

SECTOR ASSESSMENT (SUMMARY): WATER AND OTHER URBAN INFRASTRUCTURE AND SERVICES

A. Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Rapid urban growth and increased role of cities.** The population of Timor-Leste increased from 1.10 million in 2010 to 1.18 million in 2015, and is projected to reach 1.30 million in 2020—an annual growth rate of 2% from 2010 to 2020.¹ This is the highest annual growth rate in Southeast Asia. The 2015 population census showed that the proportion of the urban population grew from 27.7% in 2010 to 29.5% in 2015 and is projected to reach 31.1% in 2020.² This represents an urban resident annual growth rate of 4.2% from 2010 to 2020, or more than twice the growth rate for the population overall during that period. Urban growth is putting additional pressure on urban infrastructure services, particularly water supply and sanitation systems, that already are in poor condition and operating beyond capacity.

2. Oil dominates Timor-Leste's economy. However, oil revenues from existing oil fields are declining and the government must look for other sources of revenue. Excluding oil, gross domestic product was \$1.7 billion in 2019, equating to \$1,295 per capita. It has been at this level since 2015. Non-oil growth is largely driven by public investment. The economy was projected to grow by 4.8% in 2020. However, it is expected that a combination of the coronavirus disease (COVID-19) pandemic and a 8-month delay in the approval of the 2020 general state budget will result in an economic decline of 7.9%.³ The Government of Timor-Leste, with support from the United Nations Children Fund (UNICEF) and the World Health Organization, have managed to prevent widespread COVID-19 community transmission in Timor-Leste through a combination of strict border controls, awareness-raising, and promotion of good hygiene practices. However, COVID-19 will continue to negatively impact Timor-Leste's economy through 2021.

3. The International Monetary Fund (IMF) projects longer-term growth of non-oil revenues at 4.8% annually.⁴ It is anticipated that much of this growth will occur in urban areas, which highlights the importance of infrastructure services.

4. **Sector performance and key achievements.** The state of urban water supply and sanitation infrastructure can be described as follows:

- (i) The 2015 census for Timor-Leste revealed that access in urban areas to improved water supply was 91.5%, compared with an average of 74.7% across the country.⁵ The 2010 census showed that access in urban areas to improved water sources was 91.1%, compared with 65.9% across the country. The country-wide improvement is largely due to better access in rural areas, which rose from 57.2% in 2010 to 68.6% in 2015.

¹ Government of Timor-Leste. 2015. *Timor-Leste Census*. Dili.

United Nations Economic and Social Commission for Asia and the Pacific. 2016. *Statistical Database* (accessed 27 January 2021).

³ General Department of Statistics. 2020. *National Account 2000–2019*. Dili.

⁴ IMF. 2019. *IMF Executive Board Concludes 2019 Article IV Consultation with the Democratic Republic of Timor-Leste*. Press Release No. 19/149. 7 May.

⁵ The 2015 census describes safe sources as water piped into the dwelling or yard of the dwelling, while improved sources of water comprise public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection.

- (ii) About 81.1% of the population in urban areas are recorded in the 2015 census as having access to improved sanitation facilities, compared with 80.9% in the 2010 census.⁶ Access to improved sanitation facilities across the country improved from 39.2% in 2010 to 49.5% in the 2015 census. This was due to improved access in rural areas, from 24.7% in 2010 to 38% in 2015. Notably, there are no urban piped sewer networks in Timor-Leste.

5. **Core problem and key issues.** In Timor-Leste, 11% of children under 5 years of age (about 19,300 children),⁷ were affected by diarrhea in 2015, which was attributed to unsafe water and poor sanitation and hygiene. A key protection barrier to COVID-19, should community transmission become established, is good personal hygiene, particularly hand washing. Limited access to water and poor water quality seriously impacts communities' ability to maintain hygienic conditions to combat communicable diseases and promote good health.

