Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 05-Apr-2022 | Report No: PIDA33476

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Timor-Leste	P176687	Dili Water Supply Project	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EAST ASIA AND PACIFIC	22-Mar-2022	11-May-2022	Water
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Democratic Republic of Timor-Leste	Ministry of Public Works	

Proposed Development Objective(s)

The Project Development Objective is to improve the coverage and the operational performance of BTL in the Project Area.

Components

Water Supply and Treatment Infrastructure Development
Institutional Strengthening
Project Management
Contingent Emergency Response (US$0 million).

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	123.37
Total Financing	123.37
of which IBRD/IDA	120.76
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	120.76
IDA Credit	120.76

Non-World Bank Group Financing	
Counterpart Funding	2.61
Borrower/Recipient	2.61

Environmental and Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

None

B. Introduction and Context

Country Context

1. **Timor-Leste has made important strides toward securing lasting peace and stability since its independence.** At the time it became a new sovereign state in May 2002, extreme poverty and hunger were high; public infrastructure (including schools, hospitals, roads, and water and sanitation systems) was inadequate, destroyed, or severely dilapidated; institutions were weak; and conflict and violence were ongoing threats. Shortages of human capital were equally severe, with few Timorese having the necessary skills and formal education for civil service or private sector jobs. While there remain political, economic, and social challenges, Timor-Leste is a more peaceful and democratic nation today, having gone through several peaceful parliamentary and presidential elections since its independence.

2. **Timor-Leste is classified as a lower-middle-income country, with a gross national income (GNI) per capita (Atlas method) of US$1,830 in 2020.** Timor-Leste is a resource-rich country that has saved much of its petroleum-related proceeds in a Petroleum Fund—with financial assets currently valued at about US$19 billion. However, the petroleum revenues are declining, owing to the depletion of existing reserves. Growth in the non-oil sector is mainly driven by public spending, which is mostly financed by the Petroleum Fund. Non-oil gross domestic product growth has been decelerating since 2008, averaging less than four percent in 2013–2016, and even contracting in 2017, 2018 and 2020. The construction sector (dependent on public infrastructure investments), public services, commerce, and agriculture account for nearly 80 percent of the non-oil economy. Declining petroleum production has contributed to a fall in GNI from a peak of US$4.1 billion (in current prices) in 2011 to US$2.4 billion in 2020.

3. **Despite adopting strong fiscal measures to address the impact of COVID-19, Timor-Leste's economy had contracted by 8.6 percent in 2020**, the largest output contraction since independence in 2002. The contraction was driven through various main channels, including public health measures and consumer choices, political uncertainty, and international travel restrictions. In addition, the country had

a challenging year during 2021 as the economy was negatively impacted by a surge of COVID-19 cases since March 2021 and the historic flooding caused by Tropical Cyclone Seroja in April 2021.

4. **Poverty levels remain very high, with 41.8 percent[1] of the population lacking the minimum resources needed to satisfy basic needs.** In 2015, the total population was 1.1 million and growing at 2.4 percent per year, with an estimated 25 percent living in urban areas. Based on the latest Survey of Living Standards (2014/15), 42 percent of the population live below the national poverty line, while 22 percent live below the international poverty line of US$1.90 a day. According to the official numbers, close to 317,000 people live in Dili[2]. There are also high inequalities in access to water and sanitation service provision countrywide. Only 55 percent of people in the poorest quintile have access to water supply compared to 90 percent in the richest quintile. On sanitation, only 10 percent of people in the poorest quintile have access compared to 95 percent in the richest quintile.[3]

5. **Political stability is a fundamental precondition to ensure a sustained economic growth.** Timor-Leste has had eight different Governments since independence. Political instability has been responsible for large falls in investment and fiscal revenue. The decline in public investment was particularly sharp in the 2019 and 2020 as the budgets were not approved in time. In addition, private investment has been low and stagnant for decades, reflecting the endemic uncertainty that entrepreneurs face.

6. **Malnutrition and poor health are widespread and continue to hamper people's efforts to improve their livelihoods.** At present, nearly half of the under-five children in Timor-Leste are stunted, among the highest in the world. The three-year average of the prevalence of undernourishment in 2016 was 26.9 percent.[4] About 40 percent of the children under five, 27 percent of women, and 25 percent of men ages 15–49 are underweight.

7. **Gender equality has been a fundamental principle in the country's developmental efforts** and remains key to achieving sustainable development into the future. Based on the 2015 Census, there is no significant disadvantage for female-headed households, compared to male-headed households, in having access to improved sanitation facilities and safe drinking water. However, significant gender inequalities remain—including high rates of violence against women and barriers to reproductive health care. Domestic violence is pervasive[5]; maternal mortality remains high[6]; barriers to reproductive health care are concerning; and significant gender gaps remain in women's access to paid employment[7], wage parity, finance, and political participation.

