



responsible for about 50 percent of CO₂ emissions country-wide. According to a Council on Energy, Environment, and Water study, over 74 percent of India's districts are vulnerable to extreme climate events.⁷ An estimated 360 million people in 142 Indian cities are predicted to be exposed to extreme heat by 2050. Three-fourths of urban land is estimated to be exposed to high-frequency flooding by 2030. The frequency of droughts is on the rise, with devastating effects on water and energy supply, urban food security, and the economy at large.

B. Sectoral (or Multi-Sectoral) and Institutional Context

5. **Tamil Nadu (TN) is one of the most urbanized and economically developed states in India.** The state has experienced a high rate of urbanization over the last three decades, with its urban population increasing from 19 million in 1991 to 40 million in 2021, accounting for 34 percent and 53 percent of total population, respectively.⁸ TN's urbanization rate is anticipated to increase to 67 percent by 2030, which will be the highest in the country.⁹ TN is the second largest state in India in terms of gross state domestic product (GSDP) over the past decade, increasing from US\$90 billion in FY11/12 to US\$217 billion in FY20/21. TN's year-on-year GSDP growth rate was 5.9 percent in 2019/20, which was better than the national growth rate of 3 percent.¹⁰ Even in FY20/21, when the Indian economy contracted by 7.3 percent, TN's real GSDP grew by 1.4 percent, owing to the state's well-diversified economy and a relatively lower COVID-19 pandemic caseload. With strong macroeconomic indicators, a sound industrial base, and abundant skilled personnel, TN has successfully attracted sizeable volume of foreign direct investment over the last decade. The manufacturing and the service sectors, which account for 30 percent and 58 percent of TN's GSDP, respectively, contribute to the growth of urban areas, positioning them as growth engines of the state.

6. **Recognizing urban development as a key development priority, the state has taken numerous pioneering initiatives to address related challenges.** As part of the intergovernmental fiscal framework, TN was the first state in the country to set up the State Finance Commission to put in place a structured mechanism to share taxes and grants with urban local bodies (ULBs). It also set up, with the World Bank's support, the Tamil Nadu Urban Development Fund (TNUDF) in the early 2000s, which aimed to not only scale up investments in the ULBs but also promote the overall urban governance reform agenda by empowering the ULBs to mobilize own resources, deliver services, and be more accountable to city residents. The TNUDF has supported over US\$3.2 billion in urban investments while maintaining an outstanding track record of 100 percent loan repayments from the ULBs. The Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), which manages the TNUDF, has undertaken many pioneering transactions, including the first pooled finance municipal bond issued through the Water and Sanitation Pooled Fund (WSPF) managed by TNUIFSL,¹¹ which has become a model for other Indian states. However, such initiatives have not been sufficient in the face of fast-paced urbanization and the scale of investment needed for urban infrastructure.

7. **Urban infrastructure investments in TN must be scaled up significantly over the next 15 years in order to meet unmet demands in terms of urban services delivery gaps.** Urbanization in TN encompasses 649 ULBs—21 municipal corporations, 138 municipalities, and 490 town panchayats. Increasing deficits in access and quality of basic urban services persist across most ULBs, affecting the quality of life for their residents. Coverage of the water supply networks in municipal corporations and municipalities is on average about 50 percent. Only 27 percent of the state's urban population is connected to a piped sewerage network. To address gaps in basic services in transport, water supply and sanitation (WSS), and other sectors, the ULBs will require a significant scale-up in capital investments, estimated at US\$2.8 billion

⁷ Mohanty, Abinash, and Shreya Wadhawan. 2021. Mapping India's Climate Vulnerability – A District Level Assessment. New Delhi: Council on Energy, Environment and Water.

⁸ (a) Policy Note 2022–2023, Municipal Administration and Water Supply Department, Tamil Nadu; (b) National Commission on Population, MoHFW. 2019. Population Projection for India and States 2011–2036.

⁹ Report and Recommendations of Fifth State Finance Commission Tamil Nadu 2017–2022, December 2016.

¹⁰ India Brand Equity Foundation (IBEI), Tamil Nadu State profile.

¹¹ Pooled finance is a mechanism where multiple small and medium cities can come together through a special purpose vehicle to issue a joint municipal bond rather than doing so individually. The WSPF has raised about US\$45 million in pooled municipal bonds and another US\$60 million in stand-alone bond issues for the ULBs in TN till date.



annually between 2022 and 2036.¹² This is the equivalent of 0.61 percent of GSDP and 3.3 times the average annual capital expenditure of the ULBs in TN during 2016–2020.

8. **ULBs continue to face urban governance challenges**, including an insufficient revenue base, and limited institutional capacity, as elaborated below:

- (a) **Own source revenue (OSR) mobilization** was 48.7 percent of total revenue in 2019–2020, down from 50.2 percent in 2015–2016 and below its potential. In 2017–2018, TN's property tax to GSDP ratio was 0.13 percent, which was low compared to the 0.30 to 0.40 percent in states such as Gujarat and Maharashtra. For the 21 ULBs participating in this Program, their OSRs saw a decline of 14 percent between 2018–2019 and 2021–2022. Consequently, the ULBs must rely on state fiscal transfers. To address this, in 2022, the Government of Tamil Nadu (GoTN) undertook a rate revision of property taxes for all the ULBs in the state. To leverage this policy and maximize OSR mobilization, other measures are required to enhance coverage and update assessments through administrative and e-governance tools such as geographic information system (GIS) mapping. Moreover, insufficient OSRs, coupled with weak technical capacities and high initial costs, make it difficult for smaller ULBs to tap into municipal bond issuance, which is another much-needed avenue for resource mobilization.¹³
- (b) **Institutional capacity would benefit from improved** ULB human resource management to address matters such as high vacancy rates in ULB staffing as well as additional skill sets that need to be brought in. In the engineering sections, for example, vacancies range from 13 to 74 percent. GoTN is seeking to address this through new organizational structures for ULBs under a new Municipal Act passed recently in the state that will provide for staff positions with new skill sets and will also initiate vacancy reduction. While progress has been made, including having computerized and double-entry accounting systems at the ULBs, they are facing other challenges in public financial management, that is, public investments are not subject to climate-related assessments at the ULB level, there is limited systematic citizen consultation on spending, and budget execution is insufficiently monitored and disclosed. While the ULBs have citizen charters, these are outdated, and the ULBs do not publish annual service report cards (SRCs). Finally, while there are operational grievance redress systems at the ULBs through multiple channels, there is also potential to improve the timeliness of citizen grievance responses.

9. **WSS services in TN's ULBs have limited coverage and quality, as well as high operational and financing inefficiencies.** In most ULBs, residents receive water for one to three hours per day, with the frequency varying from once a day to once in every five days, largely through unmetered service connections. Bulk water supply levels are at 65 liters per capita per day (lpcd) compared to the national guideline of 135 lpcd and may be further aggravated due to climate change impacts on water availability, and the increased demand for water. The quality of service is further strained by uncontrolled non-revenue water (NRW). Access to sanitation services is poor as well and raises public health concerns relating to water source contamination from flood and storm waters. For the one-third of ULBs with sewerage networks, service coverage is less than 40 percent. Many of the existing sewage treatment plants (STPs) are underutilized and suffer from poor operation and maintenance (O&M). Sewerage coverage in the 21 participating ULBs is only about 45 percent with an unutilized STP capacity of 160 MLD. TN has made impressive progress in the regulation and promotion of on-site sanitation and the collection and management of fecal sludge,¹⁴ however, systematic planning through a combination of sewerage and non-sewerage systems to ensure a citywide access to safely managed sanitation is missing. Women traditionally carry most of the burden for collecting water from standpipes, tankers, and handpumps and managing

¹² Data on service gaps and investment needs are from Next Generation of Urban Sector Interventions for ULBs in Tamil Nadu, June 2022.

¹³ Reserve Bank of India. 2022. Report on Municipal Finances.

¹⁴ Notably, formally revised operating guidelines for septage management and established a memorandum of understanding and service-level agreement for shared facilities.



informal water storage due to intermittent supplies.¹⁵ Women and children also suffer the most from the lack of improved sanitation, which causes diseases and increases the need for health care support, as well as absence from school.

10. **WSS services are constrained by weak institutional capacity and policies.** Most ULBs do not have dedicated WSS departments,¹⁶ and their staffing levels and capacity are not enough to improve, operate, and maintain good quality water services; delivering water continuously (24 hours/7days) is a challenge state-wide. Further, with an unmetered, erratic rationing water supply regime, many ULBs face high costs and low flat tariffs, which constrain their ability to recover O&M costs and/or limit their capacity to further invest in extended coverage and services quality. This creates a vicious cycle that leads to deterioration of assets and poor service delivery, which in turn makes users reluctant to pay WSS tariffs.¹⁷ The ULBs maintain a separate account for WSS services in which the WSS revenue (generally made of a flat monthly tariff and a predetermined share of property tax) and WSS expenditures are accounted. While separate accounts are maintained, the WSS expenditure is not related to or limited by the amounts available within these accounts, and overall, WSS operations lack financial autonomy to utilize the funds accrued against WSS charges.

11. **Growing urbanization has also increased the vulnerability of urban areas to climate- exacerbated hazards.** The 2015 Tamil Nadu State Action Plan for Climate Change (TNSAPCC) highlights an increase in extreme temperatures and severe weather events such as heavy rainfall, cyclones, sea surges, and drought in future decades. A review of climate-exacerbated risks for the 21 participating ULBs reveals that almost all ULBs face high risk of extreme heat, more than half face high risk of drought-related water scarcity, and one-third face high risk of flooding.¹⁸ Unplanned rapid urbanization in the state continues at the cost of mass removal of green cover, resulting in heat islands.¹⁹ Among the 21 ULBs, only 5 have more than 1m² per capita green space, and while the national Urban and Regional Development Plans Formulation and Implementation Guidelines recommend 12–18 percent of green cover in urban areas,²⁰ ULBs in TN have less than 2 percent. TN is a water-stressed state, with annual per capita water resource availability of 750 m³ compared to the Indian average of 1,486 m³.²¹ The state-wide river basin coverage is categorized as ‘Critically Scarce’,²² and groundwater is categorized as ‘Semi Critical’.²³ Due to prevailing norms in societies, women in TN, as in other places, have less access to disaster preparedness information, early warnings, emergency shelters, and resources to cope with disaster-related economic losses.

12. **Concerted efforts are required at the city level to plan and coordinate interventions for addressing climate adaptation and mitigation.** ULBs’ current investment identification and prioritization processes do not consider climate and disaster risks, and urban service delivery suffers from limited contingency planning for various categories of risks. As a result, extreme climate events often delay the implementation of infrastructure projects and adversely affect the delivery and quality of public services. Hence, there is an urgent need to strengthen the capacity of ULBs to incorporate climate change adaptation measures in urban planning, management, and service delivery, including dedicated water

¹⁵ Daily water collection can take up to 200 million hours worldwide. The typical Indian woman must trek six km carrying 18 kg of water. (Women and Water Crisis Management in Tamil Nadu with Special Reference to Chennai Corporation V. Sivaraman, D. Devanathan). https://www.researchgate.net/publication/363856962_Women_and_Water_Crisis_Management_in_Tamil_Nadu_with_special_reference_to_Chennai_Corporation/link/63324b3d86b22d3db4e63d43/download

¹⁶ While large ULBs such as Chennai and Bangalore have established city-level water utilities as a separate legal entity, in most smaller ULBs, the WSS function is housed within their Engineering Department.

¹⁷ WSS tariff is set by the ULBs, then approved by the State, without a specific methodology or target.

¹⁸ Legend: Think Hazard: (1) High: Users should be highly aware of potentially severe damage from this hazard for the project location. (2) Medium: Users should be highly aware of potentially severe damage from this hazard for the project location. (3) Low: Potentially damaging events are less likely to occur within the project or human lifetime but are still possible.

¹⁹ Draft Tamil Nadu State Action Plan on Climate Change - 2.0.

²⁰ CSCAF in Monitoring Urban Green Spaces | C-cube - NIUA.

²¹ <https://www.iamwarm.gov.in/brief-project.asp#:~:text=The%20per%20capita%20availability%20of,average%20of%202100%20cubic%20meters> and figure 2 - Per Capital Availability of Water; Niti Ayog Sector Report 9A Water Resources.

²² Table 4 - State Wise River Basin Coverage; Niti Ayog Sector Report 9A Water Resources.

²³ Table 8 - State-Wide Stage of Ground Water Development; Niti Ayog Sector Report 9A Water Resources.



security attention. ULBs also have a large role to play in climate change mitigation by taking low-carbon pathways, such as improved energy efficiency and increased use of renewable energy in infrastructure investment and operation. The GoTN has begun initiatives to address climate change, including the formation of the Tamil Nadu Green Climate Company to implement key flagship missions. However, integrated planning at the city level to coordinate the climate investment needs of multiple sectors remains limited. Even though climate change disproportionately affects women, and the responsibility for climate adaptation, including finding alternative ways to feed their family, typically falls on women's shoulders,²⁴ women are underrepresented in decision making of climate planning at all levels.²⁵ Involvement of women organization is also limited. Still related to gender gaps, there are weak data collection and information systems that could inform and support comprehensive actions to improve women protection against climate disasters, participation in climate resilient actions and ensure capturing the benefits of their increased access to better WSS services.

13. **To address the fast-growing demand for urban services in a sustainable, climate-resilient, and resource-efficient manner, the GoTN, led by the Municipal Administration and Water Supply Department (MAWSD), has formulated Urban Vision 2031.** Urban Vision 2031 aims to achieve universal access to basic infrastructure and services in all ULBs, mainstream climate-resilient infrastructure design and urban development, and strengthen ULBs' institutional capacity. Aligned with the Sustainable Development Goals, it lays out plans for increasing green spaces and providing safe and adequate drinking water to people, including ensuring water availability and citywide safely managed sanitation in all ULBs. Investments guided by Urban Vision 2031 are leveraging funding from several national flagship urban programs, including the 'Atal Mission for Rejuvenation and Urban Transformation 2.0' (AMRUT 2.0) and the 'Swachh Bharat Mission Urban 2.0' (SBM Urban 2.0 or Clean India Program), and are underpinned by the state's firm commitment to deepen policy reforms in urban governance, planning, and financing. The proposed Tamil Nadu Climate Resilient Urban Development Program (TNCRUDP) (the Program), a Program-for-Results (PforR) operation with an Investment Project Financing (IPF) component focusing on Technical Assistance (TA), will support implementation of the WSS and Urban Governance pillars of Urban Vision 2031 in 21 participating ULBs where there is high climate vulnerability and there are substantial gaps in WSS services, OSR, and institutional capacity.

C. Relationship to the CPF and Rationale for Use of Instrument

14. **The operation is consistent with the World Bank Group's India Country Partnership Framework (CPF) FY18–22** that was discussed by the Board on September 20, 2018 (Report 126667-IN) and extended to FY25 by the Performance and Learning Review. Area I of the CPF, 'promoting resource efficient growth', focuses on creating urban footprints that are green, livable, and productive and improve disaster and climate resilience. Pillars I and III of the 2018 Systematic Country Diagnostic (SCD) recognize the role of efficient cities as a direct contributor to a resource-efficient growth path for India. The SCD identifies policies and actions to make cities more productive and livable, including reducing their environmental impacts and strengthening city finances and public sector management. The Program directly contributes to these areas as it supports making ULBs more livable and productive, by investing in urban governance, climate resilience, and WSS.

15. **The operation is consistent with the country's Nationally Determined Contribution (NDC), India's Long-Term Low-Carbon Development Strategy (2022), and the National Action Plan on Climate Change (NAPCC) (2021).** In the latest NDC submitted to the United Nations Framework Convention on Climate Change, India has committed to reducing the emission intensity of its GDP by 45 percent by 2030 from the 2005 level and creating an additional carbon sink of 2.5–3.0 billion tons of CO₂ equivalent through additional forest and tree cover by 2030.²⁶ The Program contributes to India's climate change agenda through Results Area 1 (RA1), which will enhance ULBs' capacity in preparing local climate change action plans and invest in climate-resilient urban development by improving the energy efficiency of municipal assets;

²⁴ Gender and climate change adaptation in Tamil Nadu and Andhra Pradesh: A preliminary analysis. <https://www.ctc-n.org/resources/gender-and-climate-change-adaptation-tamil-nadu-and-andhra-pradesh-preliminary-analysis>.

²⁵ "Women can accelerate climate action." <https://idronline.org/article/gender/women-can-accelerate-climate-action/>

²⁶ Government of India. 2022. "India's Updated First NDC under Paris Agreement (2021–2030)."



expanding green cover; and enhancing the resilience of both institutions and infrastructure to climate hazards such as extreme heat, floods, and sea level rise. Climate change adaptation and mitigation benefits are expected in Results Area 2 (RA2) as well, which will increase access, modernize, and optimize WSS services, thereby reducing emissions and water stress and augmenting access to resilient services.

16. **The operation provides the World Bank an opportunity to demonstrate a ‘results-oriented’ approach and mainstream climate resilience in urban development by bringing together the World Bank’s expertise on urban institutional strengthening, governance, and water.** It also builds on the achievements and innovations from the Tamil Nadu Sustainable Urban Development Project (TNSUDP, P150395) and the Chennai City Partnership (P175221). The TNSUDP, which was completed on March 31, 2023, has delivered improved urban services to 1.7 million people, and incentivized reforms to improve OSRs and citizen engagement in three ULBs through a performance-based grant pilot. The World Bank is currently supporting the Chennai City Partnership Program that provides a model of urban reforms and service improvements cutting across sectoral boundaries. In addition, TN is also supported through several national and multi-state World Bank lending engagements. The proposed operation has a strong focus on system-wide institutional reforms on urban management, including improving municipal finance by increasing OSRs and issuing municipal bonds, and mainstreaming climate-resilient actions at the investment and institutional levels. It also dives deep into one of the most fundamental yet challenging basic services, WSS, with an integrated package of service delivery and sectoral institutional reform. Globally, the World Bank has a wide and diverse experience of supporting cities in strengthening their governance, financing, institutional, and service delivery systems, especially in Asia, Africa, and Latin America. Recent examples of multisectoral engagements for urban reforms include South Asian cities such as Karachi, Dhaka, and Colombo.

17. **The operation is designed as a PforR with an IPF component on TA.** The PforR instrument will facilitate: (a) sharpening the focus on institutional strengthening, including scaling up the performance-based grant from three pilot ULBs under the TNSUDP and incentivizing innovative ways to access financing; (b) showcasing an integrated WSS framework to significantly improve coverage, quality, and efficiency of services; (c) incentivizing climate change to be mainstreamed as a cross-cutting theme in investments, service delivery, and institutions; (d) supporting the larger government program in optimizing their outcomes; and (e) using and strengthening existing government systems, building on the past and ongoing systems development and capacity-building efforts. The IPF component will be used to fund key institutional and capacity development interventions and will be open to all ULBs in the state, including participating ULBs, which will be implemented by the Directorate of Municipal Administration (DMA) and TNUIFSL. While an IPF modality with performance-based conditions could have supported larger and more complex investments, the PforR was considered appropriate given the need to incentivize reforms and improve and sustain service delivery and institutional changes.

II. PROGRAM DESCRIPTION

A. Government Program

18. **To support the achievement of WSS sector targets in its Urban Vision 2031, the GoTN has set up a program (the program) with a total estimated budget of US\$2.18 billion, aiming to provide universal access to WSS services in all major ULBs,** including 21 municipal corporations and 138 municipalities. The objectives of the program are aligned with Urban Vision 2031 and the Government of India (GoI) missions AMRUT and SBM, including (a) functional water tap connections to all households; (b) rejuvenation of water bodies and wells and recycling and reuse of treated used water; (c) rainwater harvesting; (d) scientific management of wastewater and having all used water, including fecal sludge, safely contained, transported, processed, and disposed; and (e) creation of green spaces.

