sector, despite the GoE's continuing efforts to improve the situation, urban WSS coverage stood at about 76% for water and 58% for sanitation, and rural coverage levels were about 25% for water and 15% for sanitation. National coverage for wastewater treatment was only about 24% in urban areas. Challenges included low levels of continuity of service, substantial water losses, limited cost recovery, and heavy reliance on government subsidies. Moreover, Ecuador faced sustainability issues arising from lack of adequate resilience to the impacts of natural disasters and climate change. To address these challenges, the GoE embarked on strengthening the sector's institutional framework which included designation of a dedicated National Water Secretariat (SENAGUA) to be responsible for sector-related policy formulation, program development, and technical regulation. Municipalities were to be responsible for the operation and maintenance (O&M) of WSS systems. In the City of Manta, the municipal water company, EPAM (Empresa Publica Aguas de Manta) is responsible for WSS service. At appraisal, the coverage for water supply and sewerage services stood at about 79% and 64% respectively. Issues included lack of continuity in providing water supply, inefficient



water supply and sewerage networks in need of rehabilitation, and operational problems in wastewater treatment plants. At the institutional level, there were significant challenges in regard to out-of-date cadaster, higher than warranted levels of employment, and lack of a management information system. EPAM was also affected by losses through non-revenue water (NRW) but lacked means to estimate the levels due to poor functioning of the micro and macro meters. To address the structural issues in the network, EPAM developed the Manta Hydro Sanitary Master Plan. The first phase of the Plan was financed by the Development Bank of Ecuador. The second phase was to be supported by the World Bank-financed MPSI project.

In regard to the urban transport sector, Ecuador's rapid urbanization was accompanied by high motorization rates leading to increasing air pollution and road accidents. The GoE launched a strategy to enhance planning and management of transport systems and increased the level of investments in the sector. Non-motored transport became a national priority. The GoE supported interventions in the road networks to improve conditions for transit, pedestrians, and overall safety. Municipalities were charged with planning, controlling, and regulating transportation issues as well as building and construction of urban road networks. At appraisal, Manta's Directorate of Traffic and Public Works lacked tools to strategically invest in maintenance and network improvements. Only 50% of the roads in Manta were considered to be in good or fair condition. There were significant unpaved areas in residential neighborhoods. There was an increasing need to reconfigure traffic patterns to accommodate the increase in traffic flows and eliminate bottlenecks, and to develop a comprehensive road safety plan.

Alignment with national priorities: The project objective was consistent with the national priorities at the time of appraisal, and remain so at the present time. At appraisal, Ecuador had identified access to WSS and transport as key priorities. The National Development Plan (NDP) of 2009 included increasing access to WSS as one of the key priorities to ensure quality of life and social cohesion. The NDP also emphasized the need to improve transport to increase productivity, reduce pollution, and improve road safety. The Municipality of Manta identified improvements in WSS and transport services as critical to the well-being of its residents and to its economic growth. The project objective remains consistent with the priorities under GoE's NDP for 2017-2021 which include (i) addressing regional and ethnic disparities; (ii) mitigating risks from natural disasters; and (iii) protecting the natural resources endowment.

Alignment with the Country Partnership Strategy and Framework: The project objective was consistent with the priorities identified at the time of appraisal and remain so under the currently prevailing Country Partnership Framework (CPF) of FY19 to FY23. In regard to the World Bank Group's (WBG) Interim Strategy Note (ISN) of 2013, the project directly supported the ISN's focus on sub-national lending as well as the first of the ISN's two pillars - Sustainable and Inclusive Growth and Access to Social Protection and Quality. Under the CPF's Results Area 3 (Enhancing Institutional and Environmental Sustainability), the CPF affirms that the WBG group would contribute to improving water security and reducing water pollution in urban areas, and would focus on disaster risk management and improvement of basic infrastructure. The Manta PSI Project is one of five WSS and transport sector projects specifically included in the WBG's lending program for FY19 to FY23.

Prior Bank Experience: The Bank had a successful track record in supporting infrastructure projects in the region that focused not only on physical investments but also on institutional strengthening and capacity building. Although the Bank had supported infrastructure projects in Ecuador, it had not been engaged in a lending operation in Ecuador for a period of over six years preceding appraisal. The Project therefore



represented the start of a period of re-engagement and responded to requests from the Municipality of Manta, supported by the GoE, to strengthen Manta's WSS and transport sectors.

