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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PAPER

ON A

PROPOSED ADDITIONAL LOAN

IN THE AMOUNT OF US\$55 MILLION

TO THE

REPUBLIC OF PERU

FOR AN

OPTIMIZATION OF LIMA WATER AND SEWERAGE SYSTEMS PROJECT

December 18, 2014

Global Water Practice
Bolivia, Chile, Ecuador, Peru and Venezuela Country Management Unit
Latin America and the Caribbean Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2014)

Currency Unit = PEN (Peruvian Nuevo Sol)
PEN 2.87 = US\$1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CIRA	Certification of Inexistence of Archeological Remains
CPS	Country Partnership Strategy
CQS	Consultant Qualifications Selection
DA	Designated Account
DMA	District Metered Area
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EGAm	Environmental Management Team (<i>Equipo de Gestión Ambiental</i>)
EMP	Environmental Management Plan
EPE	Special Projects Team (<i>Equipo de Proyectos Especiales</i>)
FBS	Fixed Budget Selection
FM	Financial Management
FONAFE	State Companies National Fund (<i>Fondo Nacional Empresarial del Estado</i>)
FY	Fiscal Year
GDP	Gross Domestic Product
GIS	Geographical Information System
GoP	Government of Peru
IADB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
IFR	Interim Unaudited Financial Reports
IPF	Investment Project Financing
IRR	Internal Rate of Return
ISR	Implementation Status and Results Report
JICA	Japanese International Cooperation Agency
KfW	<i>Kreditanstalt für Wiederaufbau</i> (German Development Bank)
LCS	Least Cost Selection
MDG	Millennium Development Goal
MEF	Ministry of Finance (<i>Ministerio de Economía y Finanzas</i>)
MINAM	Ministry of Environment (<i>Ministerio del Ambiente</i>)
MVCS	Ministry of Housing, Construction, and Sanitation (<i>Ministerio de Vivienda, Construcción y Saneamiento</i>)

NCB	National Competitive Bidding
NPS	National Procurement System
NPV	Net Present Value
NRW	Nonrevenue Water
O&M	Operation and Maintenance
OM	Operations Manual
OP	Operational Policy
PAD	Project Appraisal Document
PDO	Project Development Objective
PP	Procurement Plan
PEI	Project Implementing Entity
PROMESAL	Lima Marginal Areas Sanitation Improvement Project (<i>Proyecto de Mejoramiento Sanitario de las Áreas Marginales de Lima</i>)
QBS	Quality-based Selection
QCBS	Quality Cost-based Selection
RAP	Resettlement Action Plan
RDM	Robust Decision Making
SBD	Standard Bidding Document
SCADA	Supervisory Control and Data Acquisition
SEDAPAL	Lima's Water and Sewerage Service (<i>Servicio de Agua Potable y Alcantarillado de Lima</i>)
SEPA	Procurement Plans Execution System (<i>Sistema de Ejecución de Planes de Adquisiciones</i>)
SOE	Statement of Expenses
SSS	Sole Source Selection
SUNASS	National Superintendence of Sanitation Services (<i>Superintendencia Nacional de Servicios de Saneamiento</i>)
WSP	Water and Sanitation Program
WSS	Water Supply and Sanitation
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

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PERU
ADDITIONAL FINANCING FOR
PE OPTIMIZATION OF LIMA WATER AND SEWERAGE SYSTEMS
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PERU

PE OPTIMIZATION OF LIMA WATER AND SEWERAGE SYSTEMS PROJECT

ADDITIONAL FINANCING DATA SHEET

Basic Information - Additional Financing (AF)	
Country Director: Alberto Rodriguez Practice Manager/Senior Global Practice Director: Wambui G. Gichuri/Junaid Ahmad Kamal Team Leader: Patricia Lopez Project ID: P133287 Expected Effectiveness Date: July 31, 2015 Lending Instrument: Investment Project Financing Additional Financing Type: Scale-up	Sectors: Water supply (50%); Sanitation (50%) Themes: Pollution management and environmental health (50%); Water resource management (50%) Environmental category: B Expected Closing Date: December 31, 2019 Joint IFC: No Joint Level: No
Basic Information - Original Loan	
Project ID: P117293 Project Name: PE Optimization of Lima Water and Sewerage Systems Lending Instrument: Specific Investment Loan	Environmental category: B Expected Closing Date: October 31, 2016 Joint IFC: No Joint Level: No
Additional Financing Data	
<input checked="" type="checkbox"/> Loan <input type="checkbox"/> Credit <input type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other: Proposed terms: Fixed spread loan with a final maturity of 24 years, including a grace period of five years	
AF Financing Plan (US\$, millions)	
Source	Total Amount (US\$, millions)
Total Project Cost:	73
Borrower	18
Total Bank Financing:	
IBRD	
New	55
Recommitted	
Client Information	
Recipient: Republic of Peru Responsible Agency: SEDAPAL Contact Person: Yuri Sanchez Merlo Telephone No.: +51 (1) 317-3095 Fax No.: +51 (1) 362 5148 Email: ysanchez@sedapal.com.pe	

AF Estimated Disbursements (US\$ millions)					
FY	FY16	FY17	FY18	FY19	FY20
Annual	11.0	26.0	12.0	5.5	0.5
Cumulative	11.0	37.0	49.0	54.5	55.0
Project Development Objective and Description					
<p>Project development objective: To improve the efficiency, continuity, and reliability of water supply and sanitation services in the Northern Service Area of Lima.</p> <p>Project description: The Project consists of three components that include civil works, capacity building, and institutional development as well as project management. The Project's physical investments are designed to serve four districts within the Northern Service Area of Lima, namely, Comas, Independencia, San Martin de Porres, and Los Olivos, benefiting about 158,380 people in an area of 118 km². The proposed additional loan will expand the geographic scope of the Project in underserved areas located in or adjacent to the districts of Comas, Los Olivos, and Carabayllo in the original design, benefiting around 239,000 additional people.</p>					
Safeguard and Exception to Policies					
Safeguard policies triggered:					
Environmental Assessment (OP/BP 4.01)			[X]Yes [] No		
Natural Habitats (OP/BP 4.04)			[]Yes [X] No		
Forests (OP/BP 4.36)			[]Yes [X] No		
Pest Management (OP 4.09)			[]Yes [X] No		
Physical Cultural Resources (OP/BP 4.11)			[X]Yes [] No		
Indigenous Peoples (OP/BP 4.10)			[]Yes [X] No		
Involuntary Resettlement (OP/BP 4.12)			[X]Yes [] No		
Safety of Dams (OP/BP 4.37)			[]Yes [X] No		
Projects on International Waterways (OP/BP 7.50)			[]Yes [X] No		
Projects in Disputed Areas (OP/BP 7.60)			[]Yes [X] No		
Does the Project require any waivers of Bank policies?			[]Yes [X] No		
Have these been endorsed or approved by Bank management?			[]Yes [] No		
Conditions and Legal Covenants					
Financing Agreement Reference	Description of Condition/Covenant			Date Due	
Loan Agreement, Article V. 5.01	<p>The Additional Conditions of Effectiveness consist of the following:</p> <p>(a) The Subsidiary Agreement has been executed on behalf of the Borrower and the Project Implementing Entity;</p> <p>(b) The updated Operational Manual has been adopted by the Project Implementing Entity</p>			By Effectiveness	

<p>Loan Agreement, Schedule 2. Section IV.B.1</p>	<p>Notwithstanding the Provisions of Part A of this Section, no withdrawal shall be made: (a) From the Loan Account until the Bank has received payment in full of the Front-end Fee</p>	<p>By First Disbursement</p>
<p>Loan Agreement, Schedule 2. Section IV.B.1</p>	<p>Notwithstanding the Provisions of Part A of this Section, no withdrawal shall be made: (b) For payments made prior to the date of the Legal Agreement, except that withdrawals up to an aggregate amount not to exceed \$11,000,000 equivalent may be made for payments made prior to this date but on or after October 27, 2014 (but in no case more than one year prior to the date of the Legal Agreement), for Eligible Expenditures</p>	
<p>Project Agreement, Schedule I, Section I. C, 3)</p>	<p>The Project Implementing Entity shall prepare a semi-detailed environmental impact assessment report of the Project, as required under the Borrower's applicable legislation, and take all the necessary actions to obtain the approval of the said report by the corresponding sectoral environmental agency and the issuance of the corresponding environmental license.</p>	<p>September 30, 2015</p>

I. INTRODUCTION

1. This Project Paper seeks the approval of the Executive Directors to provide an additional loan in the amount of US\$55 million to the Republic of Peru for the Optimization of Lima Water and Sewerage Systems Project (hereinafter, the original loan is referred to as ‘Lima Norte 1’ and the Additional Financing (AF) loan as ‘Lima Norte 2’). The proposed additional loan would help finance the costs associated with the expansion of the Project’s geographic scope to cover the rehabilitation of water supply and sanitation systems in adjacent underserved areas in the northern Lima-Callao Metropolitan Area. The proposed scale-up is intended to increase the efficiency and the quality of water supply and sanitation services (WSS) delivery to additional beneficiaries, securing water availability for increased access to the services. The proposed AF will finance the rehabilitation of around 35,500 water supply and 14,000 sewerage household connections as well as secondary water distribution and sewerage collection networks, benefiting an estimated 239,350 people of low to modest income¹ in the districts of Comas, Carabayllo, and Los Olivos.

2. Lima’s Water and Sewerage Service (*Servicio de Agua Potable y Alcantarillado de Lima* [SEDAPAL]) has designed a comprehensive investment program to upgrade the WSS systems in the Northern Service Area of Lima, building on successful past efforts to optimize the systems in the Central and Southern Lima Service Areas, which were funded by previous World Bank projects and other multilateral and bilateral agencies. The proposed additional loan would finance part of the larger ‘Lima Norte 2 Investment Program’ led by SEDAPAL and co-financed by the *Kreditanstalt für Wiederaufbau* (German Development Bank [KfW]), the Japanese International Cooperation Agency (JICA), SEDAPAL, and the International Bank for Reconstruction and Development (IBRD). The Lima Norte 2 Program objectives are to expand and rehabilitate the water supply and sewerage collection systems (including primary and secondary networks, reservoirs, and groundwater wells) in the Northern Service Area of Lima. See Annex 5 for a description of the current situation in Lima and the objectives of the Lima Norte 2 Program.

II. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING IN THE AMOUNT OF US\$55 MILLION

A. ORIGINAL PROJECT BACKGROUND

3. The Lima Norte 1 loan, in the amount of US\$54.4 million, was approved by the Board of Executive Directors on April 7, 2011, and became effective December 7, 2011. The loan is due to close on October 31, 2016.

¹ Average monthly income in the intervention area is US\$203 per capita. Source: Surveys undertaken as part of the feasibility study for Lima Norte 2 Program prepared by Nippon Koei Lac Co. LTD. *Estudio de Factibilidad del Proyecto “Optimización de Sistemas de Agua Potable y Alcantarillado Sectorización, Rehabilitación de redes y Actualización de Catastro.” - Área de Influencia Planta de Huachipa- Área de Drenaje Oquendo, Sinchi Roca, Puente Piedra y Sectores 84, 83, 85 y 212-Lima.*

4. The original Project development objective is to improve the efficiency, continuity, and reliability of water supply and sanitation services in the Northern Service Area of Lima. Its original design consisted of three components addressing civil works, capacity building, and institutional development, as well as project management. The Project's physical investments were designed to serve four districts: Comas, Independencia, San Martin de Porres, and Los Olivos, benefiting about 158,380 people in an area of 118 km².

- **Component 1: Rehabilitation of water and sewerage networks in the Northern Service Area of Lima** (Total: US\$61.2 million; IBRD: US\$51.3 million)
- **Component 2: Improving SEDAPAL's efficiency** (Total: US\$2.3 million; IBRD: US\$1.88 million)
- **Component 3: SEDAPAL's project management** (Total: US\$1.4 million; IBRD: US\$1.32 million)

B. STATUS OF IMPLEMENTATION

5. The Project is on track to meet its development objectives. Rehabilitation works financed by the Project have continued and physical implementation progress to date stands at around 68 percent. A joint team comprising the Bank, KfW, and JICA has been working with SEDAPAL to achieve a smooth process, continuity, and quality supervision of the works.

6. The three most recent Implementation Status and Results Reports (ISR) which cover Project implementation from November 2013, show a rating of Satisfactory in "Progress towards Achievement of Development Objectives". The last two ISRs show an "Implementation Progress" rating of Moderately Satisfactory, downgraded from Satisfactory in the previous ISR, driven by delays in the contracting of planned studies under Component 2. However, the four planned studies under Component 2 aimed at improving SEDAPAL's efficiency and strengthening the utility² are now in advanced stages of contracting and Components 1 and 3 have a good rate of implementation.

7. As part of a combination of operational changes and rehabilitation works, there have been notable improvements in continuity of water supply to residents (from 16 hours/day to 19.2 hours/day on average), reduction of corrective maintenance costs (number of ruptures per km per year has been reduced from 0.21 to 0.16 for water and from 8.75 to 3.52 for sewerage) and non-revenue water (NRW) (from 40 percent to around 35 percent) in the Lima Norte 1 area of influence.

8. *Disbursements and commitments.* Current disbursements are US\$43.9 million out of the US\$54.5 million loan, with approximately 98 percent of the total value of the loan now committed. Disbursement rose sharply after awarding the civil works contract in four lots during the period from November 11, 2011 to March 2013.

² Evaluation of the company's institutional and organizational structure, consolidation of Supervisory Control and Data Acquisition (SCADA) platform, Optimization of Geographical Information System (GIS), and Demand and Consumption Study.

9. *Procurement and Financial Management.* Procurement is rated Satisfactory and FM is Moderately Satisfactory. Procurement capacity within SEDAPAL is strong, and the entity has successfully completed bidding and awarded a high-value civil works contract in compliance with Bank guidelines. FM performance is Moderately Satisfactory due to delays in automation of the financial system. SEDAPAL is currently in the process of shifting from MS Excel-based accounting to more formal accounting software. Annual procurement and FM audits have been carried out in a timely manner.

10. *Safeguards.* The rating for safeguards compliance is Satisfactory and there are no known issues that are unresolved.

C. RATIONALE FOR ADDITIONAL FINANCING

11. The additional loan would finance the scaling-up of successful activities and enable the expansion of the Project's geographic scope. There are no changes to the Project's original development objectives or design. The geographic expansion would enable improvement of the efficiency, continuity, and reliability of the WSS in targeted sectors within the district of Comas and adjacent districts of Carabayllo and Los Olivos.

12. The proposed operation will directly contribute to the Government's objective of reducing inequality and the Bank's twin goals of poverty alleviation and shared prosperity by ensuring that the less well-off get equitable access to adequate basic services.³ The Project will achieve this by improving the quality of the WSS provided to middle- to low-income urban dwellers and securing water availability (through increased efficiency and reduced water losses). Increased water availability will be harnessed to expand services to new, unserved localities in peripheral communities in the Northern Service Area of Lima. The Bank's current engagement with SEDAPAL, including the activities under the proposed AF, is consistent with the Country Partnership Strategy (CPS) for the Republic of Peru (FY2012–FY2016),⁴ in particular with the strategic objective of connecting the poor to services and markets, which highlights improved WSS provision as one of its result areas.

13. Within the area covered by the proposed Additional Financing, SEDAPAL currently loses 50 percent of the water it produces. Given water scarcity and financial resources constraints, this is not sustainable. The challenges related to rapid urbanization and the existing dilapidated infrastructure result in a high non-revenue water (NRW) rate in this service area of around 49.6 percent,⁵ significantly higher than the NRW rates of 35 percent and 27.5 percent in the Central and Southern Service Areas of Lima, respectively. The majority of areas are affected by low water pressure and discontinuity of water services.⁶ The Project is expected to reduce the NRW due to technical losses in the area from 40 percent to at least 25 percent, generating a cost reduction of an estimated US\$ 11 million annually (around 12 percent of SEDAPAL's estimated

³ SEDAPAL has in place a comprehensive tariff structure, which supports low income households through cross-subsidization of water and sewerage services. Provision of water supply and sewerage services through SEDAPAL's networks is significantly cheaper (at times half the cost depending on location) than purchase of water from tankers and emptying of septic tanks and latrines using private operators.

⁴ Report No. 66187-PE, discussed by Executive Directors on March 13, 2012

⁵ Includes technical and commercial losses.

⁶ The district of Comas is a prime example of an area which routinely receives between 3 to 7 hours of service per day.

total production costs).⁷ This will enable full cost recovery of the services delivered in the area, whereas now revenues are estimated at around 50 percent of costs. Furthermore, water savings of around 36 million m³ per year will allow SEDAPAL to expand services to unserved communities outside the existing network.

14. Other than the proposed AF, the alternative considered was to complete planned investments through SEDAPAL’s own resources. Given the extent of financing needed, SEDAPAL has developed a comprehensive program to rehabilitate the water and sewerage networks in the Northern Service Area of Lima that will be financed in parallel through this AF, JICA, KfW, and SEDAPAL’s own resources. The proposed operation will contribute to the Government’s priority objective of reducing inequality by ensuring that the less well-off get access to adequate basic services and by improving the quality of the WSS provided to low-income urban dwellers. This justifies the need for public financing.

III. PROPOSED CHANGES

15. No changes to the development objective, project design, implementation approach, or institutional arrangements are proposed. Revised Project costs for each component are shown in Table 2.

Table 2: Proposed Additional Financing (US\$, millions)

Component	Original Project Cost	IBRD Portion	AF Project Costs	AF IBRD Portion	Total Project Costs	Total IBRD Portion
1. Rehabilitation of water and sewerage networks in Northern Service Area of Lima	61.2	51.3	72.0	54.0	133.2	105.3
2. Improving SEDAPAL’s efficiency	2.3	1.9	0.0	0.0	2.3	1.9
3. SEDAPAL project management	1.4	1.3	1.0	1.0	2.4	2.3

16. *Project closing date.* The closing date for the proposed additional loan would be December 31, 2019.

17. *Results Framework.* Most of the original Project indicators will remain unchanged but revised target values have been established to reflect the scale-up. New indicators would be introduced to better capture and reflect project results, including a percentage-based NRW reduction indicator, gender disaggregated data for total beneficiary indicator, and number of complaints satisfactorily resolved. The revised Results Framework is included in Annex 1.

⁷ Excluding administrative and commercial costs.

IV. APPRAISAL SUMMARY

18. *Technical.* SEDAPAL, supported by funds from other international financiers, has prepared a detailed feasibility study⁸ (including budget, technical designs, and economic and financial analysis) for the proposed AF investments. The Bank has appraised the technical analysis approach and resource allocation and found them satisfactory. The feasibility study has delineated the proportion of replacement and renovation based on a detailed hydraulic modeling of each subsector where works will be implemented following the same methodology applied in the original design. In addition, rehabilitation of the water network has taken into consideration the removal of asbestos-based pipes to reduce public health hazards associated with this carcinogenic material. The final technical designs have been commissioned to a consortium of international and local firms and are due to be finalized in September 2015. As in the original design, social interventions will complement the physical investments to maximize the Project's expected benefits by taking measures to engage the beneficiary community and facilitate the transition to a full pressure, continuous, and metered service (see Annex 5).

19. *Economic viability.* Two main benefits were identified for the water component: (a) cost savings when recurrent failures on existing pipelines are eliminated and (b) reduction of water losses, which releases water that can be supplied to other districts in the Northern Service Area of Lima that have poor service. For sewerage, the main benefit comes from savings in operating costs when recurrent breakages and clogging of pipelines are eliminated. Cost-saving calculations were based on actual costs incurred by SEDAPAL for repairing water and sewerage pipes. Benefits of reducing unaccounted for water were estimated as the additional volume of water that can be distributed to areas with poor service. The economic value per cubic meter was estimated as the average of current prices paid by the population when coping with deficient water supply from the public network. Economic results show that the Project will have a positive impact on the community, generating benefits 29 percent higher than costs and an economic return of 13 percent. Benefits of the water component yield a return of 14 percent, while the sewerage component yields 11 percent. These are conservative estimates as additional benefits were not quantified, including: (a) decrease in water pollution when replacing existing asbestos water pipelines; (b) improvement in service when the water system operates properly; (c) reduction of inconveniences caused by clogging of sewerage pipelines, for example, sewage overflow on the streets and inside dwellings; and (d) positive health impacts when sewage is properly transported.