19. **The GoTN program also emphasizes a shift in the urban governance approach to promote citizen-friendly and transparent urban services.** It focuses on (a) building ULB institutional and stakeholder capacity for better governance and service delivery, including through revised municipal staffing, and promoting water conservation and efficiency through information, education, and communication (IEC) activities; (b) enhancing the revenue base for ULBs through

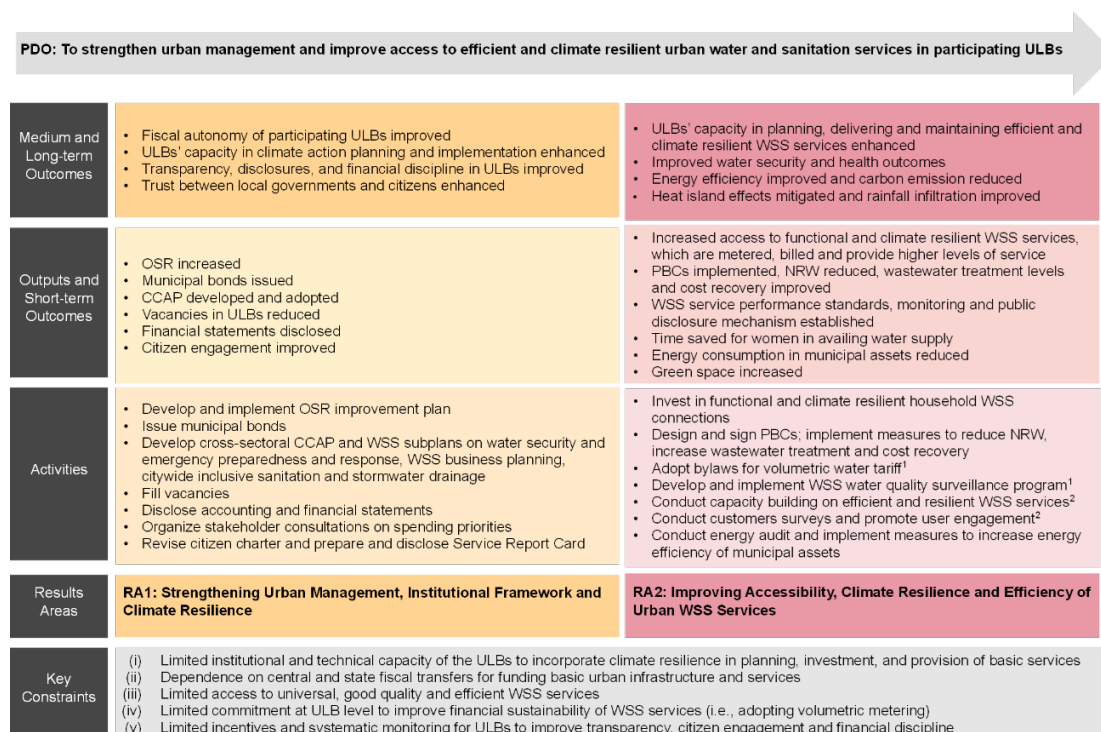


policy measures and the use of GIS; (c) using advanced, smart technologies to transform urban service delivery; and (d) promoting ULBs' use of 'e-governance' and social platforms to enhance ULB institutional capacities as well as citizen awareness and stakeholder engagement. The program also aims to scale up various citizen engagement initiatives such as the MyGov Tamil Nadu portal, which provides opportunities for citizens, experts, and government institutions to interact on key issues,²⁷ and the 'Citizens Charter' introduced in all the ULBs in 1998²⁸ that has helped educate citizens on basic service provision and improved transparency and effectiveness of ULB administration.²⁹

B. Theory of Change

20. **The Program seeks to support strategic targets of the GoTN's Urban Vision 2031, particularly on WSS services and urban governance, while also addressing climate resilience.** The proposed Program will focus on two mutually reinforcing RAs: institutional strengthening on urban management and improvement in WSS service delivery and ensuring that climate resilience is considered in each area. The urban management RA will focus on strengthening the ULBs' human resource, financial, and planning systems; enhancing municipal finance through mobilization of OSR and issuance of municipal bonds; improving transparency and accountability; and promoting an integrative vision and planning for resilient urban development. The service delivery improvement RA will focus on improving access, quality, efficiency, and resilience of WSS services to rising climate risks, particularly extreme heat, droughts, and floods; enhancing energy efficiency in municipal assets; and expanding green cover to mitigate urban heat island effects. The Theory of Change for the Program is presented in figure 1.

Figure 1. Theory of Change



Note: 1. Included in the Program Action Plan (PAP). 2. Included in the IPF component.

CCAP = Climate Change Action Plan; PDO = Program Development Objective; PBC = Performance-based Contract.

²⁷ <https://www.newindianexpress.com/states/tamil-nadu/2020/oct/30/good-governance-tamil-nadulaunches-mygov-portal2216903.html>.

²⁸ Vide G.O.Ms. No. 58 MAWS Department, dated April 16, 1998.

²⁹ <https://www.tnurbantree.tn.gov.in/tiruppur/citizen-charter>.



C. PforR Program Scope

PforR Program

21. **The proposed PforR Program will support a subset of the government program** in selected ULBs. The boundaries of the Program are defined as follows:

- (a) **Duration.** The Program will be implemented over a period of seven calendar years between 2024 and 2030. Disbursement-linked indicators (DLIs) are assessed over six fiscal years from April 2024 to March 2030.
- (b) **Selection of participating ULBs.** A total of 21 municipal corporations and municipalities³⁰ will be supported by the Program. Selection of the ULBs was based on WSS service provision gaps, vulnerability to climate change impacts, a need for capacity support (especially for the ULBs that were recently upgraded as municipalities), the GoTN's overall financing strategy, and exclusions applicable under World Bank PforR policies.
- (c) **Financing.** The overall government program is US\$2.18 billion. The World Bank Program is proposed as US\$809.62 million, covering 37 percent of the overall government program. The World Bank (IBRD) will finance US\$279 million (or 34 percent) of the Program. The detailed breakdown of expenditures is provided in table 3. The World Bank operation includes an IPF-TA component for US\$30 million, which is funded by US\$20.25 million from IBRD and US\$9.75 million from the GoTN. Overall, the Program's annual allocation to the 21 participating ULBs represents on average about 55 percent of their total revenue budgeted for 2022–2023,³¹ which is substantial to catalyze reforms.

Table 1. Government program and the Program

	Government program	PforR Program
<i>Objective</i>	To provide a clean and green environment, quality basic amenities, and vibrant public spaces; induce economic growth; and generate employment and mitigate poverty	To strengthen urban management and improve access to efficient and climate resilient urban WSS services in participating ULBs in TN
<i>Duration</i>	2024–2030	2024–2030
<i>Geographic coverage</i>	158 municipal corporations and municipalities	21 municipal corporations and municipalities in the state, excluding Chennai which is being supported by other operations
<i>Focus areas</i>	Covering urban governance, WSS, and broad environmental improvement including restoration of water bodies and green spaces	Focusing on urban governance, WSS, energy efficiency for municipal assets and green spaces
<i>Overall Financing</i>	US\$2.18 billion	US\$809.62 million

22. **The Program focuses on both broader ULB-level institutional strengthening (RA1) and improving WSS service delivery (RA2).** The Program recognizes that universal, climate-resilient, and efficient service delivery faces constraints at two levels: (a) individual services are delivered with a focus on infrastructure construction, with a limited quality and sustainability orientation, and (b) the overall municipal administration system faces cross-cutting capacity, financing, and policy constraints, including weak orientation toward climate resilience. Therefore, cross-cutting institutional strengthening at the ULB level and improvements in on-the-ground service level are both needed, and any effort in isolation is unlikely to yield results. That is, broader ULB-level institutional strengthening has little impact if it does not translate into service delivery results for the population. On the other hand, an exclusive focus on service improvements

³⁰ These include six ULBs with more than 400,000 population (Salem, Tambaram, Tiruchirappalli, Tirunelveli, Vellore, and Erode) and 15 ULBs with less than 400,000 population (Avadi, Kancheepuram, Thoothkudi, Cuddalore, Dindigul, Nagercoil, Dharmapuri, Karaikudi, Krishnagiri, Namakkal, Pudukottai, Rajapalayam, Theni-Allinagaram, Tiruvannamalai and Tiruvarur).

³¹ Budgeted revenue includes OSR (tax and non-tax), assigned revenue, and grants.



in a single sector will have limited impact in a context of weak policies, staffing, processes, and financial capacity to maintain services. Similarly, enhancing the climate agenda that increases resilience of institutions, infrastructure, and beneficiaries against the rising threat of extreme temperatures, droughts and floods in the project area requires multisectoral climate assessment and action planning.

23. **The two RAs mutually reinforce each other.** RA1 is transversal in nature, and the funds received by the ULBs on achieving the required institutional actions can support green- and climate-related investments based on their specific need, including WSS services under RA2. Investments and implementation of service reforms under RA2 will also contribute to achieving targets under RA1, such as increase in OSR through increased WSS revenues. Climate resilience is a common thread across both RAs. In addition, as the targeted ULBs are the same for the two RAs, they are mutually reinforcing.

RA1: Strengthening Urban Management, Institutional Framework and Climate Resilience

24. **Under RA1, funding will be allocated to the ULBs based on their improved institutional performance.** The following aspects are incentivized: (a) staffing and human resource management; (b) capital expenditure and asset management; (c) transparency and timeliness in budget management; (d) mobilization of OSR; (e) adoption and implementation of comprehensive CCAPs, including cross-sectoral CCAP and four WSS subplans on water security and emergency preparedness and response, citywide inclusive sanitation (CWIS), WSS business planning, and stormwater drainage; and (f) citizen engagement and user-centric service delivery. To create an enabling environment for the ULBs to achieve these institutional reforms, a set of actions will also be required at the state level to establish institutional frameworks to (a) strengthen public investment management; (b) improve planning and capacity with respect to local capital expenditure, and (c) prepare and publish an annual performance benchmark report on governance and service delivery at the ULBs. RA1, with its broad, cross-cutting reach, will strengthen the ULBs and help sustain the results that would be achieved within the WSS sector under RA2.

25. **RA1 also supports cities in accessing private capital.** Over the last decade, TNUIFSL, through its WSPF, has raised about US\$45 million of bonds using a pooled financing mechanism. The proceeds from this pooled financing were provided as loans to the ULBs for carrying out infrastructure projects. All bond service payments were promptly made during FY21/22, demonstrating a strong commitment to timely and responsible financial management (FM). However, the use of this mechanism had been stalled in the last few years due to regulatory constraints³² that have recently been eased by the Securities and Exchange Board of India (SEBI). Hence, this Program will help TNUIFSL resume the municipal bond program for the ULBs in TN covering (a) pooled municipal bonds for multiple ULBs and (b) stand-alone municipal bonds for larger ULBs.

RA2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services

26. **RA2's focus on quality and efficiency marks a departure from past programs.** Despite having been a priority agenda for the GoTN in the last two decades, WSS investments focused mainly on asset creation with a fragmented and 'one size fits all' approach,³³ not being translated into universal, quality, and efficient service delivery. Under AMRUT 2.0, the GoI has linked grants to outcomes to track service delivery to some extent; for example, 40 percent of AMRUT grants for infrastructure is linked to the targeted number of WSS household connections achieved. However, it is still limited as standards on hours of service per day, water quality is not specified, and the ULBs are incentivized to demonstrate 24x7

³² In July 2015, SEBI issued the Issue and Listing of Debt Securities by Municipalities Regulation, 2015, stating that only a municipality or a corporate municipal entity may issue debt securities. This prohibited WSPF or TNUDF as Trusts from issuing bonds. In 2019, a new regulation was issued to allow trusts registered for pooled finance, such as WSPF, to issue bonds.

³³ *Appraisal of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) - Final Report Vol 1; Arun Maira Committee.* The JNNURM was launched in 2005 as a reform-linked grant program. An extensive reform agenda was stipulated, and grant support to states and cities were conditional on progress on service delivery, legislative, institutional, and financial sustainability reforms. However, the reform agenda treated all sizes of cities the same, and many of the intended reforms remained unfulfilled.



water supply only for a minimum of 2,000 connections. The reform for institutional and financial sustainability continues to remain as a separate window and is not linked to grants. Thus, cities can draw down funds for infrastructure creation even though their progress on critical reforms may remain weak (as witnessed in a similar arrangement in AMRUT 1.0). In contrast, RA2 pursues service delivery and financial and operational efficiency goals concurrently in an integrated manner.

27. RA2 concurrently strengthens the climate-resilience, service delivery, and operational and financial efficiency aspects of WSS infrastructure while also supporting energy efficiency and climate resilience at a broad municipal level. Improvements in WSS cost recovery, introduction of Performance-based Contracts (PBCs),³⁴ introduction and monitoring of higher performance standards, and mainstreaming of climate resilience aspects in WSS infrastructure design and O&M form key aspects of RA2. These will be combined with on-the-ground service delivery improvements, such as water connections that are metered and billed water is delivered throughout the day, NRW management, and complete wastewater management systems (from household connections to treated effluents). These higher level of services and stronger operational/financing management also enhance the resilience of the services in climate emergencies occurring during droughts and floods in the project areas. Water security, WSS sector planning accountability, improved water access for women traditionally collecting water and thereby timesaving for them, and citizen engagement are also part of the Program-supported activities, covered by both RAs. Moreover, PAP requires critical WSS-related actions that complement the Program WSS framework, such as tariff rationalization through WSS bylaws and water quality monitoring programs. The package of activities on WSS establishes a uniform 'sector improvement performance framework' to be applied in all participating ULBs. Once it proves useful, this framework may be benchmarked and replicated elsewhere in the state. This framework also supports scaling up private finance for WSS infrastructure and services. Finally, RA2 also incentivizes improving energy efficiency in municipal assets and developing municipal parks using nature-based solutions, contributing to both climate mitigation and adaptation agendas.

IPF Component on Capacity Building and Institutional Strengthening

28. The Program is complemented by an IPF component that focuses on TA and capacity building. This component will be financed through a US\$20.25 million IBRD loan and US\$9.75 million counterpart funding. The US\$20.25 million IBRD loan for the IPF component includes US\$10.125 million to be implemented by DMA and US\$10.125 million to be implemented by TNUIFSL. The main activities will include (a) Program management and independent verification agency (IVA); (b) assessment of ULBs' credit rating and exploring credit enhancement mechanism for municipal bonds; (c) communications, stakeholder, and WSS customers' engagement at the ULBs; (d) training and capacity building for urban sector staff and ULB councilors on urban management and climate-resilient urban services, operationalizing and sustaining water supply services, developing and implementing CWIS and wastewater reuse, designing and managing WSS service O&M and PBCs, and preparing CCAPs; and (e) improving of e-governance and GIS mapping, and preparing of investment subprojects (outside of the Program). TA activities will incorporate awareness activities to ensure enhanced women's participation in capacity-building activities and strengthen data management and monitoring and evaluation (M&E) systems including, for instance, collecting and analyzing additional data on women's and girl's needs, and deriving corresponding actions. Activities under the IPF also support climate adaptation as specific activities under points (c) and (d) above include climate change considerations that are expected to contribute to enhanced resilience against increasing severe weather-related events or hydrological shocks. Moreover, the systematic capacity building to be supported by the IPF, coupled with enhancements in municipal systems promoted by the DLIs, will enable the ULBs to better manage their resources and services, including preparing bankable pipeline of projects that ultimately attract private financing over time.

29. Citizen engagement. The Program will emphasize stakeholder engagement, using a context-specific and flexible consultation process. Existing e-governance platforms in TN's ULBs will be strengthened to aid citizen engagement and

³⁴ The ULBs will enter into PBCs to implement WSS investments. The PBCs will mirror, to the extent relevant, the results under RA2. This will also help address the institutional capacity needs of the ULBs to improve service delivery and efficiency.



grievance redress. Citizen charters with service-specific grievance redress timelines will be revised, incentivizing ULBs to increase compliance from current baseline of 80 percent to over 95 percent. Citizen engagement and feedback solicitation will include surveys, feedback through QR code, and focus group discussions to cover service availability, quality, transparency, and other suggestions. A toll-free number is proposed. WSS service reports will be made public. The Program will support ULBs with IEC through PBCs and the IPF component, covering topics like safe water management, WSS user charges and climate resilience.

30. **Gender.** To address the gender gap caused by the physical and time burden on women and girls in water collection,³⁵ and to reduce the disproportionate effects low quality and inaccessible WSS services have on women, the project will support upgraded, safe and reliable WSS. During implementation and O&M phase of the WSS works, actions will include systematic IEC campaigns to raise awareness on WSS-related issues, where focused discussions with female groups will be promoted, including through social engagement activities under PBCs and the TA. The TA component will also support strengthening data management and M&E systems that monitor how women and girls are impacted differently compared to men. As such, the results framework will track reduction in time spent by women and girls managing water collection over respective baseline in 2024.

31. Additional gender gaps in the context of the Program refer to: (i) women's lesser access to information and preparedness instruments to minimize impacts from climate-related disasters; (ii) underrepresentation in planning and decision making of climate resilience related activities; (iii) weak data and information systems to better inform actions to improve women protection and participation in climate resilient and WSS aspects. To address this, each ULB will set up a committee with representatives from different stakeholders including women councilors in ULBs to review the plans, facilitate public consultations and monitor their implementation for the preparation and implementation of CCAPs, with the goal to ensure that women's perspectives and needs are addressed in climate resilience actions. Efforts will be made to ensure that at least 50 percent of the members and decision-making positions of these committees are female. In addition, ULBs will be required to have at least one-third women attendees in their stakeholder consultations organized at Area Sabha level on spending priorities; and the water security and emergency plan under the CCAPs will lay out clear guidance and roles and responsibilities on community communication, including tailored messaging to women during emergencies. The results framework will track women holding decision-making positions in CCAP Committees

32. **Climate Co-Benefits.** Please see paragraphs 54, 55 and 56 on Paris Alignment in section IV.A.

33. **Greenhouse gas (GHG) emissions³⁶.** The Program will help reduce unchecked GHG emissions from individual cesspools and latrines by expanding household sewerage connections and increasing the amount of wastewater being treated in existing and newly constructed STPs in the project area that meet the effluent disposal standards. A GHG emissions accounting analysis for the Program's sanitation activities¹ shows that the participating ULBs have the potential to reduce CO₂ emissions. The Program's gross emissions over the economic lifetime are 2,318,677 tCO₂-eq, the net emission reduction over the economic lifetime is 6,786,713 tCO₂-eq, and the net average annual emission reduction is 212,085 tCO₂-eq.

34. **Private sector and municipal financing.** The Program aims to leverage the private sector for improving the efficiency, quality, and sustainability of urban service delivery. In infrastructure-related sectors, including WSS, critical binding constraints to scaling up private finance are the lack of creditworthiness and financial capacity in the ULBs and the lack of institutional capacity to develop a viable project pipeline and implement in a timebound manner. The Program takes a comprehensive approach to scaling up private finance for urban infrastructure and services improvements in the

³⁵ Recent research shows that, in Chennai, time spent on water collection by unconnected households accounts for 22 percent of the coping costs of INR 658 per month. Amit, R. K., and S. Sasidharan. 2019. "Measuring Affordability of Access to Clean Water: A Coping Cost Approach." *Resources, Conservation and Recycling* 141.

³⁶ GHG account was carried out based on the Water Global practice standardized methodology, focusing on sanitation activities only since these are the largest portion of program-supported investments with relevance to GHG accounting. DLIs supporting sanitation investments are: DLIs 6.1 (partially), 6.3 (fully), 7.1 (partially) and 7.3 (fully).



participating ULBs, directly addressing the issues above, by (a) enhancing the policies and mechanisms for revenue generation, rationalizing tariffs, cost recovery, and/or viability gap funding at the ULBs, which can provide enhanced revenue security for the private sector; (b) strengthening project structuring and contract management systems (for example, using PBCs for WSS services) in the ULBs for service delivery; and (c) building a solid pipeline of WSS investments projects with sound technical and financial viability. In addition, the Program incentivizes the mobilization of private capital through the issuance of municipal bonds by TNUIFSL on behalf of the ULBs for infrastructure services. This could ensure that the Program would leave behind not only stronger institutions at the ULB level but also enhanced capacity at the state level to access a larger pool of financing for the ULBs' future investment needs. These will pave the way for developing a scalable model in TN that can be adopted for all the ULBs to address the expanding urban investment gaps through private finance in addition to government grants in a sustainable manner.

D. Program Development Objective(s) (PDO) and PDO Level Results Indicators

35. The PDO of the Program is to strengthen urban management and improve access to efficient and climate resilient urban water and sanitation services in participating ULBs in Tamil Nadu.

36. The PDO-level outcome indicators are:

- ULBs with OSR increase of above 65 percent over respective baselines in FY2021-22;
- ULBs with increase in cost recovery of O&M expenses in WSS services of at least 30 percentage points over respective baseline in FY2021-22;
- People provided with access to functional³⁷ WSS services under the Program;
- ULBs with adoption of CCAP; and
- ULBs with institutional performance indicator score above 60 points out of 100.

37. **Program beneficiaries.** About 6.5 million people living in the 21 participating ULBs are expected to benefit directly and indirectly from the Program, of whom about 2 million people will benefit directly from improved WSS services. About 2,500 technical and managerial staff from the 21 ULBs will also benefit from the Program's TA, training, and institutional strengthening activities.

E. Disbursement Linked Indicators and Verification Protocols

38. **Program resources will be disbursed based on the achievement of the targets of eight DLIs and disbursement-linked results (DLRs).** Six out of the eight DLIs are linked to ULB institutional reforms, urban governance, and climate measures, either transversal at the ULB level or WSS sector related. DLIs under RA1 are entirely focused on transversal ULB institutional reforms and measures, with funds to be received by the ULBs contingent on achieving the required institutional benchmarks, including climate, public investment management, and municipal finance-related actions. DLIs under RA2 focus on WSS sector building blocks which together form a 'sector improvement performance framework' with actions to support good quality and expanded service delivery and operational, climate, and financial efficiency of WSS services, supplemented by WSS institutional and policy actions in RA1 and the PAP. RA2 also supports energy efficiency and development of green space at city level. Funds under DLI 6 and 7 will be used exclusively for WSS investments; ULBs are also expected to use part of the funds received under DLIs 1, 3, 4 and 5 towards WSS investments. TNUIFSL will sign sub-loan/sub-grant agreements with each participating ULB that will detail out the funding being made available for WSS investments and obligations related to DLI 6 and 7. Similarly, DMA will issue directives or guidance as required to ULBs for other DLIs.

³⁷ See DLI 6 for definition of functional WSS services.