8. **Timor-Leste is vulnerable to natural disasters due to high risk of earthquakes, tsunamis, cyclones, droughts, and heavy rainfall, and climate change will likely increase the variability of water availability and the exposure to water-related disasters.** Because of climate change, the country's

[1] Government of Timor-Leste. 2014. *Poverty in Timor-Leste*. http://www.statistics.gov.tl/wp-content/uploads/2018/02/Poverty-Report-2014-final.pdf.
[2] Unofficial estimates put this number at close to 500,000. A census is being done in 2022 that will confirm the number of people.
[3] Timor-Leste: Timor-Leste Poverty Monitoring and Analysis (P165123).
[4] Food and Agriculture Organization of the United Nations Aquastat Database 2017.
[5] 33% of women (age 15 to 49) reporting that they have experienced physical violence since age 15 and 29% within the last 12 months.
[6] 142 per 100,000 in 2017, which far exceeds the 2030 SDG target of less than 70 per 100,000 live births.
[7] Labor force participation for females is 62% and males is 73% (ages 15-64). 26% of young women and 16% of young men are NEET (not in employment, education, or training).

population faces increasing temperatures, droughts, increasingly erratic rainfall, and rising sea levels that threaten to exacerbate the storm, landslide, and flood risks. Climate projections[8] for mid-century suggest (i) increased temperature of 1.25–1.75°C by 2050, (ii) increased duration of heatwaves, (iii) increased rainfall of 4–10 percent by 2050 with an increase of up to 100–120 mm in coastal areas and 260–300 mm in the mountains, (iv) increased intensity of heavy rainfall events but decreased frequency, (v) increased sea surface temperatures of 0.6–0.8°C by 2030, (vi) rise in sea level by 150–340 mm by 2050, and (vii) increased cyclone intensity (higher wind speeds) but decreased frequency. The energy sector is responsible for 84% of national greenhouse gas (GHG) emissions, importantly due to electricity generation being based almost entirely on imported diesel oil (Second National Communication (SNC) to the UNFCCC, 2020). Thus, efforts to reduce emissions focus mainly on improving energy efficiency and expanding capacity for renewable energy generation (Nationally Determined Contribution (NDC), 2016).

9. **The overall risk in Timor-Leste also depends on how climate change will influence the El Niño Southern Oscillation.** El Niño has a significant impact on rainfall and thus water availability. El Niño events can cause greatly reduced rainfall in some areas, increased rainfall in others, and a drop in sea level (up to 200 mm) which can affect the start of the wet season. Drought conditions affect many parts of the country, especially during El Niño. Timor-Leste experiences agricultural and hydrological droughts once every four years. The country's hillsides are regularly hit with droughts due to unreliable rains during the wet season from November to May. This condition is exacerbated by deforestation and wildfires. Maize production fell by 40 percent and rice production by 57 percent during the 2016 El Niño, one of the worst cycles on record. Higher temperatures also decrease yields by limiting germination rates; recent estimates suggest that yields will fall by as much as 10 percent for every 1°C increase in minimum temperature during the growing season. With 80 percent of crop production dependent solely on rainfall, most farmers are restricted to only one planting season, leaving them vulnerable to any increase in rainfall variability.[9] Conversely, La Niña events induce a general increase in rainfall, an increase in sea level (100–200 mm), and an increase in wave height which can again affect the timing of the wet season.[10]

10. **The projected climate change impacts pose significant risks to water supply in Timor-Leste.** Key risks include (a) more frequent and longer droughts, leading to a higher reliance on groundwater, a lower water table and reduced water supply; (b) decline in water quality due to contamination of wells by storm surges and flooding of surface fittings; and (c) flash floods. Climate change thus places the delivery and management of water supply services at risk. To achieve the Sustainable Development Goals (SDG) 2030, increased use of adaptation measures will be required[11], including climate-proof designs for infrastructure development, more efficient pumps in response to a higher reliance on groundwater pumping, revision of regulations and standards to enhance climate change resilience of critical infrastructure, and enhanced water distribution systems and management systems at all levels to avoid shortages.