Relevance of Project Development Objectives: Given the context described above, the PDO was consistent (and remained consistent) with the priorities in the national programs and the Country Assistance Strategy/Country Partnership Frameworks. The PDO indicators and intermediate results indicators (IRIs), taking into account changes made during implementation, were largely relevant, measurable and adequate for signaling attribution of results to the project.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To increase the quality of water supply and sanitation public services in the Municipality of Manta.

Rationale

For the ICRR, assessment of the efficacy of Objective 1 is carried out under two sub-objectives: (i) to increase the quality of water supply services and (ii) to increase the quality of sanitation services.

Sub-Objective 1.1: To increase the quality of water supply services in the Municipality of Manta.

The ICR provides a diagrammatic presentation of the theory of change (TOC) and the results chain. To increase the quality of water supply services, it was necessary to (i) rehabilitate the water supply's primary and secondary networks; (ii) install new and repair existing household connections; and (iii) install new and repair existing meters. The project would provide inputs through financing the necessary investments and technical assistance. These inputs would directly lead to relevant physical outputs including (i) rehabilitated water supply networks; (ii) new household water connections/rehabilitated piped water connections; (iii) macro-metering of water production; (iv) reduction in non-revenue water; and (v) increase in overall water supply. The resulting outcome would be increased quality of water supply services, including increased continuity of water supply service (as measured in hours per day). The longer-term outcomes would be to enable more equitable access to essential services, and sustainable and inclusive growth.

The causal links and full results chain in regard to Sub-Objective 1 were clear. The selected PDO and intermediate results indicators (IRIs), as modified during restructurings, were generally relevant and measurable. However, an indicator was missing in regard to reduction in non-revenue water (NRW) which is an important contributor to "increased efficiency" of water supply.

Key outputs (as reported in the ICR Annex 1 - Results Framework)



- 6,707 new household connections
- 138.32 kilometers (km) of new water networks
- 12,654 piped water connections benefiting from rehabilitation works
- 100 percent of water production subject to macro-metering
- rehabilitation of pumping stations (increasing flow by 15,000 m3 per day)
- construction of three storage tanks (capacity increased by 7,500 m3)

Outcomes: (as reported in the ICR Annex 1 - Results Framework and paras.30 to 33).

The outcome under this sub-objective was to be assessed through improvements in (i) availability and efficiency of water production. and delivery systems and (ii) their impact on increased access and continuity of services. Achievements in regard to the targeted PDO and IR indicators were as follows:

- Continuity as measured by the PDO indicator "continuity of service" (baseline 14 hours per day; target 24 hours per day; actual 19.3 hours per day; achievement level 53%)
- Access as measured by the PDO indicator "new piped water household connections" (baseline 0; target 1,500; actual 6,707; achievement level 347%).
- Availability as measured by the IR indicator "storage capacity" (baseline 0 m3; target 7,700 m3; actual 7,500 m3; achievement level 97%).
- Efficiency as measure by the IR indicators "water production macro-metering" (baseline 0; target 100%' actual 100%; achievement level 100%).

The project achieved or overachieved three of the four indicators related to improvement in the quality of water supply services. Achievement was modest for the fourth indicator regarding continuity of service. More appropriate indicators of availability would have been "water production per inhabitant" or "water delivered per inhabitant". Regarding efficiency, the ICR reports that the project's investments for rehabilitation of networks and installation of macro-meters contributed to reduction in NRW, but does not include a quantitative indicator in this regard.

Efficacy rating for Sub-Objective 1.1: Based on the above, the ICRR rates the efficacy for Sub-Objective 1 as Substantial with moderate shortcomings.

Sub-Objective 1.2: To increase the quality of sanitation services in the Municipality of Manta.

The TOC was that, to increase the quality of sanitation services, it was necessary to (i) rehabilitate sewerage networks; (ii) rehabilitate pumping stations; and (iii) install additional household connections. The project provided inputs through financing of investments and technical assistance. These inputs would directly contribute to outputs including (i) rehabilitated sewerage networks; (ii) rehabilitated pumping stations; and (iii) additional household connections. The outcome would be increased quality of sanitation services with increased household connections. The longer-term outcomes would be to enable more equitable access to essential services, and sustainable and inclusive growth.

The causal links and full results chain in regard to Sub-Objective 1.2 were clear. The selected PDO and intermediate results indicators (IRIs), as modified during restructurings, were generally relevant and measurable. However, the indicators did not include ones related to improvement in efficiency and in the quality of wastewater discharge.