Table 2. Snapshot of RAs, DLIs, and Fund Allocation for the Program and IPF TA Component

RAs under PforR	Responsible Agency	DLIs	Allocated Amount (US\$, millions)
RA1: Strengthening Urban Management, Institutional Framework and Climate Resilience	DMA (DLI 1, 3, 4, and 5)	DLI 1: Increase in OSR	27.06
		DLI 2: Increased access to financial market	4.00
		DLI 3: Enhanced institutional capacity for climate resilience planning	6.00
	TNUIFSL (DLI 2)	DLI 4: Improved fundamental institutional capacity	13.63
		DLI 5: Strengthened institutional capacity to manage resources in a sustainable, participatory, and green manner	20.45
RA1 Subtotal			71.14
RA2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services	TNUIFSL (DLI 6 and 7)	DLI 6: Delivery of functional water and sewerage connections	139.50
		DLI 7: Increased operational, climate and financial efficiency of WSS services	54.41
	DMA (DLI 8)	DLI 8: Improved city-level climate resilience	13.95
RA2 Subtotal			207.86
Total for PforR			279.00
IPF TA Component			
TA funding split equally between DMA and TNUIFSL	DMA / TNUIFSL	TA support for Program management, studies, incremental operating costs, training, and capacity building, etc.	20.25
Front-end fee	GoTN	Front-end fee	0.75
Sub-total TA Component			21.0
Grand Total			300.0

39. **DLI 1: Increase in OSR** incentivizes participating ULBs to improve their fiscal autonomy. Increased OSR is critical to meet ULBs' recurrent expenditures, scale up service delivery, and reduce their dependence on fiscal transfers, especially given their declining trend in OSR mobilization. Under DLI 1, the participating ULBs are expected to implement measures identified in the OSR improvement plan such as conducting GIS mapping to increase property assessments and improving e-governance and deploying field team to increase collections. The ULBs will be rewarded for every percentage point increase in OSR over their respective baselines in FY21/22. Overall, the Program aims to achieve a 65 percent increase in OSRs over each ULB's respective baseline in FY21/22.³⁸

40. **DLI 2: Increased access to financial markets.** This DLI incentivizes TNUIFSL to support the ULBs in TN in accessing financial markets to the tune of US\$30 million through (a) WSPF managed by TNUIFSL issuing pooled municipal bonds³⁹ for the smaller ULBs and (b) larger ULBs issuing stand-alone municipal bonds. In both cases, attempts will be made for these to be 'green' municipal bonds, as per the SEBI definition⁴⁰. Funds raised through these bonds will be allocated for investing in the urban water systems, including WSS and stormwater drainage. The IPF TA component will support TNUIFSL in the following activities: (a) pooling a set of interested ULBs and subprojects with sufficient creditworthiness to structure a transaction with support from financial advisors; (b) undertaking a credit rating through a rating agency; and (c) appointing a merchant banker to undertake issuance of the bond in capital markets, including ensuring SEBI regulatory

³⁸ The total OSR of the participating ULBs was US\$127.23 million in FY21-22.

³⁹ Besides TA under the IPF component and utilizing the DLI-2 grant, WSPF is also expected to access the incentive funds for credit enhancement from Ministry of Housing and Urban Affairs that is available to the extent of INR 13 crores (US\$1.57 million) for every municipal bond issue of INR 100 crores (US\$12.04 million) up to a maximum of INR 26 crores (US\$3.13 million).

⁴⁰ According to SEBI's Issue and Listing of Non-Convertible Securities Regulations, 2021, a "green debt security" refers to a type of debt instrument issued with the purpose of raising funds specifically allocated for projects or assets falling within certain defined categories. These categories include renewable and sustainable energy, clean transportation, sustainable water management, climate change adaptation, energy efficiency, sustainable waste management, sustainable land use, biodiversity conservation, and any other category specified by the relevant regulatory authority. The utilization of funds raised through these securities must adhere to the conditions and guidelines set by SEBI.



compliance. By undertaking such an initiative, TNUIFSL can further enhance its financial capabilities and contribute significantly to the development and sustainability of urban infrastructure projects across TN.

41. **DLI 3: Enhanced institutional capacity for climate resilience planning** aims to mainstream climate actions in participating ULBs. The DLI will incentivize the ULBs to adopt and implement CCAPs, which will follow standardized guidelines to be issued by the DMA. Each CCAP includes one cross-sectoral action plan based on comprehensive risk assessment, GHG inventory and identification of adaptation and mitigation measures covering WSS, transport, energy/building, solid waste, and green space, supplemented by four WSS sub-plans. These sub-plans include: (a) a strategic five-year WSS business plan that incorporates universal access, service quality, climate,⁴¹ sector financing and efficiency, and gender aspects; (b) a CWIS plan focusing on non-sewerage solutions⁴² in areas not covered by the sewerage network, benefiting particularly informal/low-income areas with improved and climate resilient sanitation access; (c) a comprehensive water security plan to guide actions in the short, medium, and long terms to ensure water availability for all city development needs in a changing climate scenario, along with improving WSS emergency preparedness and response mechanism to support resilience of citizens and assets to droughts and floods; and (iv) a sustainable urban drainage plan to identify hot spots of water stagnation and recommend structural and non-structural measures including nature-based solutions to improve the stormwater management system to reduce flooding damage. Under DLI 3, the ULBs are expected to allocate 5 percent of their capital budget for subprojects identified in the CCAP and initiate implementation measures. These CCAPs are also expected to serve as the basis for the implementation of state and national schemes. The IPF component will support the participating ULBs to develop these plans through TA and capacity building.

42. **DLIs 4 (Improved fundamental institutional capacity) and 5 (Strengthened institutional capacity to manage resources in a sustainable, participatory, and green manner).** These two DLIs form an institutional Performance Assessment Framework (PAF) that annually assesses the ULBs' performance across four areas: (a) human resource management (HRM); (b) budget, budget execution, accounting, and transparency; (c) capital expenditure and asset management; and (d) citizen engagement and user-centric service delivery in a resource-efficient manner. DLI 4 supports ULBs to meet a set of Minimum Conditions (MCs) in HRM and budget, budget execution, accounting, and transparency. To incentivize ULBs to move 'above and beyond' the minimum targets, DLI 5 encourages the ULBs to achieve better performance based on annual targets of performance indicators (PIs) across the four areas of the PAF. Only the ULBs that meet the MCs under DLI 4 are eligible for receiving funding based on achievement of their PIs under DLI 5.

43. **DLI 6: Delivery of functional water and sewerage connections.** This DLI provides incentives to install and operationalize functional water tap connections (FWTCs) and functional sewerage connections (FSCs), with service delivery parameters exceeding AMRUT 2.0 requirements and the current service levels in the state under a PBC framework. Under DLI 6, the ULBs will achieve one or more of the following: (a) improve citywide water supply covering 70 percent of the city with functional water connections at household level that deliver a minimum of three hours of supply every day, (b) establish 24x7 water supply in demonstration zones with metered connections to encourage water conservation and financial sustainability, and (c) provide sewerage connections at household level that are further connected to a functioning STP that meets effluent disposal standards. The ULBs are also required to ensure that their WSS subprojects incorporate rapid climate resilience guidelines developed by TNUIFSL (to mainly address floods and droughts) to improve the resilience of the infrastructure and the services. DLI 6 also require the ULBs to demonstrate steady physical and financial progress to secure cashflows.

44. **DLI 7: Increased operational, climate and financial efficiency of WSS services.** This DLI focusses on (a) performance orientation, NRW management, and optimization of use of existing assets, aiming to enable a shift from

⁴¹ Climate in WSS business plans refers to actions to gradually reduce emissions (energy efficiency, trucks usage, and so on) and, in alignment with the water security plan and ERPP, to make WSS services more robust against droughts and floods.

⁴² Such as upgrading of unsafely managed sanitation facilities (e.g., latrines and cesspools) to safely managed technologies including fecal sludge management, thus contributing to both climate resilience (due to reduced sewage contamination) and mitigation (due to reduced emissions).



asset building to operational efficiency while also supporting climate adaptation and mitigation, and (b) strengthening of the ULBs' ability to finance and sustain citywide WSS services over a longer term. Under this DLI, the ULBs are expected to (a) sign PBCs to implement and operate WSS investments with operators with key performance parameters aligned with the objectives of DLIs 6 and 7; (b) reduce NRW to 20 percent in the geographical areas where the ULBs will invest in water supply systems; (c) increase flows into the existing STPs to treat increased wastewater due to expansion in the sewerage network and non-sewerage solutions; and (d) improve O&M cost recovery levels by 30 percent over the ULBs' respective baseline. Optimization of existing assets, both in terms of STPs and water supply systems (through NRW and professional network management), contributes to operational (water and energy use) and financial efficiency. A higher and more reliable WSS service delivery (through WSS household level connections) and additional volume of water (due to NRW reduction) to targeted communities will help them withstand climate-related shocks to water supply (such as droughts/water shortages and heat waves) and improve public health outcomes by improving availability of potable water, access to safely managed sanitation solutions (through sewerage) and increasing of wastewater treatment. Moreover, the DLI will provide mitigation benefits by optimizing energy, reducing NRW, and increasing treatment of wastewater in project areas.

45. **DLI 8: improved city-level climate resilience.** The ULBs will be provided with grants under this DLI for reduction in energy consumption in their main municipal assets (such as WSS and streetlighting) and development of green spaces/municipal parks as nature-based solutions to reduce the heat island effect and help the area in absorbing water during extreme precipitation, thus contributing to climate resilience and mitigation at the same time. Overall, the Program aims to achieve 25 percent energy saving over each ULB's respective baseline in FY21/22 (through actions to be identified via the cross-sectoral CCAP) and have 60 percent of the areas designated as municipal parks as per ULBs' master plans or development plans.

Verification Protocol and Independent Verification Agent

46. Achievements of the DLI targets will be verified by the IVA, to be appointed jointly by the DMA and TNUIFSL as per terms of reference (ToR) agreed with the World Bank. The DMA and TNUIFSL will prepare technical reports to document the status of achievement of DLI targets to IVA. The IVA will review these technical reports along with other records and technical designs and conduct interviews with beneficiaries and on-site checks of physical interventions. For DLI 4 and 5, the DMA will lead the assessment process and undertake a first verification of the documentation submitted by ULBs, while the final verification will be done by the IVA. Upon validation of the achievement of DLI targets by the IVA, DMA and TNUIFSL will communicate the findings of the IVA to the World Bank along with the supporting documents for the World Bank's review and confirmation.

III. PROGRAM IMPLEMENTATION

A. Institutional and Implementation Arrangements

47. **Institutional arrangements.** The Program's institutional framework will rely on the state's existing institutions that comprise a two-tier government system of state-level and ULB-level institutions. At the state level, TNUIFSL and the DMA will be the nodal implementing agencies (IAs). The DMA will be responsible for coordinating and overseeing the achievement of RA1 (except for DLI 2 that will be coordinated by TNUIFSL) and will pass on the funds to ULBs as grants, upon achievement of the DLIs. TNUIFSL will be responsible for RA2 (except for DLI 8 that will be coordinated by DMA) and will pass on the funds to ULBs as a mix of sub-loans and sub-grants.⁴³ The overall funding for each ULB will be as per the DLI/DLR formula (annex 2). Within such funding envelope, the basis for loan-grant mix from TNUIFSL applicable for DLIs 6 and 7 is presented in the financial analysis section. For DLIs 4 and 5, the PAF has been reviewed by the World Bank and agreed with the client. The detailed performance criteria, annual assessment process and budget cycle are presented in

⁴³ The mix of grants and loans is as per the financial evaluation and agreement between TNUIFSL and ULBs.



the Technical Assessment Report and further fleshed out in the draft Program Operation Manual (POM). DMA and TNUIFSL will also be responsible for implementing the IPF TA component.

48. **At the ULB level, municipal commissioners and engineers will be responsible for implementing Program activities and achieving the required results, under the supervision and monitoring of state-level agencies.** The Mayor/Commissioner's office at each ULB will have a key role to coordinate multisectoral, ULB-wide activities, such as the CCAP while counting on inputs from specific departments.⁴⁴

49. **A Program Steering Committee chaired by Secretary of MAWSD with senior officials from the IAs and Department of Finance will be set up within four months from effectiveness for sanctioning and monitoring the Program and will meet twice a year or as required.** An existing High-Power Committee⁴⁵ headed by the Chief Secretary of GoTN will provide guidance on issues requiring inter-departmental coordination.

B. Results Monitoring and Evaluation

50. **The Program will be monitored using Government systems.** The Results Framework (annex 1) provides the basis on which the IAs will measure and report on the progress of Program implementation. The primary source of information for results indicators including DLIs will be the participating ULBs. The main agencies responsible for collating and coordinating information collection and monitoring would be the DMA and TNUIFSL. TNUIFSL, in coordination with the DMA, will prepare the Quarterly Progress Report, which will include evidence of progress on all results indicators included in the Results Framework, results related to DLIs and DLRs as verified and confirmed by the IVA, evidence of compliance with requirements under the PAP, and progress of the TA activities.

C. Disbursement Arrangements

51. The GoTN will prefund the Program expenditure and receive disbursements from the World Bank based on achievement of DLI targets verified by the IVA, as per the agreed verification protocol detailed in the POM. In the final year of the Program, DMA and TNUIFSL, in coordination with the World Bank, will reconcile the audited Program expenditures with the amounts disbursed by the World Bank on the achievement of DLI targets. Any shortfall in the Program expenditures in relation to DLI disbursements will be refunded to the World Bank. After the Program loan is declared effective, the GoTN can submit claims for prior results, that is, results achieved between October 6, 2022, and the date of signing the Loan Agreement. The prior results cannot exceed 25 percent of the total loan amount.

D. Capacity Building

52. Organizational capacity building for the sustainability of the urban management reforms, WSS services and climate resilience is an integral part of the Program in both RA1 and RA2. The IPF component will fund a set of TA and capacity-building activities that address the constraints of participating ULBs in key Program-related areas, such as monitoring and verification of results, urban management, climate resilience, and WSS service delivery. TA will support the DMA and TNUIFSL to develop guidelines for ULBs and share best practices related to CCAPs, energy audits, WSS PBCs, and the development of green municipal bonds. It will support the ULBs to develop CCAPs, conduct energy audits and GIS mapping, and carry out WSS communication campaigns. Continuous support will also be given to the IAs for implementing the PAP (see annex 6).

IV. ASSESSMENT SUMMARY

A. Technical (including Program economic evaluation)

⁴⁴ Such as, the Engineering Departments, which will oversee implementing WSS-related plans.

⁴⁵ Its members consist of representatives from the Finance Department; Water Resources Department; Energy Department; Environment, Climate Change, and Forest Department; Revenue and Disaster Management Department; and representatives from the IAs.



53. **The Program is informed by detailed sector assessments and is technically sound.** The Program builds on strong government ownership and reflects lessons from local and international experience. The Program's activities strengthen the government program by better aligning incentives with institutional reform objectives in urban management, WSS, and climate resilience. The Program design is also informed by learnings from the recently completed TNSUDP and the ongoing Chennai City Partnership and similar urban and water sector programs supported by the World Bank globally including in Morocco, Ethiopia, and Albania. Sector-specific activities are informed by strategic policy-level dialogue and TA activities in TN, including those funded by the TNSUDP on ULB capacity and financial needs assessment and public financial management. The findings and recommendations from these studies informed the design and prioritization of activities and targets to be achieved under the Program. Guidelines for climate-resilient measures in WSS projects have been developed and incorporated in the designs of WSS investments to be supported by the Program. Moreover, the package of WSS interventions has been carefully designed to ensure that infrastructure is provided, operated, and maintained efficiently by coupling them with institutional sector measures, operational and financial incentives, and a performance-based contracting model. A summary of sectoral technical assessments is provided in annex 3.

54. **Paris alignment.** The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation.

55. **Assessment and reduction of mitigation risks.** The operation is not at material risk of having a negative impact on the country's low-GHG emissions development pathways. All the activities financed under the Program are on the universally aligned list, including the expansion and rehabilitation of water supply systems⁴⁶, NRW management, wastewater management systems (from collection to effluents treatment), conducting of energy audits and improving of energy efficiency, and constructing of green spaces. For the WSS infrastructure assets financed under the Program, energy consumption from pumping stations, motors, and treatment plants are the potential sources of GHG emissions. To ensure that all Program activities are aligned with India's NDCs, India's Long-Term Low-Carbon Development Strategy (2022), and NAPCC 2021, specific targets have been proposed under RAs 1 and 2. The Program will incentivize the adoption of robust CCAP by each ULB, which includes preparation of CWIS plans to improve sanitation facilities and city-wide safe disposal of sewage, leading to a progressive (medium-to-long term) reduction of GHG emissions. Increasing green space will help mitigate heat island effects, increase rainfall infiltration, and contribute to carbon sequestration. The ULBs are incentivized to carry out energy audits to closely monitor their energy consumption and achieve systematic improvement in energy efficiency for their municipal assets. The Program will also ensure progressive reduction in emissions through incentivizing the optimization of existing assets and efficient operation of WSS assets. The proposed wastewater management subprojects would lead to an increase in sewerage connections and treatment of wastewater, directly leading to a net reduction in lifetime emissions of 6,786,713 tCO₂-eq.

56. **Assessment and reduction of adaptation risks.** The ULBs in Program areas have a high exposure to climate change risks, particularly water scarcity, floods, and extreme heat. The Program's climate risk reduction measures would help the 21 participating ULBs to adapt to them. RA1 prioritizes the adoption of CCAPs for the ULBs based on assessment of climate vulnerability and GHG inventories, and implementation of adaptation and mitigation measures including identifying alternative water sources to ensure water security, promoting city-wide access to improved sanitation (including adequate treatment), and ensuring WSS infrastructure are resilient to flooding and other disasters. RA2 incentivizes the ULBs to mainstream climate resilience aspects in investment design, planning, and operation of WSS services. A climate risk screening checklist and resilience design guideline have been developed by TNUIFSL outlining climate risk aspects and resilience measures pertaining to WSS systems, and the ULBs are required to incorporate these measures in the design of their WSS projects. This will help preempt and prevent potential impacts to WSS systems from climate-exacerbated floods and droughts, for example, restricting potential contamination of raw water in service reservoirs due to flooding, reducing disruption in road connectivity, and ensuring access to pump houses during flooding. In the case of wastewater management systems, enhanced resilience to floods will lead to lower operational disruptions caused by power

⁴⁶ All WSS pumping systems are supplied by the grid. However, occasionally in events of power failure, some critical pumps may be supplied by diesel generators on a temporary basis.



fluctuations causing obstructions in pumping, which may lead to sewage overflows and flooding of STPs, while drought preparedness will limit the impact of silting of sewers due to low flows. For each type of risk, the guideline recommends specific measures for the design and O&M stages. Overall, core Program activities such as improvement in WSS coverage, performance standards, and an overall effective institutional framework will enhance operational efficiency and sustainability of services, thus helping enhance resilience to droughts, floods, and extreme temperatures. In addition, the ULBs are encouraged to prepare and implement the water security and emergency plan for WSS as part of their CCAPs to ensure operational resilience through service continuity and minimal disruption due to climate-exacerbated droughts, extreme heat, and floods. These plans will also include citizen engagement, gender-targeted and communication activities targeted to climate emergencies. The IPF component will also include training and capacity building for the ULBs in the management of WSS services during climate emergencies. In addition, RA2 incentivizes the creation of green spaces in the 21 participating ULBs that would help adapt to heat waves by limiting the heat island effects. Thus, risks from climate hazards have been reduced to an acceptable level and are not likely to have material impact on the operation and its development objective.

57. **Program Expenditure Framework.** Table 3 summarizes the Program expenditures. The identified expenditure items will provide financing to the ULBs for undertaking project specific investments and ULB-level reforms and institutional development activities, which are critical to improving the service levels and overall performance of the ULBs. These items are fully aligned with the government priorities as set out in Urban Vision 2031. The Program budget structure is clear in terms of sources of funding, budgetary vehicles, and categories of expenditures. The Program budget will be entirely funded by each IA's own budgetary sources, either through state government allocations, transfers, or its own resources. The GoTN will receive GoI funds as a part of the AMRUT 2.0 and SBM 2.0 programs as per the GoI guidelines; these are expected to be 7.2 percent of the Program.

Table 3. Government program versus the PforR Program by Types of Expenditure (US\$, millions)

Activities	World Bank PforR Program ('P')		Government program ('p')
	Total Program Cost	World Bank Share	
RA1: Strengthening Urban Management, Institutional Framework and Climate Resilience			
Consultants, studies, goods, and equipment	30	30	30
ULBs institutional strengthening related cost including filling vacancy ⁴⁷	388.50	19.88	944.92
Development of parks and investments in energy efficiency in municipal assets	34.24	34.24	34.24
RA2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services			
Capital investments and O&M in water supply systems	84.46	43.90	195.34
Capital investments and O&M in sewerage systems	272.42	150.98	971.11
Total	809.62	279.00	2175.61

58. **Exclusions.** The Program excludes activities assessed to have a significant adverse impact on the environment and/or people as defined in the World Bank Policy and Directive on PforR Financing. It also excludes works, goods, non-consultancy, and consultancy contracts above the thresholds specified by the World Bank's Operations Procurement Review Committee. As part of implementation, TNUISL and the DMA will screen activities at the ULBs as per the POM to ensure that no high-risk activity is included in the Program and that there is compliance with World Bank's PforR policy requirements.

⁴⁷ All recurrent costs related to the ULBs staff salary will be funded by the GoTN/ULBs.



59. **Results Framework.** The results indicators comprise a mix of outcome and output indicators, with clearly defined annual targets to be achieved by ULBs. The selected DLIs reflect critical elements of performance required to achieve the PDO. The DLIs were selected to ensure that they are (a) fully aligned with government priorities; (b) owned and monitorable by the responsible implementation entities; (c) achievable and yet challenging, incentivizing a higher performance than currently achieved in the Program focus areas; (d) clearly measurable and independently verifiable; and (e) conducive to a smooth disbursement profile over Program implementation. The RAs and DLIs are further detailed in annex 1.

60. **Economic analyses.** The Program is well justified based on the economic benefits that will come from improved urban governance, climate resilience, and WSS service delivery.

- (a) A quantitative economic analysis was conducted for the DLIs related to WSS investments under RA2, which will have more than 750,000 and 1,300,000 people with access to safe water supply and sewerage connections, respectively. The results show that there will be an economic net present value (NPV) of US\$166.1 million and an economic internal rate of return (IRR) of 18.1 percent at a discounted rate of 12 percent. An economic analysis of energy savings proposed under DLR 8 shows that there will be an economic NPV of US\$8.8 million and an economic IRR of 25 percent. More details on the analysis, including the methodology, assumptions, and sensitivity analysis results, are presented in annex 3.
- (b) Significant economic and social benefits, which could not be quantified, are also expected from implementing the series of policy and institutional reforms supported under RA1 and energy efficiency measures and green space development under RA2. For example, measures for increased OSR supported by the PforR will result in an estimated revenue increase of US\$4.45 million in NPV terms. Over time, increased OSRs and issuance of municipal bonds help the ULBs keep up with rising expenditures, improve their fiscal sustainability, and access to finance. Enhanced climate change planning and investments improves health, lowers energy costs, reduces life cycle costs when adopting nature-based solutions,⁴⁸ and reduces economic losses from climate change-induced events. Improved citizen engagement enhances the trust between citizens and the government, leading to more targeted and evidence-based allocation of resources.