6. Groundwater and surface water resources are sufficient for the human, economic, and environmental development needs of Timor-Leste,⁸ with total internal renewable water resources of 8.13×10^9 cubic meters (m^3)/year, which is equivalent to 6,340 m^3 /year for each person in Timor-Leste.⁹ However, water is not easily available because the country lacks infrastructure such as dams, pipe systems, and irrigation systems to store and/or distribute water. Water availability is hampered by a high variation of water availability across seasons and locations.¹⁰ On the one hand, climate change will likely increase the frequency of severe weather events, with more intense rainfall leading to flooding and potential contamination of water sources. On the other hand, climate change is also likely to lead to longer periods without rain, resulting in more severe droughts and reduced flow or even drying up of water sources.

7. The high improved water supply coverage of more than 91% in urban areas, as indicated by the census data (para. 4), is encouraging. However, the figures for urban (and rural) water supply do not consider the quality, reliability, or sustainability of services (footnote 8). For example, in the three project cities of Lospalos, Same, and Viqueque, water supply coverage ranges from 46% in Lospalos to 83% in Same. However, on average only about a third of households have their own water supply connection. Supply is intermittent with more than half of households receiving non-potable water for less than 6 hours on 4 days or fewer in a week. There is no monitoring of water produced, distributed, or lost as there is no bulk metering or service connection metering.

8. Timor-Leste established a national tariff structure for water use through Ministerial Diploma No. 1/2004 (11 February) of the Ministry of Transport, Communication and Public Works.

⁶ According to the 2015 census, improved sanitation facilities comprise flushing/pouring into a piped sewer system, tank, or pit; ventilated improved pits; or pit latrines with slabs.

⁷ Government of Timor-Leste. 2016. *Timor-Leste Demographic Household Survey*. Dili.

⁸ ADB. 2020. *Technical Assistance to Timor-Leste for Implementing Reforms for Growth and Competitiveness. Final Report: Water Security in Timor-Leste*. Manila.

⁹ World Bank. [Databank: Renewable Water Resources per Capita](#). Average renewable water resources per capita in other countries are as follows: Low-income countries 4,477 m^3 /year; lower middle income countries 2,561 m^3 /year; middle income countries 5,495 m^3 /year; and high income countries 8,702 m^3 /year (accessed 18 January 2021).

¹⁰ Government of Timor-Leste, National Directorate for Water Resource Management. 2016. *Water Resources of Timor-Leste*. Dili. The main wet season in all three project cities is from November to July, although even in the dry season there is usually some rainfall. The main differences are: (i) the amount of rain that falls in each municipality—Same (3,670 millimeters [mm] per year) on average receives about 1.5 times more rain than Lospalos (2,290 mm per year) and Viqueque (2,470 mm per year); and (ii) the range of rainfall from season to season within each of the municipalities—the seasonal variation in Same is 5,630 mm (1,980 mm to 7,610 mm per year) while it is much less in Viqueque (1,570 mm to 3,880 mm, or 2,310 mm per year) and Lospalos (1,060 mm to 3,470 mm, or 2,410 mm per year).

However, the project cities lack operating service connection water meters, systems to collect and record water meter readings, and systems to prepare bills and process bill payments.

9. Alternative water sources are essential to meet daily water requirements. Piped water supply systems provide poor service because of high leakage, inadequate metering, and illegal connections. However, alternative sources are not always easily available and water quality is highly variable. In Lospalos 53% have access to improved sources such as wells and bores, but in Viqueque up to 34% must use poor-quality river water.¹¹

10. An average of 20% of households in the project cities practice open defecation and 34% use unhygienic toilets. Unhygienic toilets are described as very basic on-site sanitation facilities such as pit latrines without a slab and bucket toilets, usually in an outhouse.

