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R97-18
4 September 2018

Proposed Multitranche Financing Facility, Technical Assistance Grant, and Administration of Grant Tamil Nadu Urban Flagship Investment Program (India)

1. The Report and Recommendation of the President (RRP: IND 49107-003) on the proposed multitranche financing facility, technical assistance grant, and administration of grant to India for the Tamil Nadu Urban Flagship Investment Program is circulated herewith.
2. This Report and Recommendation should be read with *Country Partnership Strategy: India, 2018–2022—Accelerating Inclusive Economic Transformation and Revision 1*, which were circulated to the Board on 6 September 2017 and 6 October 2017, respectively (DOCS.Sec.M18-17 and Revision 1).

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Report and Recommendation of the President to the Board of Directors

Project Number: 49107-003
September 2018

Proposed Multitranche Financing Facility, Technical Assistance Grant, and Administration of Grant India: Tamil Nadu Urban Flagship Investment Program

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 06 August 2018)

Currency unit	–	Indian rupee (₹)
₹1.00	=	\$0.01459
\$1.00	=	₹68.5220

ABBREVIATIONS

ADB	–	Asian Development Bank
CMA	–	Commissionerate of Municipal Administration
CMWSSB	–	Chennai Metropolitan Water Supply and Sewerage Board
DMA	–	district metered area
FAM	–	facility administration manual
km	–	kilometer
kW	–	kilowatt
MAWS	–	Municipal Administration and Water Supply Department
MFF	–	multitranches financing facility
MLD	–	million liters per day
NRW	–	nonrevenue water
O&M	–	operation and maintenance
PIU	–	program implementation unit
PMU	–	program management unit
STP	–	sewage treatment plant
TA	–	technical assistance
TNUIFSL	–	Tamil Nadu Urban Infrastructure Financial Services Limited
ULB	–	urban local body

NOTE

In this report, “\$” refers to United States dollars.

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INVESTMENT PROGRAM^a AT A GLANCE

1. Basic Data		Project Number: 49107-003		
Project Name	Tamil Nadu Urban Flagship Investment Program	Department /Division	SARD/SAUW	
Country	India	Executing Agency	Municipal Administration and Water Supply Department through Tamil Nadu Urban Infrastructure Financial Services Ltd.	
Borrower	Government of India			
2. Sector	Subsector(s)	ADB Financing (\$ million)		
✓ Water and other urban infrastructure and services	Urban policy, institutional and capacity development		35.00	
	Urban sewerage		265.85	
	Urban water supply		199.15	
		Total	500.00	
3. Strategic Agenda	Subcomponents	Climate Change Information		
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	CO ₂ reduction (tons per annum)	3,400	
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Medium	
	Urban environmental improvement	ADB Financing		
		Adaptation (\$ million)	31.82	
		Mitigation (\$ million)	98.57	
4. Drivers of Change	Components	Gender Equity and Mainstreaming		
Governance and capacity development (GCD)	Institutional development	Effective gender mainstreaming (EGM)	✓	
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas			
Partnerships (PAR)	Civil society organizations Implementation			
5. Poverty and SDG Targeting		Location Impact		
Geographic Targeting	No	Urban	High	
Household Targeting	No			
SDG Targeting	Yes			
SDG Goals	SDG6, SDG13			
6. Risk Categorization:	Complex			
7. Safeguards Categorization [Tranche 1]	Environment: B Involuntary Resettlement: B Indigenous Peoples: C			
8. Financing				
Modality and Sources	Indicative Tranches (\$million)			Amount (\$million)
	I	II	III	
ADB				500.00
Sovereign MFF-Tranche (Regular Loan): Ordinary capital resources	169.00	253.00	78.00	500.00
Cofinancing				2.00
Asian Clean Energy Fund under the Clean Energy Financing Partnership Facility - MFF-Tranche (Grant) (Full ADB Administration)	2.00	0.00	0.00	2.00
Counterpart				766.40
Government	306.50	407.70	52.20	766.40
Total	477.50	660.70	130.20	1,268.40

Note: Tranche 1 - An attached technical assistance will be financed on a grant basis by the Technical Assistance Special Fund (TASF-OTHERS) in the amount of \$1,000,000

