

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: AB7654

Project Name	PE AF-Second Optimization of Lima Water & Sewerage
Region	LATIN AMERICA AND CARIBBEAN
Country	Republic of Peru
Sector	Sanitation (50%); Water supply (50%)
Project ID	P133287
Parent Project ID	P117293
Borrower(s)	REPUBLIC OF PERU
Implementing Agency	
	SEDAPAL Autopista R. Priale 210 Peru Tel: (51-1) 317-3095 ysanchez@sedapal.com.pe
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	October 20, 2014
Date of Appraisal Authorization	October 27, 2014
Date of Board Approval	January 14, 2015

I. Country and Sector Background

1. The proposed additional loan will help finance the costs associated with the expansion of the original Project's geographic scope to cover the rehabilitation of water supply and sanitation systems in adjacent underserved areas within the same area in Northern Lima. The proposed scale up is intended to increase the efficiency, and quality of water supply and sanitation service delivery to additional beneficiaries, securing water availability for increased access to these services. The Project will finance the rehabilitation of around 35,500 water supply and 14,000 household sewerage connections, as well as secondary water distribution and sewerage collection networks, benefiting an estimated 239,000 beneficiaries of low to modest income¹ in the districts of Comas, Carabayllo and Los Olivos.

2. This Project is part of larger "Lima Norte 2" Investment Program led by SEDAPAL and co-financed by the German Development Bank (KfW), the Japanese International Cooperation Agency (JICA), SEDAPAL and the 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 Lima area. The Lima Norte 2 program will achieve the augmentation of water supply from pumped schemes (from existing La Atareja and Chillón Treatment Plants) with gravity-fed (from the newly

¹ Average monthly income is 203 US\$ per capita.

commissioned Huachipa Water Treatment Plant²), which will substantially increase the overall energy efficiency of the water supply distribution networks. The proposed rehabilitation of the water supply system will also support the capacity of existing networks to withstand higher pressures and convey larger quantities of water needed to expand services to new communities.

3. In addition to proposed physical rehabilitation works, the Project is also expected to introduce significant operational improvements such as the installation of bulk water meters and valves as well as automation of networks through use of SCADA and GIS to allow for the establishment of District Meter Areas (DMA) and Pressure Managed Zones in order to reduce water losses, increase efficiency and improve the management and the quality of water supply and sewerage services delivered to the beneficiaries. As a result, the Project is expected to reduce Non-Revenue-Water (NRW) due to technical losses in the area from 40% to a targeted 25%.

4. The proposed project is a continuation of activities supported under the Optimization of Lima Water and Sewerage Systems Project (“Lima Norte 1”), which has reached around 63% execution of planned rehabilitation works and is already yielding important benefits in increased efficiency and continuity. The Lima Norte 1 Project is also supporting the contracting of key strategic consultancy services to fully integrate SEDAPAL’s networks under the SCADA and GIS system, a study on demand and consumption and a review of SEDAPAL’s institutional and organizational structure. The proposed Lima Norte 2 Project will continue the ongoing dialogue and provision of technical assistance in the areas such as non-revenue water and demand management, water saving activities, strengthening of redress mechanisms and overall customer service attention and commercial management, as well as treated wastewater reuse.

II. Objectives

5. The Project’s Development Objective is to improve efficiency, continuity and reliability of water supply and sanitation services in the Northern Service Area of Lima.

III. Rationale for Bank Involvement

6. **The geographic expansion of work sought through this Additional Financing (AF) will enable improving the efficiency, continuity and reliability of water supply and sewerage services** in targeted sectors within the district of Comas and adjacent district of Carabayllo and Los Olivos. Both Comas and Los Olivos are part of the original Project areas.

7. **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.** The Project will achieve this by improving the quality of water supply and sanitation services provided to middle to low income urban dwellers and securing water availability (through increased efficiency and reduced water losses). Increased water

² The Huachipa WTP will supply 1.3 m³/second to districts under Lima Norte 1 Program (supported by Original Bank Loan) and will provide an additional 2.9 m³/second to Lima Norte 2 Program (activities proposed under the proposed Additional Financing)

availability will be harnessed to expand services to new unserved communities in peripheral communities in the Northern Service Area of Lima. 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 1.2 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. The Bank's current engagement with SEDAPAL, including the activities under the proposed AF, is consistent with the Country Partnership Strategy CPS (FY12-FY16)³. In particular, they are aligned with the strategic objective of connecting the poor to services and markets, which highlights improved water supply and sanitation service provision as one of its results areas.