11. **The impacts of climate change are already apparent.** Floods are the most recurrent natural disaster in Timor-Leste, with the urban flood hazard for the country classified as high. This means that

[8] United States Agency for International Development. 2017. Climate Risk in Timor-Leste: Country Profile.
[9] https://climateknowledgeportal.worldbank.org/country/timor-leste
[10] Wallace, Luke, Baskaran Sundaram, Ross S. Brodie, Sarah Marshall, Samantha Dawson, John Jaycock, Gerard Stewart, and Lindsay Furness. 2012. *Vulnerability Assessment of Climate Change Impacts on Groundwater Resources in Timor-Leste Summary Report*. Australian Government Department of Climate Change and Energy Efficiency.
[11] 2016 Timor-Leste's Intended Nationally Determined Contributions of the United Nation Framework Convention on Climate Change.

damaging and potentially life-threatening urban floods are expected to occur at least once every 10 years[6,12]. Tropical Cyclone Seroja caused heavy rains across the country from 29 March to 4 April 2021, resulting in flash floods and landslides that affected all 13 municipalities in Timor-Leste to varying degrees, with the capital Dili and the surrounding low-lying areas worst affected. To date, 45 fatalities have been reported (including 10 missing). According to official figures from the UN Resident Coordinator's Office, 25,709 households across the country have been affected; of those, 11,558 households are in Dili municipality. 4,546 houses across all municipalities have been destroyed or damaged.[13] Beyond achieving the SDG 2030 target of increased adaptation, Timor-Leste will have to urgently develop disaster risk management and contingency plans to deal with climate change that are already apparent and will only be exacerbated.

Sectoral and Institutional Context

12. **Timor-Leste has made progress in increasing access to water supply, but more needs to be done to improve infrastructure, service quality and sustainability.** Efforts are ongoing to rebuild the country's infrastructure, but water supply infrastructure for domestic, commercial, and industrial end users remains underdeveloped and requires substantial investment. In 2017, although 93 percent[14] of the urban population had access to improved water supply[15], only 47 percent of the urban dwellers had individual piped connections in their premises. Urban public water supply systems in all municipal capitals of the country are constrained by aged infrastructure, highly intermittent supplies and low pressures, inadequate operation and maintenance (O&M), leakage estimated at 62 percent of supply, and a high number of illegal connections resulting in high non-revenue water (NRW)[16,17]. By improving service quality and reducing NRW, energy required (and subsequent GHG emissions) to supply the same amount of water will be reduced. In addition, water quality monitoring has only started in January 2022, and has so far not been implemented systematically, limited or no regular water treatment is taking place, and inadequate billing and collection systems are in place. Investing in water supply will have a significant positive impact on the health and well-being of the people, will improve the local environment and will contribute to economic growth. Groundwater resources in East Dili are reaching the ceiling for sustainability and the Government of Timor-Leste (GoTL) intends to undertake an assessment of alternative sources to ensure long-term water supply.

13. **Performance levels of urban water supply services in Dili are particularly challenging.** The water supply system in Dili is performing below standard with high NRW and without proper operation and maintenance planning. The water supply system is constrained by low pressure in the distribution system, inadequate maintenance of main pipes, high leakage and a high number of illegal connections, resulting in high NRW[18]. At the same time, groundwater withdrawal is reaching the maximum for sustainability and

[12] https://thinkhazard.org/en/report/242-timor-leste
[13] UN Resident Coordinator's Office (RCO) Situation Report No. 5 (15 April 2021) Timor-Leste: Floods
[14] World Health Organization (WHO)-United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP) 2017.
[15] Access to an improved water source refers to the percentage of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpipe, borehole, protected well or spring, and rainwater collection.
[16] NRW is defined as the percentage of water produced that is not ultimately billed to consumers. Water not billed to consumers results from water losses (physical and commercial losses) as well as unauthorized consumption that is not billed.
[17] WaterAid. 2010. WaterAid in Timor-Leste Country Strategy 2010–2015. Dili, Timor-Leste: WaterAid.
[18] World Bank. 2018. "Timor-Leste Water Sector Assessment and Roadmap." World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/433121521173685667/pdf/124329-WP-P163648-PUBLIC-Timor-Leste.pdf

surface water cannot be expanded further because of dry season shortages. The reasons for difficulties in maintaining the network are: (i) poor condition of much of the piped network, (ii) insufficient revenues, (iii) frequent modifications to the system without following the overall system design, (iv) insufficient budget allocated, (v) lack of documentation for many small upgrades and repairs, creating a complicated and inefficient distribution system, and (vi) lack of archiving and record keeping practice, hence much of the distribution network's locations are not known, making leak detection and repair very challenging. It is critical to more accurately monitor NRW and reduce it in the network as a matter of first priority before implementing further upgrades or reforms. Curbing NRW will help provide citizens with a more reliable supply during droughts and heat waves.

14. **Natural and climate-related hazards in Timor-Leste have direct impacts on water supply service provision.** These include tropical cyclones, floods, droughts, earthquakes, increased temperature, and rising sea level risks. The damage caused by Cyclone Seroja has highlighted the urgent need to have in place a robust incident and disaster risk management system, and the need for infrastructure resilience[19] towards climatic risks. Cyclones, floods, and earthquakes could damage the infrastructure, disrupt water supply services, and impact the quality of surface water and ground water in multiple ways. The high levels of rainfall and runoff can increase loading of pollutants, contaminants and sediment in surface water and groundwater. The drought conditions can also lead to water scarcity and reduced water supply. The reduced groundwater tables and surface water flows could lead to the increase of pollutants and potentially the use of saline and unsafe water sources, as well as increased energy needs and GHG emissions for pumping. Lower water availability for washing, cooking and hygiene will increase exposure to waterborne contamination.