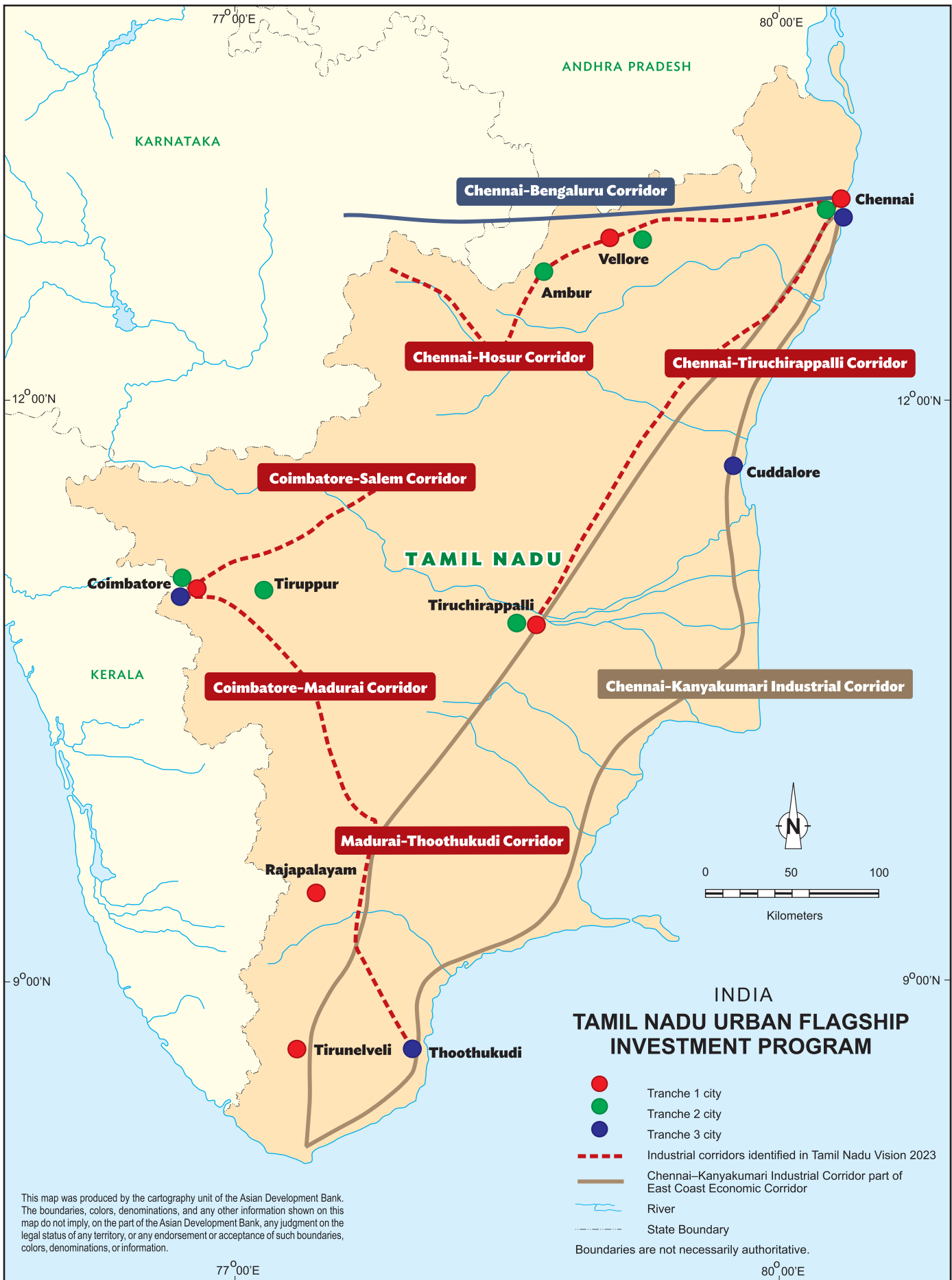
INVESTMENT PROGRAM^a AT A GLANCE

9. Country Operations Business Plan		
CPS	https://www.adb.org/documents/india-country-partnership-strategy-2018-2022	
COBP	https://www.adb.org/documents/india-country-operations-business-plan-2018-2020	
10. Investment Program Summary		
<p>The program will develop priority water supply, sewerage, and drainage infrastructure in at least 10 cities located within strategic industrial corridors of Tamil Nadu. It will support innovative pilots, including India's first solar-powered sewage treatment plant (STP) to offset greenhouse gas emissions and enhance operational efficiency; strengthen urban governance; and build capacity of state and local institutions to enhance urban service delivery, environmental sustainability, and climate resilience.</p> <p>Impact: (i) Universal access to basic water and sanitation services achieved (Tamil Nadu Vision 2023); (ii) "World-class" cities and industrial corridors across the state developed (Tamil Nadu Vision 2023); and (iii) Water security, reduced vulnerability to climate change in urban areas, and enhanced share of renewable energy achieved (Tamil Nadu Sustainable Water Security Mission, State Action Plan on Climate Change)</p> <p>Outcome: Livability and climate resilience in at least 10 cities in priority industrial corridors enhanced.</p> <p>Outputs: (i) Climate-resilient sewage collection and treatment, and drainage systems developed in at least eight cities, (ii) Water supply systems in at least five cities improved with smart features, and (iii) Institutional capacity, public awareness, and urban governance strengthened</p> <p>Implementation Arrangements: Municipal Administration and Water Supply Department through Tamil Nadu Urban Infrastructure Financial Services Ltd. will be the executing agency. Urban local bodies will be the implementing agencies for works in cities, with technical support from the Tamil Nadu Water and Drainage Board. In Chennai, the Chennai Metropolitan Water Supply and Sewerage Board will be the implementing agency. The Commissionerate of Municipal Administration will be the implementing agency for the institutional and governance component.</p> <p>Project Readiness: Advance procurement actions commenced to kick-start implementation. The government prepared detailed project feasibility reports and bidding documents from its own resources with technical support from ADB PPTA consultants for quality control and value addition.</p>		
11. Milestones		
Modality	Estimated Approval	Estimated Completion^b
Multitranche financing facility	25 September 2018	31 December 2026
Tranche I	4 October 2018	31 December 2023
Tranche II	15 July 2019	31 December 2026
Tranche III	18 March 2022	31 December 2026
12. Project Data Sheet (PDS)		
