

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

COLOMBIA

MEDELLÍN RIVER SANITATION PROGRAM - PHASE II

(CO-L1034)

PROPOSED AMENDMENT TO LOAN 2120/OC-CO

REQUEST FOR APPROVAL OF EXCEPTIONS TO THE PROCUREMENT POLICIES

OA-430: SUBSTANTIAL AND FUNDAMENTAL CHANGES TO OPERATIONS

This document was prepared by the project team consisting of: Manuel José Navarrete (WSA/CCO), Project Team Leader; Oscar Camé (ESG/CPR); Gabriele del Monte (FMP/CCO); Javier Jiménez Mosquera (LEG/SGO); Efraín Rueda and Yolanda Galaz (INE/WSA); and José Luis Alba (CAN/CCO).

This document is being released to the public and distributed to the Bank's Board of Executive Directors simultaneously. This document has not been approved by the Board. Should the Board approve the document with amendments, a revised version will be made available to the public, thus superseding and replacing the original version.

CONTENTS

I.	BACKGROUND	1
A.	Program background	1
B.	Progress of program components.....	1
C.	Request presented by AN/EPM	3
II.	SUBSTANTIAL AND FUNDAMENTAL CHANGES TO OPERATIONS: EXCEPTION TO THE PROCUREMENT POLICIES	4
A.	Proposed change	4
B.	Rationale for the use of procurement methods not provided for in the Bank's policy.....	5
C.	Exception to the procurement policy	6
III.	RECOMMENDATION	7

ANNEXES	
Annex I	Evaluability Note
Annex II	Results Framework/Matrix of Indicators

ELECTRONIC LINKS	
REQUIRED	
1.	Complete procurement plan
2.	Environmental and Social Management Report (ESMR)
OPTIONAL	
1.	Technical annex
2.	Financing request
3.	Feasibility study on biosolids treatment
4.	Preliminary design report on thermal drying of biosolids
5.	Analysis of bidding process
6.	Conditions of request for nonbinding proposals
7.	Medellín River Sanitation Program - Phase II (CO-L1034) (2120/OC-CO)
8.	Memorandum - Mission Supervision

ABBREVIATIONS

AN/EPM	Aguas Nacionales/Empresas Públicas de Medellín
BOD	Biochemical oxygen demand
DO	Dissolved oxygen
EPM	Empresas Públicas de Medellín [Medellín Municipal Utility]
ESMR	Environmental and Social Management Report
ICB	International competitive bidding
LIB	Limited international bidding
WTP	Wastewater treatment plant

I. BACKGROUND

A. Program background

- 1.1 Empresas Públicas de Medellín (EPM) has been an important IDB client and its first IDB loan was approved in 1961. To date, the Bank has carried out 11 operations with EPM (three in the power sector and the remainder in the water and sanitation sector). In the water supply and sanitation sector, six consecutive phases of expansion and improvement programs were financed with loans totaling US\$282 million, as well as the two phases of sanitation programs on the Medellín River—the first was approved in 1993 for US\$130 million and financed the San Fernando wastewater treatment plant (WTP), and the second for US\$450 million, addressed herein, is under way.
- 1.2 On 25 February 2009, Resolution DE-9/09 was adopted by the Board of Executive Directors, approving the Medellín River Sanitation Program – Phase II, CO-L1034 (document PR-3377), hereinafter “the program”; loan contract 2120/OC-CO was entered into with EPM, the borrower, on 25 March 2009, and declared eligible on 1 December 2009. The total amount of the program is US\$581.5 million, of which US\$450 million is financed by the Bank and US\$131.5 million by the local counterpart. The program’s development objective is to remove organic loading and other contaminants from the Medellín River to allow (i) the use of its neighboring areas for noncontact recreational purposes, urban development and landscaping around the river, and land development; (ii) the reduction of waterborne diseases; and (iii) the use of water in industrial activities; and to support the institutional strengthening of the utility. These objectives will be achieved by treating wastewater in Medellín’s metropolitan area and reducing the contamination of bodies of water in the watershed, and by supporting the training plan to strengthen institutional development.
- 1.3 The Program has three components: (i) Component 1 - Bello WTP (US\$377.1 million), which will have a treatment capacity of 5.0 m³/sec; (ii) Component 2 - the North interceptor sewer of the Medellín River and the connections between the collector sewers and the interceptor sewer (US\$62.6 million). The North interceptor sewer will extend for 7.7 kilometers, with an internal diameter of between 1.8 and 2.4 meters; and (iii) Component 3 - Institutional development (US\$1.0 million). This component includes a training plan and the execution of the plan to implement International Financial Reporting Standards. In addition, the engineering and administration costs of the program total US\$23.4 million; concurrent costs, which finance the program’s social and environmental management, land, easements, the Water Plaza, the startup of the Bello WTP, and audits, amount to US\$55.5 million; financing costs are US\$37.5 million; and unallocated resources total US\$24.4 million.