61. **Financial analyses.** The TNUDF's existing system of financial appraisal of subprojects will continue under the TNCRUDP, focusing on two aspects: (a) subproject-level financial viability, which would apply to commercial, revenue generating subprojects based on subproject-level NPV or IRR (most urban subprojects are not expected to be financially viable on a stand-alone basis and the TNUDF would seek to improve cost-recovery levels to the extent possible for such subprojects), and (b) ULB-level financial sustainability, which seeks to determine whether the subprojects are financially sustainable for the ULB as a whole, taking into account all ULB revenues and expenditures. Financial feasibility is assessed based on three parameters: (a) the ULB has no operating deficit in any year, after considering additional operating costs, ULB counterpart funding, and debt servicing obligations; (b) not more than 30 percent of the annual revenue is deployed for debt service; and (c) the average debt service coverage ratio is not less than 1.25.

B. Fiduciary

62. **An Integrated Fiduciary Systems Assessment (IFSA) of the key IAs has been carried out in accordance with the World Bank Policy and Directive for PforR financing.** The GoTN has a procurement and FM framework that all IAs follow. This operation has a PforR component (93 percent of the loan amount) implemented by the DMA, TNUIFSL, and 21 ULBs as well as an IPF TA component (7 percent of the loan amount) implemented by the DMA and TNUIFSL. The DMA is a directorate under MAWSD and is a part of the state government. TNUIFSL is a Public Limited Company registered under the provisions of the Companies Act, 2013, with shareholding from the GoTN. The ULBs are part of the third level of local

⁴⁸ A 2007 US Environmental Protection Agency study of 17 greenfield and redevelopment case studies from the US and Canada compared the construction costs of nature-based solutions versus conventional design. The study found that on average nature-based solutions reduced construction costs by 25 percent (United States Environmental Protection Agency 2010).



self-government as per the constitutional framework of the country. This is a multi-sector (urban sector, water sector, and governance sector) and multi-agency Program. The combined fiduciary rating is Moderate in view of previous experiences of DMA and TNUFSL and varying capacities of the ULBs.

63. **A Government Order (GO) will be issued by the GoTN within four months of effectiveness to operationalize the overall Program.** The GO will cover the scope, RAs and DLIs, implementation arrangements, budgets, and fund flow arrangements for all the key aspects of the Program. In the meanwhile, some of the ULBs are commencing implementation of sub-projects that is also required for meeting readiness criteria.

64. **The Program will use the existing state FM systems.** The DMA and TNUFSL will submit annual Program budget requirements that will be informed to MAWSD and included in the state's annual budget. Once the budget is approved by the state, it is allocated to the agencies. The DMA will use the state Treasury to make payments. TNUFSL will have access to the budget and the amounts will be transferred to the bank account of the company. The ULBs will receive the funds in two Program-specific bank accounts maintained for each RA for ease of accounting and reporting. The DMA accounting will be done as part of the state Treasury using a computerized accounting system. TNUFSL will prepare program accounts, including subproject accounts, separately in Tally. The ULBs have a computerized accounting system and will maintain separate project accounts. The Program's annual audit report needs to be submitted within nine months from the end of the financial year and displayed on the IAs' websites as per the World Bank disclosure policy. For DMA, the audit will be done by the state office of the Comptroller & Auditor General (C&AG). For TNUFSL and participating ULBs, a chartered accountant firm will conduct the audit and provide a consolidated Program audit report.

65. **The IAs for PforR will follow the GoTN's procurement system for all the procurement activities under the PforR.** The GoTN's procurement system is governed by the Tamil Nadu Transparency in Tenders Act (TNTTA), 1998, TNTT Rules 2000, and relevant amendments. The GoTN mandated the use of e-procurement platform for all the procurement activities above low value threshold. The World Bank's Anti-Corruption Guidelines (ACG) for PforR shall be applicable for all procurement activities under the PforR. The Tamil Nadu Water Supply and Drainage (TWAD) Board is providing tendering and supervision support to a few ULBs to implement their sub-projects and contractual payment will be processed by the respective ULBs. Based on information on contracts at this stage, there are no high-value contracts. The World Bank will periodically review any high-value contracts during implementation. The POM provides detailed guidance to the IAs on details of procurement procedures, preparation, and disclosure of the Procurement Plan (PP), procurement-related complaint handling system, scope of procurement review, and requirement of submitting semiannual ACG reports and high-value contracts above threshold to the World Bank. To enhance the efficacy of the existing procurement and contract management system, IFSA proposes that MAWSD to develop detailed procurement guidance as an annex to the POM, develop and adopt the Standard Tender Documents (STDs) for the Program, deploy adequate staff to manage the procurement and contract management at all levels, provide need-based refresher trainings, and include the review of the procurement cycle as part of the Program internal audit.

66. **For the IPF TA component, the World Bank's Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services -September 2023 (Procurement Regulations) will govern all contracts.** TNUFSL has prepared the Project Procurement Strategy for Development (PPSD) and the initial PP for the first 18 months. The PPCSD does not anticipate any major risks. The IAs have registered with the World Bank's Systematic Tracking of Exchanges in Procurement (STEP), published the General Procurement Notice (GPN), and uploaded the PPCSD to the STEP after Bank's review. The IAs started managing the PP through STEP after the World Bank agreed to the initial PP, which describes the agreed procurement arrangements for the TA. The World Bank provided a brief orientation to the IAs on Procurement Regulations, PPCSD, and STEP.

67. **FM arrangements for the IPF component.** A separate budget head will be provided for IPF. Fund flow and accounting will be as outlined for PforR. All expenditures will be done at the state level IAs (DMA and TNUFSL). Interim unaudited financial reports (IUFRs) will be submitted to the World Bank by the IAs within 45 days from the end of each quarter based on which the World Bank will disburse from the loan allocation. In case of DMA a separate audit report will



be issued by the state office of the C&AG and in case of TNUIFSL the audit report will be issued by CA. Retroactive financing for the IPF component will be provided from March 1, 2023.

C. Environmental and Social

68. **The Program will improve urban services and infrastructure in 21 ULBs in TN and is expected to lead to significant environmental benefits.** The Program Environmental and Social Systems Assessment (ESSA) assessed the overall risk rating for environmental aspects as ‘Substantial’ considering (a) the possible pollution impacts and risks of disposal/bypass or accidental discharge of untreated/sub-optimally treated wastewater and sludge into the environment during construction and O&M; and (b) gaps in regulations and standards at the state level for the disposal of treated sewage into the environment and the absence of standards for sludge reuse. Environmental risks of the Program can be managed/mitigated by (a) screening to avoid sensitive receptors; (b) assessment of direct/indirect and cumulative pollution/safety risks, including those due to linked activities; (c) implementation of the environmental and social management plans (ESMPs) as per the Environmental Guidance and Social Guidance outlined in the POM; and (d) strengthening of the institutional supervision and monitoring mechanisms. The Program has embedded critical environmental aspects in the design such as requirements for efficient management of STPs. The PAP includes strengthening the capacities on environmental aspects, developing, and following Environmental Guidance, and strengthening the capacities for ensuring adherence to laws on prevention of manual scavenging in polluted sewers and supplementary environmental management actions such as establishing a water quality and wastewater surveillance program.

69. All activities related to the subprojects under the Program have been screened to exclude those with land acquisition, resettlement, rehabilitation, and adverse long-term livelihood impacts on people. Other social risks include (a) health and safety risks to workers and communities; (b) lack of proper enforcement of labor codes and occupational health and safety measures; (c) temporary livelihood-related impacts during the construction phase; (d) exclusion of women and other vulnerable and marginalized groups from participating in project activities and benefiting from them; (e) weak stakeholder engagement during the planning, implementation, and O&M phases of subprojects; and (f) current grievance redressal mechanisms not being accessible to the poor and marginalized sections of the population in the ULBs. Based on the ESSA, the social risks of the Program are rated ‘Moderate’, as these risks appear to be context specific and manageable through appropriate mitigation measures. In addition, some Program interventions such as metering and roll out of volumetric billing for WSS services, will need to be explained to consumers and other stakeholders, and any concerns addressed proactively; this will require the design and implementation of a robust strategic communications plan during the Program period, as included in the IPF component.

70. **The ESSA has assessed the adequacy of the national- and state-level policy, legal, and regulatory frameworks relevant for the Program and the capacities of the IAs to manage the Program environmental and social risks and has recommended appropriate measures to fill the gaps through the PAP** (see annex 6). Any high-risk activity, which may directly or indirectly result in significant and irreversible risks to the environment, biodiversity, and people will not be eligible for funding under the Program. This includes activities that are not funded directly by the Program, but essential to meet the DLIs. The draft ESSA was publicly disclosed on August 31, 2023 and a multistakeholder ESSA disclosure workshop was organized on September 22, 2023. The ESSA was revised based on the feedback received from stakeholders and the final version will be redisclosed in November 2023.

71. **Environmental and social risks of the IPF component are rated ‘Moderate’**, based on the nature of the activities envisaged under the IPF component and the experience and capacity of TNUIFSL in managing safeguards during earlier World Bank-supported projects. Sexual exploitation and abuse (SEA)/sexual harassment (SH) risk is rated low. The IPF component will support only TA and capacity-building activities including preparation of investment subprojects. The World Bank Environmental and Social Framework will be applicable for the IPF component and Environmental and Social Standards (ESS) 1, 2, 3, and 10 are relevant. During the operation, the environmental and social risks related to TA activities will be screened by IAs. The IAs will also draft appropriate ToR, work plans, and other documents that define the scope



and outputs of TA activities supported through the IPF and seek the World Bank's concurrence/approval, including on environmental and social aspects. The World Bank, through its implementation support, will monitor the Environmental and Social Commitment Plan and ensure that the applicable ESS are satisfactorily addressed.

72. **Grievance redress.** The grievance redress mechanisms (GRMs) at the state and ULB levels are mostly digitized. Citizens can access the GRM through a mobile application and QR codes. Each ULB currently receives approximately 1,000 complaints every month through this system. However, the system requires the complainant to have access to a smartphone and have adequate levels of functional digital literacy for its use, making it inaccessible to some sections of the population at the ULBs. Some ULBs also have toll-free numbers and complaint registration booths at the ULB offices through which citizens can register complaints, seek information, and so on. Complaints received through the various channels mentioned are forwarded to the relevant sections in the ULBs for redressal. It is to be noted that currently the ULBs do not maintain systematic records of calls received through the toll-free numbers or their redressal status. Record keeping related to complaints received in the complaint booths in the ULBs and their redressal status is also inadequate. To address the systemic weaknesses in the GRMs, the PAP includes the development of a comprehensive stakeholder engagement strategy and action plan, which, amongst other things, will focus on improving citizens' access to GRMs, streamlining procedures, protocols and timelines related to receipt and handling of complaints for redressal, validating complaint resolution status through complainants' feedback, and maintenance of proper grievance related MIS at the ULB levels.

73. Communities and individuals who believe that they are adversely affected as a result of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit <http://www.inspectionpanel.org>.

V. RISK

74. **The overall risk of the Program is assessed as Substantial.** The following risk categories are rated substantial: technical design of the Program and environmental and social.

75. **Technical design of the Program.** The Program includes a wide range of institutional reforms, robust requirements on service delivery efficiency, and systematic climate resilience planning and implementation (such as CCAPs, WSS emergency response action plans, and implementation and disclosure of service delivery performance reports) which have not been widely implemented in the past. On the PAF, although it builds on the three-ULB pilot under the TNSUDP, rollout of the result-focused PAF represents a new mechanism for the 21 participating ULBs. Key program requirements will take time and capacity building before the ULBs become familiar with them. While the technical design of WSS subprojects under RA2 may either be moderate or low risk, ensuring service-level benchmarks as per the DLIs (which are significantly higher than current practices) may be a challenge. This is particularly the case in terms of delivering water for a certain number of hours per day, achieving cost recovery improvements, and systematically tracking NRW and effluent standards. Availability of water resources may also jeopardize the meeting of service delivery standards. The performance-based approach of both RA1 and RA2 will also require a shift in the ULBs' mindset from designing traditional infrastructure investments to adopting citizen-centric and efficient service provision. These risks will be mitigated by the following measures: (a) the World Bank will provide implementation support to the DMA on the design and rollout of the performance-based grant transfer system and to TNUIFSL on the design and implementation of RA2 activities; (b) the PBCs



for WSS services will focus on O&M and performance standards, bring in capacitated WSS operators, and bridge the gaps in the ULB capacity for service improvement; (c) guidelines for climate-resilient WSS services will be used by the GoTN to guide system design, and each ULB will develop a water security plan as part of the CCAP to address long-term water security; and (d) the IPF component will support TA and capacity building in the identified core areas.

76. **Environmental and social risk of the Program is Substantial** due to potential environmental risks during construction and O&M, and gaps in regulations and standards at the state level related to disposal of treated sewage. These risks will be mitigated through risk screening and assessment, implementation of the ESMPs, and strengthening of institutional supervision and monitoring mechanisms (see section IV and annex 5).



ANNEX 1. RESULTS FRAMEWORK MATRIX

Program Development Objective(s)

To strengthen urban management and improve access to efficient and climate resilient urban water and sanitation services in participating ULBs in Tamil Nadu

PDO Indicators by Outcomes

Baseline	Closing Period
RA 1: Strengthening Urban Management, Institutional Framework & Climate Resilience	
ULBs with OSR increase of above 65 percent over respective baselines in FY2021-22 (Number)	
Sep/2023	Dec/2030
0	17
ULBs with adoption of CCAP (Number)	
Sep/2023	Dec/2030
0	17
ULBs with institutional performance indicator score above 60 points out of 100 (Number)	
Sep/2023	Dec/2030
0	17
RA 2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services	
People provided with access to functional WSS services under the Program (Number)	
Sep/2023	Dec/2030
0	2,020,946
➤ Women provided with access to functional WSS services under the Program (Number)	
Sep/2023	Dec/2030
0	1,010,473
➤ People provided with access to functional water services (Number)	
Sep/2023	Dec/2030
0	763,034



➤ People provided with access to functional sewerage service (Number)	
Sep/2023	Dec/2030
0	1,257,912
ULBs with increase in cost recovery of O&M expenses in WSS services of at least 30 percentage points over respective baseline in FY2021-22 (Number)	
Sep/2023	Dec/2030
0	17

Intermediate Indicators by Results Areas

Baseline	Closing Period
RA 1: Strengthening Urban Management, Institutional Framework & Climate Resilience	
ULBs meeting the minimum conditions (Number)	
Jun/2023	Jun/2030
0	17
Women holding decision-making positions in CCAP Committees (Percentage)	
Sep/2023	Dec/2030
0	50
Value of municipal bonds issued under the Program (US\$ million) (Amount(USD))	
Sep/2023	Dec/2030
0	30
RA 2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services	
Water connections delivering ULBs with 24x7 water service delivery (Number)	
Sep/2023	Dec/2030
0	87,760
Households connected to the sewerage network in Program areas (Number)	
Sep/2023	Dec/2030
0	279,536
ULBs implementing volumetric billing of all 24x7 connections (Number)	
Sep/2023	Dec/2030
0	9
Areas designated as parks developed in participating ULBs (Percentage)	
Sep/2023	Dec/2030
40	60
ULBs demonstrating energy savings in municipal assets of above 25% over respective baseline in 2021-22 (number) (Number)	



Sep/2023	Dec/2030
0	17
ULBs with reduction in time spent by women and girls managing water collection of above 20 percent over respective baseline in 2024 (Number)	
Sep/2023	Dec/2030
0	9

Disbursement Linked Indicators (DLI)

Period	Period Definition	Timeline
Period 1	Year 1	01-Apr-2024 to 31-Mar-2025
Period 2	Year 2	01-Apr-2025 to 31-Mar-2026
Period 3	Year 3	01-Apr-2026 to 31-Mar-2027
Period 4	Year 4	01-Apr-2027 to 31-Mar-2028
Period 5	Year 5	01-Apr-2028 to 31-Mar-2029
Period 6	Year 6	01-Apr-2029 to 31-Mar-2030

Baseline	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
1 : Increase in OSR (Percentage)						
The total OSR of the Participating ULBs was US\$127.23 million in FY2021-22	Increase in OSR over respective Participating ULB baseline in FY2021-22	Incremental increase in OSR over respective Participating ULB baseline in FY2021-22	Incremental increase in OSR over respective Participating ULB baseline in FY2021-22	Incremental increase in OSR over respective Participating ULB baseline in FY2021-22	Incremental increase in OSR over respective Participating ULB baseline in FY2021-22	Incremental increase in OSR over respective Participating ULB baseline in FY2021-22
0.00	5,412,600.00	4,330,080.00	4,330,080.00	4,330,080.00	4,330,080.00	4,330,080.00
DLI allocation		27,063,000.00		As a % of Total Financing Amount		9.7%
2 : Increased access to financial market (Amount(USD))						
No	--	ULBs in Tamil Nadu, with the support of TNUIFSL, have issued municipal bonds aggregating	--	--	--	--



		\$30,000,000 for urban water systems				
0.00	0.00	4,000,000.00	0.00	0.00	0.00	0.00
DLI allocation		4,000,000.00	As a % of Total Financing Amount			1.4%
3 : Enhanced institutional capacity for climate resilience planning (Text)						
No available CCAP	No. of ULBs that have adopted and initiated implementation of CCAP	No. of ULBs that have adopted and initiated implementation of CCAP	No. of ULBs that have adopted and initiated implementation of CCAP	No. of ULBs that have adopted and initiated implementation of CCAP	No. of ULBs that have adopted and initiated implementation of CCAP	No. of ULBs that have adopted and initiated implementation of CCAP
0.00	600,000.00	900,000.00	1,200,000.00	2,100,000.00	600,000.00	600,000.00
DLI allocation		6,000,000.00	As a % of Total Financing Amount			2.2%
4 : Improved fundamental institutional capacity (Text)						
No participating ULBs have met the MCs in the baseline year	Number of Participating ULBs that have met MCs	Number of Participating ULBs that have met MCs	Number of Participating ULBs that have met MCs	Number of Participating ULBs that have met MCs	Number of Participating ULBs that have met MCs	Number of Participating ULBs that have met MCs
0.00	2,272,000.00	2,272,000.00	2,272,000.00	2,272,000.00	2,272,000.00	2,272,000.00
DLI allocation		13,632,000.00	As a % of Total Financing Amount			4.9%
5 : Strengthened institutional capacity to manage resources in a sustainable, participatory, and green manner (Text)						
-	-	Aggregate score of performance indicators achieved by the Participating ULBs	Aggregate score of performance indicators achieved by the Participating ULBs	Aggregate score of performance indicators achieved by the Participating ULBs	Aggregate score of performance indicators achieved by the Participating ULBs	Aggregate score of performance indicators achieved by the Participating ULBs
0.00	0.00	4,090,000.00	4,090,000.00	4,090,000.00	4,090,000.00	4,090,000.00
DLI allocation		20,450,000.00	As a % of Total Financing Amount			7.3%
6 : Delivery of functional water and sewerage connections (Number)						
0	See DLI6.1, 6.2 and 6.3	See DLI6.1, 6.2 and 6.3	See DLI6.1, 6.2 and 6.3	See DLI6.1, 6.2 and 6.3	See DLI6.1, 6.2 and 6.3	See DLI6.1, 6.2 and 6.3
0.00	10,462,500.00	13,950,000.00	17,437,500.00	19,990,260.00	37,511,580.00	40,148,160.00
DLI allocation		139,500,000.00	As a % of Total Financing Amount			50.0%
➤ 6.1 : ULBs implementation of WSS investments incorporating climate resilience guidelines (Text)						
-	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines	-
0.00	10,462,500.00	13,950,000.00	17,437,500.00	13,950,000.00	13,950,000.00	0.00



DLI allocation		69,750,000.00		As a % of Total Financing Amount		25.0%
➤ 6.2 : Number of new or rehabilitated functional water tap connections (Number)						
0	--	--	--	Number of new or rehabilitated FWTCs	Number of additional new or rehabilitated FWTCs	Number of additional new or rehabilitated FWTCs
0.00	0.00	0.00	0.00	3,403,700.00	5,105,500.00	8,509,200.00
DLI allocation		17,018,400.00		As a % of Total Financing Amount		6.1%
➤ 6.3 : Number of new functional sewerage connections (Number)						
0	--	--	--	Number of new FSCs	Number of additional new FSCs	Number of additional new FSCs
0.00	0.00	0.00	0.00	2,636,580.00	18,456,060.00	31,638,960.00
DLI allocation		52,731,600.00		As a % of Total Financing Amount		18.9%
7 : Increased operational, climate and financial efficiency of WSS services (Text)						
--	See DLI7.1, 7.2, 7.3 and 7.4	See DLI7.1, 7.2, 7.3 and 7.4	See DLI7.1, 7.2, 7.3 and 7.4	See DLI7.1, 7.2, 7.3 and 7.4	See DLI7.1, 7.2, 7.3 and 7.4	See DLI7.1, 7.2, 7.3 and 7.4
0.00	8,725,746.00	8,725,746.00	0.00	6,511,871.00	10,777,767.00	19,663,870.00
DLI allocation		54,405,000.00		As a % of Total Financing Amount		19.5%
➤ 7.1 : Number of ULBs with PBCs signed for water and/or sanitation services (Number)						
0	Number of ULBs that have signed PBCs for water and/or sanitation services	Number of ULBs that have signed PBCs for water and/or sanitation services	--	--	--	--
0.00	8,725,746.00	8,725,746.00	0.00	0.00	0.00	0.00
DLI allocation		17,451,492.00		As a % of Total Financing Amount		6.3%
➤ 7.2 : Number of water connections with NRW 20% or below in areas receiving 24 x 7 services (Number)						
0	--	--	--	--	Number of water connections with NRW 20% or below in areas receiving 24 x 7 services	--
0.00	0.00	0.00	0.00	0.00	4,265,896.00	0.00
DLI allocation		4,265,896.00		As a % of Total Financing Amount		1.5%
➤ 7.3 : Increase in cumulative volume of sewage treated (meeting minimum standards) in eligible existing STPs (Text)						
111 MLD	--	--	--	--	--	Increase in cumulative volume of sewage treated