PDS^c	http://www.adb.org/projects/49107-003/main	

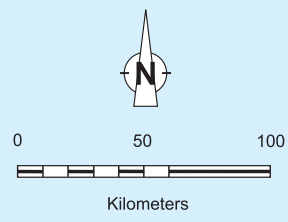
^a Multitranche Financing Facility (MFF).

^b For MFF, this refers to the end of the availability period; for tranches, this refers to the tranche closing date.

^c Safeguard documents can be viewed by clicking the Document's hyperlink in the Project Data Sheet (PDS) page.



This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.



I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed multitranche financing facility (MFF) to India for the Tamil Nadu Urban Flagship Investment Program. The report also describes (i) proposed technical assistance (TA) for Strengthening Institutional Capacity for Project Development and Urban Governance in Tamil Nadu, and (ii) the proposed administration of a grant to be provided by the Asian Clean Energy Fund under the Clean Energy Financing Partnership Facility;¹ and if the Board approves the proposed MFF, I, acting under the authority delegated to me by the Board, approve the TA and the administration of the grant.

2. The program will develop priority water supply, sewerage, and drainage infrastructure in at least 10 cities in strategic industrial corridors in Tamil Nadu.² It will (i) support innovative pilot projects, including India's first solar-powered sewage treatment plant (STP) to offset greenhouse gas emissions and enhance operational efficiency; (ii) strengthen urban governance; and (iii) build capacity of state and local institutions to enhance urban service delivery, environmental sustainability, and climate resilience.³

II. RATIONALE

3. **Urban challenges.** Tamil Nadu is the most urbanized of India's large states—48.5% of its population lives in urban areas, a share that is projected to increase to 67.0% in 2030—and makes the second-largest contribution to the country's gross domestic product. Although Tamil Nadu is a leader in many areas of manufacturing, managing its rapid urbanization is essential to sustain economic growth, alleviate poverty, and maintain urban livability. Key challenges include (i) acute infrastructure deficits as a result of rapid urbanization; (ii) growth of slum populations; (iii) pollution of waterways; (iv) weak institutional capacity to plan and implement projects; and (v) mixed performance in key areas of governance, including local revenue generation, financial management, and municipal administration. Water-related disasters—such as recurring droughts (once in every 2.5 years) and catastrophic urban floods linked to climate change—are aggravated by the high water losses associated with aging distribution networks, and inadequate drainage systems not adapted to heavier monsoon rains. Addressing these complex challenges requires significant investments and deeper institutional support.