B. Progress of program components

- 1.4 To date, the Bank-financed works have been contracted ([OEL#1](#)), and Component 3 has been completed. As regards Component 2—construction of the main tunnel of the North interceptor—digging has been completed (7,734.89 meters), along with the collector sewer crossings works. The inspection wells will be completed in early 2016, as will the landscaping of the works sites and the construction of the collector sewer laterals in the northern area. These works

have been tendered and will begin in early 2016. EPM has stood out for its level of institutional development and its project and procurement management capacities.

- 1.5 As regards the overall physical progress of the Bello WTP, Component 1, the work is 67% completed. There is progress in the construction of the civil works: the principal process tanks have been completed and are undergoing leak tests; the spaces around the structures are being filled in with dirt; 98% of the estimated concrete volume has been done, mainly through the completion of the WTP structures and the urban infrastructure. Additionally, the electromechanical equipment of the WTP has been built and successfully tested; the digester tanks have been installed; the bridge cranes have been assembled at the energy recovery, entrance pump, and preliminary treatment buildings; and there is progress in installing the main equipment in the blower building.
- 1.6 The program's environmental and social management plan included the WTP's management of biosolids produced during the wastewater treatment process. The project design and the recommendations of the environmental impact assessment established that sludge would be disposed of through composting,¹ thereby ensuring that the product (composted biosolids) would acquire the physicochemical and microbiological conditions required under Colombian law. Metropolitan Resolution 523 of 8 May 2009 awarded the environmental permit for the Bello WTP, and Article 16 therein approved composting as the waste treatment method.
- 1.7 The implementation of composting, an alternative approved under the environmental permit, was limited by the fact that it required a considerable volume of organic matter with amendment material, which could create operational problems for the plant. It was therefore necessary to explore options for stabilizing and dehydrating the biosolids and to ensure the appropriate environmental management of such biosolids. To optimize the stabilization and dehydration of the biosolids and obtain a better product, EPM conducted a feasibility study on biosolids treatment in 2014 ([OEL#3](#)). This study examined biosolid treatment alternatives, including their impact on investment and operating costs.
- 1.8 Based on this study, EPM concluded that thermal drying with gas turbine-based cogeneration would be the most suitable alternative and proceeded to formulate its preliminary design ([OEL#4](#)). The two previous studies served as a basis for EPM to draft the technical specifications of the project and the bid conditions and are considered to be the main framework of the expected scope, quality, and time frame.
- 1.9 The thermal drying with cogeneration alternative will provide benefits such as: (i) a reduction in the volume of biosolids for disposal, from 390 tons/day that are treated (300 tons/day at the Bello WTP and 90 tons/day at the San Fernando WTP) to 126 tons/day for disposal outside the plant; (ii) an increase in the dehydration of biosolids for final disposal, which, by increasing dryness from 30% to 90%, will create a more hygienic product, with little odor, that can be stored, is easy to transport, and is suitable for any of the available processing methods; (iii) elimination of pathogenic germs (fecal coliforms, salmonella, helminth eggs) to

¹ A controlled biological process to transform and enhance organic substrate to produce a stabilized, sanitized product, similar to topsoil and rich in humic substances.

obtain a final product that is harmless to health and may be used or disposed of in accordance with environmental regulations (Decree 1287 of 2014); (iv) production of a final product free of bad odors (comparable to the smell of dirt) that is in line with environmental regulations (Resolution 1541 of 2013); and (v) opportunities for use and final disposal of the biosolids: the dry material can be used as solid fuel, fertilizer, or for any of the alternatives presented in Article 8 of Decree 1287 of 2014, in accordance with its category and classification.