Key Outputs (as reported in the ICR Annex1 - Results Framework and para. 34 to 37).

- 6,607 new household sewer connections
- 232 km of sewerage networks replaced/repared
- Construction of Escuela de Pesca wastewater pumping station

Outcomes: (as reported in ICR Annex 1 - Results Framework and paras. 34 to 37)

The outcome under this sub-objective was to be assessed through (i) improving efficiency of sanitation services; (ii) increasing access; and (iii) improvement in wastewater discharge quality. Achievements in the PDO and IR indicators were as follows:

- PDO indicator "Household sewerage connections that are benefiting from the project" (baseline 0; original target 17,318; revised target 15,740; actual 15,740; achievement level 90% against original target, 100% against revised target).
- IR Indicator "Number of new household sewer connections" (baseline 0; target 1,500; actual 6,607; achievement level 341%).
- In regard to efficiency, there was no indicator included in the Results Framework. However, the ICR reports that the number of reported issues such as clogging and leaks went down from 2,143 in 2019 to 1,505 in 2020, and attributes this result to the project interventions.

The project substantially achieved or overachieved the two indicators related to improvement in the quality of sanitation services. However, in regard to improving the quality of wastewater discharge, there was no indicator included under the project. The Escuela de Pesca wastewater pumping station, supported by the project, is expected to become operational only in 2022, and would contribute to improving wastewater discharge quality.

Efficacy rating for Sub-Objective 1.2: Based on the above, the ICRR rates the efficacy of Sub-Objective 1,2 as Substantial with moderate shortcomings.

Overall efficacy rating for Objective 1: Substantial with moderate shortcomings.

Rating

Substantial

OBJECTIVE 2

Objective

To increase the sustainability of water supply and sanitation services in the Municipality of Manta.

Rationale

The TOC was that, to increase the sustainability of the water and sanitation services in Manta, it was essential to provide EPAM, the water and sanitation utility in Manta with institutional strengthening and



capacity building in key areas of its operations. The project would provide inputs through financing of technical assistance and supporting equipment. These inputs would directly result in outputs including development and implementation of (i) a household connections program for water and sewerage; (ii) a management improvement program; (iii) a medium to long term strategic plan; (iv) water and sewerage quality control program; and (v) a water resources integrated management plan. These outputs would contribute to realization of intermediate results including a decrease in accounts receivable, increase in collection efficiency, and increase in active connections, and would lead to the outcome of improved financial sustainability of EPAM, thereby contributing to increasing the sustainability of water and sanitation services in Manta.

The causal links and full results chain in regard to Objective 2 were clear. The selected PDO and intermediate results indicators (IRIs), as modified during restructurings were generally relevant and measurable.

Key Outputs: (as reported in the ICR Annex 1 - Results Framework and paras. 38 to 42).

- Commercial system in EPAM updated and operational
- 1,712 water connections activated
- Billing collection efficiency increased to 91%
- Complete network registry (cadaster) developed for the City of Manta
- Software implemented to strengthen EPAM's management's core business practices

Outcomes: (as reported in the ICR Annex 1 - Results Framework and paras, 38 to 42).

The outcome under this objective was to be assessed through improvements in EPAM's (i) working ratio (operating expenses divided by operating revenues); (ii) bill collection efficiency; and (iii) commercial system improvement. Achievements in regard to the applied PDO and IR indicators were as follows:

- PDO Indicator "working ratio" (baseline 88%; original target 60%; revised target 70%; actual 85%; achievement level 10.7% against original target; 16.7% against revised target).
- IR Indicator "billing collection efficiency" (baseline 68%; target 80%; actual 91%; achievement level 192%).
- IR Indicator "commercial system in EPAM updated and operational" (baseline no; target yes; actual yes; achievement level 100%).

EPAM achieved significant gains in selected aspects of its operations and management, including in updating and operationalization of its commercial system, as reflected in the improvement in its bill collection efficiency. However, it was barely able to improve its working ratio, which is a key indicator regarding its financial sustainability. Despite a lowering of ambition under project restructuring, achievement of this PDO indicator fell far short of the original or revised targets. Since EPAM's financial sustainability is essential to ensure overall sustainability of the improvements in water and sanitation services in Manta, the targeted outcome was not achieved.