20. *Financial viability.* Financial benefits for the water component consist of: (a) revenue increases when the volume of water that previously was lost can be supplied and billed to other areas; and (b) reduction in operating costs when corrective maintenance needs are reduced. Financial benefits for the sewerage component consist of reduction in maintenance and replacement costs when the sewerage network improves. Financial results show that even with efficiency gains, revenues obtained with the proposed AF will not be enough to fully cover total

⁸ Nippon Koei Lac Co. LTD. 2012. *Estudio de Factibilidad del Proyecto Optimizacion de Sistemas de Agua Potable y Alcantarillado Sectorizacion, Rehabilitacion de redes y Actualizacion de Catastro. Area de Influencia Planta de Huachipa- Area de Drenaje Oquendo, Sinchi Roca, Puente Piedra y Sectores 84, 83, 85 y 212-Lima.*

costs (operating and capital costs). Only operating costs and a small part of the investment will be covered. The remaining investment costs have to be funded either with additional tariffs or transfers from the Government. Financial revenues were estimated as the volume of water billed multiplied by the water tariff. This evaluation used current tariffs, which are S/. 1.46 per m³ and S/. 0.62 per m³ for water and sewerage, respectively.

21. *Institutional arrangements.* No changes in implementing arrangements are proposed. The project management unit responsible for the implementation of the Lima Marginal Areas Sanitary Improvement Project (PROMESAL), which managed Lima Norte 1, has now been renamed *Equipo de Proyectos Especiales* (EPE) and is part of SEDAPAL's organizational structure. This team will continue to perform procurement activities. SEDAPAL's General Management (*Gerencia General*) will be responsible for approving final designs and complementary studies, while Operations Management (*Gerencia de Operaciones*) will be in charge of the final reception of the works.

22. *Fiduciary.* An assessment of FM arrangements⁹ determined that SEDAPAL is a well-established entity that has acquired experience in working with Bank funds and which was consistently considered, through Bank supervision and external auditors, to have Moderately Satisfactory performance. However, in terms of staff, an additional FM specialist will be hired once implementation of the additional operation starts. In addition, SEDAPAL will complete the preparation of a SAP module to better support preparation of the financial reports of the Project. Based on the mentioned assessment, in general, the proposed FM arrangements are considered acceptable, subject to successful implementation of agreed strengthening measures, which are aimed at enhancing SEDAPAL's capacity for Project implementation.

23. *Procurement.* The original assessment of SEDAPAL's capacity to implement procurement conducted in November 2010 was updated in September 2014. SEDAPAL's EPE will continue to be in charge of Project management and implementation. This unit has the capacity to select consultants and procure goods, works, and services following the Bank's Procurement Guidelines. The proposed corrective mitigating measures are to (a) establish a system to monitor and expedite contract modifications or change orders; (b) publish and manage the Procurement Plan through the Procurement Plans Execution System (SEPA); and (c) hire a second Procurement Specialist experienced with the Bank's Procurement Guidelines if required by the procurement process for the Project.

24. Procurement for the proposed AF would be carried out in accordance with the Bank's Guidelines: (a) Procurement of Goods, Works, and Non-consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011 and revised July 2014; (b) Guidelines: Selection and Employment of Consultants by World Bank Borrowers, dated January 2011 and revised 2014; (c) Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, revised in January 2011; and (d) the provisions stipulated in the Loan Agreement. For each contract to be financed by the loan, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame have been agreed

⁹ Performed in accordance with OP/BP 10.00 and the Financial Management Manual, dated March 1, 2010.

between the Borrower and the Bank in the Procurement Plan. SEDAPAL has prepared a preliminary Procurement Plan for the first 18 months of implementation. See Annex 7 for additional details on procurement methods.

25. *Environment.* The Project is classified as Category B for environmental assessment. The safeguard policies OP/BP 4.01 (Environmental Assessment) and OP/BP 4.11 (Physical Cultural Resources) have been triggered. Environmental performance is considered Satisfactory to date. No additional safeguards are proposed to be triggered under this proposed AF loan, given that the proposed additional works will be of similar nature to and in the same areas as the original design. The Environmental Management Plan (EMP) prepared for the Lima Norte 1 loan has been updated (disclosed both in country and on the Bank's website on October 21, 2014) to include the new geographic scope and ensure that all environmental aspects are factored in the new districts added. Further consultations with stakeholders will be undertaken in the coming months after completion of a detailed Environmental Impact Assessment (EIA) in September 2015, which is required under the Peruvian environmental legislation.

26. *Social.* OP/BP 4.12 (Involuntary Resettlement) remains applicable to the Project. However, SEDAPAL's social supervision team and the consultancy firm in charge of elaborating the final designs have screening the areas included under the new geographic scope and have concluded that there would be no impacts covered by OP 4.12, including temporary and/or permanent impacts on the neighborhoods, particularly land acquisition, easements, and economic displacement. SEDAPAL has an institutional Involuntary Resettlement Framework that was adopted by the utility as the official company policy during the preparation of the Lima Norte 1 loan. This framework - which has not yet produced any Resettlement Action Plans (RAPs) under the Lima Norte 1 implementation - will be in effect during implementation going forward. Should any impacts be identified during implementation, however unlikely, SEDAPAL will prepare an RAP according to the existing framework, which would be approved by the Bank and disclosed in-country. Given SEDAPAL's extensive experience in applying resettlement standards comparable to international best practices, the institution has sufficient capacity to manage any social risks that may arise.

27. *Social Action Plan:* A social supervision and communication plan is currently being developed. The plan will propose a strategy to strengthen social sustainability by creating win-win positive incentives between the Project's extension of hours of service in select, underserved pockets within the Project areas and customers' fulfillment of payment responsibilities and assent to metering installation and use. This will include gender-tailored initiatives such as providing guidance to manage consumption, in particular by encouraging the use of in-house water-saving equipment. It is expected that the Social Action Plan would include a specific activity through the involvement of schools with an educational objective on the rational use of water and appropriate use of the WSS. Additionally, technical assistance on aspects related to demand management to enhance efficiency will be carried out to complement the proposed rehabilitation.

28. *Consultation.* In order to inform the population of the Project and its social supervision strategy, SEDAPAL conducted community consultation on October 12, 2014 (with 87 percent attendance rate). The objective of the meeting was to share details regarding the scope of works, expected environmental and social impacts, and the social supervision plan that SEDAPAL will

implement to monitor and mitigate these impacts. The community concerns expressed during the meeting were documented in detail as were the utility's responses to each concern. The participants expressed support for the Project, interest in participating in community monitoring initiatives to ensure proper water disposal, and compliance with the proposed environmental mitigation plan.

29. *Redress Mechanisms.* Currently, SEDAPAL and the Ministry of Housing have jointly eight entry points for grievance redress and/or conflict prevention: (a) *Equipo de Proyectos Especiales*; (b) social management of projects; (c) institutional image; (d) communication/press; (e) business management (through its seven decentralized offices); (f) the "Conflict Unit" in the Ministry of Housing; (g) environmental management (to a lesser extent); and (h) sanitary education. The Project will assign funds for consolidation of the utility's grievance redress mechanism and communication strategies through technical assistance as well as customized information systems. The primary focus will be on SEDAPAL's existing grievance redress mechanism, *Aguafono*, which is considered best practice in the public sector and is well-known by the population. This mechanism is another channel where the company can receive feedback from civil society.

30. *Risks.* The overall risk of the Project is assessed as Moderate. Key risks are associated with potential environmental and social impacts during the construction, particularly nuisances to residents (such as noise and dust), traffic interruptions and potential health impacts of asbestos pipelines residuals, as well as social sustainability within the Project areas in terms of the willingness of customers to fulfill payment responsibilities and assent to meter installation and use. In order to mitigate the potential social and environmental risks during construction, the bidding documents for the works will require the contractors to undertake a series of actions such as prior communication to residents on dates and times of interventions in specific areas and a protocol for handling the old asbestos pipes being replaced as set forth in the Environmental Management Plan which has been prepared during preparation and will be implemented during construction of the works. With regards to the risk of Project's social acceptance, SEDAPAL has undertaken different community outreach activities which resulted in the expression of broad general support for the Project. In addition, and as described above, a series of social awareness, strategic communication and redress mechanisms will be put in place to ensure beneficiaries are adequately prepared for the use of the services.

Annex 1

RESULTS FRAMEWORK AND MONITORING

Revisions to the Results Framework		Comments/ Rationale for Change
<i>Current (PAD)</i>	<i>Proposed</i>	
PDO The Project Development Objective (PDO) is to improve efficiency, continuity and reliability of water supply and sanitation services in the Northern Service Area of Lima	No change	
PDO indicators		
<i>Current (PAD)</i>	<i>Proposed change*</i>	
Total Number of Beneficiaries, of which 50.8% are women	No Change (Core Sector Indicator)	
Number of daily hours water services are provided in the Project area.	No change	
Annual incidence of water pipe breakages per km of water supply network in the Project area.	No change	
Annual incidence of sewerage blockages per km of sewerage network in the Project area.	No change	
Volume of water saved in the Project area.	Revised: Percentage reduction in non-revenue water (% of volume invoiced/ volume distributed)	A different means to represent water savings that measures efficiency and is easily comprehensible by non-technical audiences.
Number of learning events on strategic planning and management	This indicator is being moved to the intermediate outcome level for Component 3. Revised: Number of men and women participating in learning events on strategic planning and management	Expand scope of indicator and introduce gender disaggregated data to allow monitoring of differentiated impacts.
Intermediate Results indicators		
<i>Component 1</i>		
<i>Current (PAD)</i>	<i>Proposed change*</i>	
Km of water pipes rehabilitated.	No Change	
Km of sewerage pipes rehabilitated.	No Change	
Pipe household water connections affected by rehabilitation works undertaken under the Project	No Change (Core Sector Indicator)	
Water utilities that the Project is supporting	No Change (Core Sector Indicator)	

Revisions to the Results Framework		Comments/ Rationale for Change
Number of stakeholders reached with information on how to invest on water saving equipment	Revised: Number of men and women (stakeholders) reached with information on rational water use, including information on water saving equipment.	Expand scope of indicator and introduce gender disaggregated data to allow monitoring of differentiated impacts.
No. of schools reached with information on rational water use, including information on water saving equipment	New	Expand scope of information and outreach exercise to target schools.
<i>Component 2</i>		
Action plan completed for the integration of GIS and SCADA systems.	No Change	
Evaluation of current and future demand for water and sanitation services completed together with identification of priority actions to meet such demand as efficiently as possible.	No Change	
Study on options for the development of a new organizational model completed.	No change	
<i>Component 3</i>		
Complaints satisfactorily redressed	New	The Project will assign funds for the consolidation of the utility's grievance redress mechanism and communication strategies, through technical assistance as well as tailor-made information technology. A possible investment will be the development of a technological instrument (platform) to consolidate grievances and the utility's redress.
Integrated Non-Revenue-Water Management Action Plan elaborated and approved by SEDAPAL's General Management and Board	New	Component 3 will help prepare a comprehensive NRW management Action Plan integrating different ongoing initiatives within SEDAPAL on the subject.
Number of learning events on strategic planning and management	New (moved from PDO level): Number of men and women participating in learning events on strategic planning and management	