- 1.10 In February 2015, Aguas Nacionales² (AN/EPM) requested that the environmental authorities amend the environmental permit of the Medellín River Sanitation Plan works project so as to include thermal drying, as described in the above paragraph, as an alternative for processing biosolids. The environmental authorities issued the corresponding technical report, which declared the approval of the amendment request to be technically viable, and the administrative act will be issued in the first two months of 2016.
- 1.11 At the behest of EPM, the financing of the thermal drying plant (estimated value of US\$50 million) will be financed with proceeds from the loan operation. As of December 2015, the operation had disbursed US\$234.96 million and the estimate of commitments (adjusted values) for the original components of the program totals US\$392.74 million. There is therefore an uncommitted balance of US\$57.26 million.³ This balance exists because the bid amount for the Bello WTP was lower than initially established in the program, the foreign exchange rate changed between the time the contract was signed and the present time (it rose from an initial representative market rate of Col\$1,779.49 on the contract signature date to an average 2015 rate of Col\$2,746.47, and a January 2016 rate of Col\$3,284.03), and the manner in which the Bello WTP contract was entered into with the construction consortium with the following currency spread: 52% Colombian pesos, 31% euros, and 17% U.S. dollars.

C. Request presented by AN/EPM

- 1.12 In official letter 201530148099 of 2 December 2015 ([OEL#2](#)), the EPM requested that the Bank consider the possibility of using proceeds from loan 2120/OC-CO to finance the construction of the thermal drying and cogeneration plant under the procurement plan that AN/EPM implemented through a “request for nonbinding proposals” bidding process, also known as “competitive dialogue procurement” ([OEL#6](#)), in accordance with its own rules and procedures.⁴ It seeks to design, construct civil works at, manufacture, supply, install, perform field tests at, start up, and operate the above-described plant.
- 1.13 AN/EPM’s request is based on the findings of the studies conducted in 2014, the feasibility of biosolids treatment, and the preliminary design report on thermal

² EPM designated its subsidiary Aguas Nacionales EPM S.A. E.S.P. (“Aguas Nacionales”) as the subexecuting agency for the engineering and administration component and for Components 1 and 2 of the program.

³ The estimated amount is based on resource execution as of December 2015 and the payments are scheduled for 2016 to 2018. The outstanding contract balance is in U.S. dollars, based on the average rates of EPM’s macroeconomic outlook for the 2016 budget.

⁴ These procedures differ from those established in the Policy for the Procurement of Goods and Works Financed by the IDB (document GN-2349-7).

drying of biosolids ([OEL#3](#) and [OEL#4](#)). As mentioned previously, the studies served as a basis for drafting the project's technical specifications and the "nonbinding proposal" or "competitive dialogue procurement" conditions. Given the complexity of the project and the type of technology to be implemented, although the contracting party has the capacity to define the technical requirements, a process is necessary to define/identify the best solution available on the market.

- 1.14 The procurement process began when the possibility of using Bank resources for the financing was considered ([OEL#8](#)). On 27 February 2015, the terms and conditions were provided to the 17 identified firms, and a bidding process with multiple selection phases was held over the whole of 2015.
- 1.15 The execution period for the thermal drying plant is 660 calendar days and 180 additional calendar days to put it into operation. The completion of the execution period for the biosolids drying plant will be December 2017.