Rating
Modest



OBJECTIVE 3

Objective

To increase the quality of urban mobility public services in the Municipality of Manta

Rationale

The TOC was that to improve the quality of urban mobility services in Manta, it was necessary to (i) improve the street networks; (ii) upgrade and restructure urban streets including resurfacing and paving; and (iii) construct sidewalks with pedestrian facilities. The project would provide inputs through investment financing and technical assistance. These inputs would directly contribute to outputs including (i) upgraded, resurfaced, and paved streets; and (ii) sidewalks with pedestrian facilities. These outputs would contribute to the outcome of improving the quality of urban mobility public services. The longer-term outcomes would be more equitable access to essential services and infrastructure, and sustainable and inclusive growth.

The causal links and full results chain in regard to Sub-Objective 1 were clear. The selected PDO and intermediate results indicators (IRIs) as modified during restructurings, were generally relevant and measurable.

Key Outputs: (as reported in the ICR Annex 1 - Results Framework and paras. 41 to 46).

- 9.12 km of quality infrastructure provided for cycling
- 19.90 km of streets paved and repaired
- 16.05 km of upgrade streets
- 18 sidewalks reconstructed
- 5,400 trees planted
- 17 street lights installed

Outcomes: (as reported in the ICR Annex 1- Results Framework and paras. 41 to 46).

The outcome under this objective was to be assessed through improvements in (i) walkability; (ii) travel time; and (iii) number of people provided with paved roads. Achievements in regard to the targeted PDO and IR indicators were as follows:

- Walkability: The PDO indicator used was the Walkability Index (methodology and other details provided in the ICR Annex 6). Results were as follows: (baseline 4.8; target 6.0; actual 6.7; achievement level 170%). The target was overachieved.
- Travel time: The PDO indicator was travel time along the Par Vial (the main entrance to the city of Manta). Results were as follows: (baseline 15 minutes; target 10 minutes; actual 13 minutes; achievement level 40%). The target was significantly underachieved.
- Paved roads: The PDO indicator was the number of people provided with paved roads: (baseline 0; target 22,100; actual 23,024; achievement level 104%). The target was achieved.

Two of the three PDO indicator targets (walkability and paved roads) were achieved or overachieved, while one (travel time) was significantly underachieved. The positive results can largely be attributed to the outputs indicated earlier.



Based on the foregoing, the ICRR rates the efficacy of Objective 3 as Substantial with moderate shortcomings.

Rating
Substantial

OBJECTIVE 4

Objective

To increase the sustainability of urban mobility public services in the Municipality of Manta.

Rationale

The TOC was that, to increase the sustainability of urban mobility services in Manta, it was necessary to provide institutional strengthening and capacity building to the Directorate of Traffic and the Directorate of Public Works to (i) optimize the level of public transport service; (ii) prepare and implement a road safety plan; (iii) plan and implement efficient road management; and (iv) plan and implement road asset management. The project would provide inputs through financing of technical assistance and supporting equipment. These inputs would contribute to the following outputs: (i) preparation of the relevant plans and procedures; (ii) training of staff; and (iii) installation and operationalization of supporting equipment. These outputs would contribute to the outcome of increased sustainability of urban mobility public services in Manta. The longer-term outcomes would be more equitable access to essentials services and infrastructure, and sustainable and inclusive growth.

The causal links and full results chain in regard to Objective 4 were clear. The selected PDO and intermediate results indicators (IRIs), as modified during restructurings, were generally relevant and measurable. However, no indicator was included to measure the adequacy of financial resources available to the Directorates for carrying out and sustaining the planned improvements.

Key Outputs: (as reported in the ICR Annex 1- Results Framework and paras. 47 and 48).

- Urban Mobility Plan developed.
- Road Network Evaluation System installed and operationalized.
- Training provided on use of road data management system.

Outcomes: (as reported in the ICR Annex 1- Results Framework and paras. 47 and 48).

The outcome under this objective was to be assessed on the basis of improvement in the planning and management capacity of the Municipality of Manta in regard to urban mobility services. Achievements were to be assessed on the basis of PDO and IR indicators as follows:

- Improved road management: The PDO indicator was "Adoption and implementation of a road management system". The system was installed and operationalized. The target was achieved.
- Urban Mobility Plan: The IR indicator was "Development and implementation of an Urban Mobility Plan". The plan was developed, and implemented. The target was achieved.