11. Rapid urbanization and unclear land ownership have led to rapid development of informal urban settlements. These areas are not equipped with basic infrastructure to provide water supply and sanitation services. The government recognizes this trend and has begun investing in long-term land use and urban planning. The National Parliament enacted the Timor-Leste Law on Land Ownership in 2017, setting requirements for issuance of land ownership titles, land usage, and land dispute resolution. However, despite being in force, the legal framework has not been established and urban sprawl remains largely unregulated.

12. In 2019, Timor-Leste completed a review of progress toward the Sustainable Development Goals and found that only 18% of water, sanitation and hygiene, and integrated water resources management data were being collected (footnote 7). A lack of systems, processes, and technologies as well as weak individual and institutional capacity are preventing the collection of quality data, leading to poorly informed planning in the water and other urban infrastructure and services (WUS) sector.

2. Government's Sector Strategy

13. The Timor-Leste Strategic Development Plan, 2011–2030 sets out the government's vision for achieving upper middle-income status and ensuring a healthy, well-educated, and safe population by 2030.¹² It aims to develop human capital, upgrade infrastructure, diversify the economy, and improve laws and institutions. Its key priorities are:

- (i) to invest in core and productive infrastructure such as water supply and sanitation, roads and bridges, seaports, and airports; its target for water supply and sanitation is for all citizens to have access to clean water and improved sanitation by 2030; and
- (ii) to develop the capacity of the public sector and promote good governance for the delivery of government services.

14. In 2020, the Government of Timor-Leste established the following: (i) Bee Timor-Leste, the state-owned water utility under Decree-law No. 41, 2020 and (ii) the National Authority for Water and Sanitation under Decree-law No. 38. Prior to the establishment of these decree-laws, the Directorate General for Water and Sanitation (DGAS) was responsible for capital investment in urban water supply and sanitation, and Municipal Water, Sanitation, and Environment Services (SMASA) authorities were responsible for the day-to-day operation and maintenance (O&M) of the urban and rural water supply and sanitation infrastructure, and capital investment in rural

¹¹ ADB. 2016. *Second District Capitals Water Supply and Sanitation Masterplan*. Manila.

¹² Government of Timor-Leste. 2011. *Timor-Leste Strategic Development Plan, 2011–2030*. Dili.

water supply and sanitation infrastructure. SMASAs reported to their respective municipal administrations but had limited resources or autonomy to undertake more than basic operations. Lines of communication and delegation between the central government and the municipal administration were unclear. The new state-owned water utility Bee Timor-Leste (BTL) will have autonomy over the management of public urban drinking water and sanitation assets, while the regulatory role for water resources and activities in the sanitation sector will be transferred to a new regulatory authority. The new arrangement should allow much greater clarity and transparency of roles.

15. The following national policies provide guidance in water and sanitation: (i) the MPW's National Public Water Supply Policy (2020),¹³ (ii) the MPW's National Water Resource Management (WRM) Policy (2020),¹⁴ and (iii) the MPW's National Basic Sanitation Policy (2012).¹⁵ The Public Water Supply Policy and the WRM Policy establish the responsibility for public water supply and water resource management with the government and provide clear guidance on the roles and responsibilities of BTL and the new regulatory authority for water management. The National Basic Sanitation Policy provides guidance for all ministries and stakeholders on investment in sanitation. While there has been investment in rural household sanitation, as evidenced by the improved water supply coverage figures (para. 4), investment in public sanitation facilities has been limited. Investment in public sanitation facilities is critical as management of septage in urban areas is unsustainable.¹⁶

16. **Establishment of Bee Timor-Leste.** The establishment of BTL and the water and sanitation regulatory authority are positive steps toward improving institutional arrangements for water supply and sanitation service delivery. However, a lack of skilled human resources remains a significant barrier to these entities becoming effective agents for improving service levels. According to the 2019 United Nations Global Status Report, Timor-Leste has less than 50% of the human resources needed to implement the country's drinking water policy.¹⁷

17. **Sector investment and urban development policies.** There are no policies in place for the WUS sector investment or urban development. Planning documents in urban water supply and sanitation are limited to: (i) water supply and sanitation masterplans prepared for the project cities in 2015; (ii) a sanitation and drainage masterplan for the capital city Dili completed in 2012, along with an urban masterplan and a water supply masterplan for Dili (both completed in 2016); and (iii) water supply and sanitation masterplans being prepared for an additional six cities (Aileu, Ainaro, Ermera, Liquiça, Maliana, and Suai).