II. SUBSTANTIAL AND FUNDAMENTAL CHANGES TO OPERATIONS: EXCEPTION TO THE PROCUREMENT POLICIES

A. Proposed change

- 2.1 The purpose of this document is to request the Board of Executive Directors' approval of an exception to the Policies for the Procurement of Goods and Works Financed by the IDB (document GN-2349-7) applicable to the procurement procedures included in this operation, so as to implement procurement policies not contained in said policies.
- 2.2 The "nonbinding proposal" bidding or "competitive dialogue procurement" process, identified by number SOF-001, for the design and construction of the thermal drying plant was carried out based on the corresponding feasibility study and the preliminary design. This component, which would be financed with local counterpart funds, is viable to be financed with the loan proceeds because it is an integral part of the program—an investment work under Component 1.
- 2.3 Based on the analysis undertaken ([OEL#5](#)), the request presented does not change the program objective, whose scope and proposed outcomes remain as described in the program framework. The request relates to the Bank's acceptance of a procurement process followed by AN/EPM, in accordance with its own regulations and policies and not the Bank's procurement policies.
- 2.4 In the ESMR ([REL#2](#)), the description of the treatment and final disposal of biosolids has been updated to include the newly selected alternative (chapter III.C). In addition, the impacts and risks of the alternative have been added (chapter V.B): (i) the consumption of natural gas and its emissions; and (ii) the transport of sludge from the San Fernando WTP to the Bello WTP, which will have impacts related mainly to the odors of the sludge transported and the road safety risks. These risks will be mitigated through measures such as: (i) the use of power generated for the operation of the Bello Plant and the recording of the energy generated, the consumption of natural gas, and the corresponding emissions; and (ii) the formulation and implementation of a transport plan for transferring the sludge from the San Fernando WTP to the Bello WTP.

- 2.5 The economic analysis was updated using the series of investment costs incurred and projected, including the new thermal drying plant for biosolids. The project is viable with an NPV of US\$35 million at 2016 values and the series of net benefits has an EIRR of 13.5%.

B. Rationale for the use of procurement methods not provided for in the Bank's policy

- 2.6 The process followed by AN/EPM is similar to the limited international bidding (LIB) method provided for in the Bank's procurement policies (document GN-2349-7, paragraph 3.2).⁵ According to the Bank's analysis, the process has the following characteristics:
- 2.7 The process allows bidders to present technological alternatives in line with certain general requirements. The dialogue between the bidders and the contracting party makes it possible to progress in enhancing proposals such that bidders are only invited to present final bids when their proposals have been sufficiently developed. The objective is to increase value for money through this process that incentivizes innovation while maintaining the level of competition. The dialogue process allows the bidder to confirm that all the technical elements have been covered before final proposals are requested. The incentive aims to ensure that bidders present high quality proposals insofar as they have been able to adjust their proposals to meet all the technical requirements, which become clearer during the dialogue process. This methodology has been used for a number of years by state contracting and procurement agencies in a number of countries (United Kingdom, New Zealand, Canada, Spain, and the Netherlands, among others). It is also a European Union initiative under Directive 2004/18/EC and was adopted by the World Bank in June 2015.
- 2.8 EPM⁶ has successfully used this method on other occasions with a large number of bidders since 2011: 38 calls for proposals; awards totaling approximately US\$101.5 million; and calls for proposals ranging from US\$90,000 to US\$13 million. EPM has gained experience from these processes, which is complemented by its extensive technical and legal capacity, a necessity for the implementation of such a methodology. EPM has an effective structure for

⁵ LIB is essentially international competitive bidding (ICB) issued via direct invitation without a public announcement. LIB can be an appropriate procurement method in cases where: (i) there is a small number of suppliers, or (ii) there are other exceptional reasons to justify the full use of procedures other than those of ICB. For LIB, the borrowers must request the submission of bids from a list of potential suppliers that is sufficiently large to ensure prices are competitive. Should there be a limited number of suppliers, the list must include them all. For LIB, national preferences do not apply. Except for announcements and preferences required in ICB, all ICB rules apply, including the publication of the award of the contract, as stated in paragraph 2.60 of document GN-2349-7.