The road management system enables remote evaluation of the streets for the whole city using traffic data; provides a structure to prioritize investments; and facilitates strategic planning for the short-term and medium-term. The system is being used by the Directorates of Traffic and Public Works to plan and prioritize investments as well as to control and monitor traffic. The Urban Mobility Plan provides a guide to programming transport-related public works, cover road safety elements, and monitor progress. The ICR reports (para. 48) that the Municipality has invested more than US\$1 million in mobility works based on the Plan. The outcome of increasing the sustainability of urban mobility public services is assessed to be substantially achieved.

Rating

Substantial

OVERALL EFFICACY

Rationale

As discussed earlier in this Section, the efficacy of the four parsed objectives under the project were assessed as follows:

- Objective 1 (To increase the quality of water and sanitation public services in the Municipality of Manta): Substantial with moderate shortcomings.
- Objective 2 (To increase the sustainability of water and sanitation public services in the Municipality of Manta): Modest.
- Objective 3 (To increase the quality of urban mobility public services in the Municipality of Manta): Substantial with moderate shortcomings.
- Objective 4 (To increase the sustainability of urban mobility public services in the Municipality of Manta): Substantial.

Based on the foregoing, the ICRR rates the project's overall efficacy as Substantial with moderate shortcomings.

Overall Efficacy Rating



Substantial

5. Efficiency

Economic Efficiency

(Reference ICR paras. 50 to 54 and Annex 4).

The ICR reports that the post-completion assessment of economic efficiency was carried out using the same methodology as was used at appraisal with one exception: at appraisal, efficiency indicators were separately estimated for water supply and for sewerage; for the post-completion analysis, they were combined for both subcomponents.

A cost-benefit analysis was carried out. Benefits were measured using a cost savings approach. For water interventions, cost savings were measured for; (i) new households connected to the network who previously purchased water from water tankers at a higher price and (ii) existing customers who benefited from reductions in water rationing. For sewerage interventions, benefits were measured as an increase in EPAM's revenues from new sewerage connections, using the tariff as a proxy for willingness to pay. For roads improvements, benefits were estimated as: (i) savings in vehicle operating cost; (ii) savings in travel time; and (iii) pothole repair cost savings for the municipality. Non-quantified benefits included (i) economic growth in neighborhood populations and (ii) flood risk reduction along the Par Vial (the main entrance to the city of Manta). Costs included the investment costs and estimated incremental operations and maintenance (O&M) expenses. Both costs and benefits were estimated net of taxes and duties. Other assumptions were: (i) lifetimes of 30 years for water and sewerage and 20 years for roads interventions and (ii) a discount rate of 12%. Based on this, the comparison of actual versus planned results were as follows:

| | Appraisal | Appraisal | Post-Completion | Post-Completion |
|-------------------|-----------|---------------------|--------------------------|---------------------------|
| | EIRR (%) | ENPV (US\$ million) | EIRR (%) | ENPV (US\$ million) |
| Water | 25.1% | 18.2 | 20% (including sewerage) | 26.5 (including sewerage) |
| Sewerage | 16.0% | 5.0 | | |
| Roads Improvement | 33.0% | 25.0 | 20.0% | 26.3 |
| Total project | | 48.2 | 20% | 52.8 |

The post-completion estimated net benefits of the project, as assessed from the ENPV, were about 10% higher than those estimated at appraisal. Although the post-completion EIRRs for the water and roads subcomponents were lower than those estimated at appraisal, they were substantially higher than the discount rates of 6% to 8% prescribed under the OPCS guidelines for evaluating the economic efficiency of investment projects. The project's economic efficiency is assessed as Substantial.



Implementation Efficiency

Project duration: As compared to the planned implementation period of 4.6 years (55.5 months), the actual implementation period was 6.1 years (73.5 months) including three extensions of the project's closing date. As acknowledged in the ICR (para. 56), there were significant implementation delays due to political volatility involving changes in the city management, and a steep learning curve for the PIU which was a first-time implementation unit. The Project's largest contracts were not tendered until 2018. External factors that affected implementation were the major earthquake and the COVID-19 pandemic. Nevertheless, with the extensions in the closing date, the large majority of the planned activities under the project were implemented.

Project disbursement: As compared to the appraised total project cost of US\$115.60 million, the actual total project cost at project completion was US\$115.60 million. The World bank loan of US\$100 million was almost fully disbursed.