REVISED PROJECT RESULTS FRAMEWORK

Project Development Objective (PDO):													
To improve the efficiency, continuity and reliability of water supply and sanitation services in the Northern Service Area of Lima.													
PDO Level Results Indicators	Core	UOM ¹⁰	Baseline Original Project Start (2011)	Progress To Date (2014) ¹¹	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
1. Number of daily hours water services are provided in the Project area.		Hours	16.09	19.20	19.20	19.20	19.20	23.00	24.00	Bi-annual	Northern Management Zone bi-annual report	SEDAPAL's Northern Management Office	Weighted average in average service hours for sectors
2. Annual incidence of water pipe breakages per km of water supply network in the Project area.	<input type="checkbox"/>	No.	0.21	0.16	0.16	0.13	0.10	0.08	0.07	Bi-annual	Leakage Reduction and Control, and Commercial Management Teams Annual Report	Leakage Reduction and Control, and Commercial Management Teams	Weighted average in kilometers rehabilitated times the average of water pipe breakages per district
3. Annual incidence of sewerage blockages per km of sewerage network in the Project area.	<input type="checkbox"/>	No.	8.75	3.52	3.52	3.3	3.00	2.7	2.34	Bi-annual	Annual Report from the Network Operation and Maintenance Team.	Leakage Reduction and Control, and Commercial Management Teams	Weighted average in kilometers rehabilitated times the average of sewerage blockages per district

¹⁰ UOM = Unit of Measurement.

¹¹ For new indicators introduced as part of the additional financing, the progress to date column is used to reflect the baseline value.

Project Development Objective (PDO):

To improve the efficiency, continuity and reliability of water supply and sanitation services in the Northern Service Area of Lima.

PDO Level Results Indicators	Core	UOM ¹⁰	Baseline Original Project Start (2011)	Progress To Date (2014) ¹¹	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
4. Non-Revenue Water ¹²	<input type="checkbox"/>	% of volume invoiced/ volume distributed	40	35% in Original Project Area; 49.5% in Lima Norte 2 (AF) areas	40	40	35	30	25	Annual	Northern Management Zone annual report	SEDAPAL's Northern Management Office	Cumulative of weighted average in kilometers rehabilitated times the average water loss per district
Beneficiaries													
Project beneficiaries,	<input checked="" type="checkbox"/>	No.	0	120,000	150,000	198,500	298,000	320,000	438,000	Annual	Equipo de Proyectos Especiales	Equipo de Proyectos Especiales	
Of which female (beneficiaries)	<input checked="" type="checkbox"/>	No.	0	60,960	76,200	100,838	151,384	162,572	222,504	Annual	Equipo de Proyectos Especiales	Equipo de Proyectos Especiales	

¹² Refers to Non-Revenue-Water in the Project areas

Intermediate Results and Indicators													
Intermediate Results Indicators	Core	UOM	Baseline Original Project Start (2011)	Progress To Date (2014)	Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
Intermediate Result 1: <i>Rehabilitation of water and sewerage networks in Northern Service Area of Lima.</i> This component will finance the rehabilitation of the water and sewerage networks in Northern Service Area of Lima, directly benefiting more than 398,500 people. The exact proportion of replacement and renovation will be determined during implementation based on a detailed													
1. Km of water pipes rehabilitated		km	0	0	0	250	250	250	384	Quarterly, once construction started	Monthly supervision report from supervisor consultant	Supervisor consultant	
2. Km of sewerage pipes rehabilitated		km	0	0	0	100	100	100	246	Quarterly, once construction started	Monthly supervision report from supervisor consultant	Supervisor consultant	
3. Piped household water Connections rehabilitated by works undertaken under the Project	<input checked="" type="checkbox"/>	Number	0	0	0	35,000	35,000	35,000	69,444	Quarterly, once construction started	Monthly supervision report from supervisor consultant	Supervisor consultant	
4. Water utilities that the Project is supporting	<input checked="" type="checkbox"/>	Number	0	1	1	1	1	1	1	N/A	N/A	N/A	
5. Number of men and women (stakeholder) reached with information on rational water	<input type="checkbox"/>	Number	0	0	0	15,000	30,000	45,000	45,000	Bi-annual	Progress Report	Equipo de Proyectos Especiales	

Intermediate Results and Indicators													
Intermediate Results Indicators	Core	UOM	Baseline Original Project Start (2011)	Progress To Date (2014)	Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
use, including information on water saving ²¹ ; equipment													
6. No. of schools reached with information on rational water use, including information on water saving equipment		Number	0	0	0	3	7	10	10	Bi-annual	Progress Report	Equipo de Proyectos Especiales	

Intermediate Results Indicators	Core	UOM	Baseline Original Project Start (2011)	Progress To Date (2014)	Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
Intermediate Result 2: Improving SEDAPAL's Efficiency. This component will finance studies and consultant services to provide decision-making tools to SEDAPAL's management to													
1. Action plan completed for the integration of GIS and SCADA systems.	<input type="checkbox"/>	Yes/No	No <i>None</i>	No <i>Under contracting</i>	No	No	No	No	Yes <i>Study completed</i>	Annual	Progress Report	Equipo de Proyectos Especiales	
2. Evaluation of current and future demand for water and sanitation services completed	<input type="checkbox"/>	Yes/No	No	No <i>Under contracting</i>	No	No	No	No	Yes <i>Study completed</i>	Annual	Progress Report	Equipo de Proyectos Especiales	

Intermediate Results Indicators	Core	UOM	Baseline Original Project Start (2011)	Progress To Date (2014)	Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Comments
					2015	2016	2017	2018	End Target				
together with identification of priority actions to meet such demand as efficiently as possible.													
3.Study on options for the development of a new Organizational model completed.		Yes/No	No	No <i>Under contracting</i>	No	No	No	No	Yes <i>Study completed</i>	Annual	Progress Report	Equipo de Proyectos Especiales	
Intermediate Result 3: Project Management													
1.Complaints satisfactorily redressed		%	65%	65%	65%	65%	75%	85%	85%	Annual	Progress Report	Equipo de Proyectos Especiales	
2.Integrated Non-Revenue-Water Management Action Plan elaborated and approved by SEDAPAL's General Management and Board		Yes/No	No	No	No	No	No	No	Yes	Annual	Progress Report	Equipo de Proyectos Especiales	
3. Number of people participating in learning events on strategic planning and management		Number	0	0	0	0	5 men and 5 women	5 men and 5 women	10 men and 10 women	Annual	Progress Report	Equipo de Proyectos Especiales	

ANNEX 2
SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	M
2. Macroeconomic	L
3. Sector Strategies and Policies	M
4. Technical Design of Project or Program	M
5. Institutional Capacity for Implementation and Sustainability	L
6. Fiduciary	M
7. Environment and Social	M
8. Stakeholders	L
OVERALL	M

ANNEX 3 ECONOMIC ANALYSIS

Methodology

1. A cost benefit analysis was used to evaluate both components of the Project: water and sewerage. Costs and benefits were projected for two scenarios: *With* and *Without Project*. The net benefit of each component equals the difference between incremental benefits and costs for both scenarios. The *Without Project* situation was forecasted assuming that services and current operating costs would remain unchanged. The *With Project* scenario was forecasted including the proposed investment program and its associated targets.

2. The evaluation was conducted from two perspectives: financial and economic. From a financial perspective, each activity was appraised measuring its costs and benefits at market prices in the same way as SEDAPAL will pay and receive from it. From an economic perspective each component was evaluated converting financial cash flows into economic cash flows through the use of conversion factors to eliminate market distortions; and including economic benefits. Cost and benefits were expressed in 2013 prices. The lifetime of the Project was expected to be 30 years, and a discount rate of 10 percent was used.

Costs

3. Costs consisted of investment and operating costs. Investment costs included water and sewerage works plus other costs, such as: environmental impact mitigation, social intervention, project management, and taxes.

4. Economic costs were estimated by transforming financial costs through the use of conversion factors, which eliminate market distortions created by taxes, tariffs, and subsidies. The conversion factors were based on calculations presented in the Lima Norte 2 Project feasibility study conducted by the consultancy firm Nippon Koei (2012)¹³.

Table 1. Conversion Factors

Water works	0.817
Sewerage works	0.811
Design and studies	0.847
Supervision	0.847
Contingencies	0.817
Operating Costs	0.847

5. Operating costs were projected for both scenarios. To forecast the *Without Project* scenario, current costs were maintained during the expected life of the Project. To forecast the

¹³ Nippon Koei Lac Co. LTD (2012). *Estudio de Factibilidad del Proyecto "Optimizacion de Sistemas de Agua Potable y Alcantarillado Sectorizacion, Rehabilitacion de redes y Actualizacion de Catastro. - Area de Influencia Planta de Huachipa- Area de Drenaje Oquendo, Sinchi Roca, Puente Piedra y Sectores 84, 83, 85 y 212-Lima*

With Project scenario, costs were based on the expected operating costs once the Project is implemented. For both scenarios the projection was based on actual costs incurred by SEDAPAL and information presented in the feasibility study of Nippon Koei (2012).

6. To maintain the services with current conditions of water and sewerage networks SEDAPAL has been: a) replacing annually 8 percent of the sewerage pipelines, and 3 percent of the water pipes, at a cost of US\$ 500 thousand per km of sewerage pipes and US\$ 300 thousand per km of water pipes. For 97 km of pipelines in the Project area, the annual cost has been US\$3.8 million for the sewerage service and US\$0.9 million for the water service; b) cleaning clogged sewerage pipes at a cost of US\$1 million per year in the area; and c) repairing broken pipes at a cost of US\$0.8 million and US\$0.4 million for sewerage and water respectively. Once the Project is implemented, SEDAPAL will not have to incur these costs.

7. An additional cost included in the *Without* Project situation, corresponded to a 4.5 km sewerage collector that would have to be built for transporting sewage of about 20 thousand people living in an adjacent area at northeast of Comas District. If the Project is implemented, this collector is not needed given that the capacity of the replaced sewerage pipelines will be enough to collect not only sewage of 200 thousand residents of the Project area, but also the additional 39 thousand in the adjacent area. The cost of this collector is estimated at US\$1 million.