						(meeting minimum standards) over baseline, in eligible existing STPs
0.00	0.00	0.00	0.00	0.00	0.00	8,550,000.00
DLI allocation		8,550,000.00		As a % of Total Financing Amount		3.06%
➤ 7.4 : Increase in O&M cost recovery of WSS services (Number)						
0	--	--	--	Increase in O&M cost recovery of WSS services over ULB respective baseline	Increase in O&M cost recovery of WSS services over ULB respective baseline	Increase in O&M cost recovery of WSS services over ULB respective baseline
0.00	0.00	0.00	0.00	8,045,870.00	8,045,870.00	8,045,872.00
DLI allocation		24,137,612.00		As a % of Total Financing Amount		8.65%
8 : Improved city-level climate resilience (Text)						
--	See DLI 8.1 and 8.2	See DLI 8.1 and 8.2	See DLI 8.1 and 8.2	See DLI 8.1 and 8.2	See DLI 8.1 and 8.2	--
0.00	1,813,500.00	1,813,500.00	6,417,000.00	1,464,750.00	2,441,250.00	0.00
DLI allocation		13,950,000.00		As a % of Total Financing Amount		5.0%
➤ 8.1 : Energy savings over respective ULB baseline of FY2021-22 (Text)						
241,254,186 kWh energy consumption from municipal assets in FY2021-22	Number of ULBs which have demonstrated aggregate energy savings, as compared to baseline of FY2021-22	ULBs’ demonNumber of ULBs which have demonstrated aggregate energy savings, as compared to baseline of FY2021-22strated aggregate energy savings up to 60,313,546 kWh as compared to baseline of FY2021-22	ULBs’ demNumber of ULBs which have demonstrated aggregate energy savings, as compared to baseline of FY2021-22onstrated aggregate energy savings up to 60,313,546 kWh as compared to baseline of FY2021-22	--	--	--
0.00	1,813,500.00	1,813,500.00	5,440,500.00	0.00	0.00	0.00
DLI allocation		9,067,500.00		As a % of Total Financing Amount		3.3%
➤ 8.2 : Increase in area of green space (Square Meter(m2))						
1.23 million m2 of developed parks exists in participating ULBs	-	-	Increased area of green space in ULBs, over baseline	Increased area of green space in ULBs, over baseline	Increased area of green space in ULBs, over baseline	-
0.00	0.00	0.00	976,500.00	1,464,750.00	2,441,250.00	0.00



DLI allocation	4,882,500.00	As a % of Total Financing Amount	1.8%
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Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Data Source	Methodology for Data Collection	Responsibility for Data Collection
RA1: Strengthening Urban Management, Institutional Framework & Climate Resilience					
ULBs with OSR increase of above 65 percent over respective baseline in FY2021–22	Number of ULBs that have increased their OSR by more than 65 percent over respective baseline in FY2021–22 for the ULBs (OSR is total revenue of the ULBs less grants and assigned revenues)	Annual	Audited financial statements	ULB website	ULB
ULBs with adoption of CCAP	Number of ULBs that have prepared in a consultative manner and adopted CCAP. The CCAP should include a cross-sectoral action plan covering WSS, transport, energy/building, solid waste, and green space, and four WSS subplans on water security and emergency preparedness and response, CWIS, WSS business plan, and stormwater drainage.	One-time preparation and adoption	Signed copy of CCAP approved by the respective municipal council	ULB database	ULB
ULBs with institutional performance indicator score above 60 points out of 100	This will be measured through a performance assessment framework under DLI 4 and 5, across areas of human resource management, budget, budget execution, accounting and transparency, capital expenditure and citizen engagement.	Annual	ULB reports/IVA reports	ULB database	ULB
RA2: Improving Accessibility, Climate Resilience and Efficiency of Urban WSS Services					
People provided with access to functional WSS services under the Program	Functional water tap connection refers to rehabilitation of an existing water connection or implementation of a new connection at property or household level that meets specific service level criteria (see DLI verification protocol). Functional sewerage connection refers to a sewerage connection to a property or household that is connected to a functional sewage treatment plant through a piped sewerage collection system that meets specific service level criteria (see DLI verification protocol). This indicator includes three sub-indicators to capture number of women beneficiaries and number of people provided with access to water service and sewerage service respectively.	Annual	Baseline survey of connections/properties by the operator, operational performance report of WSS operator; Operational performance reports of the sewerage system and STP operator	Surveys, reports by WSS operator and data provided by ULB	ULB/WSS operator



Indicator Name	Definition/Description	Frequency	Data Source	Methodology for Data Collection	Responsibility for Data Collection
ULBs with increase in cost recovery of O&M expenses in WSS services of at least 30 percentage points over respective baseline in FY2021-22	O&M cost recovery is defined as a ratio of total WSS revenue collected in the evaluation period to the O&M costs in the evaluation period (see verification protocol of respective DLI)	Annual	Audited financial statements, water meter readings, water/sewerage billing and collection data, WSS operating costs data	ULB financial statements	ULB/operator

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition / Description	Frequency	Data Source	Methodology for data collection	Responsibility for data collection
ULBs meeting the minimum conditions	Percentage of participating ULBs successfully achieving all MCs	Annual	ULB Reports/IVA reports	ULB database	ULB
Women holding decision-making positions in CCAP Committees	This indicator will track proportion of women holding decision-making positions in the CCAP Committees set up by participating ULBs	Annual	DMA	ULB database	ULB/DMA
Value of municipal bonds issued under the Program	ULBs in Tamil Nadu, with the support of TNUIFSL, have issued municipal bonds for urban water systems.	One time	Preliminary placement memorandum filed by TNUIFSL with SEBI	TNUIFSL database	TNUIFSL
Water connections delivering ULBs with 24x7 water service delivery	Number of new functional water connections at property or household level 24x7 tap connections (aggregated value of all ULBs)	Annual	ULB/WSS operator	ULB / WSS operator	WSS operator
Households connected to the sewerage network in Program areas	This indicator tracks the number of new HH/properties that are connected to the sewerage network supported by the Program. It is meant to incentivize and track progress on network construction and HH/properties' connectivity.	Annual	WSS operator	WSS operators	WSS operator
ULBs implementing volumetric billing of all 24x7 connections	ULBs that have or issue WSS bylaws establishing for volumetric tariff to water services, roll it out volumetric charges to areas where 24x7 supply is delivered, and keep up volumetric charges, year-on	Annual	ULB financial statements	ULB database	ULB
Area designated as parks developed in participating ULBs	ULBs will develop green space for the areas designated as parks in their master plans or development plans	Annual	ULB-level survey will measure the number and area of parks/green space, geotag these locations, and include	Survey report/ULB data	ULB



Indicator Name	Definition / Description	Frequency	Data Source	Methodology for data collection	Responsibility for data collection
			photographic evidence in the report.		
ULBs demonstrating energy savings in municipal assets of above 25 percent over respective baseline of FY2021-22	ULBs will implement energy efficiency measures and demonstrate energy savings against the baseline of FY21/22.	Annual	ULB energy audit reports; electricity bills; M&E system of WSS	Energy audit/WSS operator	ULB
ULBs with reduction in time spent by women and girls managing water collection of above 20 percent over respective baseline in 2024	Number of hours per day based on a weekly average that women and girls spend in water collections related tasks (e.g., waiting for supply, fetching, or buying water from other sources, boiling water, etc.) is reduced due to improvements in water supply in areas benefiting from 24x7 water investments.	Annual	ULB baseline to be collected within 6 months of Program implementation; annual updates based on surveys.	ULB surveys/reports	ULB



ANNEX 2. DISBURSEMENT LINKED INDICATORS, DISBURSEMENT ARRANGEMENTS AND VERIFICATION PROTOCOLS

Verification Protocol Table: Disbursement Linked Indicators

DLI 1	Increase in OSR
Description	This DLI incentivizes ULBs to improve OSR from various sources including property taxes, user charges, municipal properties, and so on over the baseline year of FY2021–22.
Formula	(i) For ULBs with a population of less than 400,000 people: \$150 per 1,000 population per percentage point increase (up to an increase of 65 percentage points over the respective baseline set forth in the POM); and (ii) for ULBs with a population greater than or equal to 400,000 people: US\$7,693 per percentage point increase (up to an increase of 65 percentage points over respective baseline).
Procedure	IVA will verify based on review of audited financial statements of ULBs every year. The OSR is calculated as: Own tax revenue + Rental income from municipal properties + Fees & user charges + Sale & hire charges + Income from investments + Interest earned + Other income.
DLI 2	Increased access to financial market
Description	ULBs in Tamil Nadu, with the support of TNUIFSL, have issued municipal bonds aggregating US\$30 million, for urban water systems.
PAF Scoring	US\$1 million for every US\$7.5 million of successful issuance of municipal bonds.
Procedure	The IVA will review the placement memorandum filed by TNUIFSL or ULBs with SEBI and other supporting documentation.
DLI 3	Enhanced institutional capacity for climate resilience planning
Description	<p>The CCAP should include a cross-sectoral action plan covering WSS, transport, energy/building, solid waste, and green space, and four WSS sub-plans on water security and emergency preparedness and response, CWIS, WSS business plan, and stormwater drainage. The ULBs allocate at least 5% of capital budget to support implementation of the projects identified in the CCAP, and get the budget approved by the respective municipal council. ULB will set up a CCAP committee with at least 50% women representation.</p> <p>The overall CCAP will include climate vulnerability assessment, emission inventory and baseline analysis, setting of targets, identification of adaptation and mitigation measures, and recommended implementation approach and public engagement.</p> <p>The following four WSS sub-plans need to be aligned with each other to synergize urban water services and avoid overlaps:</p> <ul style="list-style-type: none"> Water security plan should cover assessment of current and future water demands, evaluation of existing water sources and systems, development of strategies to meet future water needs and recommendations for institutional and implementation frameworks. The strategies should consider cost-benefit of sustainable solutions, such as water source development and management, demand management, NRW reduction, water reuse, and nature-based solutions, integration with drainage and flood management and watershed planning. It can be developed at basin or sub-basin level (encompassing a cluster of ULBs) if hydrologically justified. It will also include recommendations to improve the WSS emergency preparedness and response mechanism to prepare for and mitigate emergencies that affect WSS service delivery such as water shortage, natural disasters, and facility damages. The plan should establish clear roles and responsibilities of different stakeholders and include communications targeting the differentiated needs of women, as well as targeted and citizen communication activities. The CWIS plan will develop alternative technical solutions for sanitation services in areas not covered by piped sewage system, with focus on the needs of women and the poor and vulnerable areas.



	<ul style="list-style-type: none"> Five-year Business Plan comprises service delivery improvement targets, operational efficiency targets, capital investment plan, organizational structure and annual staff plan, revenue projections, capacity building, customer grievance redressal, and M&E. The sustainable urban drainage plan will identify status of existing stormwater drains and natural drains and hot spots where water stagnates, and recommend structural and non-structural (i.e., nature-based solutions) measures to improve the stormwater management system to reduce flooding damage and promotes the integration of these services with other urban-water services, such as water supply and sanitation and green areas.
Formula	(i) \$425,000 for each municipal corporation that has adopted and initiated implementation of CCAP; and (ii) \$100,000 for each municipality that has adopted and initiated implementation of CCAP.
Procedure	The IVA will verify that the cross-sectoral CCAP and the four WSS sub-plans conform to the state-level guidance and the minimum scope as outlined in the verification protocol and POM. The IVA will verify based on the signed copy of the plans, approved by the respective municipal council. The IVA will also verify the 5% capital budget allocation toward implementation of subprojects by reviewing the council approved ULB budget, and that CCAP committee has been set up with at least 50% women representation.
DLI 4	Improved fundamental institutional capacity
Description	This DLI lists the MCs to be met by ULBs under thematic areas of human resource management, budget, accounting, and transparency. MCs are listed in annex 3.
Formula	(i) For ULBs with a population of less than 400,000: \$716 per 1,000 population per year, for each ULB which met all MCs; and (ii) for ULBs with a population equal to or higher than 400,000: US\$83,333 per year, for each ULB which met all MCs.
DLI 5	Strengthened institutional capacity to manage resources in a sustainable, participatory, and green manner
Description	This DLI lists the PIs to be achieved by ULBs under thematic areas of human resource management, budget, budget execution, accounting, transparency, capital expenditure, asset management, service delivery and citizen engagement. The PIs are listed in annex 3.
Formula	For Participating ULBs which achieved DLI 4, the amount to be disbursed under this DLI shall be as follows: (i) for ULBs with a population of less than 400,000 people: \$1,415 per 1000 population per year, for each ULB which had a Fully Achieved Performance Score (as set forth in POM) and proportionately less for lesser score; and (ii) for ULBs with population equal to or higher than 400,000: \$152 per 1000 population per year (up to \$100,000 per year) for each ULB which had a Fully Achieved Performance Score and proportionately less for lesser score.
Procedure	For DLI 4 and 5, the IVA will review the annual performance assessment report compiled and checked by DMA. Details see annex 3.
DLI 6	Delivery of functional water and sewerage connections
DLI 6.1	ULBs implementation of WSS investments incorporating climate resilience guidelines
Description	Participating ULBs have implemented WSS investments incorporating climate resilience guidelines developed by TNUIFSL.
Formula	\$1,000,000 per million Dollars of funds disbursed from TNUDF to respective Participating ULBs for the implementation of WSS investments which incorporated climate resilience guidelines.
Procedure	The IVA will review the disbursement memo prepared by TNUIFSL to verify the disbursements and verify that climate resilience guidelines developed by TNUIFSL have been incorporated in the detailed designs of WSS investments.
DLI 6.2	Number of new or rehabilitated functional water tap connections
Description	Functional connection refers to rehabilitation of an existing water connection or implementation of a new connection at a property or household level that meets all the following criteria:



	<ul style="list-style-type: none"> • Maintains residual chlorine as per applicable standards and a minimum pressure as per Detailed Project Report (DPR) design. • Is metered and meter readings are taken at least at every two-months and bills based on volumetric tariffs are delivered in the case of 24x7 connections; and in the case of citywide water improvement systems, meters are included and read, and bills based on volumetric tariffs are delivered at least every two months for large consumers (see POM). • City-wide projects include a demo 24/7 zone (~2 water distribution zones).
Formula	\$100 for each FWTC.
Procedure	<p>Data to be verified by the IVA (see POM for details):</p> <ul style="list-style-type: none"> • Records on the number of connections as per electronic records to be maintained by operator. • Recording daily data on hours of service and hourly pressure using data loggers installed at critical measurement points in the distribution network. • Operators shall monitor residual chlorine at customer end in conformity with the standards of drinking water. • Electronic registry of meters, meter readings, and bills issued. • Physical (field) spot checks on sample basis (see POM).
DLI 6.3	Number of new functional sewerage connections
Description	<p>Functional connection refers to a sewerage connection to a property or household that is connected to a functional STP through a piped sewerage collection system and the customer is billed for sewerage charges. The connection should have been functional for at least three calendar months prior to the period of evaluation.</p> <p>Functional STP implies that at least 90% of wastewater effluent samples in three calendar months before the evaluation period comply with TNPCB effluent discharge standards (see POM) and compliance reports are available for verification.</p>
Formula	\$82 for each FSC (for projects without new STPs) and \$400 for each FSC (for projects with new STPs).
Procedure	<p>Data to be verified by IVA (see POM for details):</p> <ul style="list-style-type: none"> • Records on the number of connections as per electronic records to be maintained by operator. • Sewerage billing records from the electronic billing system. • Records of the volume of sewage received at STP through the M&E system to confirm the flow of sewage into STPs. • Effluent quality data based on statutory reports prepared and submitted by the operator/ULB which are publicly disclosed. • Physical (field) spot checks on sample basis (see POM).
DLI 7	Increased operational, climate and financial efficiency of WSS services
DLI 7.1	Number of ULBs with PBCs signed for water and/or sanitation services
Description	<p>PBCs specify single point responsibility for construction and operation with the same contractor. The contract will include an O&M period of at least 5 years starting from the commencement of supply to at least 80% of the targeted connections and will include social engagement activities, including training women on water conservation techniques (see POM for details). Each ULB is eligible for one disbursement for water and one for sewerage in cases where multiple performance contracts have been signed. Existing STPs that already have ongoing contracts for STP management may be excluded from the proposed PBCs (yet the required standards of STP functionality as per DLRs 7.3 apply).</p>
Formula	\$90,000 per million Dollars of committed funds from TNUDF for every Participating ULB that has signed a PBC.



Procedure	The IVA will verify that the contract/agreements include (a) performance objectives and targets to be met; (b) time frames within which those performance objectives and targets must be met; (c) key performance indicators (KPIs) and targets that are specific, measurable, attributable, realistic, and time-bound; and (d) standards and procedures for evaluating performance and intervals for evaluation and the consequences of substandard performance.
DLI 7.2	Number of water connections with NRW 20% or below in areas receiving 24 x 7 services
Description	NRW will be measured as per International Water Association methodology (see POM) in 24/7 water supply zones under the Program. The operator should establish an NRW baseline (in the service area) in the first year of contract implementation. The operator will maintain NRW records as a part of its M&E system. To achieve target, NRW should be 20% or below for at least six months in the ULBs with 24/7 water supply projects, as measured in operational district metered areas.
Formula	\$45 per connection for water supply projects achieving NRW of 20% or below.
Procedure	The IVA will verify that devices for flow measurement of water input into the system as well as revenue water are reliable and functioning and have been calibrated within last 6 months before the baseline by an authorized agency. The IVA will verify baseline preparation methodology, data sources, and data processing to validate it for each ULB. The IVA will verify that consumption in unmetered connections (if any) is based on sample survey and is consistent with the consumption expected based on hours of supply, pressure, lpcd norms, and quantum of bulk water supplied to the zone.
DLI 7.3	Increase in cumulative volume of sewage treated (meeting minimum standards) in eligible existing STPs
Description	A baseline will be established by installing flow measurement devices at the inlet and outlet of the STPs in the initial 6 months of contract signing. The STPs to be considered will only be those that will serve the sewerage network/property connections covered under the Program. However, increase in volume of wastewater treated in these STPs can come from both Program and non-Program areas. The volume of wastewater received and treated during the Program period will be measured using the same flow measurement method at the inlet and outlet of STPs for a full financial year. Treated effluents should comply with standards (see POM).
Formula	\$68,400 per MLD of additional sewage treated in eligible existing STPs (as set forth in POM).
Procedure	Volume of wastewater received and treated at STPs will be based on reliable and functioning devices that have been calibrated within the last 6 months before the baseline by an authorized agency. The IVA will triangulate the data on additional flow with sample field survey, number of additional connections, quantum of water supplied, and so on. The IVA will carry out a field survey to confirm functioning flow measurement devices for bulk water, including a sample of DMA sensors, wastewater flow at inlet and outlet of STPs, and installation of energy efficiency certified equipment for new STPs.
DLI 7.4	Increase in O&M cost recovery of WSS services
Description	O&M cost recovery is defined as 'Total WSS revenue collected in the evaluation period/O&M costs in the evaluation period', in which (details in POM): <ul style="list-style-type: none"> • Total WSS revenue will consist of user charges and tariffs for WSS levied. • Revenue will be based on revenue collected (current year revenue as well as previous year arrears) during the financial year, subject to a maximum of total revenue billed/ demanded during the year. • O&M costs will include all O&M costs of the WSS system excluding depreciation, interest, and principal repayments. • Cost recovery targets are limited to the areas receiving WSS investments in the Program.



Formula	\$4,149 per million Dollars of committed funds from TNUDF for every Participating ULB for every percentage point increase in O&M cost recovery of WSS services over respective baselines (set forth in POM) up to 30 points.
Procedure	IVA will verify based on accounting data and energy bills and triangulate with other data sources such as volume of water produced, meter readings, bills issued, collection data and so on, and verify application of accounting and cost allocation policies, following steps in POM.
DLI 8	Improved city-level climate resilience
DLI 8.1	Energy savings over respective ULB baseline of FY2021-22
Description	Based on the recommendations of the energy audit conducted as a part of the CCAP, the ULBs will implement energy efficiency measures and demonstrate energy savings against the baseline established in the CCAP.
Formula	US\$150 per 1,000 kWh (up to a total of 60,313,546 kWh) of energy savings.
Procedure	The IVA will verify this based on the signed copy of energy audit reports, approved by the municipal council, demonstrating reduction in energy consumption. The IVA will review and verify the electricity bills as required.
DLI 8.2	Increase in area of green space
Description	The ULBs will develop green space for the areas designated as parks in their master plans or development plans. The baseline and subsequent increase in the area which has been developed as parks will be measures based on a ULB-level survey, geotag these locations and including photographic evidence of the developed parks in the report.
Formula	US\$8,030 per 1,000 m ² area (up to a total of 608,000 m ²) of green space developed over baseline set forth in POM.
Procedure	The IVA will verify this based on the council-approved survey report.



ANNEX 3. SUMMARY TECHNICAL ASSESSMENT

1. The technical assessment evaluates the sector performance in TN, its experience in urban WSS projects, and the key challenges in the sector.

Strategic Relevance

2. The proposed Program—with the objective of strengthening urban management and improving access to efficient and climate resilient WSS services in selected ULBs in TN—is strategically relevant and is aligned with the visions of both the GoI and GoTN. The Program is also consistent with the World Bank Group’s India CPF FY18–22.