¹³ The National Public Water Supply Policy provides guidance on the provision of drinking water to meet the population's needs. It is written based on the establishment of the new state-owned water utility. It sets out system ownership, responsibilities for establishing tariffs for provision of service, requirements for inclusive and participatory planning for public water supply, service and design standards, and guidance on capacity development and monitoring and evaluation.

¹⁴ The National WRM Policy guides the provision of water for all other purposes. The policy provides guidance on the creation of administrative, institutional, and WRM structures and a vision of (i) adequate, reliable, and sustainable water resource access for all to meet basic needs and for use in subsistence agriculture; (ii) equitable and sustainable WRM for the benefit of all; and (c) protection and rehabilitation of degraded water-dependent ecosystems. The policy gives priority to water for domestic consumption.

¹⁵ The National Basic Sanitation Policy clarifies that each family and institution is responsible for the construction, use, and maintenance of its own hygienic toilets and hand-washing facilities and other sanitary facilities. The purpose of the policy is to provide guidance and define rules and responsibilities for investment in sanitation and the activities of all ministries and stakeholders in the sector.

¹⁶ Septage comprises excrement and other waste material contained in or removed from a septic tank.

¹⁷ United Nations. 2019. *UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) 2019 Report*. Geneva.

B. Major Development Partners: Strategic Foci and Key Activities

18. Partnership between Asian Development Bank and the government began in 2000 soon after the referendum for the independence of Timor-Leste. Initially the Asian Development Bank (ADB) was involved in the emergency response phase after the destruction of infrastructure during the independence process. Since the formation of Timor-Leste in 2002 as an independent nation, ADB's main areas of involvement in the WUS sector have been to support institutional strengthening, development of infrastructure, and preparation of planning documents, with a view to replicating these initiatives across the country.¹⁸

19. Several development partners are active in water supply and sanitation and urban development including the Australian Department of Foreign Affairs and Trade (DFAT), Japan International Cooperation Agency (JICA), and the World Bank.¹⁹ Additional international agencies support Timor-Leste in the WUS sector, but their interventions are smaller in size and geographic coverage and primarily provide capacity development, with limited investment in infrastructure.²⁰

Table 1. Major Development Partners

Development Partner	Project Name	Duration	Amount (\$ million)
Water Supply and Sanitation			
Govt of TL	Dili Water Supply Improvements	2013–2019	4.66
	Dili Water Supply PPP – Feasibility Study	2014	(...)
	PNDS rural water supply and sanitation program component	(...)	13.20
ADB	Dili Urban Water Supply Sector Project	2008–2014	7.50
	District Capitals Water Supply Project	2011–2020	11.00
	Second District Capitals Project	2012	0.75
	Urban Services Improvement Sector Project	2015	1.50
	Strengthening Water Sector Management and Service Delivery	2012–2018	1.20
	Integrated Water Resource Management Project	2003	0.58
DFAT	Implementing Reforms for Growth and Competitiveness	2019	0.63
	Community Water Supply and Sanitation Program	2002–2005	(...)
	Rural water supply and sanitation program (BESIK I)	2007–2016	63.35
JICA	Dili Water Supply Capital Development Project	2008–2011	1.70

¹⁸ ADB involvement has included: (i) establishing five subzones in the Dili water supply distribution system to demonstrate a zonal approach to establishing 24-hour continuous supply; (ii) the complete upgrading of the Manatuto and Pante Macassar water supply systems; and (iii) support for planning documents including the second district capitals water supply and sanitation masterplans for Baucau, Lospalos, Same, and Viqueque, as well as the Dili urban water supply masterplan and continuous institutional support to DGAS for planning, project implementation, and water supply system operation and maintenance.