⁶ AN/EPM uses private law for its purchasing and contracts, as a public utility company established as a State commercial and industrial enterprise, owned by the municipio of Medellín. Its activities are governed by Law 142 of 1994 and Law 143 of 1994, which establish the following regarding procurement: "Article 31. Procurement. Contracts entered into by government entities that provide the utilities covered by this law (Law 142 of 1994) shall not be subject to the provisions of the general regulations on public administration procurement, except as otherwise provided in this law"; and "Article 32. Private law for acts of companies. Unless the Constitution or this law expressly provide otherwise, the establishment and acts of utility companies, as well as all acts required for the management and exercise of the rights of all individuals associated with them, anything not covered by this law (Law 142 of 1994) shall be exclusively governed by private law."

managing procurement processes; high ethical standards for handling the different stages of the bidding process, and strict internal controls. This has enabled a large number of companies to participate in this type of bidding process. This broad competition reflects the confidence that the market has in EPM's institutional structure and in the method used.

- 2.9 The guiding principles for procurement were respected, such as: economy, efficiency, transparency, competition, integrity, equal treatment of bidders, and due process. These are the same principles as those included in the Bank's policies on procurement.
- 2.10 The terms and conditions are in line with the objective and the bidding method and do not restrict the participation of bidders. For the plant in question, AN/EPM identified 17 main actors in the specific market from 10 different countries.
- 2.11 The process has followed guidelines on identifying the potential bidders that are similar to those included in the Bank's rules: the request for proposals was a direct invitation sent to a group of specialized firms (Bank LIB, ref. footnote 6).⁷
- 2.12 The bidders made no protests at any stage of the process ("observations" as indicated in the EPM reports). As regards the process's fiduciary risk, in view of the modality, sequentiality, controls, and dissemination of the process at all its stages, and as per the successive recommendations and analyses conducted by AN/EPM, the risks identified were those commonly acceptable in international bidding processes.

C. Exception to the procurement policy

- 2.13 AN/EPM has specifically followed the provisions of the selection method used and no specific fiduciary or entity risks were identified that were greater than those associated with LIB under the Bank's regulations. The process outcome could therefore potentially be awarded proceeds from loan 2120/OC-CO.
- 2.14 At the behest of the borrower, Management requests that the Board of Executive Directors approve an exception to the Policies for the Procurement of Goods and Works Financed by the IDB (document GN-2349-7), so that EPM can use the nonbinding bid proposal process not provided for under the Bank's procurement policies to design and construct the thermal drying plant, with financing from the proceeds of loan 2120/OC-CO.
- 2.15 Should the Bank's Board approve the exception described in section II herein and the contract stemming from the selection process be declared eligible by the Bank for the proceeds of loan 2120/OC-CO, EPM: (i) will adopt the contract model used by the Bank for ICB; (ii) guarantee the underwriting of the ancillary security and insurance typical of national regulations and commonly used in works contracts financed by the Bank; and (iii) have the award of the contract published on UNDBOnline.

⁷ A prequalification stage was conducted to assess experience, followed by a stage in which invitations were sent to 8 of the 17 identified firms. Of those eight firms, four submitted a technical proposal; these offers then went through a technical validation stage, and two offers were deemed to meet the technical requirements.

III. RECOMMENDATION

- 3.1 Based on the evidence and documentation presented by the borrower and the analysis described herein and pursuant to Operations Administration Manual OA-430 (Substantial and Fundamental Changes to Operations), Section B, subparagraph 5, and the provisions of paragraph 3.29, paragraph (c) of document DR-398-17 (Regulations of the Board of Executive Directors of the Inter-American Development Bank), as well as paragraph 6 of document CS-3953-1 (List of matters to be considered by the Board via Short Procedure), the Bank's Management recommends that the Board of Executive Directors approve, via short procedure, the exception to the Policy for the Procurement of Goods and Works Financed by the IDB (document GN-2349-7) as referred to in section II herein.