15. **The main source used for water supply in Dili is groundwater from the Comoro basin.** The total annual groundwater recharge in Dili is estimated at 2.9 million cubic meter (MCM). Twenty-six public boreholes have been installed, 11 of which are located in East Dili. These 11 boreholes withdraw a total of 0.7 MCM per month from deep aquifers, using electrical pumps. Further increases in groundwater withdrawal would exceed recharge and undermine sustainability. In addition, private boreholes have been installed that withdraw water from shallow aquifers, mainly using electricity. It is estimated that, of the 60 percent of the people that are not connected to the network, 16 percent use a private borehole.

16. **Water supply infrastructure development has been identified as a priority in the Timor-Leste Strategic Development Plan 2011–2030, the VIII Constitutional Government Program 2018–2023, and the National Adaptation Programme of Action to Climate Change.** By 2030, the GoTL aims at providing 100 percent of the urban population with 24/7 access to water supply and 100 percent of the rural villages with access to a functioning water supply system. In addition, Timor-Leste in its Intended Nationally Determined Contributions (INDC) 2016 as part of the United Nations Framework Convention on Climate Change (UNFCCC) has put forward adaptation goals to enhance Government and community strategies to respond to drought exacerbated by climate change, and create and enhance water harvesting models, water distribution and management systems at all levels to avoid water shortages due to climate change.[20]

[19] Resilience is defined as "the capacity of an entity to prepare for disruption, to recover from shocks and stresses, and to adapt and grow from a disruptive event. Water utilities must adopt a proactive approach to potential disruption that combines preparedness, emergency response, efficient operations, and long-term capital investments" (Resilient Water Infrastructure Design Brief, World Bank, 2020)

[20] https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Timor-Leste%20First/Timor-Leste%20First%20NDC.pdf

In 2017, Timor-Leste developed National Climate Change Policy (NCCP). The goal of the NCCP is to provide a vision, policy guidance and climate resilient development pathways to Government and non-Government actors working on different aspects of climate change inter alia, adaptation, mitigation, climate change finance, and loss and damage to contribute towards building a climate resilient Timor-Leste (MoCIE, 2017). Related to the climate change mitigation, the NCCP is directed towards energy efficient, low carbon options and less polluting development strategies, without compromising national economic development potential.

17. **Under the 6th Constitutional Government Decree Law No. 6. 2015, the Ministry of Public Works, (MoPW) is responsible for the management of water resources, public water supply, sanitation, and drainage.** The MoPW has prepared a Sector Investment Plan (SIP)[21] of US$1.323 billion to accelerate water and sanitation infrastructure development. As part of this planning exercise, MoPW has prepared a series of master plans including the Water and Sanitation Master Plan for the capital city of Dili. The Dili Water Supply and Sanitation Master Plan is designed to provide all the residents[22] of the Dili Metropolitan Area (DiMA) with safe, reliable, 24-hour supply by 2036, with a focus on the development of reduced carbon, increased resilience of sustainable water production, and treatment capacity and expansion of the distribution network. The GoTL requested the World Bank to support the implementation of the SIP by financing water supply infrastructure in the Eastern part of DiMA. It has requested the Asian Development Bank (ADB) to finance investments in water supply in the Western part of the city. Millennium Challenge Corporation (MCC) is expected to finance investments in sanitation.

18. **Based on the ongoing Detailed Engineering Design (DED) studies, the development of the DiMA Water Supply system will include the following investments:** (i) the rehabilitation and upgrade of 26 existing boreholes, installation of chlorination units and the construction (in West Dili) of two new boreholes; (ii) the expansion of two existing Water Treatment Plants (WTPs) in Bemos from 2,000 cubic meter per day (CMD) to 4,200 CMD and in Benamauk from 600 CMD to 2,200 CMD and relocation of the existing Bemos WTP to Maloa and Nahaek, with a capacity of 1,000 CMD each; (iii) installation of piped water connections; (iv) installation of meters for each of the connections; (v) increasing reservoir capacity in 11 sites; (vi) installation of new treated water transmission lines from boreholes to reservoirs and from surface water intakes to WTPs; (vi) installation and rehabilitation of treated water distribution pipes and creation of 31 District Metering Areas (DMAs) withing 11 Pressure Zones; and (vii) the construction of two new Booster pump stations. Pumping stations, reservoirs and WTPs will be equipped with a SCADA[23] system. These civil works will increase reservoir capacity and reduce network losses, estimated at 62 percent, which together will reduce the pressure on surface water in Dili, while expanding supply to provide a reliable source of water and also acting as a buffer in times of droughts and heat waves.