8. **SEDAPAL currently faces water scarcity, as Lima is the world's second largest city located in a desert (after Cairo), with an annual rainfall of 9 mm.** The Lima-Callao Metropolitan Area relies on surface water from the Rimac, Chillón and Lurín Rivers (which are augmented by flows 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 a 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 will significantly reduce the city's future water supplies, increasing scarcity, variability, and uncertainty. The combined melting of Andean subtropical glaciers above Lima (already 25% reduced compared to 1980), reduced projected precipitation, and expanded upper watershed mining activities, imply perpetual water stress in the long-term. Water scarcity is a pressing challenge that has motivated SEDAPAL to put concerted efforts and resources in reducing water losses, increasing efficiency and demand management.
9. ***Given water scarcity and financial sustainability considerations, SEDAPAL cannot afford to lose 50% of the water it produces.*** Lima's high rates of urbanization have put a strain on dilapidated existing infrastructure, particularly in districts with higher concentration of low income households within Northern Lima. In the Northern Service Area of Lima, water and sewerage networks are in extremely poor physical condition with frequent leaks, blockages and breaks, mainly due to community self-construction using sub-standard techniques and materials. As such, non-revenue water in this service area that hover around 49.6%, which is relatively higher than NRW rates of 35% and 27.5% in Central and Southern Service Areas respectively. As such, the majority of residents suffer from very low water pressure and discontinuity of water services.
10. **The alternative considered other than AF was to complete planned investments through SEDAPAL's own resources.** Given the extent of financing needed, SEDAPAL has developed a program to rehabilitate 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

³ Report No. 66187-PE

and improving the quality of WSS services provided to low income urban dwellers. This justifies the need for public financing.

IV. Project Description

11. **SEDAPAL, supported by funds from other international financiers has prepared detailed feasibility studies (including budget, technical designs as well as economic and financial analysis) for the AF project investments.** The Bank has appraised the technical analysis approach and resource allocation, and found it satisfactory. The feasibility study has delineated the exact 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 Project. 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 with the Original Project, social interventions will complement the physical investments to maximize the Project’s expected benefits by taking measures to facilitate the transition to a full pressure, continuous and metered service. These will include gender-tailored initiatives, such as the provision of guidance to manage consumption in particular by encouraging the use of in-house water saving equipment. Additionally, technical assistance on aspects related to demand management to enhance efficiency will be carried out to complement proposed rehabilitation. Additionally, technical assistance on aspects related to demand management to enhance efficiency will be carried out to complement proposed rehabilitation.

V. Financing

Source:	(\$m.)
Borrower	18
International Bank for Reconstruction and Development	55
Total	73

VI. Implementation Arrangements

12. The institutional arrangements for the AF will be the same as for the Original Project. PROMESAL, the unit in charge of the implementation of the Lima’s Marginal Areas Sanitary Improvement Project in which the original project embedded, has now been renamed **Equipo de Proyectos Especiales** and is part of SEDAPAL’s organizational structure. This team will continue to carry out project management functions such as: carrying out bidding processes, selection of contractors, supervision, approval of contract amendments, and general Project management. SEDAPAL’s General Management (*Gerencia General*) will be responsible for approving final designs, complementary studies, while Operations Management (*Gerencia de Operaciones*) is in charge of the final reception of the works.

VII. Safeguard Policies (including public consultation)

13. **Environmental safeguards.** After an initial screening of the proposed interventions under the AF loan, the need for triggering any additional safeguards is not envisaged, given that the proposed additional works will be of similar nature to and in the same areas and similar districts as the original Project. As such, Environmental Assessment OP 4.04 and Physical and Cultural Resources, OP 4.11 are still applicable to this AF. The Environment Management Plan (EMP) prepared for the Original Project is has been updated and publicly disclosed on SEDAPAL's website and InfoShop, to include the new geographic scope and ensure that all environmental aspects are factored in the new districts added to project geographic scope. Moreover, a semi-detailed Environmental Impact Assessment is being undertaken by SEDAPAL and expected to be completed by August 2015, as required under the Peruvian environmental legislation.
14. **Social Safeguards.** Related to OP/BP 4.12, a framework was prepared and disclosed in February 2011 for the Original project, 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 original project. The same policy will be enforced, and OP/BP4.12 triggered, during the Additional Financing. No impacts are expected under the AF either, 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.

VIII. Contact point:

Contact: Patricia Lopez Martinez
Title: Senior Infrastructure Finance Specialist
Tel: +593 2 294 3630
Email: plopez@worldbank.org
Location: Quito, Ecuador (IBRD)

IX. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Email: pic@worldbank.org
Web: <http://www.worldbank.org/infoshop>