Assessment of efficiency: Based on the foregoing, the project's economic efficiency is rated Substantial and implementation efficiency is rated Substantial with moderate shortcomings. The ICRR therefore rates the project's overall efficiency as Substantial with moderate shortcomings.

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 | | 0 | 0 <input type="checkbox"/> Not Applicable |
| ICR Estimate | ✓ | 20.00 | 74.00 <input type="checkbox"/> Not Applicable |

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

6. Outcome

Assessment of the project's outcome is based on the following underlying ratings:

- Relevance of Objectives - Substantial
- Efficacy - Substantial with moderate shortcomings
- Efficiency - Substantial



Due to the moderate shortcomings in the achievement of efficacy, including importantly in the financial sustainability of water supply and sanitation services, the ICRR rates the project's overall outcome as Moderately Satisfactory.

a. Outcome Rating

Moderately Satisfactory

7. Risk to Development Outcome

Technical and operational risks: These are rated Moderate. While EPAM and the Directorates of Traffic and Public Works (the Directorates hereafter) have the requisite technical capacity to carry out their operations and maintenance (O&M) activities, their operating efficiency will depend upon their ability to maintain and operate the equipment and infrastructure in good working order. Timely and adequate availability of financial resources to cover the O&M expenses will be crucial for efficient performance. Despite the support of the project, EPAM was not able to achieve the targeted improvement in its financial performance. The Directorates of Traffic and Public Works would also need adequate funding to carry out their responsibilities..

Financial risks: These are rated Moderate. Continued support from the city and national governments would be necessary for ensuring adequate financial resources to EPAM and the Directorates.

Political risks: These are rated Moderate. Political and administrative changes in the city government significantly impacted project implementation through the resulting lack of clarity and delays in decision-making. Continued support to the objectives of the project, despite such changes, would be essential for sustainability of the project gains.

Institutional capacity risks: These are rated Moderate. While the institutional capacities in EPAM and the Directorates have been significantly strengthened under the project, sustainability of these gains will require continued attention from their respective managements with strong support from the city government. Lacking these, the gains could progressively be eroded.

8. Assessment of Bank Performance

a. Quality-at-Entry

(Reference ICR para. 92)

The project represented a re-engagement by the Bank with lending in Ecuador after a period of six years. The strategic relevance and PDO were well aligned with the GOE's agenda and the Bank's Country Assistance Strategy prevailing at the time. However, as acknowledged in the ICR (para. 92), there were some shortcomings during project preparation. The project was prepared in a relatively short period of six



months. In designing the project, there was a gap between the capacity of the local agencies and the project's complexity. It was not sufficiently recognized that the PIU was a first-time implementation unit and handling coordination with EPAM and as many as six municipal directorates would be a major challenge to its capacity. The ICR also reports that the initial designs were over-ambitious and needed to be modified during implementation. There were initial weaknesses in the Results Framework - the ICR reports that some of the chosen PDO indicators were not properly formulated and did not permit tracking of relevant aspects of the PDO. As discussed earlier in Section 4, some additional indicators would have allowed better assessment of important aspects including improved availability of water supply, reduction in non-revenue water, and efficiency and quality of wastewater discharges. The political risks were underestimated - changes in the local government led to a shift in priorities and delays in decision-making. The ICR concludes that, overall, there was insufficient readiness for implementation.

Quality-at-Entry Rating Moderately Unsatisfactory

b. Quality of supervision (Reference ICR para. 93)

The project experienced serious delays in the earlier years of implementation. At the time of the Mid-Term Review (MTR) in July 2016, 3.5 years after start of implementation, only about 5% of the loan amount had been disbursed., and implementation progress (IP) was rated as Moderately Unsatisfactory over the first four years of implementation. During implementation, the supervision team had to deal with a number of challenges - low implementation capacity in the PIU; political shifts with changes in the city administration; a major earthquake; and the COVID pandemic. Following the MTR, the supervision team was pro-active in initiating restructurings in the project including addressing deficiencies in the Results Framework and re-allocations between components. The supervision team provided frequent technical assistance and guidance to the PIU and was pro-actively involved with the relevant decision-makers in the city administration. The supervision team also involved the Bank's country and sectoral managements in discussions with the city management to bring attention to the major project issues and obtain the support of the counterparts.