4. **Low levels of urban services.** In Tamil Nadu, urban service levels remain low. As of 2017: (i) 48% of households are served by piped water; (ii) 80% of cities receive less than 80 liters of water per capita per day versus the national standard of 135 liters per capita per day; (iii) nonrevenue water (NRW) is 30%–50%; (iv) 42% of households are covered by a sewerage network; (v) wastewater treatment capacity is 43% of sewage generation; and (vi) urban drainage coverage is 50%.⁴ Low service levels are primarily the result of inadequate local finances to invest in capital expenditures and a shortage of trained staff. The program will directly support improvement in these areas.

¹ Established by the Government of Japan. ADB secured approval of the Asian Clean Energy Fund grant outside the MFF and will disburse the funding concurrently with Tranche 1.

² The project will include the following city corporations and municipalities (collectively referred to as cities): Ambur, Chennai, Coimbatore, Cuddalore, Rajapalayam, Thoothukudi, Tiruppur, Tiruchirappalli, Tirunelveli, and Vellore. The cities were selected based on population size, location in economic corridors, and eligibility for central government funds (para. 7). Other cities eligible for support under the program are subject to compliance with selection criteria outlined in the Framework Financing Agreement (accessible from the list of linked documents in Appendix 2).

³ ADB. 2015. *Technical Assistance to India for State-Level Support for National Flagship Urban Programs*. Manila.

⁴ Government of Tamil Nadu. 2017. *State Annual Action Plan, 2017–2020*. Chennai.

5. **Road map.** To address the challenges of rapid urbanization, the state aims to (i) provide universal access to water and sanitation, (ii) develop “world-class” cities, (iii) establish high-performing industrial corridors, and (iv) promote climate-resilient urban development.⁵ Tamil Nadu’s strategic documents outline programs that support capacity building; enable access to infrastructure development funds; and employ green technologies, such as solar power, to achieve sector goals.⁶ Vision Tamil Nadu 2023 estimated an urban investment requirement of \$42.7 billion, including \$7.5 billion for water supply and sanitation, prioritizing continuous and full coverage of services. The State Annual Action Plan, 2017–2020 (footnote 4) identified 136 projects in 27 cities covering water supply, sewerage, and drainage infrastructure.

6. **Policy framework.** The Municipal Administration and Water Supply Department (MAWS) (the state-level agency for urban development in Tamil Nadu) established the Commissionerate of Municipal Administration (CMA) to (i) support urban local bodies (ULBs) (municipalities) plan infrastructure to meet national service-level standards; and (ii) advance urban reforms set forth in India’s Constitution (Seventy-fourth Amendment) Act, 1992, focusing on the devolution of service delivery and revenue generation to ULBs. However, to improve the financial and governance performance of ULBs, the state needs to strengthen CMA’s capacity to support ULBs and monitor urban reforms, particularly in areas of revenue generation, financial management, operation and maintenance (O&M), and the introduction of innovative approaches in the sector.

7. **National urban flagship programs.** Tamil Nadu will access funds from three national urban flagship programs under the Ministry of Housing and Urban Affairs: (i) the Swachh Bharat Mission for Urban Areas, (ii) the Atal Mission for Rejuvenation and Urban Transformation, and (iii) the Smart Cities Mission. The programs are complementary. However, given the large investment requirements of Tamil Nadu, additional funds are required, and the state requested ADB for TA and financial assistance to help achieve its urban sector goals (para. 5).