3. **National level.** The GoI has committed to addressing impacts of climate change through the country’s NDC, India’s Long-term Low-Carbon Development Strategy (2022), and NAPCC (2021). In terms of WSS, the GoI has been making vast investments in universal access to safe WSS in selected ULBs through the national flagship programs, SBM since 2014 and AMRUT since 2015. SBM 2.0, which started in 2022, focuses on sustainable solid waste management, sustainable sanitation, and used water management. AMRUT 2.0, which started in 2021, emphasizes reforms to enhance access to household WSS piped connections, water security, and enhancing water efficiency. About 40 percent of the GoI grant under AMRUT is linked to delivering WSS connections.

4. **State level.** The state government is committed to improve basic services and climate resilience through Urban Vision 2031. Urban Vision 2031 aims to achieve universal basic infrastructure and services in all ULBs with the key priorities: (a) improving accessibility and quality of urban services, especially in smaller ULBs; (b) ensuring that infrastructure design and urban development are climate resilient and low-carbon in line with climate change projections; and (c) strengthening the institutional capacity of ULBs to better plan, deliver, and manage urban services and their public assets in a financially sustainable manner. The GoTN is leveraging the national programs AMRUT 2.0 and SBM 2.0 to achieve these targets. Regarding climate change, as part of the NAPCC, the TNSAPCC 2.0 contains strategies for the ULBs to prepare CCAPs that require cities to audit their water resources and increase forest cover. The Program will build on the World Bank’s long-term engagement with the GoTN in urban development to support the implementation of Urban Vision 2031.

5. **World Bank engagement strategy in India.** The Program is consistent with the World Bank Group’s India CPF FY18–22 (Report 126667-IN), as elaborated in paragraph 14 of the main text.

Technical Soundness

6. **The Program has its RAs structured to support cross-cutting ULB-level and specific service-level improvements in parallel,** to overcome overall municipal administration systems capacity and policy constraints, including weak orientation toward climate resilience, and the limited coverage, quality, and operational, and financial efficiency of specific urban services. The two RAs are mutually reinforcing each other. RA1 is transversal in nature and funds received by the ULBs on achieving the required institutional and access to financing actions can support implementation of green/climate-related investments based on their specific needs. Urban services are supported under RA2, focusing largely on WSS services, together with energy efficiency and green space investments. Climate resilience is a common thread across both the RAs and hence specific DLIs on climate resilience are embedded within both RAs. In addition, the two RAs will be applied to the same pool of participating ULBs, promoting a ULB-wide impact. Funds received by ULBs under RA1 can be used to implement WSS-related reforms (such as cost recovery) and investments and toward O&M of these services. Investments and implementation of service reforms under RA2 will also contribute to achieving DLIs under RA1, such as increase in OSRs through increased WSS revenues. Moreover, specific PAP actions complement the enabling environment for institutional reforms and access to better services. Both RAs will incentivize the ULBs to strengthen the FM systems and expand its resource base in an incremental manner that will lead to overall creditworthiness improvement. The aforesaid aspects, including a results orientation and a cross-cutting focus on climate resilience in cities and services, have not been undertaken in such a comprehensive manner in earlier TN urban operations.



7. **RA1 systematically incentivizes the ULBs to address key urban governance challenges that hinder the performance of ULBs, using an institutional PAF** (see table 3.1 below) and associated performance-based grants supported by DLIs 4 and 5. The PAF comprising MCs and PIs emphasizing different dimensions of institutional capability covering common themes. The distinction between the two is that DLI 4 mandates three MCs in HRM and budget, budget execution, accounting, and transparency, while DLI 5 supports six PIs, different from the MCs, across HRM, budget, budget execution, accounting and transparency, capital expenditure and asset management, and service delivery and citizen engagement. Based on their annual performance, each participating ULB will be given a score reflecting MC and PI performance as per the PAF.

Table 3.1: PAF

MCs [score]	PIs [score]
MC1: ULB organization chart as per the most recent GO, approved by the government and made available in the public domain by the ULB [Met: 1/Not Met: 0]	PI1: Annual vacancy rate in grades A, B and C positions [Annual vacancy rate in grades A, B and C positions and scored as follows: Vacancy rate ranges: 50-70 percent = 1 point; 30-50 percent = 5 points; 15-30 percent = 10 points; <15 percent = 15 points]
	PI2: Documents made available in the public domain in a timely manner: (i) Council resolutions for previous year within one month from the end of FY; (ii) Annual procurement report within six months from the end of FY; (iii) Annual report by Executive Authority within three months from the end of FY; (iv) Latest available audit report within one month of receipt of the report; and (v) Capital projects and budget execution report on annual basis within three months from the end of the FY. [The score of PI i-v is four (04) point if realized and zero (0) if not realized.]
MC2: Annual budget of current FY, approved by ULB council and made available in the public domain within three months of approval by ULB council [Met: 1/ Not Met: 0]	PI3: Overall capital budget outturn deviation for last FY ((Actual capital expenditure) - (Budgeted (initial) capital expenditure) / Budgeted (initial) capital expenditure x 100 (based on unaudited financial statements). [The score is as follows: If overall capital budget outturn deviation is: $\pm 0 - 10$ percent = 25 points; $\pm 10 - 20$ percent = 20 points; $\pm 20 - 30$ percent = 15 points; $\pm 30 - 40$ percent = 5 points; $> \pm 40$ percent = 0.]
	PI4: Stakeholder consultations organized at Area Sabha level on spending priorities once a year (to include at least one-third women attendees). [The score is fifteen points if met and zero (0) if not met.]
MC3: Annual unaudited/provisional financial statements (balance sheet and income & expenditure statement) made available in the public domain within six months from end of the last FY [Met: 1/ Not Met: 0]	PI5: Disclose Annual SRC based on updated citizen charter, (including WSS, SWM, street lighting, tax, licenses, certificates) within six months of the last FY. [The score is fifteen points if met and zero (0) if not met.]
	PI6: Response rate of citizen grievances measured for the last FY. [The score is as follows: percent of responses that have adhered to the timelines agreed in the citizens charter for respective services: 90 – 100 percent = 10 points; 80 – 90 percent = 5 points; < 80 percent = 0 points.]

8. **A performance-based grant formula will be used.** If the ULBs fail to meet even one of the three MCs for any particular year, they will not be incentivized under both the DLIs, and the institutional performance-based grant disbursed for the respective year will be 'zero'. Upon successful achievement of the MCs, the ULBs will be eligible to be assessed under DLI 5 for up the institutional performance-based grant allocated for the respective year. The performance-based grant to ULBs under DLI 5 is proportional to the PI score of participating ULBs. Also, over the years of the program, it will gradually be more challenging for ULBs to access the full performance grant. The performance grant will be allocated to the ULBs based on an objective and transparent formula, which is directly proportional to the ULB's population and performance of each ULB against the MCs and performance indicators.

Performance-based grant formula

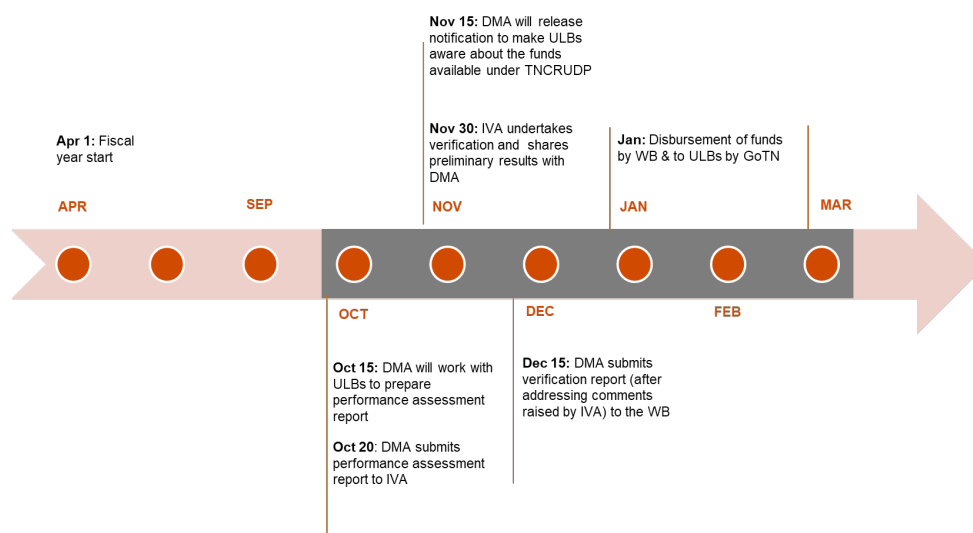
$$US\$ \text{ for ULB A} = MC_A \times (A1_A + A2_A \times PI_A)$$



For a given year, MC score for ULB A: $MC_A = MC1_A \times MC2_A \times MC3_A$ [0 or 1]	A1 is allocation linked to DLI 4: For ULBs with population < 400,000, $A = US\$716 \times \text{Population in the ULBA}/1000$. For ULBs with population $\geq 400,000$, $A = US\$83,333$ per year per ULB.
For a given year, total PI score for ULB A: $PI_A = (PI1_A + PI2_A + PI3_A + PI4_A + PI5_A + PI6_A)/100$ [0-1]; for Year 2&3, if the sum of PI1-6 for $ULB_A \geq 40$, $PI_A = 1$; for Year 4&5, if the sum of PI1-6 for $ULB_A \geq 60$, $PI_A = 1$; and for Year 6, if the sum of PI1-6 for a $ULB_A \geq 80$, $PI_A = 1$	A2 is allocation linked to DLI 5: For ULBs with population < 400,000, $A = US\$1,415 \times \text{Population in the ULB}/1000$. For ULBs with population $\geq 400,000$, $A = US\$152 \times \text{Population in the ULB}/1000$ (up to \$100,000 per year).

9. **Process cycle for PAF.** The process (see figure 3.1) will be aligned with the Indian fiscal year (April–March) and the DMA will lead the assessment process with the ULBs providing required performance documentation. The DMA will undertake a first verification of the documentation, while the final verification will be done by the IVA. The first PAF is expected to start in Oct 2025. Detailed verification and disbursement timeline are included in POM.

Figure 3.1: Performance-grants implementation cycle



10. In addition, RA1 supports two critical areas of urban governance: strengthening ULB municipal finance and climate resilience. RA1 incentivizes ULBs to augment their OSR (DLI 1) and issue municipal bonds (DLI 2), to meet their recurrent expenditures and reduce their dependence on fiscal transfers. To address climate change, RA1 also aims to enhance ULB capacities for climate resilience through adoption and initiating implementation of comprehensive CCAPs, which includes aspects of water security and emergency preparedness and response, CWIS, WSS business planning, and stormwater drainage (DLI 3).

11. **RA2 orients cities toward higher coverage, quality, efficiency, and climate resilience of WSS services concurrently.** Under RA2, cities will pursue service delivery improvements at the demonstration level and at the whole city level for WSS services. Service delivery goals will include the targets of AMRUT 2.0 (household tap or sewerage connection) as a minimum but go beyond specifying quality and service standards. The Program’s package of WSS activities cover key WSS sector building blocks establishing a ‘sector improvement performance framework’ around good quality and expanded service delivery and operational, climate, and financial efficiency of WSS services, as follows:

- **Good quality and expanded service delivery.** DLI 6 supports expanding access to FWTCs and sewerage connections, with service delivery parameters exceeding AMRUT 2.0 requirements and current service levels in the state. This will ensure that WSS infrastructure translates into increased coverage and quality of service



for the beneficiary population. The Program will demonstrate in cities of various size categories how 24x7 water supply can be efficiently delivered and operated, and their cost recovery improved. Cities will include at least 10 percent of the households or 10,000 connections, higher than the mandatory requirement of minimum 2,000 connections under AMRUT 2.0. Demonstration zone(s) of this size, and across several cities, is expected to serve as a credible proof of 24x7 service delivery to citizens. Moreover, two cities will be supported to extend connections and improve level of services to a daily support of three hours (up from current erratic, non-daily supply) at least in 70 percent of these cities' areas. Cities will pursue sewerage systems in which households are connected to the sewerage network (this will be contractually part of the PBC) and which are connected to functioning STPs (with the requirement to meet TNPCB treated effluent standards). WSS systems under the Program are being designed according to specific climate-resilience requirements (including water security aspects) developed for this Program.

- **Operational, climate, and financial efficiency of WSS services.** Beyond one-time asset creation, RA2, through DLI 7, also focusses cities on operational, climate, and financial sustainability by incentivizing cities to enter into PBCs to reduce NRW,⁴⁹ increase treatment volumes in existing STPs, and secure efficient O&M of WSS functional connections. Special attention will be given to women when conducting social engagement activities under the PBCs. Moreover, DLI 7 will also incentivize higher O&M cost recovery, fostering higher financial and operational efficiencies combined and creating the basis for sustained WSS service delivery at the city level, extending beyond the areas in which assets are being created.

12. **Program-wide approach for the WSS sector improvement performance framework.** DLIs in RA2 are supplemented by requirements in the PAP in terms of approval of WSS tariffs bylaws that allow water volumetric and sewerage charges and systematic water quality monitoring. Important institutional tools to support efficiency and sustainability of WSS services are included in RA1, through the development of plans on water security and emergency, WSS business plan, CWIS, and stormwater drainage, as part of CCAPs. Finally, the IPF component also supports WSS activities specially in terms of communications and social engagement activities and catered capacity building. The Program takes a comprehensive approach to scaling up private finance for WSS infrastructure and services improvements in participating ULBs by (a) addressing fundamental institutional capacity and creditworthiness related constraints in ULBs, (b) building a solid pipeline of WSS investments projects with sound technical and financial viability, and (c) supporting pilot municipal bond transactions to provide impetus to TNUIFSL to resume its municipal bond program (under RA1). These will pave the way for developing a scalable model in TN that can be adopted for all the ULBs to address the expanding WSS investment gaps through private finance in addition to government grants in a sustainable manner. The Program's WSS framework will be applied at all participating ULBs⁵⁰ and it has the potential of replication to other cities and states.

13. **Use of PBCs.** India has significantly increased the use of PBC in construction and O&M of WSS services in recent years. There are currently more than 40 cities in the country that have adopted this approach (either full or partially across city areas). There are already successful cases, such as Hubli, Malviya Nagar, Delhi, Nagpur, Kolkata, and Pune, where the service levels have significantly improved through PBC incentives, especially in terms of increased water supply hours, wastewater collection and treatment, and the associated customer services including billing and collection. In TN, there are ongoing PBCs in desalination and sewage treatment and wastewater reuse initiatives in Chennai and a water service improvement contract in Madurai. The Chennai Metropolitan Water Supply and Sewerage Board is designing and procuring a PBC for water system improvement in two zones of the core Chennai city area. Yet, lessons from the ongoing PBCs show that clarity in obligations of the contractor, clear boundary limits; balanced risk sharing between the employers

⁴⁹ Target for NRW reduction was set for all ULBs with water projects reaching 20 percent or less level of losses toward the end of the Program. Although the water systems in the Program are largely 'green field' (that is, level of network replacement and/or new construction above 70 percent), the target was chosen to be at 20 percent conservatively, as loss control is a new activity for most of the ULBs and capacity and confidence need to be built over time.

⁵⁰ There will be small variations in the application of DLIs in the ULBs, such as the non-applicability of DLRs 6.1 to 6.3 in the ULBs that are only developing 24x7 water investments in 10 percent of their area.



and contractors; clarity in definition of easy to measure; and meaningful key performance indicators such as measurable water supply hours, water and wastewater quality, functional requirements for water and STPs, customer service targets such as response times, and revenue collection efficiency with appropriate incentives and penalties, are key elements to be considered in the design and implementation of such contracts. By using PBCs, the ULBs will migrate from an asset construction approach to performance-oriented approach. Further, the use of PBCs will also bring in contractor capacity into WSS O&M operations, thus bridging institutional capacity gaps of the ULBs.

14. RA2 also aims to enhance the ULB capacities for climate resilience through specific targets on reducing energy consumption in key municipal assets (such as WSS, streetlighting, public buildings, and so on) and increasing green cover through expansion of municipal parks using nature-based solutions (DLI 8).

15. **Climate resilience and mitigation are cross-cutting themes embedded in both RAs.** In terms of resilience, RA1 prioritizes the adoption of CCAP for each ULB, which includes climate risk vulnerability assessment, GHG inventories, adaptation and mitigation measures based on their vulnerabilities, and identifying alternative water sources to ensure water security. RA2 incentivizes the ULBs to mainstream climate resilience aspects in investment design and O&M of proposed WSS infrastructure, including adopting a detailed climate risk screening checklist and incorporating resilient measures in the design of their WSS projects. Ensuring water security is a critical element to enable higher levels of water supply service to be delivered. The operation includes TA for preparation of comprehensive, long-term water security planning as part of the CCAP. The Program incentivizes the development and approval of the water security and emergency plan for WSS services, which are intended to better prepare the service providers to maintain WSS services in case of a climate-related emergency. Moreover, the provision of household level water and sewerage connections, supplemented by Program efforts in CWIS to move towards a universal access to safely managed sanitation, supports the climate adaptation agenda to reduce waterborne diseases and other health issues in the events of floods or droughts. In terms of mitigation, the Program will incentivize the ULBs to carry out energy audits to closely monitor their energy consumption and achieve systematic improvement in energy efficiency for their municipal assets. It will also mitigate heat island effects and augment carbon sinks at the city level by expanding green cover. Activities on metering and NRW incentivize efficient water use, and efficient wastewater treatment and disposal, all of which contribute to both climate mitigation and adaptation aspects.

16. **Readiness for implementation.** TNUFSIL, in coordination with the respective ULBs, has prepared DPRs for five sewerage systems (Salem, Thiruvannamalai, Pudukottai, Kancheepuram, and Thoothukudi) and for one water system at Kancheepuram. This initial batch of subprojects correspond to about 30 percent of DLI 6 amount that directly goes to fund physical investments. The procurement packages for this initial set of subprojects are planned to be ready for contract award by end October 2023 as required by the Department of Economic Affairs, Ministry of Finance. In addition, a draft ToR for the IVA has been prepared and is expected to be ready for contract award by end October 2023.

Program Expenditure Assessment

17. An assessment of the expenditure framework of the proposed Program was carried out to understand whether the GoTN will be able to clearly budget, track, and report against program expenditures on an annual and multiyear basis. The assessment included a review of the fiscal position of the state, expenditure patterns, financial sustainability and funding predictability, and execution capacity of the Government in an efficient and timely manner.

18. The Program's expenditure includes the GoTN, WB and ULB investments and O&M in WSS services, green space, energy efficiency of municipal assets, and Program management. The identified expenditure items will provide financing to the ULBs for undertaking project-specific investments, ULB-level reforms, and institutional development activities that are critical to improving the service levels and overall performance of the ULBs. The Program budget structure is clear in terms of sources of funding, budgetary vehicles, and categories of expenditures. The Program budget will be entirely funded by each IA's own budgetary sources, either through the state government allocations/transfers and/or its own



revenues. The identified expenditure items are fully aligned with the Government priorities as set out in Urban Vision 2031.

19. The Program has high level of funding predictability owing to the GoTN's continued prioritization of investments to improve urban services in its budget. The state has steadily increased its budget allocation for urban infrastructure investment. Its expenditure in water supply, sanitation, housing, urban development sector has increased from US\$1.04 billion in 2017–2018 to approximately US\$2.03 billion in 2020–2021.⁵¹ The FY22/23 approved budget for water supply, sanitation, housing, and urban development has increased by 18 percent from the FY21/22 budget estimate and by 95 percent from the actual budget for FY20/21. In terms of the sources of funds, the larger share of the total expenditure in the water and urban development sectors in TN is contributed by the state government. The share of the state's grant-in-aid from the center as a percentage of total revenue ranged between 10 percent and 19 percent between 2017–2018 and 2021–2022. The Program is financially sustainable given that its annual funding requirement is a small proportion of the state's annual capital expenditure in the urban sector.

20. **Incentives for ULBs.** The capacity of the state to absorb the allocated funds is shown by the budget execution rate. States' revenue expenditure outturn has been consistently over 90 percent, which indicates good alignment between the budget and the actual expenditure. However, budget execution for water supply, sanitation, and urban development shows significant variability in recent years. In 2018–2019, the budget execution rate was about 80 percent for WSS, housing, and urban development combined. In 2020–2021, the actual expenditure for WSS exceeded the budget 10 percent, which could be on grounds of increased budgetary allocation for water supply from the national programs. This Program also provides strong incentives for the participating ULBs. The aggregate of DLI grants to ULBs on average will account for about 17 percent of their annual capital budgets. In addition, the total Program capital expenditures on WSS investments will account for about 49 percent on average of their annual capital budgets.

Economic Justification

21. **Scope.** While the Program will deliver many quantifiable and nonquantifiable benefits and will be implemented through nine DLIs, a quantitative economic analysis was carried out for DLIs 6 and 7. Therefore, the benefits estimated through the economic analysis are deemed considerably lower than what the actual stream of benefits from the Program would be.

22. **Methodology.** A cost-benefit analysis comparing the 'with' and 'without' the Program scenarios has been used to calculate the economic NPV and IRR. All prices are expressed in constant values of the base year 2022.

23. **Economic benefits and cost.** The benefits and costs included in the analysis are the following:

- (a) **Direct financial benefits.** These are measured by incremental cash revenue receipts that are expected from improved physical and commercial loss, metering, billing, tariff restructuring, and adding more water and sewerage connections. These constitute 23.3 percent of the total benefits.
- (b) **Capital and O&M costs.** Incremental costs include capital costs and O&M costs, including manpower, power, chemicals, and maintenance. The financial costs were adjusted to exclude applicable tax and apply an estimated standard conversion factor of 0.98 to use the domestic price numeraire.
- (c) **Health benefits.** The health benefits arise from avoided costs due to reduced illness and are measured in two independent ways. The indirect health benefits are considered for every household that will receive the connections through the Program.
 - (i) The first measure estimates the value of healthy life arising from the quality-of-life enhancement due to reduced diarrheal disease incidence. It is calculated as the reduction in the rate of occurrence of

⁵¹ The budgeted figure is considered for 2020–2021 (<https://prindia.org/budgets/states/tamil-nadu-budget-analysis-2020-21#:~:text=The%20total%20expenditure%20in%202020,borrowings%20of%20Rs%2074%2C107%20crore>).



disease in the target population that receives the new service in terms of disability-adjusted life years (DALY) averted attributable to diarrhea. The value of averted DALYs is measured by the minimum wage, which is deemed to represent the minimum value of healthier life. This benefit would make up 21.2 percent of the total benefits.