During the implementation period of 6 years, a total of 16 supervision missions were carried out. The missions were adequately staffed with the required staff, including safeguards and fiduciary specialists. The project had a total of three task team leaders (TTLs) over the implementation period. The TTL at project closing was based in the field. Back-to-office reporting was regular. The Implementation Status and Results Reports (ISRs) were candid and generally filed in a timely manner.

Quality of Supervision Rating Satisfactory

Overall Bank Performance Rating



Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

(Reference ICR para. 73)

The ICR (para. 73) lists a number of shortcomings in the design of the M&E system in regard to the Results Framework.

- no PDO level indicator to measure outcome in regard to the quality of sanitation services
- no PDO level indicator to measure sustainability of urban mobility improvements
- some PDO indicators focused on outputs rather than outcomes
- lack of relevance of some of the indicators
- overly complex definitions of some indicators, e.g. EPAM's working ratio

In addition, relevant indicators were missing for assessment of important aspects such as reduction in non-revenue water; efficiency and quality of wastewater discharges; and indicators for adequacy of financial resources available to the Directorates of Public Works and Traffic.

b. M&E Implementation

(Reference ICR paras. 75 and 76).

The PIU was responsible for collecting project-related information from the participating agencies (EPAM and the Directorates); processing and compiling the information; and providing project-related information to the Bank including that related to the Results Framework and project progress in relation to procurement and disbursement aspects. During the 2018 restructuring, modifications were made to the RF to address the design deficiencies in indicators and add new or modified indicators to reflect changes during implementation. However, the PIU did not update the M&E framework until 2018 (5 years into project implementation). Certain indicators, e.g. the walkability index, remained complex and difficult to measure. Some other indicators were designed to collect the information only at the completion of the project. Indicators in regard to reduction of non-revenue water and efficiency and quality of wastewater discharges continued to be missing.

c. M&E Utilization

(Reference ICR paras. 77 and 78).



The ICR reports (para.77) that the M&E data were not adequately utilized. Indicators were not consistently tracked until the last years of the project. The data were used principally to comply with the Bank's reporting requirements.

Overall rating for M&E Quality: In view of the significant shortcomings regarding quality-at-entry, implementation and utilization discussed above, the ICRR rates M&E quality as Modest.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

Environmental and Social Safeguards

(Reference ICR paras. 79 to 88).

At appraisal, the project was designated a Category B project as the civil works that were to be carried out were assessed to have short term environmental impacts that were not significant and could be mitigated with standard mitigation measures. The project triggered the following safeguards: Environmental Assessment - OP 4.01; Pest Management - OP 4.09; Physical Cultural Resources - OP 4.11; and Dam Safety - OP 4.37.

Environmental: To mitigate potential environmental impacts, the project developed the following instruments: (i) Environmental Impact Study, including an Environmental Management Plan (EMP) for the Par Vial subproject; and (ii) an EMP for the hydro-sanitary subproject. The ICR reports (paras. 81 and 82) that the project finished in compliance with the Par Vial and hydro-sanitary EMPs. The ICR reports (Para. 83) that the project ended with an overall environmental safeguard rating of moderately satisfactory. This rating reflects delays encountered by the PIU in addressing certain environmental risks such as hazardous materials management; temporary storage of construction materials; and hazardous liquids spill control. The ratings for Pest Management (OP 4.9) and Physical Cultural Resources (OP 4.11) were Satisfactory.

Social: The project triggered the Involuntary Resettlement safeguard (OP 4.12) as the works were expected to involve both temporary and permanent land acquisition. The PIU prepared a Resettlement Policy Framework (RPF). The ICR reports (para. 84) that the PIU had only one social specialist and required close support from the Bank supervision team. The ICR also reports that the PIU's low capacity and the high level of political involvement in the project led initially to some land acquisition issues. Several properties were taken over without having all the required permits or without having reached agreements with the land owners. The Bank took up the issues with the Borrower who complied thereafter with the required processes. The project ended with an overall social safeguard rating of Moderately Satisfactory.



b. Fiduciary Compliance

(Reference ICR paras. 86 to 91).

Procurement: The ICR reports (para. 86) that the PIU's procurement capacity was low particularly in the early years of the project. The PIU had not been involved in a multi-lateral bank financed project and had limited knowledge of procurement processes. The learning curve was steep and was affected by changes in trained personnel throughout the project. As a result, the project's largest contracts were not tendered until 2018. Political interventions also affected the PIU's procurement activities. The Bank team provided training and support for the PIU staff. The ICR reports that, during the last five years of the project implementation, procurement improved considerably. By the close of the project, the entire procurement plan had been contracted and executed. The ICR does not report any case of mis-procurement or significant non-compliance. The procurement rating at project closing was Moderately Satisfactory.