8. **Strategic context.** The program aligns with ADB’s country partnership strategy, 2018–2022 for India, particularly the three growth pillars linked to India’s urban transformation;⁷ and is included in ADB’s country operations business plan, 2018–2020.⁸ It supports the development of the Chennai–Kanyakumari Industrial Corridor and the second phase of the East Coast Economic Corridor, India’s first coastal economic corridor implemented by the state in partnership with ADB to link Tamil Nadu’s manufacturing sector with global value chains in East and Southeast Asia.⁹ The project will enhance basic services of major cities within economic corridors to meet worker’s quality-of-life needs, as well as provide industry with a reliable source of treated and reusable wastewater for production demands. The program supports synergies with proposed ADB energy and transport projects in Tamil Nadu for industrial corridor development (footnote 8).

⁵ Vision Tamil Nadu 2023 defines “world-class” cities as those that are free from garbage and open defecation and whose infrastructure is upgraded with continuous water supply access, and efficient mass transit and sanitation systems. (Government of Tamil Nadu. 2012. *Vision Tamil Nadu 2023: Strategic Plan for Infrastructure Development in Tamil Nadu*. Chennai). Vision Tamil Nadu 2023 lists five priority industrial corridors: Chennai–Hosur, Chennai–Tiruchirappalli, Coimbatore–Madurai, Coimbatore–Salem, and Madurai–Thoothukudi.

⁶ Government of Tamil Nadu. 2012. *Twelfth Five Year Plan Tamil Nadu, 2012–2017*. Chennai; *State Annual Action Plan, 2017–2020* (footnote 4); Vision Tamil Nadu 2023 (footnote 5); and Government of Tamil Nadu. 2014. *State Action Plan on Climate Change: Towards Balanced Growth and Resilience*. Chennai.

⁷ ADB. 2017. *Country Partnership Strategy: India, 2018–2022—Accelerating Inclusive Economic Transformation*. Manila. The growth pillars are (i) boosting competitiveness of cities in economic corridors, (ii) providing inclusive infrastructure and services, and (iii) increasing climate change resilience.

⁸ ADB. 2017. *Country Operations Business Plan: India, 2018–2020*. Manila.

⁹ ADB. 2017. *Technical Assistance to India for Supporting the Preparation of a Comprehensive Master Plan for the Chennai–Kanyakumari Industrial Corridor*. Manila; and S. Mitra et al. 2017. *Scaling New Heights: Vizag-Chennai Industrial Corridor: India’s First Coastal Corridor*. Manila. ADB.

9. **Value added by ADB assistance.** The investment program uses innovative approaches and builds on lessons from past urban projects by (i) ensuring all water supply and sewerage contracts include household service connections to ensure immediate use of new facilities;¹⁰ (ii) applying new technologies for smart cities—such as India’s first solar-powered STP, online automatic water meters, and supervisory control and data acquisition systems for real-time monitoring—to address water management challenges; (iii) expanding recycling of treated wastewater for industrial reuse;¹¹ (iv) employing extended O&M contracts for smooth start-up of STPs; and (v) aligning urban investments to support strategic industrial corridor development.¹² It will also integrate findings of ongoing ADB knowledge-related technical assistance in areas of climate resilience and smart water management into project designs of future tranches.¹³

III. THE INVESTMENT PROGRAM

A. Impact and Outcome

10. The investment program is aligned with the following impacts: (i) universal access to basic water and sanitation services achieved; (ii) “world-class” cities and industrial corridors across the state developed; and (iii) water security, reduced vulnerability to climate change in urban areas, and enhanced share of renewable energy achieved.¹⁴ The investment program will have the following outcome: livability and climate resilience in at least 10 cities in priority industrial corridors enhanced.

B. Outputs

11. **Output 1: Climate-resilient sewage collection and treatment, and drainage systems developed in at least eight cities.** This includes (i) 187 million liters per day (MLD) of new and 155 MLD of rehabilitated sewage treatment capacity developed, with solar power systems installed for STP operations on a pilot basis; (ii) treated wastewater reused for industrial purposes in selected areas; (iii) 2,810 kilometers (km) of sewage collection pipelines constructed, with 426,600 households connected; (iv) 173 sewage pump stations with a combined capacity of 6,390 kilowatts (kW) constructed; (v) 20 all-female community water and sanitation committees formed; and (vi) climate-resilient drainage and flood management systems (250 km of tertiary and 50 km of primary and secondary drains) established in selected cities.¹⁵

12. **Output 2: Water supply systems in at least five cities improved with smart features.** This includes (i) smart water supply distribution systems (1,520 km pipelines) established within 110 new district metered areas (DMAs) to reduce NRW and provide regular water supply, with 100% of households (total of 171,000) connected; (ii) 120 km of transmission mains built; (iii) 30

¹⁰ Slow connectivity was a key reason behind the *less than successful* rating of some ADB urban projects (Independent Evaluation Department. 2017. *Country Assistance Program Evaluation: India, 2007–2015*. Manila: ADB). This is a new approach for Tamil Nadu.