8. Variable costs of water for the *Without* Project situation were based on actual costs of producing and distributing water to the Project area. According to SEDAPAL, production cost in the Northern area of Lima is S/. 0.86/m³. When works are implemented it is expected the cost remains at a similar level. In sewerage it was estimated as S/. 0.029 per cubic meter.

9. Administration and commercial costs were also based on SEDAPAL's figures and corresponded to S/. 166 per water connection per year.

Benefits

10. Financial benefits for the water component consisted of: (a) revenue increase when volume of water for consumption and billing increases due to reduction of water losses; and (b) reduction in operating costs when corrective maintenance is reduced. Financial benefits for sewerage component consisted of reduction of maintenance and operating costs when sewerage network improves; and (b) higher revenue when volume of water billed to sewerage customers increases.

11. Revenues were estimated as volume of water billed multiplied by water and sewerage tariff. This evaluation used current tariffs of S/.1.46/m³ and S/. 0.62/m³ for water and sewerage respectively.

12. Economic benefits for the water component were estimated as: a) savings on operating and maintenance cost when the network improves; and b) reduction of water intermittence in other districts of Northern Service Area, when more water is available due to the reduction of water losses in the area. For the sewerage component, the benefits were identified as savings on operating and maintenance costs when replacing pipelines. Additional benefits, not quantified, will be obtained with the Project, such as: (a) decrease on water pollution when replacing

existing asbestos water pipelines; b) water service improvement when the water systems operates properly; c) reduction of inconveniences caused by clogs on sewerage pipelines, such as: sewage overflow on the streets and inside the dwelling; c) positive health impact when sewage is properly transported.

13. The volume of water released due to the reduction of water losses was estimated based on: a) SEDAPAL's current figures of water supplied and billed in the Project area; and b) assumptions for demand projection and production presented by Nippon Koei (2012) in the feasibility study. Production corresponded to what the Huachipa Water Treatment Plant is able to produce given its capacity of 2.9 cubic meters. Forty-five percent of its capacity will go to the population located in Lima Norte 1, leaving the 55 percent of treated water to serve Lima Norte 2 and additional expansion in the Northern Service Area, which will be used for some additional districts that are not included in the Additional Financing.

14. The demand was projected based on annual growth rate that goes from 1.78 percent in 2015 to 0.8 percent in 2030; current service coverage of 100 percent, and unaccounted for water 29 percent in the sectors selected for the Project. For the whole area of Lima Norte 2, Nippon Koei estimated 50 percent losses. Physical losses were estimated as 40 percent of total losses, while commercial losses were estimated as 10 percent, according to Nippon Koei. With the Project, water losses are expected to be 25 percent in the Project area.

15. The economic cost of the water released and distributed to other districts was calculated as the average price actually paid by households in those areas. The price varies according to source of water used to complement their water needs due the lack or poor service received from the public network. Solutions can be private vendors, or wells.

16. Nippon Koei conducted a survey to understand the socioeconomic characteristics of the area. The beneficiaries were asked about the use of other sources of water and prices paid for each. Results show that on average they pay S/. 6.7/m³.

Table 2. Price paid for alternate sources of water

	Consumption per household per month (m ³ /hh/month)	Price paid per household per month (S/./hh/month)	S/./m ³
Water trucks	6.3	67.3	10.7
Wells and water trucks	3.7	41.8	11.2
Well	9.0	17.3	1.9
Average	4.7	31.6	6.7

17. *Economic Benefits for sewerage component.* The benefit related to savings on operating costs was estimated based on actual costs reported by SEDAPAL.

Results

18. *Financial Results* show that even with efficiency gains, revenues obtained with the Project will not be enough to cover total costs (operation and capital). Revenues will cover operating costs and a small part of the investment. The remnant portion of investment has to be funded either by additional tariffs or by transfers from the Government.

19. *Economic Results* show that the Project will impact positively the community, generating benefits, which are 29 percent higher than costs and an economic return of 13 percent. The water component is yielding a 14 percent return, while the sewerage component would have an 11 percent return.

Table 3. Results of the economic evaluation

	Present Value of Flows (million USD)			IRR
	Costs	Benefits	Net benefit	
Water	27.2	38.1	10.9	14%
Sewerage	21.0	23.9	2.9	11%
Total Project	48.2	62.0	13.8	13%

20. The sensitivity analysis allows comparison of the base case scenario to other scenarios in response to a change in a given variable. A break-even analysis allows the identification of the value of the chosen variables that makes the Project to exactly break even. The analysis was carried out testing the following variables: (i) overruns in investment and operating costs; and (ii) delays in Project implementation.

21. Results of the sensitivity analysis show that variables under the control of SEDAPAL convey a medium to high risk: a) cost overruns cannot be higher than 30 percent on average. For sewerage alone cost increases cannot surpass 11 percent, and for water 70 percent; b) Project delays have to be less than two years to keep the Project viable.

ANNEX 4
FINANCIAL ANALYSIS OF SEDAPAL

1. The financial situation of SEDAPAL showed deterioration from 2009 to 2012 as revenues did not keep pace with operating costs. The operational margin decreased from 22 percent in 2009 to 0 percent in 2012. Revenues increased by 18 percent, while operating cost grew by 42 percent (see Tables 1 and 2). In 2013, results improved, as a result of revenue growth (7 percent) higher than increases in operating costs (3 percent). Revenues were 16 percent higher than operating costs, which yielded 16 percent of net margin. However and although all indicators improved, they did not reach 2009 levels (see Tables 1 and 2).
2. SEDAPAL has prepared its financial projections for the next five years (2015-2020) that include investments for S/. 3,755 million (US\$ 1.252 million or about US\$ 250 million per year), which will be financed as follows: 60 percent own resources, 11 percent transfers from the National Government, and 29 percent with loans. With regards to planned level of debt, 73 percent of the loans have already been negotiated. This financial plan requires an increase in tariff of 15 percent in 2015, and a further 9 percent in 2016 and 2017.
3. SEDAPAL has presented the financial plan and the associated tariff increase to the Regulatory Agency SUNASS for its approval. If approved, the financial situation of SEDAPAL will be healthy and the profit margins will reach 2009 levels of about 20 percent and the tariffs will be enough to cover all its operating costs and interest expenses (Tables 3 and 4). The cash flow shows that SEDAPAL will be able to comply with all financial obligations from contracted loans and private concessions.
4. The investment plan is complemented by efficiency gains such as a reduction of overall unaccounted for water from 29 percent in 2014 to 27 percent in 2019; improvement in the quality of the service provided increasing to 22 hour of continuous supply, water and sewerage expansion at a pace of about 25,000 connections per year.
5. In case SUNASS does not approve the tariff increase requested by SEDAPAL, the financial situation will deteriorate and by 2015 SEDAPAL would present net losses, and by 2017 revenues would not be enough to pay for operating costs and depreciation. This situation will require funds from the National Government to compensate the operational deficit.

Table 1. Income Statement

(million S/.)	2009	2010	2011	2012	2013
Billed Revenues	1,125	1,126	1,265	1,331	1,420
Operating Costs	654	675	804	927	956
EBITDA	471	452	460	404	464
Depreciation and Provisions	224	244	262	406	262
EBIT	247	208	199	(2)	202
Other income/financial expenses	77	(129)	(102)	202	115
EBT	324	78	96	199	317
Taxes and Shareholder distribution	99	19	13	68	90
Net Income	225	60	83	132	227

Table 2. Financial Indicators from Income statement

	2009	2010	2011	2012	2013
Working Ratio	0.58	0.60	0.64	0.70	0.67
Operating Ratio	0.78	0.82	0.84	1.00	0.86
Operating margin	22%	18%	16%	0%	14%
Net Margin	20%	5%	7%	10%	16%

Table 3. Income Statement

(million S/.)	2014	2015	2016	2017	2018	2019
Billed Revenues	1,534	1,796	1,961	2,202	2,225	2,233
Operating Costs	1,144	1,241	1,276	1,381	1,424	1,490
EBITDA	390	555	684	821	801	743
Depreciation and Provisions	244	281	294	307	315	327
EBIT	147	274	390	513	486	416
Other income/financial ex	(47)	(42)	(42)	(39)	(38)	(40)
EBT	99	232	348	474	448	376
Taxes	38	78	117	159	149	126
Net Income	61	154	231	315	299	250

Table 4. Financial Indicators from Income statement

	2014	2015	2016	2017	2018	2019
Working Ratio	0.75	0.69	0.65	0.63	0.64	0.67
Operating Ratio	0.90	0.85	0.80	0.77	0.78	0.81
Operating margin	10%	15%	20%	23%	22%	19%
Net Margin	4%	9%	12%	14%	13%	11%

Annex 5

DESCRIPTION OF THE LIMA NORTE 2 PROGRAM

1. **Context of Lima.** The Lima-Callao Metropolitan Area has a desert climate with low rainfall levels throughout the year, and has an extremely serious water shortage, especially during the dry season. The Lima-Callao Metropolitan Area relies on surface water from the Rimac, Chillón and Lurín Rivers (whose flows are augmented from 2 inter-basin transfers) as well as groundwater from the Rimac-Chillón and Lurín aquifers. Although groundwater is conjunctively used to diversify water resources in this scarce environment, its use requires careful and prudent usage given a series of challenges such as limited recharge, salinity and saltwater intrusion as well as impacts of overdraft that can lead to land subsidence. Moreover, climate change is expected to significantly reduce the city's future water supplies, increasing scarcity, variability, and uncertainty. The combined melting of Andean subtropical glaciers above Lima (already 25 percent reduced compared to 1980), reduced projected precipitation, and expanded upper watershed mining activities, imply perpetual water stress in the long-term¹⁴. Water scarcity is a pressing challenge that has motivated SEDAPAL to put concerted efforts and resources in reducing water losses, increasing efficiency and strengthening demand management.

2. To fulfill the water supply and sewerage demand due to the population increase in the metropolitan area and achieve sustainable operations, SEDAPAL is working to secure new water sources and water treatment capacity while effectively utilizing available limited water resources. In particular, SEDAPAL is focusing efforts on the Northern Lima Metropolitan Area, due to rapid urban expansion and the decaying status of the water supply network in that area that is causing high water losses and low quality of service.