19. **According to the DED, up to 2030, 80 percent of the Dili Metropolitan customers will still rely on groundwater.** The expected number of residents in Dili in 2030 is 289,000 with an estimated demand for water of 26,500 CMD. Because of the less favorable groundwater situation in East Dili, no additional groundwater will be extracted above the present withdrawal of 0.7 MCM. These investments will improve the water services available in Dili. In addition, it will ensure the future water security of Dili's residents,

[21] The SIP 2018–2030 for Water Supply and Sanitation in Timor-Leste was approved on January 25, 2018.
[22] 428,570, including Tibar and Hera, Y2036
[23] Supervisory control and data acquisition (SCADA) is a system of software and hardware elements that allows industrial organizations to control industrial processes locally or at remote locations and monitor, gather, and process real-time data.

especially in light of the climate threats of more severe droughts and impacts of floods on infrastructure, by increasing water source availability and reliability. Where possible, gravity-based systems will be utilized to reduce pumping (and energy) requirements. Where gravity-based systems are untenable, fossil-based systems may be used, but energy efficient systems will be prioritized.

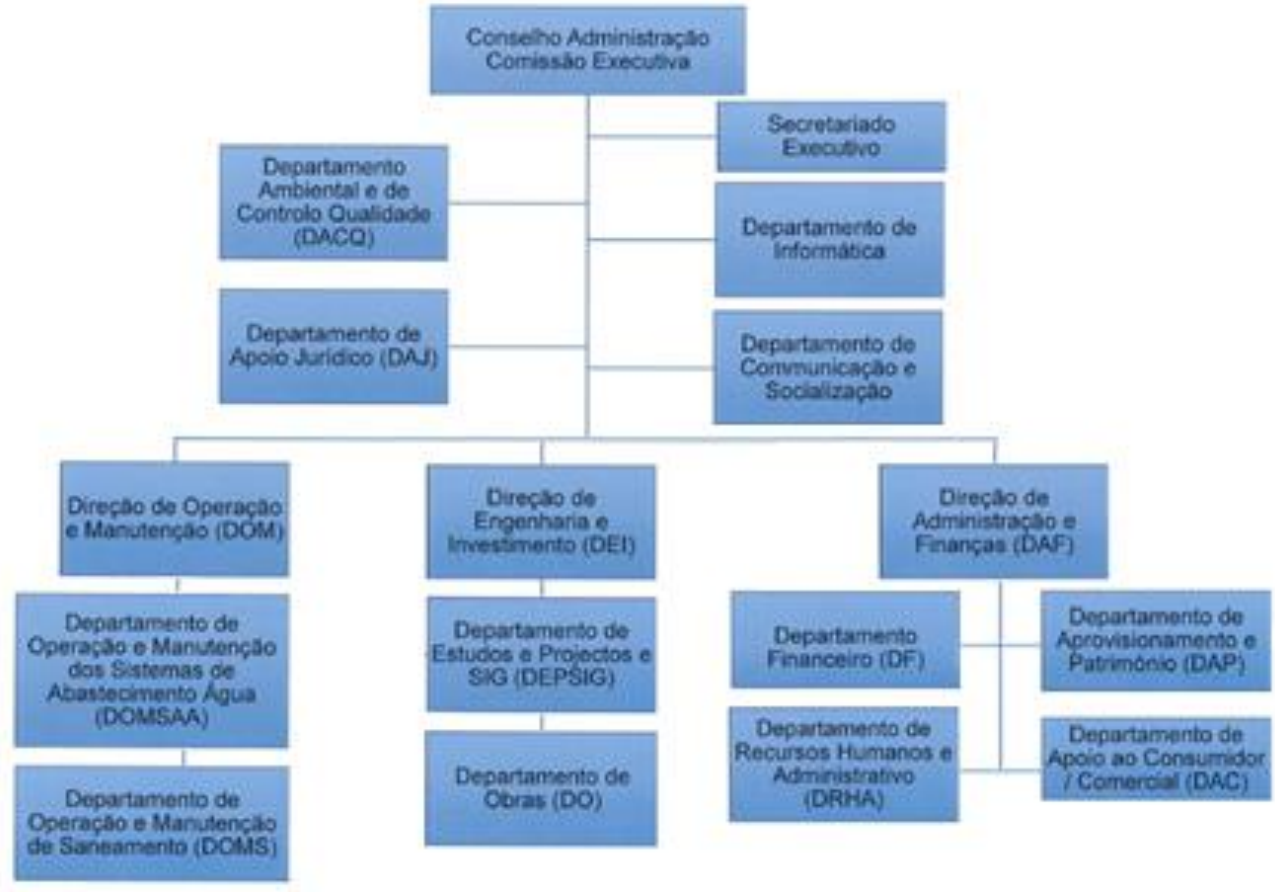
20. **In addition to the infrastructure, the Master Plan recommends carrying out several studies** including: (i) monitoring of surface and ground water; (ii) hydrogeological/hydrological study in Tibar and Hera areas; and (iii) a surface water resources development study for Railaco and Gleno Dam. The Master Plan also proposes the evaluation of long-term alternatives to increase the sustainable water production, including the development of surface water resources from the Railaco and Gleno rivers. The feasibility study of the proposed Railaco and Gleno dam is currently at the final stage. If feasible, it will take two years to finalize the detailed engineering design and 60 months to construct the Railaco dam. Under the current study, Railaco will contribute 47,500 CMD which will help reduce the share of ground water utilization below 35 percent of the total customers consumption. These water source developments will ensure adequate water availability, making water supply more reliable into the future, while taking climate change impacts into account.