¹¹ ADB. 2013. *Technical Assistance for Supporting the Cities Development Initiative for Asia*. Manila. The TA will conduct a market study for industrial reuse of treated municipal wastewater in Tamil Nadu.

¹² ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranchise Financing Facility, Policy-Based Loan, Technical Assistance Grant, and Administration of Grant India: Visakhapatnam–Chennai Industrial Corridor Development Program*. Manila.

¹³ ADB. 2015. *Technical Assistance for Promoting Smart Drinking Water Management in South Asian Cities*. Manila; and ADB. 2016. *Technical Assistance for Strengthening Smart Water Management and Urban Climate Change Resilience in Tamil Nadu* (Subproject 1). Manila.

¹⁴ The design and monitoring framework for the Investment Program is in Appendix 1.

¹⁵ The eight cities are Ambur, Chennai, Coimbatore, Rajapalayam, Tiruchirappalli, Tirunelveli, Tirupur, and Vellore. Drainage systems are proposed in Chennai, Cuddalore, and Thoothukudi. Investment planning is based on demand for services and absorptive capacity of cities.

pump stations (1,530 kW capacity) constructed; and (iv) 40 water storage reservoirs (combined capacity of 70 million liters), covering Chennai, Coimbatore, Cuddalore, Tiruppur, and Thoothukudi constructed.

13. Output 3: Institutional capacity, public awareness, and urban governance strengthened. This includes (i) establishing within CMA (a) a new state-level urban data and governance improvement cell, and (b) a new project design and management center; and (ii) implementing (a) state-wide performance-based urban governance improvement program for Tamil Nadu's 135 cities to improve revenue, financial management, administration, service delivery, gender mainstreaming, wastewater reuse, and fecal sludge management; and (b) public awareness campaigns on water conservation, sanitation, and hygiene in project cities. The program will intensify the capacity building of key urban institutions and provide incentives for urban governance improvement. Project design consultants will be recruited by the PMU to prepare new projects in subsequent tranches that meet ADB requirements.

14. Use of multitranche financing facility. To achieve the outcome, the outputs are best financed by an MFF.¹⁶

- (i) The program involves a series of clearly identified large-scale urban investments of similar nature (paras. 11–13) in different locations with no significant impacts on the environment, resettlement, or indigenous people. No Category A safeguards projects will be included in the MFF. The state is committed to implementing the program following its urban sector road map.
- (ii) The executing and implementing agencies have strong track records in managing large development partner-funded projects and safeguards.¹⁷ Tranches are sequenced based on the readiness and absorptive capacity of cities for large investments.¹⁸ Tranches are mutually dependent in design (e.g., networks and treatment), governance improvement, and capacity building.
- (iii) The MFF will facilitate deeper policy dialogue and capacity building in areas of climate change resilience, financial sustainability, and urban governance (para. 6), which are critical areas where ADB can add value, and which require long-term commitments and an extended implementation period. There are no foreseeable risks to the continuity of policy dialogue under the program.

15. Scope of Tranche 1. Tranche 1 is representative of MFF investments and will support Chennai, Coimbatore, Rajapalayam, Tiruchirappalli, Tirunelveli, and Vellore.

16. Output 1: Climate-resilient sewage collection and treatment, and drainage systems developed in six cities. This includes (i) five new STPs with a combined treatment capacity of 165 MLD constructed, including one STP with a 2-megawatt solar photovoltaic system installed to power its operations; (ii) one STP (37 MLD capacity) rehabilitated; (iii) 8,000 cubic meters treated wastewater reused per day; (iv) 1,860 km of new sewage collection pipelines constructed, with 100% households connected (297,547 households); (v) 124 pump/lift stations (combined capacity of 4,473 kW) constructed; and (vi) 12 all-female community water and sanitation committees formed. The breakdown by city is: (i) new Tirunelveli—sewage collection system and 32 MLD STP (to supply treated wastewater for industrial reuse) constructed;¹⁹ (ii) new Coimbatore

¹⁶ Comparison of Financing Modality (accessible from the list of linked documents in Appendix 2).