SPD - Evaluability Note**Modification Proposal: Sanitation Program of Rio Medellín – Second Stage
(CO-L1034)**

This proposal corresponds to a modification to the Sanitation Program of Rio Medellin –Second Stage (CO-L1034), which was approved by the Board of Directors on February 25th of 2009. The objective of the program is to reduce the contamination of Rio Medellin in order to: (i) use the adjacent areas of the river for recreational activities, urban and park developments; (ii) reduce the transmission of waterborne diseases; and (iii) use the water for industrial activities. These objectives will be achieved by treating the sewage water of Medellin's metropolitan area. One of the components of the project is the construction of a sewerage treatment plant utilizing a compost process to treat the bio solids.

This Modification Proposal requests that the treatment process for bio solids be changed to a thermal drying process with co-generation which will cost \$34 million more than the compost process. From the perspective of the project's evaluability this change could affect the economic viability of the project as well as its results matrix.

The increase in the cost of the project required redoing the economic analysis of the project to ensure that the Thermal Drying and Co-generation Plant is economically viable. The results of the economic analysis generated a rate of return of 13.5%, confirming its economic viability. Likewise, the Thermal Drying and Co-generation Plant was added as an output indicator to the results matrix of the project.

**RESULTS FRAMEWORK
MATRIX OF INDICATORS
MEDELLÍN RIVER SANITATION PROGRAM – PHASE II**

Objective	Contamination of the Medellín River from organic loading is reduced				
Outcome indicators	Baseline	Target level			Means of verification
Year	2007	2010	2012	2015	
Purpose indicators					EPM - Wastewater projects area Water Division technical file, 7th floor, EPM building
Average annual quality parameters at the following sites:					
1 Machado Bridge Station (upstream from the plant)					
Volume (m³/s)	24.1	22.5	18.2	18.5	
BOD5 (mg/l)	82.0	68.79	24.04	24.56	
DO (mg/l)	2.8	2.94	6.14	6.11	
2 Copacabana Station (Copacabana Bridge downstream from the plant)					
Volume (m³/s)	31.1	25.0	23.8	24.2	
BOD5 (mg/l)	74.0	65.74	29.58	30.53	
DO (mg/l)	3.3	2.78	5.49	5.34	
3 Girardota Station (Topco Quarry)					
Volume (m³/s)	31.3	31.06	31.6	32.0	
BOD5 (mg/l)	35.8	47.26	22.9	23.7	
DO (mg/l)	2.8	3.51	5.04	4.92	
4 Gabino Bridge Station					
Volume (m³/s)	96.8	80.4	81.0	81.0	
BOD5 (mg/l)	24.3	20.5	11.6	11.5	
DO (mg/l)	6.0	6.4	6.9	6.8	
Land value: Value of a 500-meter strip of land on either side of the river between Moravia and Kilometer 100 (price in \$000s/m2) AVERAGE	133		140	147	Niquía Hatillo Divided Highway Project Land registry offices of the municipios involved Water Division technical file, 7th floor, EPM building
Linear meters of pedestrian walkways, 120 meters on both banks of the Medellín River, downstream from Moravia CUMULATIVE TOTAL	22,097		28,857	31,607	Planning departments of the municipios involved Water Division technical file, 7th floor, EPM building

Component 1

Bello Wastewater Treatment Plant	Base 2007	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013	Means of verification
Output							
The Bello WTP is built and operating	Secondary level wastewater treatment plant with a capacity of 5 m ³ /s and efficiency in removal of BOD5 and suspended solids above 80%, in the following components: Detailed design by March 2008 Built and operating by December 2012						EPM - Wastewater projects area Water Division technical file, 7th floor, EPM building
Outcome							
1.1 Wastewater volume intercepted (m ³ /s)					4.51	4.57	

Thermal Drying and Cogeneration Plant	Base 2007	Year	Year	Year	Year	Year 2018	Means of verification
Output							
Biosolids management plant is built and operating	Thermal drying of biosolids and cogeneration plant. Capacity to dry 400 tons/day of biosolids, dryness level above 90% in granular form, and 8.2-MW electric power generation system of 8.2 MW and 9-12 MW of thermal power.						EPM – Bello WTP Project Management. Water Division technical file, 7th floor, EPM building
Outcome							
Dried biosolids (tons/day)						390	