3. With regards to the sewerage service in this area, aging pipes, the historic use of sub-standard construction materials, and an increase in sewerage flow volume are causing frequent pipe clogs, breakages, outflow of sewerage onto streets, as well as ground infiltration of wastewater. These issues are in turn resulting in a deterioration of the environmental sanitation for the local residents. Improving the condition of both the water supply and sewerage networks and WSS services is an urgent challenge in the northern part of the Lima-Callao Metropolitan Area, both to improve current services to connected residents, as well as to ensure the expansion of services to additional unserved communities.

¹⁴ SEDAPAL and the Bank are also collaborating to use a methodology called Robust Decision Making (RDM) to improve SEDAPAL's planning capabilities. RDM will help SEDAPAL better understand the implications of a wide range of risks and uncertainties on water security. The overarching goal of this project is to understand how climate and non-climate uncertainties affect the success on SEDAPAL's proposed Master Plan, and to highlight potential modifications to the plan that may make SEDAPAL more robust to these uncertainties. The project will assess the vulnerabilities of specific major components of the Master Plan, such as the Marca II inter-basin transfer, so that SEDAPAL may make informed decisions about how to proceed with these investments. The project also seeks to serve as a forum for collaboration between SEDAPAL and other stakeholders in Lima and Callao's water security, including the National Water Authority (ANA), the Municipalities of Lima and Callao, the Ministry of Environment, the National Water and Sanitation Regulatory Agency (SUNASS), AquaFondo, and CONDESAN. The analysis could highlight priority investments that can improve water security in Lima/Callao, but that require collaboration between SEDAPAL and other stakeholders and decision makers. The project will also identify areas of important future research that can inform water security in Lima and Callao. Finally, this project seeks to build SEDAPAL's tools and capacity in conducting quantitative analysis of decisions under uncertainty. The models, data, and software tools used in this project will be gathered and used in collaboration with SEDAPAL, and delivered to SEDAPAL throughout the project

4. **Current situation in Northern Service Area of Lima.** Most customers in this area of influence currently receive inadequate water supply and sewerage services. Water service delivery is plagued with frequent outages as well as low and variable pressure. In some districts, where the network is yet to expand, communities rely on tankers that supply water with variable quality at rates averaging S/. six per cubic meter. In the case of sewerage, owing to dilapidated, community-led construction of asbestos based or concrete pipes, users suffer from frequent blockages and collapse of pipes. The hilly topography of this area further complicates service delivery and requires large amounts of energy to pump water and sewerage. Aging reservoirs and pumping stations exasperate outages, leaks and blockages of water and sewerages networks.

5. At present, SEDAPAL's Northern Service Area of Lima-Callao is supplied with water from two different treatment plants, namely, La Atarjea and Chillon, as well as a series of groundwater wells. La Atarjea predominantly supplies the central and southern service areas of influence of Lima Norte 2, which includes the districts of Callao, Los Olivos and San Martin de Porres. The Chillon water treatment plant primarily supplies the northern part of the Lima Norte 2 area of influence, which includes the districts of Comas, Carabayllo and Puente Piedra. The Huachipa Water Treatment Plant was recently commissioned and will help expand water sources to northern Lima. Water from Huachipa is expected to supplement Chillon and La Atarjea production capacities.

6. In terms of sewerage collection and wastewater treatment, there are 27 wastewater collectors across SEDAPAL's service area. The Taboada wastewater treatment plant (WWTP) was recently commissioned to service the Northern and Central Service Areas of Lima with a treatment capacity of 14m³/s. It is designed to carry out advanced primary treatment and discharge through a submarine outfall into the Pacific Ocean. Two submarine outfalls are currently being extended to account for increased discharge and to reduce costal environmental pollution through dilution of effluents in fast flowing Jetstream. The Taboada WWTP accounts for the treatment of over 65 percent of the total wastewater collected by SEDAPAL. To service other areas of Lima, SEDAPAL has commissioned the construction of La Chira WWTP expected to be operational in 2016 with a treatment capacity of 5m³/s. These two WWTP, together with the 18 small compact WWTP operating in the metropolitan area, will be able to adequately treat and dispose of over 80 percent of collected wastewater. SEDAPAL is looking into options for the re-use of treated wastewater for irrigation and industrial usage.

7. SEDAPAL has been making consistent efforts to reduce its NRW for the last two decades, with support from World Bank Projects amongst others. In 1995, SEDAPAL begun the implementation of two ambitious programs aimed at increasing micro-metering and reducing and controlling leakage, with a focus on the central and southern areas within the metropolitan area of Lima. The programs included a sectorization of the network (DMA establishment) into pressured managed zones and other operational improvements, as well as commercial actions such as the updating of the cadaster of users and the identification of illegal connections. As a result, the water losses were reduced from 50 percent in 1995 to 37 percent in 2007, the level of per capita consumption of water was reduced from 280 to 220 liter per person a day and micro-metering increased from 6.2 percent to 71 percent. This permitted the average hours of service to be increased from 10 to 22 hours a day. These results helped the company to increase the

coverage of the water supply service from 75 percent to its current 91 percent. SEDAPAL has continued to enhance its NRW management, including the installation of new modern pressure management equipment such as dynamic valves for the control of both pressure and volume. There is ongoing implementation of two pilot projects funded by the Japanese Government, which are testing innovative pressure management technology and management techniques such as the control of flows based on demands. SEDAPAL is replicating these successful efforts and those under the Bank funded Lima Norte 1 and ongoing pilots, and intends to continue completing network optimization for the entire Northern Lima area under the proposed Lima Norte 2 and future programs. For the purposes of monitoring NRW management, SEDAPAL has set up a committee within the organization comprised of representatives from the Directorate of Services, Directorate of Production and the Directorate of Commercial Management. This committee meets every two weeks and manages a well-trained Leakage Detection and Control Unit that carries out routine and ad-hoc inspection of networks in service areas

8. **The Lima Norte 2 Program.** The Lima Norte 2 Program is part of SEDAPAL's master plan to rehabilitate and expand water and sewerage services in the Northern Service area of Lima, which includes 22 sectors in the districts of Callao, Ventanilla, Carabayllo, Comas, Los Olivos, Puente Piedra and San Martín de Porres. Each sector represents a sub-watershed area that corresponds to a drainage area for water and wastewater networks. The Lima Norte 1 program (which the original loan is helping to finance in parallel with JICA, KfW and SEDAPAL) covers the initial phase of rehabilitation and expansion. The part of the Lima Norte 2 program, which this AF is proposing to finance, is the second phase of the rehabilitation and expansion program. This would be financed in parallel with JICA, KfW and SEDAPAL. The population of targeted districts is 622,650. Of this population, around 64.8 percent has water supply and sewerage services. Roughly 60 percent of current connections are metered, the remaining unmetered connections are charged on a predetermined flat rate.

9. In order to effectively integrate and accommodate increased water availability (from Huachipa WTP) the Lima Norte 2 program rehabilitation works need to be carried out to improve aging and poorly constructed water supply and sewerage networks. The proposed rehabilitation and installation of meters will drastically reduce non-revenue (NRW) water losses. Coupled with optimization initiatives such as development of district metered areas (DMA) and automation of networks through the use of SCADA, SEDAPAL is expecting to reduce NRW rates to 25 percent, drastically improve efficiency and extend water supply to new communities.

10. **Scope of Lima Norte 2 Program.** Based on a feasibility study completed in 2012, Lima Norte 2 program will finance works comprising of: i) rehabilitation of 179.07 km and installation of 49.41 km of secondary networks; ii) rehabilitation of 70,289 household water connections; iii) installation of 10,537 water meters; iv) installation of 2,909 water valves. Sewerage works will include: i) installation and rehabilitation of 237.92 km of secondary network pipes (PVC ranging between 100-350mm in diameter); ii) rehabilitation of 1,415 manholes; iii) construction of 3,302 new manholes; and iv) rehabilitation of 33,736 household sewerage connections. The overarching Lima Norte 2 will also finance general works that include the installation of 40.56 km of trunk mains (primary network); rehabilitation of 27 reservoirs; rehabilitation of 5 water pumping stations.

11. The Lima Norte 2 program is an expansion of activities supported under the Lima Norte 1 program, which has reached over 60% percent execution of planned rehabilitation works and is already yielding important benefits in increased efficiency and continuity. The Lima Norte 1 program co-financed by the Bank is also supporting the contracting of key strategic consultancy services to fully integrate SEDAPAL's networks under the SCADA system and GIS, a study on demand and consumption and a review of SEDAPAL's institutional and organizational structure. The proposed additional loan will continue the ongoing dialogue and provision of technical assistance in areas such as nonrevenue water (NRW) and demand management, water-saving activities, strengthening of redress mechanisms, overall customer service and commercial management.

12. Financing for proposed works under Lima Norte 2 program is as follows:

Financier	Amount (in US\$ millions)
JICA	65
KfW	24
World Bank	55
SEDAPAL	43
TOTAL	187

13. The following map (Figure 1) delineates targeted areas in the Lima Norte 2 Program. The proposed AF will support rehabilitation of works in sectors and subsectors 83, 84, 85 (Los Olivos), 347 (Comas) and 350 (Carabayllo). SEDAPAL has divided the scope of work into nine civil works and goods procurement lots that have been allocated to different financing entities (including SEDAPAL). This proposed AF will finance procurement lots B2-2 and B3.

14. **Related Initiatives.** SEDAPAL has also commissioned Bank's services under two ongoing Reimbursable Advisory Services (RAS) agreements to develop a systematic approach to provide services to an estimated 1 million poor residents that still lack access to safe drinking water and sanitation in peri-urban areas within the outskirts of Lima and Callao, where it is technically and economically unviable to expand the utility's conventional networks and therefore require non-network or non-conventional service delivery solutions.