21. **The Government of Timor-Leste has recently embarked on a water sector institutional reform program that aims at clearly separating the service provision, regulation and policy making functions.** This institutional arrangement is consistent with international best practice and intends to introduce incentives by strengthening accountability. This sector reform includes, first, the establishment of Bee Timor-Leste Empresa Publica (BTL) a national public water supply and sanitation (WSS) service utility to be responsible for infrastructure development, operation and maintenance (O&M) and commercial activities in all 12 municipal capitals of the country, including Dili. The reform also includes the establishment of a regulator for WSS (ANAS) in charge of regulation, setting and monitoring tariffs and standards, collection of data on financial and operational performance, monitoring and control of the water distribution system and handling of consumer complaints. ANAS is governed by a Board of Directors, an Executive Director, a Fiscal Council and the Technical and Tariff Council. The members of the Board of Directors are appointed by the Council of Ministers. The Executive Director is appointed by the minister responsible for the water and sanitation sector. MoPW remains responsible for formulating policies and strategies for the sector. Such reform will allow the national WSS service utility to utilize energy efficiency measures to improve operational and financial performance while reducing GHG emissions across its service area.

22. **The creation of the national water supply utility BTL was enacted by the Decree Law No.41/2020 on September 25, 2020 to replace the Department General of Water and Sanitation (DGAS) of MoPW.** BTL aims at providing universal and equitable access to safe drinking water and sanitation services to all urban population in the country within the next 10 years; maintain regular, continuous, efficient water supply and sanitation services; promote affordable water and sanitation services; contribute to economic development, social, environment and technological progress; improve public health; and promote industrial, commercial and research development. BTL has ambitions to become a 'Utility of the Future' (UoF) in 10 years in five operational areas of technical operations, commercial operations, financial management, human resources management, and organization and strategy.

23. **Decree 41/2020 establishes BTL as a public company**, with administrative autonomy and the responsibility to provide public water and basic sanitation services to citizens. It is governed by a Board of Directors, an Executive Committee and a Fiscal Council. Its five Board members and three Executive Committee members are appointed for a period of four years.

Figure 1: BTL's Organizational Chart



24. **The financial viability of BTL is currently undermined by low tariff collection, a lack of an efficient billing and collection system and a lack of adequate incentives.** Water tariffs for Timor-Leste were jointly established in 2004 by the MoPW and the Ministry of Finance (MoF) (Ministerial Diploma 1/2004) and never revised. For households, the tariff is US$0.2 per m^3 from 0 to 14 m^3 (per month) and US$0.4 per m^3 over 14 m^3; for public taps, the tariff is US$0.1 per m^3 and for public institutions (schools, hospitals, etc), the tariff is US$0.15 per m^3; and for industry, restaurants and other commercial businesses, the tariff is US$0.6 per m^3. Water tariffs were suspended in 2006 after the civil unrest and only reinstated in July 2013. However, water tariffs currently apply only to the urban areas of Dili and only to metered customers. In 2021, about 28 percent of the 6,500 connections receive a bill. About 10 percent of these bills were paid. In 2021, revenue from tariffs covered about 10 percent of operating costs because of high non-technical losses and collections losses, partly as (costly and) carbon-intensive energy use drives up

operational costs.[24] In addition, there are no penalties for customers who do not pay their bills and corrective actions to address illegal water connections are not taken.

25. **In order to increase revenues, several steps have been taken**, notably in 2019, by increasing the number of payment points in Dili to allow for cash payment instead of bank transfer, but much more remains to be done to ensure the financial viability of the newly established water utility. Improving the tariff levels and collection system will also improve water efficiency by customers by sending incentives to prevent profligate use or raise awareness of customer-side leaks as the unusually high bills will be a strong motivation for customers to seek investigation and repairs. Such water efficiency impacts will further reduce energy consumption, reduce GHG emissions and help mitigate climate change impacts.