¹⁹ DFAT funded and implemented a water supply and sanitation program focused on the rural sector from 2002 to 2016. After 2016, DFAT refocused its support on human resource development. JICA undertook urgent development projects that covered 15 cities in the early years after the referendum of 1999. Since then, JICA has focused on major upgrade works at three water treatment plants in Dili, along with the Dili urban development plan and institutional capacity development. The World Bank will be providing loan financing to support water supply and sanitation capital works development in the city of Baucau. The government's National Program for Village Development (PNDS) provides support for community projects across Timor-Leste in water supply and sanitation, education, health, roads, agriculture, and other areas.

²⁰ In 2012 USAID completed a 3-year integrated rural water, sanitation, and hygiene project (WASH) in two districts (Oecussi and Manatuto). The European Commission is supporting rural water, sanitation, and hygiene as part of integrated rural development, and the Korea International Cooperation Agency (KOICA) has funded Timor-Leste's first desalination facility. Many local nongovernment organizations (NGOs) are supported by UNICEF and international NGOs (e.g., WaterAid, Plan, World Vision, Care, Triangle, Red Cross, and Child Fund) to implement water and sanitation projects in rural areas. Information sourced from World Bank Group. April 2015. *Water Supply and Sanitation in Timor-Leste—Turning Finance into Services for the Future*. Washington, D.C.

Development Partner	Project Name	Duration	Amount (\$ million)
Water Supply and Sanitation			
	Bemos Phase 1 and 2	2010–2011	8.40
	Lahane WTP upgrade	2004	(...)
	Benmauk WTP upgrade	(...)	(...)
World Bank	Water Supply and Sanitation Project	2020	25.00

(...) = no data available, ADB = Asian Development Bank, DFAT = Department of Foreign Affairs and Trade, JICA = Japan International Cooperation Agency, PNDS = Programa Nasional Dezenvolvimentu Suku (National Program for Village Development), PPP = public–private partnership, TL = Timor-Leste, WTP = water treatment plant.

Sources: ADB, Australian DFAT, Government of Timor-Leste, JICA and World Bank websites.

C. Institutional Arrangements and Processes for Development Coordination

20. ADB investments coupled with technical assistance have led to improvement in the capacity of institutions involved in the WUS sector. This is the first ADB loan supporting infrastructure development in the sector. The investment will adopt a project-based lending approach. Project-based lending is well defined in scope and size and has been chosen because it aligns with Timor-Leste's development status and capacity levels in the WUS sector.