- (ii) The second measure estimates the avoided health care costs due to reduced diarrheal incidence from improved sanitation. This benefit would constitute 52.2 percent of the total benefits.
- (d) **Time saved.** Household tap water connections are expected to save time that is currently being spent on water collection by household members, especially women. It is calculated based on the opportunity cost of collecting water, measured by the minimum wage. This would constitute 0.02 percent of the total benefits.
- (e) **Net GHG emission reductions.** These are driven by wastewater management subprojects and were calculated using the lower-bound shadow price of carbon (US\$50 per ton of CO₂e in 2023, rising to US\$100 per ton of CO₂e by 2055). They constitute 3.31 percent of the total benefits. The Program's gross emissions over the economic lifetime are 2,318,677 tCO₂-eq, the net emission reduction over the economic lifetime is 6,786,713 tCO₂-eq, and the net average annual emission reduction is 212,085 tCO₂-eq.

24. **Assumptions and parameters.** Key assumptions and parameters used in the economic analysis are summarized in the Technical Assessment report.

Economic analysis results

25. **The economic net benefits for WSS investments related DLIs are US\$166.1 million in the base case at a 12 percent discount rate.** The base case was stress tested for capital cost overrun, increase in O&M costs, reduced expected benefits, and delayed implementation (table 3.2). The results show that there will be net economic benefit under potential high-risk scenarios.

Table 3.2. Sensitivity Analysis Results

Scenario	Change	NPV (INR lakh)	IRR (percent)	SI	SV (percent)
Base case		136,238	18.1		
Increase in capital costs	20 percent	98,027	15.8	1.40	71
Increase in O&M costs	20 percent	125,795	17.7	0.38	261
Decrease in benefits	20 percent	60,324	14.9	2.79	36
Implementation start delay	2 years	112,800	17.1	NA	NA

Note: SI = Sensitivity indicator (ratio of percent change in NPV to percent change in a variable); SV = Switching value (percent change in a variable to reduce the NPV to zero).

26. **Implication for supervision to ensure economic viability.** The sensitivity analysis shows that the economic performance of DLIs 6 and 7 depends on, in order of significance, realizing economic benefits to the beneficiaries, preventing capital costs overrun, preventing implementation delay, and controlling the O&M costs. The Bank team will monitor these closely.

27. **The economic assessment of the energy efficiency DLR proposed under DLI 8 shows that there will be an economic NPV of US\$8.8 million and an economic IRR of 25 percent at a discounted rate of 12 percent.** This was based on the aggregate end target set for the participating ULBs and the corresponding monetary savings. The assumed cost for implementing these energy efficiency interventions is INR 2.91/kWh, which is based on the CCAP for Coimbatore.⁵² In terms of benefits, the reference tariff has been assumed as per Tamil Nadu Generation and Distribution Corporation Limited guidelines.

⁵² This is the only reference on costs for energy efficiency interventions available for Tamil Nadu cities.



28. In addition, RA1 supports institutional reforms to improve climate change planning, financial sustainability, transparency, accountability, governance, and institutional performance for service delivery, and RA2 supports development of parks using nature-based solutions. This is expected to bring the following benefits:

- (a) **Mobilizing OSR and issuance of municipal bonds help the ULBs keep up with rising expenditures and improve their fiscal sustainability and access to finance.** Measures for increased OSR supported by the PforR will result in an estimated increase of OSR of US\$4.5 million in NPV terms. Over time, enhanced OSR and fiscal management could allow the ULBs to mobilize more resources by accessing more and better term financing and unlock development opportunities.
- (b) **Enhancing climate change planning and investments have multiple positive impacts:** (i) improved ULB finances through lower energy costs induced by energy efficiencies and reduced life cycle costs when adopting nature-based solutions, (ii) reduced economic losses owing to enhanced ULBs' resilience against climate change-induced events, and (iii) improved health through better ULB air quality and cooling.
- (c) **Significant economic and social benefits are expected from other policy and institutional reforms supported by the PforR.** Reduction in the ULB vacancy rates will improve their ability to plan, implement, and evaluate development initiatives, resulting in less cost and time overruns. Transparency in budget and expenditure leads to higher accountability for the use of public funds. Enhanced resource management also contributes to more effective and efficient spending. Improved citizen engagement enhances the trust between the citizen and the government leading to more targeted and evidence-based allocation of resources.

Evaluation of Technical Risks

29. The Program's overall technical risk is assessed as 'Substantial'. The risks have been assessed in three areas as listed in table 3.3 for which mitigation measures were developed.

Table 3.3. Technical Risks and Mitigation Measures

Risk	Mitigation Action
Inadequate institutional capacity at the ULB level for implementation and sustainability (Substantial)	<p>The DMA and TNUFSL have largely demonstrated the institutional capacity to coordinate the work of TN ULBs and support them in fulfilling their mandates. However, institutional arrangements and capacities of sector institutions vary greatly across ULBs, and they may lack experience and expertise in implementing such projects and reforms. Additionally, the ULBs may have inadequate human resources to follow up on project implementation, including for instance, contracting, and supervising PBCs. To mitigate these risks and strengthen the sustainability of investments and services, the following activities will be supported by DLIs and by the IPF component to support the strengthening of relevant state and ULB institutions.</p> <ul style="list-style-type: none"> • Establishing technical expert cells as per the POM at ULBs and providing capacity-building support to the ULBs to prepare and implement subprojects and develop sector studies including CCAPs and strengthening public financial management and governance reforms. • Support design and implementation of PBCs to ensure successful contracting and delivery of established service levels during various stages of the Program including O&M. • Development of standard operating procedures and handholding of ULBs staff on services O&M, customer management, consumer grievance redressal, connecting users to WSS networks, meter reading, billing, collection, CWIS, climate resilience, and so on.
Water security and source sustainability (Moderate)	<p>Because of the state's geographic position and vulnerability to seasonal extremes, the state frequently faces uncertainties in its water security. All the ULBs under the Program face high to extreme high water risks. The Program will support the following activities:</p> <ul style="list-style-type: none"> • Preparation of water security plan for each ULB as part of CCAP including identifying/leveraging alternate water sources that are climate resilient and can cope with water demand for multiple uses for next years, including institutional framework and technical roadmap to implement these plans.



Risk	Mitigation Action
	<ul style="list-style-type: none">• The DPRs of the projects proposed under the Program are also being prepared incorporating elements of climate resilience, including the perspective of source sustainability.• Water activities include incentives for NRW reduction, metering, and volumetric billing. Communication activities including demand management, which all contribute to a rational water use.
Water sector reforms and introducing higher levels of WSS services (Moderate)	<p>The service level required in the Program is significantly higher than current practices, particularly in terms of delivering certain number of hours of water per day, having households to actively connect to the sewerage network and systematically tracking NRW, energy consumption, and effluents standards. The implementation of volumetric tariff for billing purposes has also been defied due to lack of suitable metering infrastructure as well as other social challenges. The Program aims to change this status quo in a gradual, politically, and socially acceptable manner. Metering and volumetric billing will target areas where service delivery will be substantially improved. Bylaws for WSS should include provisions for low-income customers. Targets on cost recovery consider that different ULBs are at different performance levels. The scope of 24x7 systems is limited to a part of the cities area so the culture and capacity to deliver continuous supply can be built and then scaled up. Contractors for sewerage systems will be required to develop and implement strategies to ensure connectivity of households to the network. Similarly, contractors and operators in charge of STPs will be contractually required to ensure that STPs meet the required effluent standards, and this will be systematically tracked in the Program. Finally, extensive communications and capacity-building activities on the topics above are included in the DLIs, PAP, and IPF component.</p>



ANNEX 4. SUMMARY FIDUCIARY SYSTEMS ASSESSMENT

1. **An IFSA⁵³ of the key selected IAs was carried out in accordance with the World Bank Policy and Directive for PforR financing.** The scope of the IFSA covers the DMA, TNUIFSL, and sample ULBs and is limited to the boundaries of the Program's expenditure framework. Institutional and implementation arrangements for the Program rely on the use of country systems. The IFSA found that present fiduciary systems together with proposed mitigation measures provide reasonable assurance that the proposed financing would be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. The IFSA identified key fiduciary risks that may affect the PDO and recommended system improvement and mitigation measures that will be implemented during the life of the Program as part of the PAP. Based on the IFSA, the combined fiduciary risk is rated 'Moderate'.
2. **The GoTN has procurement and FM framework, which all IAs follow.** The GoTN follows the TNTTA, 1998; the Tamil Nadu Transparency in Tenders Rules (TNTTR), 2000; and the Tamil Nadu Transparency in Tenders (Public-Private Partnership procurement) Rules 2012 that broadly meet the core procurement principles. FM arrangements in the state are guided by the Tamil Nadu Finance Code Volume I and II, Tamil Nadu Accounts Code Volume I and II, Tamil Nadu Treasury Code Volume I and II, Tamil Nadu Budget Manual Volume I and II, and Tamil Nadu Public Works Department Code, and GOs are well established and followed. The existing governance and accountability arrangements include audits by the C&AG of India, review of audit reports by the Public Accounts Committee, Right to Information (RTI) Act 2005, and Central Vigilance Commission Act 2003. The state departments, government agencies and parastatals have clear delegation of powers, financial rules, and regulations, which are followed.
3. **Most of the Program activities are funded by the state.** In case of capital investments, the GoI is funding some of the schemes through AMRUT 2.0 and SBM 2.0 and these schemes are identified, and funding is demarcated. The overall contribution of the GoI for the Program is 7.2 percent. Apart from the Program, the GoI is also providing funds for the larger government program through AMRUT 2.0 and SBM 2.0. While the expenditure for the Program will be reported on an overall basis, at the time of reconciliation, expenditures incurred by the TNUIFSL, DMA and ULBs will be considered. The overall funding provided by the World Bank will be US\$279 million. Salary cost is majorly borne by the ULB/state.
4. **The procurement under the Program will follow the GoTN's procurement procedures:** the TNTTA, TNTTR, relevant GOs including delegation of financial powers, and Engineering Manual. The Program's procurement profile comprises mainly construction and O&M of WSS works for implementing subprojects at participating ULBs. Most of these activities using the life cycle costing (capital and O&M expenditure), service-level KPIs, and energy saving initiatives. These may fall in the domain of green/climate-resilient public procurement. There are no high-value contracts envisaged in the Program at this stage. The applicable thresholds across three procurement categories are (a) Works: US\$115 million; (b) Goods, Information Technology, or Non-consulting Services: US\$75 million; and (c) Consulting Services: US\$30 million. The IAs shall submit reports to the World Bank if any large contracts are envisaged throughout program implementation (Format in the POM).
5. **The overall state budget has been increasing on a year-to-year basis.** For FY21/22 the actual expenditure was US\$35.49 billion, and the total expenditure is expected to be US\$39.9 billion for FY22/23. The Program will fund less than one percent of the state budget every year over the next six years, thus not affecting the state finances. The state has revenue deficit for a decade, which is increasing over the recent years and this trend is expected to continue as per the medium-term fiscal plan (MTFP) projections. The GoTN is expected to move into a revenue surplus position from FY25/26 as per the MTFP. The GoTN has been having a higher fiscal deficits ratio to GSDP than the mandated 3 percent in the last three years and it is expected to normalize from FY24/25. The state overall liabilities including off-budget borrowings were above the allowed limit of 28 percent of GSDP in the last two years and is expected to taper down. The state's revenue expenditure outturn has been consistently over 90 percent, which outlines better alignment between the budget and actual expenditure. Capital expenditure outturn has been hovering around 77 percent, which was 90 percent in the recent

⁵³ Refer to the IFSA for details, which is a stand-alone document.



year, signifying a gap between budgeting and execution. The share of capital expenditure on total expenditure has also been increasing over the years and was 12.72 percent in FY21/22.

6. **The two key sectors involved in this program are the municipal administration and WSS sector.** Expenditure for these two sectors has been increasing consistently over the years. While the budget outturn has been erratic in the earlier years, it has stabilized in the later years. Also, capital expenditures on an average amount to US\$605 million per year, which is much larger than the Program funds, and hence the absorptive capacity for the Program is not an issue. The Program would not affect the capacity of the IAs as, on average, the DMA handles funds and projects of US\$1.60 billion and the total assets of TNUIFSL as of March 2022 was US\$486 million, with a net worth US\$36.5 million.

Budget Planning, Execution, Fund Flow, Accounting, and Reporting

7. **The GoTN has an established budget preparation process that is guided by the Budget Manual.** The DMA and TNUIFSL should prepare annual Program budget requirements and submit them to MAWSD as per the state budget schedule so that the requirements can be incorporated in the state budget. The state will prefund the Program. Separate externally aided project budget heads for the DMA and TNUIFSL⁵⁴ would be created for the Program for accessing the funds. Once the budget is approved by the state, the budget is available to the agencies. All budget documents are displayed in the public domain through the State Finance Department website⁵⁵ in both English and Tamil.

8. **For budget execution and fund flow, the existing system will be followed.** The GoTN has implemented a comprehensive Integrated Finance and Human Resource Management System (IFHRMS) across the state departments. Once the budget is approved, it is posted on the IFHRMS, and the Head of Departments have the right to further allocate funds to officers in the chain of command based on budget requirement. All payments and accounts done by the core departments are maintained in the IFHRMS. For the DMA, a separate Program budget head would be created, to provide funds for transfers to the ULBs on successful completion of DLIs and for meeting its expenditure. All Program payments made at the DMA will be available in the IFHRMS. TNUIFSL already has a separate Program budget head. It is a company that has its own legal existence and works outside the core government system. Once the budget is provided, TNUIFSL can draw the amounts and transfer to the personal deposit account and then to the bank account of the company. All payments will be done from the bank account, including transfers to the ULBs. The ULBs will have two Program bank accounts for each result area in which all Program-related funds will be received, payments made, and accounted for. In case of subprojects where AMRUT/SBM funds are used, part payment will be done from the respective scheme bank accounts and balance from the Program bank account. In the case where TWAD Board executes works on behalf of ULBs, ULBs will make payments directly to the contractor and pay the TWAD Board an agreed percentage.

9. **Existing accounting system would be used for the Program.** The DMA accounting will be done as part of the State Treasury using a computerized accounting system. Apart from the treasury records, the DMA maintains cash book, cheque issue register, and other basic records as prescribed by the state and Excel spreadsheets for ease of reporting. TNUIFSL follows the Institute of Chartered Accountants of India accounting standards, double entry accrual-based accounting system and maintains accounts as per the Companies Act 2013. All expenditures, payments, and accounting are centralized. TNUIFSL maintains subproject accounts in Tally software, which reflects the entire expenditure. The ULBs follow the Tamil Nadu Municipal Accounting Manual, which is double-entry accrual-based accounting system. The ULBs have computerized accounting software as part of the Urban Tree e-governance system and accounts are generated from the software. A separate Program ledger will be maintained in the software for reporting. The ULBs will report the entire expenditure of subproject to TNUIFSL so that proforma accounts can be maintained by them. ULBs payroll and employee database are computerized. Payroll processing and payments are done through software and payments are made through bank transfers directly. All reports are available from the system and can be used for reporting and auditing. For the Program the agencies shall provide a Program expenditure report every quarter.

⁵⁴ Budget heads already created.

⁵⁵ <https://financedept.tn.gov.in/en/>.



Procurement Planning, e-Tendering, Contract Management, and Performance

10. **The TNTTA and TNTTR do not stipulate systematic preparation of the PP.** Based on the approved DPR, the Tender Accepting Authorities initiate procurement after administrative and technical approvals. Based on the delegate financial powers, the key procurements will be undertaken at the state level, and contracts will be managed at various implementation levels (state/ULBs). The IAs do not maintain the procurement schedule linked with the budget and annual workplan. It is essential to strategize procurement packaging and prepare activity-wise schedules. Also, it is essential to link these activities with the Program's outputs/outcomes (DLRs/PAP/results indicators) duly considering the procurement turnaround time and completion period. The web-based management information system (MIS) platform tracks each procurement activity's physical and financial progress. This system requires upgradation to integrate additional procurement metrics to aid procurement planning, include procurement KPIs to cover the procurement and contract management stages, and embed seamlessly within the overall public financial management cycle. This comprehensive planning and monitoring will help the IAs achieve the intended outcomes and outputs.

11. **The GoTN has not prepared a universal suite of STDs.** MAWSD has prepared an Engineering Manual (2000) for the ULBs as a day-to-day reference, particularly for works and attached a procurement document for measurement/item rate contract. Also, the IAs are required to develop and adopt the STDs for Design, Build and Operate (DBO) and PBC for use under the Program.

12. The procurement entities use open tendering as the preferred procurement method and widely utilize two envelopes (technical and financial). The GoTN has mandated using an e-procurement (e-GP) platform⁵⁶ from April 1, 2023,⁵⁷ above low-value threshold (described in the TNTA and TNTTR). The TNTTR provides mandatory provisions for the publication of tender notices depending on the estimated cost. The TNTTR also require the prescription of the evaluation criteria up front in the tender documents and is advised to utilize the same criteria for evaluation and award recommendation. The tender evaluation process shall be confidential until the award of the contract award and its notification. The negotiation is permitted under the TNTTA. However, the IAs seldom publish contract award details on its website or through e-GP platform. The IAs are to disclose the publication and contract award details to enhance the transparency.

13. **Contract management.** The ULB's engineers (municipal engineers) manage and implement contracts, which are small in value and scattered in nature. The ULBs obtain advisory support from the TWAD Board and Chennai Metro Water Corporation for high-value contracts. The assessment infers that the ULBs require DPR preparation and implementation support for high-value contracts envisaged in the Program. The engineer records the measurement book, verifies it, and certifies the completed work for payment. The payment is processed through commercial bank checks (not electronic transfer). The ULBs and IAs are not maintaining the payment period.

14. **Procurement and contract management performance.** The assessment sampled five high-value contracts from the TNSUDP. The average cost estimate was INR 182.70 crore (US\$22.28 million), and these contracts were awarded at a 17 percent average over the cost estimate. The average bidder's participation was 2.4, and the contracts were awarded with an average procurement lead time of 139 days, which is a good turnaround time for the ticket size sampled. These contracts were completed (fully/partially due to closure of the TNSUDP) with substantial time overrun (6–27 months) and reduced scope with a cost underrun of 40 percent. Based on the lessons learned from implementation of the TNSUDP, the Program needs overall strengthening of the contract management function with adequate staff deployed and trained.

Internal Controls and Audit

15. **Internal controls are being practiced and are included in the financial rules supplemented by defined delegation of financial powers.** Oversight regarding compliance with internal controls is vested with the head of the Administrative

⁵⁶ <https://tntenders.gov.in/nicgep/app>.

⁵⁷ https://cms.tn.gov.in/sites/default/files/go/fin_e_94_2023.pdf.



Department and Finance Department, and these are reviewed by the auditors during annual audits. Clear delegation of powers exists, which defines all activities. Regular reconciliations are carried out with the State Treasury/bank account. Entity-level internal audits are not practiced in departments. In the case of TNUIFSL, as it is a company internal controls exist and are followed. TNUIFSL has started the practice of internal audit from FY22/23.

External Audit

16. **The existing audit arrangements will be used for the DMA and TNUIFSL.** For the DMA part of the Program, a separate audit report will be issued from the state office of the C&AG. For the TNUIFSL part of the Program, a CA firm will be appointed as per agreed ToR including the review of procurement and a Program audit report will be issued by the firm. This report will be a consolidated report covering the entire program expenditure including subprojects expenditure at the ULB level. A separate procurement audit report will also be issued by the auditor. An auditor needs to be appointed within six months from Program effectiveness. The annual Program audit report needs to be submitted within nine months from end of the financial year by both the DMA and TNUIFSL.

Program Governance and ACG

17. **At the state level, the TN Lokayukta and Directorate of Vigilance and Anti-Corruption (DVAC), GoTN, are two agencies that enquire/investigate allegations of corruption against public servants, specific acts of bribery, corruption, or other malpractices by the state public servants.** Any person can make a complaint in the office of Lokayukta. The Inquiry Wing of Lokayukta enjoys the power of a civil court under the Code of Civil Procedure, 1908. It can issue summons and warrants, take evidence on affidavits, and issue commissions to examine the witnesses and documents. Any proceeding before the Lokayukta shall be deemed to be a judicial proceeding within the meaning of section 193 of the Indian Penal Code. The DVAC has its prosecution wing for the speedy trial of cases registered under the Prevention of Corruption Act. The Government has established special courts and empowered judicial magistrates to deal with cases arising under the Prevention of Corruption Act. Tamil Nadu's procurement framework (TNTT Act and Rules) does not include the Bank's five definitions of fraud and corruption. Section 11 of TNTTA has described the appeal mechanism for redressing procurement-related complaints. However, the TNTTR does not provide procedure and customized tender documents or describe the point of contact for the submission of any complaint. Also, the procurement-related complaints will be mixed along with other grievances and processed using administrative procedure. Therefore, IAs will establish a dedicated complaint mechanism for the Program. The IAs and the TWAD Board will be responsible for investigations of procurement-related complaints. IAs will include a reference to the Bank's ACG for PforR in the tender/proposal documents and resultant contracts.