26. **Supporting BTL to improve its overall operational performance and increase its revenues will be critical to ensure the sustainability of the reforms.** This will require important institutional development, providing incentives and strengthening capacity of BTL's systems, and procedures to manage, operate, and maintain the new water supply system in a technically and financially sustainable way. It will also require the implementation of a volumetric water tariff at a reasonable price for all, especially the poor and disadvantaged, as the quality of water and service improves as the result of the infrastructure development. This is consistent with the Water Supply for Public Consumption Decree Law 4/2004 providing the legal framework for managing public water supply systems in a sustainable manner, including recovery of costs from customers.

27. **The GoTL is well aware of these challenges.** ANAS has established in October 2021 a "Conselhu Teknika Tarifaria" (*Technical Council on Tariffs*, CTT) with membership from BTL, ANAS, the Consumers' Association, MoF, Ministry of State Administration (MoSA), the NGO Forum for Timor-Leste (Fongtil) and academia to review and propose a new tariff structure and develop guidelines for the establishment of water tariffs. The CTT is expected to submit the tariff guidelines and propose a new tariff structure in March 2022. While a significant increase in the tariff is unlikely to be agreed at the current juncture, the establishment of the CTT is an important step forward and confirms the resolve to improve the sustainability of water service delivery.

28. **Decree 31/2020 on Water Quality Control for Human Consumption defines the microbiological, physical and chemical water standards for human consumption**, the monitoring frequency, the water quality control program, reporting, sample collection and analytical methods. BTL has only recently started systematic water quality monitoring and has started preparing a quarterly and annual report of water quality control for human consumption that is submitted to ANAS. In accordance with the Decree, routine water quality tests of four parameters (pH, electro-conductivity, turbidity and free chlorine) are conducted three times per day at each WTP. More comprehensive tests of 24 parameters are conducted once per month by the National Laboratory. Quarterly reports of routine testing results are disclosed. The project will help BTL meet the provisions of the Decree and make sure that daily routine testing of four water quality parameters and monthly full testing of all 24 parameters are done in compliance with the Decree. Under component 2, the project will strengthen BTL's capacities to undertake systematic water quality monitoring and reporting. Since no baseline of systematically monitored water quality parameters

[24] Based on October 2014 estimates. ADB, "TA 8750 TIM Preparing the Urban Services Improvement Sector Project Draft Final Report", October 2015

is available, the baseline for the percentage of water samples passing tests that have been conducted in accordance with accepted practice is set at 0, and the target value is 100.

29. **The COVID-19 pandemic has placed additional constraints for the provision of water supply service in Timor-Leste.** Enhancing and expanding water services during the emergency phase of this crisis has been a huge challenge. The additional pressure stemmed from lower revenues, increased costs (particularly on labor and inputs like chemicals), and the need to ramp up service delivery across the country. The suspension of water billing has been part of the GoTL response to the crisis.

30. **Along with the World Bank, other development partners are concurrently working with the GoTL** to improve the water supply in Timor-Leste. The ADB is preparing an investment operation that would cover water supply in West Dili and that will be implemented in close coordination with the proposed project. ADB is also providing technical assistance on information management, water regulation and financing advice, along with HR consulting. Japan International Cooperation Agency (JICA) is currently working with BTL on water distribution management, benchmarking and performance assessment, HR and customer management issues. It is also conducting a flood assessment in the Comoro river, and an options assessment to improve the water supply to the Bemos WTP. MCC is undertaking a feasibility study for sewerage and wastewater treatment in Dili, and MoPW is funding a water supply and sanitation master plan.

Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts

31. **The overall environmental and social risk rating for the project at appraisal is substantial.** The substantial rating primarily takes into account risks related to potential adverse impacts on the supply and quality of groundwater resources in the longer term, land acquisition, management of local expectations around employment opportunities especially during construction, perceived or actual risk of exclusion of vulnerable groups from the project benefits, limited experience of the implementing agency (BTL) and lack of meaningful engagement and consultation with communities particularly vulnerable groups such as women, the elderly, minorities, the poor people living in low-income settlements, potential lack of willingness to pay and affordability concerns of local people, and due to potential risk and impacts inherent to the urban and contextual factors. BTL has limited experience in managing environmental and social risks which may impede efforts to mitigate the project risks and impacts and as such the project intends to support capacity building for BTL and also technical assistance for the longer-term sustainability of water supply and quality through an options assessment of water resources, monitoring of groundwater resources and water demand management.

32. **Environmental and Social Standards (ESSs) that are relevant for the project include**: ESS1 (Assessment and Management of Environmental and Social Risks and Impacts); ESS2 (Labor and Working

Conditions); ESS3 (Resource Efficiency and Pollution Prevention and Management); ESS4 (Community Health and Safety); ESS5 (Land Acquisition, Restrictions of Land Use and Involuntary Resettlement); ESS6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources); ESS7 (Indigenous Peoples); ESS8 (Cultural Heritage); and ESS10 (Stakeholder Engagement and Information Disclosure).