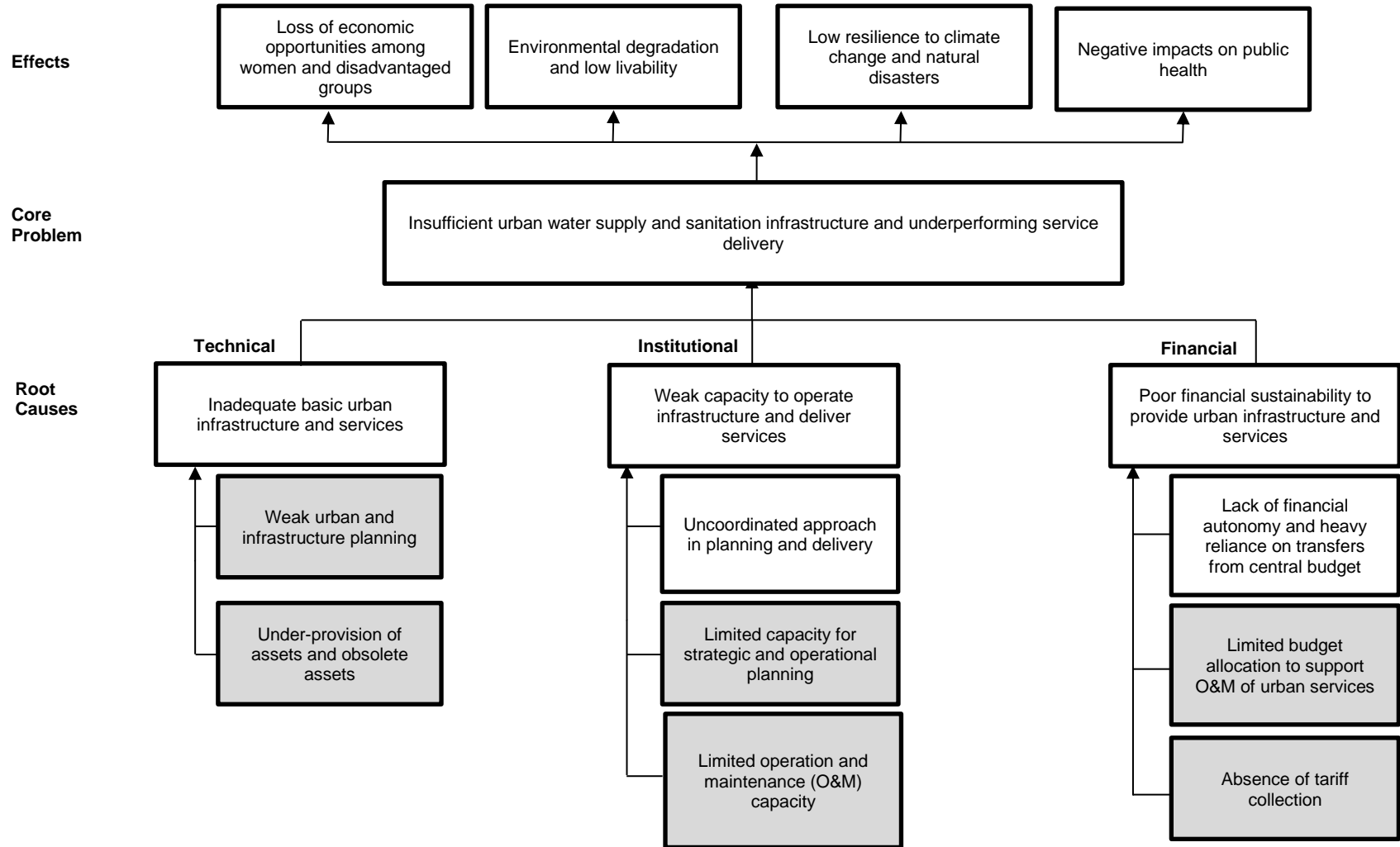
21. ADB and JICA have worked together to improve Dili's water supply, with JICA focusing on upgrading intakes, transmission pipes, and water treatment facilities while ADB has focused on improving the distribution network. ADB is coordinating with JICA and the World Bank to support the government to strengthen newly formed BTL through institutional capacity building measures.

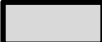
D. ADB Experience and Assistance Program

22. ADB's urban development goals for Timor-Leste have consistently aligned with the government's national development priorities. Since 2006, ADB has adopted a project-based grant approach to water supply infrastructure development assistance, with a focus on poorer cities, while also providing technical assistance for institutional capacity building (footnote 18). ADB's work in the WUS sector has supported the development of water supply policies and has resulted in the first O&M contract in the WUS sector and an institutional reform road map that led to the establishment of BTL and the new water regulatory authority.

23. **Investments in priority urban infrastructure.** ADB will continue to provide technical and infrastructure investment support for the development of water supply and sanitation systems in Dili and secondary cities, and capacity development support to the government and other stakeholders to ensure that its investment programs are efficiently implemented and sustainable.

Problem Tree for the Water and Other Urban Infrastructure and Services Sector



 Problems the proposed project targets to address.