**Background on Lima, Peru**

**Integrated Urban Water Management (IUWM) workshop**

**1) Context**

**Lima is the largest city in Peru, and the country’s capital.** It is home to a third of the country’s population. Nearly 10 million people live in 43 districts of Province of Lima and 6 districts of the province of Callao, which make up the Lima Metropolitan area. Lima is the fifth largest city in the Americas and the 27th most populous in the world.

**Lima is the world’s second largest city located in a desert** (after Cairo), with an average annual rainfall of 9 mm. Three perennial (seasonal) rivers (Rímac, Lurin and Chillion) provide surface water to the metropolitan Lima. The flow from these perennial rivers is augmented by water from two inter-basin transfers that transport water across the Andes from the Mantaro river basin to the Rímac River and a series of 19 reservoirs that are jointly operated by SEDAPAL (the water and sanitation utility that is publicly-owned) and EDEGEL (a private hydropower generation company). An average total water flow of 20.5 m3/second, most of which (17.5 m3/second) is supplied by the Rímac River. During the dry season surface water flow in Lima drops by about 50 percent to 10 m3/second. In the dry season, surface water is supplemented by groundwater through nearly 500 groundwater wells operated by SEDAPAL. Current water resources are insufficient to meet growing demands of the metropolitan area. Climate change and climate variability play a role increasing risk of water security, as most of Lima’s water is supplied by rapidly retreating glaciers. SEDAPAL has plans to construct more inter-basin transfers to bring water from rivers across the Andes. It is also working on a series of demand management measures to ensure water is used more efficiently in its service areas.

**2) Challenges**

* **Rapid rate of urbanization** – the metropolitan area is growing at rate of 2.4% per year (more than the national average), which presents a set of challenges to provision of water supply and sanitation services. Out of the 3.8 million Peruvians without adequate WSS services, an estimated 800,000 live in the Lima metropolitan area. SEDAPAL is grabbling with service delivery to rapidly growing peri-urban communities.
* **Limited water resources** – despite costly investments in 2 inter-basin transfers, current availability of water resources is insufficient to meet increasing demands by 2025. Groundwater table has decreased significantly in recent years, leading to reduction in abstraction by SEDAPAL. Climate change has exasperated droughts and floods, both of which have had adverse implications on the quality and quantity of water resources.
* **Deteriorating water quality** – degraded upper watersheds and presence of small scale mining activities upstream of SEDAPAL’s reservoirs has led to a deterioration of water quality and increase in algal blooms. On average SEDAPAL spends US$30-40 million on pre-treatment using activated carbon to reduce adverse impacts of algae on treatment process.
  + **Wastewater** – there has been an increase in wastewater collection and primary treatment with the inauguration of La Chira and Taboada wastewater treatment plants (representing 95% coverage). This has significantly reduced wastewater contamination in the metropolitan area. Both are advanced primary treatment with submarine outfalls. But impacts on beaches (tourism) and fisheries is of concern.
* **Competing water uses** – upstream irrigation demands from some of the reservoirs. Industries in the region that are over-exploiting groundwater resources.
* **Solid waste collection** – particularly a challenge in peri-urban communities that have cropped up on the margins of water ways (Rimac, Chillion and Lurin rivers).

**3) Opportunities**

* **Re-use** – currently an average of 20m3/s of wastewater is collected, partially treated and discharged into the ocean. There are opportunities for re-use in public spaces, which many municipalities are currently promoting. There is also potential for re-use for recharging over-exploited aquifers.
  + **Corporate social responsibility** – coordinating with water consuming industries to support re-charge initiatives.
* **“Green infrastructure” in upper watersheds** – reforestation and watershed protection measures to reduce water quality deterioration and reduce the risk of mudslides that can pose threats to reservoirs.
* **Increase efficiency** – invest in demand management and efficiency measures to reduce non-revenue water, increase awareness of general public and promote use of water saving technologies

**4) Stakeholders**

* SEDAPAL – water and sewerage utility serving an estimated 8.9 million people in the Lima Metropolitan Area
* Local government:
  + Provincial – Lima, Callao
  + Municipal – 49 municipalities
* Sectoral entities:
  + National Water Authority – regulator for water resources
  + Ministry of Environment –
  + OEFA (Environmental regulator) – regulates discharges from various sectors
  + Ministry of Housing, Construction and Sanitation –
* Industries
* Agriculture associations

**5) Relevant Bank portfolio**

**Active lending projects**

1. Integrated Water Resources Management in Ten Basins (P151851) - TTL: Erwin De Nys, Habab Taifour, Water, IPF, IBRD/IDA, Track2, $40M, FY 2017

* The proposed Project Development Objective (PDO) is to strengthen the capacity of targeted water resources management related institutions to plan, monitor and manage water resources at the national level and in selected river basins in Peru.

1. PE Optimization of Lima Water and Sewerage Systems (P117293) – TTL; Juliana Menezes Garrido, Habab Taifour, Water, SIL, IBRD/IDA, Track2, $54.5M, FY 2011

* The proposed development objective of this project is to improve efficiency, continuity and reliability of water supply and sanitation services in the Northern Area of Lima.

1. PE AF-Second Optimization of Lima Water & Sewerage (P133287) – TTL: Juliana Menezes Garrido, Water, IPF, IBRD/IDA, $55M, FY 2015

* The proposed development objective of this project is to improve efficiency, continuity and reliability of water supply and sanitation services in the Northern Area of Lima.

**Pipeline lending projects**

1. Modernization of Water Supply and Sanitation Services (P157043) – TTL: Habab Taifour, Gustavo Saltiel, Water, IPF, IBRD/IDA, Track2, $100M, FY 2018

* The proposed Development Objective is to improve the coverage and efficiency of water and sanitation services of the participating utilities, and improve the efficiency of the water sector in Peru

1. National Urban Cadaster Project (P162278) – TTL: Zoe Elena Trohanis, Luis Miguel Triveno Chan Jan, Social, Urban, Rural and Resilience Global Practice, IPF, IBRD/IDA, Track2, $100M, FY 2019

* The objective of the project is to improve the effectiveness and efficiency of cadaster services and urban planning in a select number of municipalities in Peru.

**Relevant analytical activities**

1. Peru Slum Upgrading RAS (P164495) - TTL: Zoe Elena Trohanis, Social, Urban, Rural and Resilience Global Practice, Advisory Services & Analytics, Track 2 Non-programmatic, FY 2018