Financial Management: The ICR reports (para. 89) that the PIU capacity was low and was affected by frequent turnover of staff. Issues encountered included some cases of unjustified disbursements and delays in submitting audit reports to the Bank. There were also delays between disbursement of bank funds and their utilization. At project closing, the rating for Financial Management was Moderately Satisfactory.

c. Unintended impacts (Positive or Negative)

The ICR does not report any significant unintended impacts.

d. Other

(Reference ICR paras. 59 to 62).

Gender: The project did not specifically target gender-related issues. However, the improvements achieved in regard to water and sanitation services positively contributed to increasing welfare for women and children. Within households, women carry a disproportionately higher burden in regard to ensuring availability of water. In the absence of adequate household and piped water connections, women have to spend time collecting and treating water, which reduces their spare time and ability to increase their human capital through other activities. Improved WSS services under the project also contribute to reduction in the water-borne illnesses which benefits women as well as children.

Institutional Strengthening: In addition to the institutional strengthening activities discussed in Section 4 above, the project also supported the following activities:

- Technical assistance through a Public Private Partnership (PPP) specialist consultant on technical, commercial and operational planning in regard to Performance-Based Contracts.



- Consultants hired to support EPAM in carrying out a study of the country's legal framework as well as a review of the legal aspects of PPP contracts.
- Technical assistance for construction of stabilization ponds in Manta as part of the sanitation program.

Mobilizing Private Sector Financing: The project supported alliances between EPAM and private companies for (i) the development of a medium to long term institutional strengthening plan for EPAM and (ii) the strengthening operational and commercial management.

Poverty Reduction and Shared Prosperity: Most of the project investments were in the lower to middle income areas of Manta. By providing increased access to household and piped water connections, the project provided these households with cost savings, better quality water, and reduction in health risks. The transport investments also benefited lower-income neighborhoods through increased paving and reduced travel time.

11. Ratings

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

12. Lessons

The ICR (paras. 100 to 104) lists a number of lessons from which IEG derives the following lessons of broad relevance and applicability for similar projects implemented in comparable environments.

Establishment of a well-staffed and well-equipped Project Implementation Unit prior to the start of implementation is crucial for ensuring efficient implementation. The absence of a well-staffed and well-managed PIU was a critical factor resulting in significant delays, particularly in the years of implementation. In the case of the project, the PIU did not have prior experience in working with multi-lateral development banks and was unfamiliar with the World Bank's safeguards and fiduciary requirements. Appropriate technical assistance, including through specialized consultants, should be provided in the project preparation/early implementation phases, to ensure that the requisite capacity is place to ensure timely implementation.

Guiding projects through political change and other external obstacles requires time, flexibility, and resilience. Changes in political administration are oftentimes accompanied by shifts in leadership in key agencies which can result in shifting priorities. During the project's implementation, the city had three different mayors and four different PIU leaders. The project



overcame these challenges through responsive restructurings while maintaining the focus on the original objectives.

Cross-sectoral operations can offer an opportunity to amplify the development results. The project demonstrated the synergies and benefits of implementing cross-sectoral operations including optimization of construction processes, and reduction in costs of materials, contracting, and labor than would have been possible if the WSS and transport components had been under implemented under separate projects.

Resistance to departing from national norms can be overcome, where justified, through targeted training and agreements with the national government entities involved. In the case of the project, differences between the national norms and the Bank's requirements in regard to land acquisition and procurement were resolved by extensive discussions between the Bank supervision team and the relevant counterparts. Provision of relevant training to the counterparts, early on in the implementation process, could help in avoiding subsequent delays.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR is well written, candid, and follows the OPCS's ICR guidelines (except for length - 34 pages compared to the recommended 15 pages or less). It provides a good diagrammatic theory of change in regard to the causal links and full results chain, and the reporting is outcome-focused. The analysis is generally evidence based but constrained to some extent by the weaknesses in the project's M&E system. The ICR provides lessons learned that are of broader relevance to similar projects in comparable environments. Given the nature of the project interventions (water supply, sewerage and transport), a more detailed discussion of the problems faced and the mitigation measures applied would have been useful for deriving lessons learned that could benefit other projects in future.

a. Quality of ICR Rating

Substantial