15. Snapshot of SEDAPAL.

Total water production		Length of Network	
From surface water	From groundwater	Water	Sewerage
17.70m ³ /s	3.86m ³ /s	13,626 km	12,244

Indicator	Result (end of 2013)
Revenue	S./1,472 million
Return on Equity	2.7%
Non-revenue water	28.9%
Metered water connection (%)	82.5%
Pressure of service (water)	23.1mca

Indicator	Result (end of 2013)
Average continuity of service	21.9 hours/day
Average tariff	2.6 soles/m ³
Volume of treated wastewater	45%

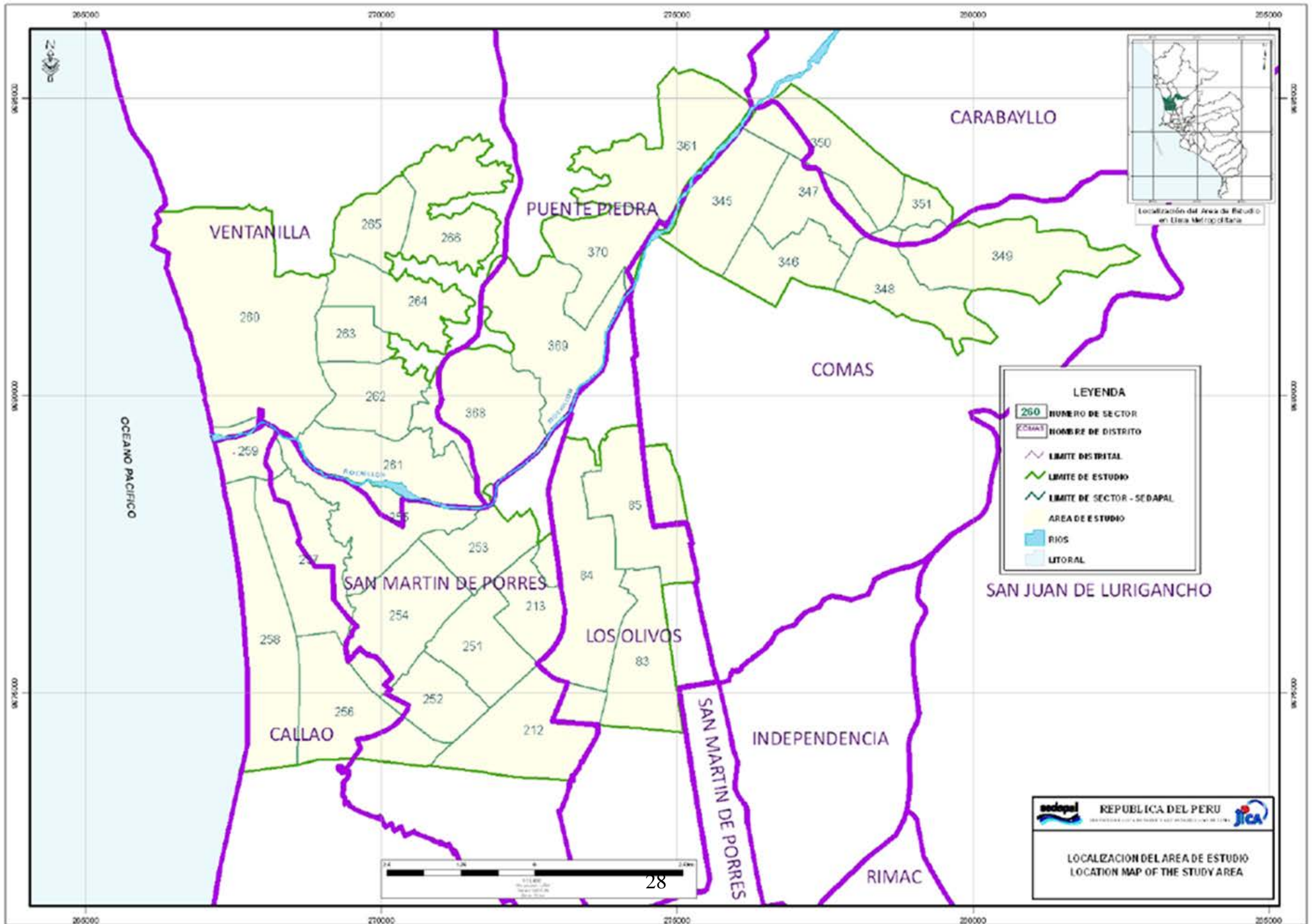


Figure 1- Lima Norte 2 area of Influence

ANNEX 6 SAFEGUARDS ASSESSMENT

A. Past Performance

1. The Project was classified as Category B originally and triggered three environmental safeguards: Environmental Assessment (OP/BP 4.01), Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OP/BP 4.12). An Integrated Safeguards Datasheet (ISDS) and Environmental Impact Assessment were prepared and disclosed in-country and on the Bank's website according to Bank policy between September and December 2010." An updated Environmental Management Plan was prepared and publicly disclosed both in country and on the Bank's website on October 21, 2014.

Environmental Assessment

2. The Project triggered OP 4.01, but the impacts were not deemed significant, irreversible or unprecedented. Negative environmental impacts have been mitigated by proper screening, designs and close supervision of construction and operating practices. No major environmental issues have arisen in the implementation of the Project.

3. Environmental supervisions performed by the Environmental Management Team (EGAM) allowed identification of some activities that required corrective actions to properly comply with mitigation measures established in the Environmental Management Plan contained in the detailed EIA (approved by RD N° 023-2010-VIVIENDA/VMCS-DNS). These corrective actions were evidenced by contractors through a report submitted to *Equipo de Proyectos Especiales* and EGAM. Similarly, NIPPON KOEI, in charge of supervision, was knowledgeable about implementation of those corrective actions to deal with observations made by EGAM.

4. The following sample corrective actions were implemented under Lima Norte 1:

- Improvement in workers' knowledge through training sessions for an adequate segregation of solid wastes according to the type of solid waste generated. Also, for instance, use of colored bags for hazardous wastes.
- Improvement in workers' environmental awareness with regard to temporary storage of hazardous and non-hazardous waste, preventing their accumulation outside containers.
- Submission of Solid Waste Management Statement to the competent authority (MVCS), every time movement of solid wastes in work sites occurs.
- Proper disposal of wastes such as asphalt residuals and excess material. Also, improvement of segregation of both residues in the corresponding excess material collection center (*Centro de Acopio de Material Excedente*).
- Implementation, in every work area, of metallic bins or other devices to prevent spillover of hydrocarbons (gasoline, diesel) at the moment of recharging fuel to machinery. Also, ensuring that vehicles have their respective safety data sheets (Hojas de Datos de Seguridad).

- Increasing frequency to moisten work areas, to minimize dispersion of dust during excavation of trenches and removal of material, collection of excess material, and cleaning in works.

5. During visits to the work sites, there were different observations made from EGAm. However, once the Contractor received observations detected by EGAm, included corrective actions in constructive processes, they timely submitted a report that evidenced implementation of corrective actions and compliance with mitigation measures contained in the Environmental Management Plan.

6. According to the national environmental regulations, a new semi-detailed Environmental Impact Assessment will be prepared for this proposed AF Project. Terms of reference for this EIA have been already approved by the MVCS and it is expected that the environmental license will be issued on September 2015 when it is expected that the semi-detailed EIA will be approved. Preparation of the semi-detailed EIA started in September 2014 and the EIA report will be completed by September 2015.

Physical Cultural Resources

7. In terms of Physical Cultural Resources, the Project was appraised in accordance with OP/BP 4.11, the cultural property policy applicable at preparation time. Peru has a well-developed legislative and normative framework for management of physical cultural property, which is under the oversight of the Ministry of Culture. In accordance to local legislation, the Social Guidelines adopted in the Operational Manual, and Bank requirements, the Project has included procedures for screening any known cultural property in the Project area and incorporated 'chance find' procedures in the event that culturally significant resources are discovered during implementation, and has mainstreamed cultural property aspects into the preparation of the environmental assessment of the planned interventions, in compliance with the Bank's updated Physical Cultural Resources Policy (OP 4.11). Compliance with these procedures includes obtaining a "CIRA"s or Ministry of Culture-issued Certification of Inexistence of Archeological Remains as pre-requisite for the execution of the works.

Involuntary Resettlement

8. Related to OP/BP 4.12, a framework was prepared and disclosed in February 2011 for the original loan, which became the utility's official policy on land acquisition and involuntary resettlement. This framework has not produced any Resettlement Action Plans (RAPs) during the implementation of the Lima Norte 1 loan. The same policy will be enforced, and OP/BP4.12 is triggered for the Additional Financing as a preventive measure, as no impacts on OP/BP4.12 are expected under the AF, given that all new works will be located within the public right of way and will not affected private property or informal settlements. Therefore, no RAPs are expected unless technical design plans are modified during implementation; in this case, however unlikely, SEDAPAL would prepare a resettlement action plan in compliance with their abovementioned resettlement policy.

Consultations

9. As part of the Lima Norte 1 preparation process, the EIA, the Environmental Management Plan (EMP) including the Bank's recommendations were disclosed through consultations in the Project's area in October 2010. These documents have been available in SEDAPAL's website (www.sedapal.com.pe), and also in the Bank's website since December 21, 2010. A public consultation on social and environmental issues was held in October 2010 with sector stakeholders and civil society to discuss the findings of social assessments, and present the EA report and mitigation measures contained in the EMP. During implementation, SEDAPAL's EGAm members have worked in tandem with the Contractor and the firm in charge of supervision to ensure proper and timely implementation of the EMP.

10. On October 12, 2014, SEDAPAL conducted a community consultation with participation of 78 community members, representatives from neighborhood organizations and local political leaders from Los Olivos (with a 87 percent attendance rate), as well as SEDAPAL and Consorcio Ingenieria Lima Norte 2 staff. The objective of the meeting was to share details regarding the scope of works, expected environmental and social impacts and the plans that SEDAPAL has in place to monitor and mitigate these impacts. The community concerns expressed during the meeting were documented in detail as were the utility's responses to each concern. In sum, the participants expressed support for the Project, interest in participating in community monitoring initiatives to ensure proper water disposal and compliance with the proposed EMP.

Institutional Arrangements

11. SEDAPAL's environmental management team supervised the preparation of the detailed EIA prepared by Nippon Koei for the Lima Norte 1 loan and reviewed the EIA report approved by the MVCS. EGAm has also permanently reviewed monthly environmental reports submitted by contractors to Equipo de Proyectos Especiales . Based upon information contained in these reports and random visits to the works, EGAm undertook technical assessments to verify implementation of environmental measures established in the detailed EIA approved by the MVCS. Findings of these assessments were shared with Equipo de Proyectos Especiales which in turn coordinated with contractors to implement corrective actions. As an effective coordination mechanism, EGAm coordinated with the works supervision firm (Nippon Koei) and the contractor (SADE) to electronically receive the inspection report and provide technical corrective recommendation in the short term.

12. The Social Assessment and the consultation resulted in valuable input for Project design on thematic areas such as (i) Information and Consultation, (ii) Execution of works and training, and (iii) Surveillance. For Surveillance, the Assessment pointed out the need for organizing a system of reception and resolution of complaints, assuring the quality and precision in the purchase of meters of water consumption. In addition, SEDAPAL manages a grievance mechanism called Aguafono, which is considered best practice in the public sector and is well-known by the population. This mechanism is another channel where the company can receive feedback from civil society. During Project preparation the team discussed the integration of the data system acquired by Aguafono and the technical department, with regards to pipe breakages and network issues, in order to have a comprehensive picture on the performance of its networks.