33. **Environmental and social instruments that have been prepared to assess and mitigate the potential environmental and social risks and impacts of the project and address relevant ESS requirements include**: (i) Environmental and Social Commitment plan (ESCP); (ii) Stakeholder Engagement Plan (SEP) including a Grievance Mechanism; (iii) Environmental and Social Assessment (ESA) and Environmental and Social Management Plan; (iv) Labor Management Procedures (LMP); (v) Land acquisition and Resettlement Plan (LARAP); (vi) Action plan on Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)/Sexual Harassment (SH). BTL has prepared these ES instruments in parallel with the DED through a foreign consultancy firm. Before the World Bank joined the operation, the terms of reference for preparing the ES instruments had already been prepared based on the requirements of the Government of Timor-Leste and ADB's safeguards. Incorporation of the ESS requirements into the ES instruments and harmonization of the instruments has been sought with BTL and the ADB to also cover plans and procedures on ecosystem services and sustainable supply of water, labor management, occupational health and safety, SEA/SH action plan and stakeholder engagement plan in accordance with requirements of the ESF.

34. **Capacity building is planned to support the establishment of BTL as the responsible entity for water supply in Timor-Leste,** which include recruitment of talented, capable, and well-trained staff and capacity building on technical and ES aspects. BTL has assigned two environmental and social focal points to manage the environmental and social risks under the project, who have been exposed to the ESF through virtual training. These focal points are supported by environmental and social consultants under the DED consultancy firm. Institutional capacity assessment has been undertaken as part of the project preparation to identify gaps and agree on the capacity enhancement measures on environmental and social risk management. The capacity building program for BTL will be developed throughout the project cycle and implemented as part of the project components.

E. Implementation

Institutional and Implementation Arrangements

35. **The MoPW will be the Implementing Agency** (IA). The MoPW has established a single Project Management Unit (PMU) that will be responsible for the implementation of the project, including planning, contract administration, financial management, supervision of environmental and social safeguards and monitoring, all to the satisfaction of the Bank and in accordance with the provisions of the Project Operations Manual (POM). Effective coordination between the PMU and the Dili municipality is critical for the success of the project, and clear roles and responsibilities for each will be reflected in the POM.

36. **The Council for the Administration of Infrastructure Fund** (CAFI) will be responsible for providing guidance and policy direction to facilitate project implementation, ensuring compliance with loan

covenants, facilitating inter-agency and inter-ministerial coordination, and managing the provision of loan proceeds.

37. T**he PMU under the MoPW will be adequately staffed and funded** throughout the implementation of the project. Key PMU professional staff will include, among others, a project coordinator, a water supply engineer, a water operation specialist, a social and gender specialist, an environmental specialist, a financial management specialist, a procurement specialist, and monitoring specialists all of whom with experience, qualifications, and terms of reference satisfactory to the Bank. The PMU will recruit a Project Management Consultant (PMC) that will be responsible for providing administrative and management support to the PMU in the implementation of the project. The PMC will also be responsible for construction supervision, overseeing the implementation of the environmental and social safeguards, preparing quarterly progress reports, and, through the M&E consultant, for monitoring of key performance indicators. BTL will be responsible for O&M of the investments after completion of the civil works.

38. **During project preparation, the procurement and financial management capacity of the implementing agency has been assessed**. The objective of the assessment was to determine whether the MoPW's Financial Management (FM) systems can produce timely, relevant and reliable financial information on project activities. The assessment also aimed to determine if the accounting systems for project expenditures and underlying internal controls are adequate to meet fiduciary objectives, allow the Bank to monitor compliance with agreed implementation procedures, and appraise progress towards meeting the project objectives.

39. **A Procurement needs and risks assessment** will be described in the analysis of Project Procurement Strategy for Development (PPSD) which is under preparation by BTL and the National Procurement Commission (NPC) under the MoF.

40. **MoSA will support project implementation** by promoting efficacy, efficiency, and quality of drinking water and sanitation services and by ensuring that the municipal authorities of Dili contribute to the implementation of the project as needed. MoSA and MoPW have agreed on the roles and responsibilities of the Dili municipality in the implementation of the project. Details will be specified in the POM. The municipality of Dili has an important role to play in the project implementation in relation to strengthening beneficiaries' participation and building consensus at the community level.

41. **The existing Inter-ministerial Technical Working Group**, co-chaired by the MoPW and MoF that includes the MoSA, Ministry of Health, Ministry of Education, Ministry of Planning and Strategic Investments, and Secretary of State for Environment to coordinate WSS development interventions, will provide overall policy guidance during project implementation.

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APPROVAL

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