18. **The World Bank "Guidelines on Preventing and Combating Fraud and Corruption in Program for Results Financing" dated February 1, 2012, and revised on July 10, 2015, shall apply to all activities within the Program boundary.** Under the Program, it is required that (a) all bidding documents refer to the World Bank's ACG and the bidders must agree to these clauses and (b) at the time of bid opening each procurement agency shall ensure that none of the participating bidders is listed in the World Bank's latest online list⁵⁸ of debarred firms.

19. **An ACG Protocol would be drafted to operationalize the ACG and agreed with the Government.** The DMA and TNUIFSL shall maintain and compile a semiannual report on all fraud- and corruption-related allegations and investigations that are related to the Program. The IAs and the TWAD Board will set up a centralized fiduciary complaint redressal system to receive procurement-related complaints and resolve them as per defined procedures within prescribed timelines. In line with the ACG for PforR, the POM provides the details of streamlining the complaint handling system for the Program including reporting formats.

Procurement and FM Capacity

⁵⁸ <https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>.



20. **In the absence of a dedicated procurement cadre, the municipal engineers manage procurement and contracts.** However, most of the contracts handled currently are smaller compared to the contracts size and complexities envisaged in the Program. The ULBs need support from consultants for preparation, implementation, and supervision of subprojects. At least one nodal procurement person should be appointed/designated in the DMA and TNUIFSL to oversee and support the ULBs in procurement. There is a need to assign staff especially for the Program who will also undergo trainings in contract management and e-procurement aspects.

21. **In case of FM, dedicated FM staff are required to be hired at the DMA, TNUIFSL, and the ULBs to handle the Program.** TNUIFSL and the DMA have regular FM staff, but they are overburdened with many schemes and day-to-day activities. The Program should hire six staff with qualifications of M. Com / MBA Finance / CA (Inter) or CMA with minimum 2 years' experience in Finance & Accounts as well as exposure to Tally from the market within three months of Program effectiveness and the cost can be charged to the Program. Two staff will be placed in DMA and the balance will report to TNUIFSL. In the ULBs, staff need to be hired based on each ULB's current staffing structure. Training on accounting for Program expenditures, DLI disbursements, and other FM requirements will be carried out once the Program is effective.

Key Fiduciary Risks and Mitigation Measures

22. The proposed mitigation measures for the abovementioned key fiduciary risks are as follows:

- **Issue a GO and create budget heads.** A GO covering the entire Program should be issued and budget heads, as required for the Program, should be created/assigned.
- **Strengthen staffing and fiduciary capacity of the Operation Management Unit (OMU).** Fiduciary staffing and capacity of the OMU need to be strengthened through appropriate and timely appointments and regular fiduciary training provided.
- **Disclose the Program audit report.** Program audit reports should be disclosed by the agencies on its website as per the World Bank policy on disclosure of audit reports.
- **Appoint an external auditor for the Program.** An external auditor will be appointed for the Program, which will cover the Program including procurement and provide timely reports. The auditor is to be appointed within six months of effectiveness.
- **Establish a complaint handling mechanism at IAs to handle Program-related fiduciary complaints.** A centralized fiduciary complaint handling mechanism preferably with a web interface with clearly defined rules, roles and responsibilities, authorities, and definite timelines to resolve/process the complaints/queries is to be developed to receive and address fiduciary complaints.
- **Integrate additional procurement metrics with MIS and disclose.** These integrate additional procurement metrics with the existing web-based MIS, utilize the procurement KPIs for monitoring, and disclose it along with the contract award details.
- **Develop STDs.** Develop DBO and PBCs and update the existing item rate contract model document. Adopt these documents for procurement activities envisaged in the Program and revise periodically.
- **Fiduciary KPIs.** The IAs to utilize the listed KPIs in the IFSA for monitoring, reviewing, and periodic reporting using the formats provided in the POM.

Financial Management for IPF Component

23. **Designated teams in the DMA and TNUIFSL will be responsible for executing the TA component.** For DMA, a budget head for TA component will be created based on which expenditure will be incurred. Payments will be done through the GoTN Treasury, expenditure recording, and accounts will be maintained in the treasury system, and reports can be drawn from the system. Accounting is done on cash basis. A project cash book will be maintained at the DMA. Quarterly IUFR will be submitted within 45 days from end of the quarter based on which disbursements will be done by the Bank. Audit of the expenditure under the IPF component at DMA will be done by the C&AG and a separate report will



be shared with the Bank within nine months from close of the quarter. For TNUIFSL, a budget head has already been created and budget allocation has already been made. For approved TA activities, expenditure will be incurred by TNUIFSL, and all payments are made to the vendors using the project bank account. Accounts will be maintained using a commercial off the shelf accounting software. Quarterly IUFR will be submitted within 45 days from end of the quarter based on which disbursements will be done by the Bank. Audit of the expenditure under the IPF component at TNUIFSL will be done by the CA firm and a separate report will be shared with the Bank within nine months from close of the quarter.

Procurement for IPF Component

24. **Applicable Procurement Framework and Procurement Arrangements:** IAs for TA (DMA and TNUIFSL) follow the World Bank's Procurement Regulations for IPF Borrowers dated September 2023 (Procurement Regulations) for the procurement of goods, non-consultancy services, and consultancy services (excluding works) envisaged under the TA component. In addition, the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, revised July 1, 2016, and the provisions agreed in the Financing Agreement are applicable. The Bank reviewed consolidated PPSD on IA's key procurement activities. The PPSD does not anticipate any major risks from the operation context and anticipates adequate market potential. PPSD proposes advanced training to the staff on the Bank's procurement regulations and strengthening the procurement monitoring mechanism to manage the consultancies awarded on behalf of the ULBs. As per the applicable Procurement Regulations, the initial PP prescribes the agreed procurement arrangements for the TA component like conducting the post-procurement review, disclosure of the procurement-related information, and complaint handling. The initial PP also prescribes National Competition Procurement (NCP) conditions agreed with GoI, the use of Government e-Marketplace (GeM) instead of RFQ for all activities with cost estimates less than or equal to US\$ 100,000 equivalent, shortlisting with national consultants is up to US\$2 million, and up to this threshold, the Direct RFP for the selection of consultancies is permitted (India-specific provision). The residual procurement risk is 'Moderate'. The Bank will assess and update the risk periodically. The initial PP prescribes the prior review thresholds based on this risk.

25. **TA for the TNCRUDP will include retroactive financing for an activity procured in the TNSUDP.** This is a prior review procurement activity⁵⁹ notified with an award of contract under the TNSUDP wherein the World Bank reviewed key stages until the award notification and accorded 'no objection'. TNUIFSL uploaded relevant documents as per the STEP roadmap. TNUIFSL notified the contract award on March 13, 2023, before closure of the TNSUDP (March 31, 2023). Contract management of this activity will be done under the TNCRUDP STEP portal.

⁵⁹ Setting up of Real-Time Data Acquisition System, Hydro Modelling Flood Control Room at Ezhilagam and Flood Monitoring Centres for Water Resources Department Headquarters at Chepauk and four Collectorates (IN-TNUIFSL-298576-GO-RFB) with a contract amount of INR 763,891,408 (US\$9,315,749 at INR 82 = US\$1)



ANNEX 5. SUMMARY ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

1. **Objectives and scope.** The ESSA examined the systems and institutional capacities (planning, implementation, and monitoring) for (a) environmental and social due diligence of the proposed interventions in various ULBs across the state; (b) incorporation of screening for potential risks and impacts (including direct, indirect, and cumulative), alternative analysis, feasibility, design, implementation, and operations; (c) an assessment of the borrower's systems including laws, regulations, standards, procedures, and implementation performance against the core principles and key planning elements to identify any inadequacies that could affect Program performance on environmental and social aspects; and (e) recommendation of measures to strengthen environmental and social management in terms of systems and capacities to manage the Program risks and enhance benefits and outlining the PAP.
2. **Methodology.** The ESSA was carried out through a combination of on-site visits with in-person and virtual consultations with the stakeholders and desk-based exercises. It included a review of the completed and ongoing AMRUT and SBM program works and borrower's systems including policies, guidelines, regulations, standards, and procedures, including the Environmental and Social Management Framework for the earlier TNSUDP, which the borrower uses for all externally aided projects, and DPRs and Environmental and Social Impact Assessments under preparation for the TNCRUDP. Consultations were held with state-level agencies, district-level officials, public representatives, officials, and engineers of ULB and other agencies involved in service delivery and regulatory aspects, and the communities.
3. **Disclosure.** The team undertook consultations with the state, district, ULBs, and relevant stakeholders including institutions, government departments, and communities. The draft ESSA and its executive summary translated to the local language (Tamil) and were disclosed on the TNUIFSL and DMA websites on August 31, 2023, to enable its wider reading before consultations. The final ESSA has incorporated the comments and suggestions that emerged from reviews and consultations and will be redisclosed in-country and on the World Bank's external website in November 2023.
4. **ESSA in the context of PforR core principles.** The ESSA assessed program system consistency with the six core principles of PforR Guidance: environmental management (Core Principle 1), avoiding risks and managing natural Habitats and heritage (Core Principle 2), public and worker safety (Core Principle 3), land acquisition (Core Principle 4), indigenous peoples and vulnerable groups (Core Principle 5), and social conflict (Core Principle 6). The assessment revealed the need to strengthen systems and capacities for effective environmental and social management under the Program.

Policy, Legal, and Regulatory Framework Governing the Program

5. **Assessment and management of environmental risks and impacts.** The national/state systems or regulations are not in place to screen, avoid, assess, mitigate, or manage environmental risks and impacts of the type of activities envisaged (STPs, water treatment plants [WTPs], greening the public spaces, and interventions to ensure energy efficiency in public assets). Hence, it is recommended that to manage the environmental risks associated with the proposed Program, TNUIFSL, DMA, and ULBs shall prepare and follow systems to assess, manage, and mitigate environmental risks and impacts of all Program activities. Environmental assessment shall include impacts on biodiversity and habitats, pollution impacts of facilities, possible use of contaminated land, vulnerability of water sources to prevailing or possible contamination, climate impacts, and increased peri-urban development.

6. National/state regulations

- **Pollution minimization.** (a) Disposal of Treated Sewage: At the national level, the disposal standards for treated sewage prescribed by the Ministry of Environment, Forest, and Climate Change (MoEFCC) and National Green Tribunal (NGT) (more stringent) are different. The Tamil Nadu Pollution Control Board (TNPCB) follows less stringent disposal standards for smaller cities than the MoEFCC standards, despite the NGT's recommendation to follow the same standards across all types of cities. The Program shall ensure that (i) the disposal of treated sewage follows the Consent Conditions of TNPCB, which require upgrades to the designs to meet the NGT standards if the TNPCB agrees to follow them and (ii) the ULBs are encouraged to maximize reuse of treated wastewater as per existing policies. (b) Disposal of sludge: the standards for the disposal of sludge from WTP/STPs in India are yet to be prescribed by the MoEFCC, or Consent Conditions of the TNPCB. The quality of sludge from WTPs and STPs is currently not monitored, and the sludge



often ends up in agriculture fields of nearby regions/villages or pollutes nearby waterbodies and low-lying lands. The Program shall hence guide and invest to manage STP/WTP sludge appropriately; agree on the standards; and compile relevant guidance on its treatment, disposal, and monitoring in the Program's Environmental Guidance Section developed as part of POM.

- **Occupational Health and Safety (contamination and safety).** The Program shall ensure through design and ESMPs that the need for manual scavenging shall not arise by ensuring machine holes and employing mechanical means. Usage of banned chemicals, pesticides, and exotic species needs to be curtailed, and monitored.

7. Design and review should follow the Environmental Guidelines, with required clauses in bid documents, construction supervision, monitoring and reporting on pollution and occupational health and safety, enforcement of regulations, and monitoring and reporting are hence important in all program activities. This shall be verified by Independent Environmental Audit during their verification process.

8. **Policy, legal, and regulatory framework for managing social risks.** The ESSA analyzed more than 25 national and state policies, laws, and regulations related to involuntary resettlement, labor, community health and safety, gender, and so on that were relevant to the Program. The assessment found that the policy, legal, and regulatory frameworks, which the PforR will be required to comply with, are by and large adequate to manage social risks under the Program. However, there is one significant gap in the legal framework governing resettlement and rehabilitation assistance to non-titleholders. While the Land Acquisition Act 2013 provides rehabilitation and resettlement assistance to non-titleholders and compensation for temporary economic and/or livelihood losses on account of project activities, a similar legal provision does not exist in TN. The Program proponents are unwilling to consider providing compensation to non-titleholders and for temporary adverse economic/livelihood impacts, should such persons be affected by any project activity. This could prove to be a significant risk during project implementation. The ESSA also noted that TNUIFSL has implemented projects funded by the World Bank and other international financial institutions in the past where project-specific instruments to address the gaps between the national and state laws and the international financial institutions' standards for environmental and social risk management were prepared and implemented.

9. **Institutional arrangements.** TNUIFSL has qualified and experienced environmental and social specialists (one each) in managing environmental and social risks on World Bank- and other international financial institution-funded projects. Over the last several years, TNUIFSL has systematized the use of Environmental and Social Management Framework at the project level and Environmental Impact Assessment/Environmental Management Plans at subproject levels through the World Bank-funded TNUDP III and TNSUDP. However, similar capacities do not exist in either the DMA or ULBs. The DMA shall strengthen capacities at the state and regional levels, and ULBs shall specifically have dedicated capacities to manage the environmental risks relevant to the Program. Adequate capacity building on pollution and health and safety management and monitoring shall be ensured as part of the Program and TA.

10. **Environmental risks.** The ESSA assessed the overall risk rating for environmental aspects as 'Substantial' considering the possible pollution impacts and risks of disposal/bypass/accidental discharge of sub optimally treated sewage and sludge (from STPs and minimal sludge from WTPs) into the environment (pollution and health implications) during implementation and operations and the gaps in existing systems to guide and monitor applicable regulations and standards uniformly. Such risks shall be screened, assessed, and managed, by following specific design/environmental guidelines and monitoring. In addition, there may be moderate impacts associated with the laying of networks, water quality (existing pollution, or that contributed by other nearby/upstream activities), availability issues, and environmental health and safety issues of all other program activities. Environmental risks of the Program can be managed/mitigated through (a) careful screening to avoid sensitive receptors and direct and indirect pollution/safety risks; (b) designs based on standards and guidelines, with implementation guided by ESMPs, regulations presented in the environmental guidance manual; and (c) strengthening of the capacities, institutional supervision, awareness, and monitoring mechanisms.

11. **Social risks.** The ESSA assessed the overall social risk rating of the PforR as 'Moderate'. Key social risks include:



- **Involuntary resettlement and adverse livelihood/economic impacts (Moderate).** The Program would involve construction of overhead tanks and STPs and laying of underground sewerage services and piped water supply. In congested urban areas where these activities would be undertaken, implementation of these may lead to the risk of temporary adverse economic/livelihoods impacts particularly for street vendors, roadside service providers, and so on as well as loss of/damage to structures and existence of non-titleholders occupying government lands. The existing laws do not provide for measures to mitigate such risks.
- **Exclusion and inequity (Moderate).** Almost all the ULBs under the Program have de-notified slums where the poorest and the most vulnerable sections of the urban population reside. The Program does not provide for household water supply connections in these areas. As a result, the poorest and most vulnerable sections of the population in these cities will not get the same levels of service as residents residing in other parts of the city.
- **Weak institutional capacities to manage social risks (Substantial).** While TNUISL has adequate capacities to manage social risks of such programs, neither the DMA nor Program Implementation Units have the required resources, structures, and systems manage the social risks of the program.
- **GRM system not accessible to all (Substantial).** Grievances are received through an app or a QR code. This presumes that the complainant will have access to tablets or smartphones and a high level of digital literacy to access the system. As a result, more than 50 percent of the population of all the ULBs comprising aged people, the poor and most vulnerable, and so on do not have functional access to the present GRM system.
- **Weak citizen's engagement (Moderate).** There is no mechanism for the ULB to proactively engage with citizens and seek then inputs on program/project design, objectives, implementation modalities, partnership, and so on (including for instance, dialogue on water meters and WSS chargers).

12. **Program exclusion.** The following activities will be excluded from the Program due to high environmental risk:

<p>Exclusions: in addition to all activities excluded by regulations and as per the World Bank's PforR policy (as in World Bank's PforR Guidance Manual).</p> <ul style="list-style-type: none"> • Upgradation/rehabilitation or repairs to existing STPs or WTPs without filling the gaps to align with applicable regulations/consent conditions of TNPCB and construction of single STPs of capacity more than (50) MLD. • Laying, redevelopment, upgradation, or operation of any sewerage networks (including mains, pipes, pumping stations, lift stations, and so on) and/or providing house service connections before/without connecting the network to a functional STP with consent from TNPCB. • Water supply without proper treatment to ensure quality as required by country (TNPCB) regulations/standards and to prevent any health impacts. • Construction and operation of any solid waste management facilities.
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13. **Recommendations for World Bank's implementation support.** The World Bank's implementation support would focus on building the environmental and social management capacity of program agencies through (a) providing ToRs for Environmental and Social Cells in various agencies and hiring competent staff, (b) guiding the preparation of the Environmental Guidance in the POM, setting up systems and procedures for screening, monitoring, and reporting on environmental and social effects under the Program; (c) developing ToRs for annual third-party environmental audit to track the overall performance of the Program on environmental risks management; and (d) providing guidance for the awareness and competence building on environmental and social issues at all levels. In addition, actions were proposed in the PAP for strengthening the environmental and social systems such as adding procedural steps on environmental and social screening, ESMP preparation, environmental and social monitoring, and conduction of audits.



ANNEX 6. PROGRAM ACTION PLAN

Action Description	Source	DLI #	Responsibility	Timing		Completion Measurement
Issue Government Order to operationalize the Program	Other	NA	Government of Tamil Nadu	Other	Within four months from effectiveness of the Loan Agreement	Government of Tamil Nadu issues GO which covers the scope, results areas and DLIs, implementation arrangements, budgets, fund flow arrangements of the Program and adoption of Program Operations Manual.
ULBs implementing 24x7 water supply and sewerage subprojects issue tariff by-laws that require volumetric tariffs for water supply and user charges for sewerage services	Technical	NA	ULBs	Other	Within two years from Effectiveness date	ULBs implementing 24x7 water supply and sewerage subprojects issue legally binding notification which sets out volumetric tariffs for water supply and at least a flat monthly charge for sewerage services
Screen and assess environmental impacts of Program activities, implement Environmental and Social Management Plan (ESMP) guided by environmental and social sections of the POM, with monitoring linked to Tamil Nadu Urban Tree Information System	Environmental and Social Systems	NA	TNUIFSL and DMA	Other	Environmental and Social Guidance Sections prepared and agreed as part of POM within four months from effectiveness, and followed for all Program activities	Confirmation by Annual Environmental and Social Audits that all Program activities follow the systems developed in ESSA



Develop environmental management capacities at Program agencies including trainings and guidance to support prevention of Manual Scavenging	Environmental and Social Systems	NA	DMA, TNUIFSL and ULBs	Other	Develop within two years after the effectiveness of the Loan Agreement and continued throughout Program implementation	Confirmation on environmental management capacities, and support activities (referring to ESSA) as part of Annual Environmental Audits
Develop and implement a comprehensive Stakeholder Engagement Strategy and Action Plan	Environmental and Social Systems	NA	TNUIFSL and DMA	Other	Developed within six months from effectiveness; implementation throughout Program duration	Action plan for improving marginalized population's (including women's) access to grievance redressal system and getting citizen feedback, and communication activities on metering, tariffs, sewerage connection and emergency response are implemented.
Strengthen staffing and fiduciary capacity of the implementing agencies	Fiduciary Systems	NA	DMA and TNUIFSL	Other	Within six months from effectiveness	Staff appointed and trained (as detailed in the POM).
Appoint external auditor for the Program	Fiduciary Systems	NA	DMA and TNUIFSL	Other	Within six months from effectiveness and periods as per the IFSA	Appoint an auditor to conduct annual Program audit and submit separate reports for financial management and procurement to the Bank
Establish a complaint handling mechanism at implementing agencies to handle	Fiduciary Systems	NA	DMA/TNUIFSL in coordination with ULBs	Other	Within three months from effectiveness	Functional complaint handling mechanism established and contact of nodal



Program related fiduciary complaints					and semi-annually	officer displayed on the official website for receiving complaints. Semi-annual reports using the formats provided in the POM submitted.
Establish water and wastewater quality surveillance program and disclose results	Technical	NA	ULBs	Other	Within three years of Program implementation	ULBs have established the surveillance program for city-wide sampling, testing and disclosure of water quality and wastewater influent and effluent quality as per applicable norms, and disclose results on a quarterly basis (see POM for details).
Strengthen procurement and contract management by (a) integrating the Procurement Plan for the Program to MIS; and (b) developing Standard Tender Documents and guidance for the Program	Fiduciary Systems	NA	DMA	Other	(a) Within a year from effectiveness and disclose procurement information annually; (b) within six months from effectiveness and update periodically.	(a) PP is integrated with MIS and monitored through KPIs (see IFSA). Procurement information and contract award details are disclosed; (b) STDs are developed and adopted for the Program's procurement; detailed guidance is included as an annex in POM.
Ensure bid documents and contracts have adequate resources provisioned for	Environmental and Social Systems	NA	ULBs, TNUISL and DMA	Other	Before signing of contracts; implementation throughout	Bid documents and contracts have adequate resources provisioned for management of the



management of the social risks identified in the Detailed Project Reports					Program duration	social risks identified in the DPRs; Contractors' responsibilities on management of social risks and impacts are rigorously monitored by IAs.
Ensure all Detailed Project Reports identify and address social risks and all activities that involve compulsory land acquisition/involuntary resettlement are excluded from the Program	Environmental and Social Systems	NA	ULBs, TNUIFSL and DMA	Other	Before DPRs are finalized and approved	All DPRs have identified social risks using the screening checklist provided in the ESSA and addressed the identified social risks. All activities that involve compulsory land acquisition/involuntary resettlement have been excluded from the Program.