Bank Implementation Support

13. Since the beginning of the Lima Norte 1 loan preparation, the Bank team included social and environmental specialists based in Lima that participated in supervision missions and engaged with the client in the preparation/follow-up of specific actions related to social and environmental safeguards.

Annex 7
REVISED IMPLEMENTATION ARRANGEMENTS

Financial Management Arrangements

1. As part of the preparation process of the second Optimization of the Lima Water and Sewerage System (AF) Project, the FM team performed a financial management capacity assessment to determine the adequacy of SEDAPAL's financial management arrangements to support Project implementation. The assessment was performed in accordance with OP/BP 10.02 and the "Financial Management Manual" dated March 1, 2010.
2. Project implementation will benefit from and rely widely on the existing financial management arrangements that SEDAPAL has put in place for the implementation of the ongoing Lima Norte 1 loan. SEDAPAL has acquired experience in working with Bank funds and was consistently assessed through Bank supervision and external auditors showing satisfactory performance. However, in terms of staff, it has been agreed that SEDAPAL will select and hire an additional Financial Management Specialist once implementation of the additional operation starts. In addition, SEDAPAL will complete the preparation of the SAP-module to better support the preparation of the financial reports of the Project.
3. The Project's inherent risk and control risk are rated modest, mainly taking into account SEDAPAL's experience with Bank-financed projects, and the existence of overall acceptable FM arrangements, which are being strengthened in terms of staffing and information system. Thus, the overall FM risk rating is defined as modest.
4. Based on the assessment performed, in general, proposed FM arrangements are considered acceptable subject to the successful implementation of agreed strengthening measures, aimed at enhancing SEDAPAL's capacity for Project implementation. The following sections describe Project FM profile and key arrangements.
5. **Organization and staffing.** The FM arrangements will be similar to those implemented for the current Project. The EPE (that has inherited team and functions formerly with PROMESAL) will carry out administrative management functions including the preparation of the financial management reports. SEDAPAL's Financial Department will continue being responsible for the management of the budget and treasury functions of the Project. However, in terms of staff, it has been considered to strengthen the EPE with an additional Financial Management Specialist once implementation of the additional operation starts.
6. **Programming and budget.** The EPE will coordinate with SEDAPAL's technical area the activities to be executed during the year to prepare the Annual Program (POA) and the budget of the Project. SEDAPAL's Board of Directors has the responsibility to approve the Project's budget which is then submitted for approval to the Fondo Nacional Empresarial del Estado (FONAFE). Thereafter, the Minister of Finance (MEF) will also include this as a line item under the national budget and will approve the disbursements for loan resources to be used for Project implementation. The budget is operated under the *Sistema de Administración Financiera* (SAP). The EPE will be responsible for preparing and monitoring the overall Project budget, including all sources of financing –BIRF and SEDAPAL contributions– following the functional classification in terms of Project components, sub-components and activities. The Financial Department of SEDAPAL will record the budget of the Project in

the information system (SAP). The budgetary control will consist of: (i) timely preparation and approval of annual programs, budget and procurement plans and establishing a clear relation among them; (ii) proper recording of the approved budget in the financial management system; (iii) timely recording of commitments and payments as required, to allow an adequate budget monitoring, and (iv) provide accurate information on Project commitments for programming purposes.

7. **Accounting – Information System.** Accounting records of SEDAPAL follows private sector regulations including the use of the General Chart of Accounts established for the private sector entities. SEDAPAL’s accounting follows the accrual basis of accounting; however, for the preparation of the Project’s financial statements, the EPE will follow the cash basis of accounting. SEDAPAL is in the process of improving the SAP system with a module to prepare the Project’s financial reports to guarantee the timely and reliable preparation of financial information reports, SOEs, and to monitor Project execution to control budget variances. It is expected that the SAP-module will be ready before the proposed AF begins its implementation. The FM regulatory framework for the Project will consist of: (i) Peru’s laws governing financial management for the private sector; and (ii) the entity’s operating manuals and norms. Project FM arrangements that are not contemplated in the above mentioned documents have been complemented in the FM section of the Project’s operational manual (OM) with reference to: (i) the appropriate internal controls for the Project; (ii) the formats of Project financial reports; and (iii) auditing.
8. **Procedures and Internal Controls.** The OM of the current Project will be applicable to the new operation as it reflects processes, procedures, and internal control mechanisms including chart of accounts according to the functional classification of the Project and the Interim Unaudited Financial Reports (IFRs) to be followed for the implementation of the Project. Therefore, this chapter of the OM is satisfactory to the Bank.
9. **Financial Reports.** Content and format of IFRs is expected to be the same as for the ongoing loan. On a semester basis, SEDAPAL’s EPE will prepare IFRs containing at least: (i) a statement of both sources and uses of funds for each calendar quarter and cumulative uses (with expenditures classified by component/subcomponent, use of funds by component and beginning and ending cash balances; along with a reconciliation of the Designated Account (DA) accompanied by the copy of the bank statement; (ii) a statement of budget execution per component/subcomponent (with expenditures classified by the major budgetary accounts) and all sources of financing and including variances between budget and actual expenses with the respective explanatory notes of main variances. The EPE will be responsible for submitting the IFRs to the Bank not later than 45 days after the end of each semester. The reports should be prepared in local currency and in US Dollars. On an annual basis, the EPE will prepare the Project’s financial statements including cumulative figures for the year and as of the end of that year. The financial statements will also include explanatory notes in accordance with the Cash Basis International Public Sector Accounting Standard (IPSAS), and the entity’s assertion that loan funds were used in accordance with the intended purposes as specified in the Loan Agreement. As described above, IFRs will be prepared using the information provided by SAP. Any working paper generated for the preparation of IFRs and annual financial statements will be maintained by the EPE as supporting documents.
10. **Audit arrangements.** SEDAPAL through its EPE will prepare the annual Project financial statements, which will be audited following International Standards on Auditing (ISA), by an

independent firm and in accordance with terms of references (TORs), both acceptable to the Bank. The audit opinion covering Project financial statements will contain a reference to the eligibility of expenditures. An audit firm will be hired by SEDAPAL, through the General Comptroller Office of Peru, which will perform the Project audit and provide the audit report. The audit report will be required to include a section on the state of the internal control of the implementing entity. The EPE will submit the audit report to the Bank no later than 6 months after the end of each fiscal year. The audit work for the Project described above can be financed with loan proceeds. The EPE will request the contracting of the first external audit firm within six months after Loan Effectiveness. In addition to the Project's audit report, SEDAPAL will submit its annual audited financial reports to the Bank.

11. **Flow of funds and Disbursement Arrangements.** SEDAPAL will be the sole responsible entity for managing loan proceeds. SEDAPAL will co-finance the Project and those funds will become available for Project implementation, as counter-part funds, upon budget approval by SEDAPAL's Board of Directors.
12. **WB Disbursement Methods.** On a preliminary basis and following the general practice of the current portfolio, the following disbursement methods may be used to withdraw funds from the credit: (a) reimbursement; (b) advance; and (c) direct payment. Under the advance method and to facilitate Project implementation, a Designated Account (DA) in US Dollars would be opened and maintained by SEDAPAL in a commercial financial institution. The DA will have a variable ceiling and advances will be approved based on forecast for two quarters. Funds deposited into the DA as advances, would follow Bank's disbursement policies and procedures, described in the Legal Agreement and Disbursement Letter.
13. **Payment mechanism.** To process payments, the entity will be able to withdraw the required amount to a local currency bank account from where payments to consultants and suppliers would be made. The procedures and internal mechanism are reflected in the OM which is being updated to reflect particularities for this new operation.
14. **Disbursement Deadline Date.** Four months after the closing date specified in the Loan Agreement.

15. Loan proceeds would be disbursed against the following expenditure categories:

<u>Category</u>	<u>Amount of the Loan Allocated (expressed in USD)</u>	<u>Percentage of Expenditures to be financed (exclusive of Taxes)</u>
(1) Goods, works, consultants' services, Non-Consultant Services and Training for Part 1 of the Project	54,000,000	100%
(2) Goods, consultants' services, Non-Consultant Services and Training for Part 2 of the Project	0	
(3) Goods, consultants' services, Non-Consultant Services and Training for Part 3 of the Project	1,000,000	100%
TOTAL AMOUNT	55,000,000	

16. Retroactive financing. Withdrawals up to an aggregate amount not to exceed US\$11,000,000 equivalent may be made for payments made prior to the signing of the Loan Agreement but on or after October 27, 2014 for Eligible Expenditures.

Procurement Arrangements

- 1. General.** Procurement for the proposed AF would be carried out in accordance with: (i) Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January 2011 and revised July 2014; (ii) "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011 and revised July 2014; (iii) "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants" revised in January 2011, and (iv) the provisions stipulated in the Loan Agreement.
- 2. Procurement Plan.** The Project's procurement plan will be managed and approved through the Bank's publicly accessible Procurement Plans Execution System (SEPA).
- 3. Thresholds for Procurement Methods and Prior Review** are indicated in the following Table:

Expenditure Category	Contract Value Threshold (US\$ Thousands)	Procurement Method	Contracts subject to Prior Review
Works	>3000	ICB	All
	250-3000	NCB	First
	<250	Shopping	First
	Regardless of value	Direct Contracting	All
Goods	>250	ICB	All
	50-250	NCB	First
	<50	Shopping	First
	Regardless of value	Direct Contracting	All
Non-Consulting Services	>250	ICB	All
	50-250	NCB	First
	<50	Shopping	First
	Regardless of value	Direct Contracting	All
Consulting Services: Firms	>=100	QCBS, QBS, FBS, LCS	>=200
	<100	QCBS, QBS, FBS, LCS, CQS	<200 TORs only
	Regardless of value	SSS	All
Consulting Services: Individuals		3CVs	>=100 <100 TORs only
		SSS	All

ICB = International Competitive Bidding

NCB = National Competitive Bidding

DC = Direct Contracting

QCBS = Quality- and Cost-Based Selection

QBS = Quality-Based Selection

FBS = Fixed Budget Selection

LCS = Least-Cost Selection

CQS = Selection Based on Consultants' Qualifications

SSS = Single Source Selection