Component 2

North interceptor sewer	Base 2007	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013	Means of verification
Output							
1. The North interceptor sewer is operating	7.7 km of interceptor sewer with the capacity to transport more than 6.5 m ³ /s, in the following components: Detailed design by December 2009 Built and operating by December 2012						EPM - Wastewater projects area Water Division technical file, 7th floor, EPM building
Outcome							
Wastewater volume intercepted (m ³ /s)	0	0	0	0	4.51	4.57	

Output							
2. Collector sewer connections to the North interceptor sewer are built and operating	4 kilometers of interceptor sewer networks to connect discharges from existing and projected collector sewers from the La Rosa, Santa Cruz, Juan Bobo, Granizal, La Francia, Cañada Negra, La Seca, Santa Rita, La Gabriela, Las Vegas, La Camila and Fontidueño streams on the east bank and the La Velásquez, La Moreno, barrio Tricentenario, La Tinajas, La Toscana, La Culebra, La Madera, La Loca, La García, La Señorita and La Seca or Seminarista streams on the west bank of the Medellín River to the North interceptor sewer, in the following components: (i) detailed design by the end of December 2010; and (ii) built and operating by the end of December 2012.						EPM - Wastewater projects area Water Division technical file, 7th floor, EPM building
Outcome							
Wastewater volume intercepted (m ³ /s)	0	0	0	0	4.51	4.57	

Component 3

Institutional development	Base 2007	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013	Means of verification
Output							
1. Training plan	Training plan developed						EPM Human Talent Management System report
Outcome							
% of the training budget executed	0%	36%	79%	98%	100%		Water Strategic Business Group report
Output							
2. Action plan to implement International Financial Reporting Standards (IFRS)	Action plan for the EPM Group to adopt international accounting standards so that the financial statements are prepared under those standards. The plan includes the breakdown of activities, human, technical, and financial resource needs, and the execution period.						Presentation of the plan
Intermediate outcomes							
(i) Approval of the group's accounting policies			EPM				Finance Division report
(ii) Inventory and valuation of fixed assets			2 subsidiaries	4 subsidiaries	6 subsidiaries		Finance Division report
(iii) Inventory of IT tools				2 subsidiaries	4 subsidiaries	6 subsidiaries	Finance Division report
(iv) Plan for IT systems upgrade					2 subsidiaries	4 subsidiaries	Finance Division report
Development Outcome (2)							
EPM's financial statements expressed under IFRS						fulfilled	Finance Division report

ESMP indicators

ESMP	Base 2007	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013	Means of verification
Resettlement plan		A	I	M	M	M	
Number of people displaced/total number of people living in the area	0/15	9/15	15/15				Contract signed by EPM and the interested party
Number of affected properties acquired/total number of properties in the works area	0/5	5/5					Contract signed by EPM and the interested party
Number of jobs created in the local area of influence (person/year)		300	600	900			Contract supervision reports

A: Approved, I: Implemented, M: Monitored

Initiative indicators

Indicators	Base 2007	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013	Source of information
1. Production/population (m ³ /day/per capita)	0.267						EPM financial report. EPM has committed to provide this information on an annual basis for use in evaluation of the Bank's Water and Sanitation Initiative.
2. Water service coverage (%)	100%						
3. Per capita consumption (m ³ /day/per capita)	0.168						
4. Average rate (US\$/m ³) (1)	1.24						
5. Unaccounted-for water (%)	36.81%						
6. Employment ratio (2)	1.66						
7. Employees per 1,000 water connections (plant personnel)	1.93						
8. Unit cost of production (US\$/m ³) (3)	0.82						
9. Beneficiary population (individuals)	3,149,536						
10. Cost of water for household consumption (m ³ /month) (4) Fixed charge: US\$ per user/month Consumption: US\$/m ³	2.61 0.41						

Notes: (1) Fixed charge and consumption charge income divided by m³ billed for water.

(2) Net operating income/costs and expenses from the water business.

(3) Total costs and expenses from the water business/m³ water supply services billed.

(4) Cost of providing water supply services; corresponds to amount applied to stratum 4.