¹⁷ Development Coordination (accessible from the list of linked documents in Appendix 2).

¹⁸ An indicative procurement plan for all three tranches is included in the Facility Administration Manual (accessible from the list of linked documents in Appendix 2). Subprojects must comply with selection criteria outlined in the framework financing agreement (accessible from the list of linked documents in Appendix 2).

¹⁹ Tirunelveli signed a purchase agreement for treated effluent from the proposed STP with an adjoining industrial park.

sewage collection system and 30 MLD STP, with a 2-megawatt solar photovoltaic system, constructed;²⁰ (iii) new Tiruchirappalli—sewage collection system with 30 MLD STP constructed and existing 37 MLD STP rehabilitated; (iv) new Vellore—sewage collection system and 50 MLD STP constructed; (v) new Chennai—sewage collection systems constructed in four areas in Chennai; and (vi) new Rajapalayam sewage collection system and 21 MLD STP constructed. In addition, in each city, two all-female community water and sanitation committees will be formed.

17. **Output 2: Water supply systems in one city improved with smart features.** Four areas in Chennai will have (i) 275 km of distribution pipelines constructed, with 100% metered connections (30,800 households) in 20 newly established DMAs to manage and reduce NRW;²¹ (ii) 11 km of new transmission pipes constructed; (iii) nine new storage reservoirs (four underground and five overhead) of combined capacity of 11 million liters constructed; and (iv) five pump stations (combined capacity of 230 kW) constructed.

18. **Output 3: Institutional capacity, public awareness, and urban governance strengthened.** This includes (i) establishing within CMA (a) a new state-level urban data and governance improvement cell, (b) a new project design and management center, and (c) a state-wide performance-based urban governance improvement program implemented for all 135 cities to improve financial management (audited accounts), municipal revenues (taxes and user fees), municipal administration (filling vacancies), and gender mainstreaming (gender action plan);²² and (ii) public awareness campaigns on water conservation, sanitation, and hygiene implemented. Governance improvement and awareness consultants will support output 3.

C. Summary Cost Estimates and Financing Plan

19. The investment program is estimated to cost \$1,268.4 million, including taxes and duties, physical and price contingencies, interest, and other charges during implementation (Table 1).

Table 1: Summary Cost Estimates
(\$ million)

Item	Amount ^a			
	Tranche 1	Tranche 2	Tranche 3	Total
A. Base Cost^b				
1. Climate-resilient sewage collection and treatment, and drainage systems developed in at least eight cities	361.9	306.9	74.9	743.7
2. Water supply systems in at least five cities improved with smart features	28.6	209.8	28.2	266.6
3. Institutional capacity, public awareness, and urban governance strengthened	28.7	42.2	3.5	74.4
Subtotal (A)	419.2	558.9	106.6	1,084.7
B. Contingencies^c	44.1	80.4	17.8	142.3
C. Financing Charges^d	14.2	21.4	5.8	41.4
Total (A+B+C)	477.5	660.7	130.2	1,268.4

^a Includes taxes and duties of \$102.4 million to be financed from government resources by cash contribution. Such amount does not represent an excessive share of the investment program cost.

^b In early 2018 prices using an exchange rate of \$1.00 = ₹64.30.

^c Physical contingencies are computed at 5.0% for civil works and equipment. Price contingencies are computed at 1.5%–1.6% on foreign exchange costs and 4.5%–4.6% on local currency costs; includes provision for potential

²⁰ This pilot project will (i) establish the first solar-powered STP in India; (ii) produce 90% of the STP's energy requirement; (iii) reduce 72% of annual energy charges; and (iv) avoid 3,400 tons of carbon dioxide equivalent of emissions per year.

²¹ Smart water features in Tranche 1 include online automatic pressure sensors and flow meters, 100% household metered connections using DMA-based distribution management, and energy-efficient water pumps.

²² Details are in the Facility Administration Manual and Attached Technical Assistance Report (accessible from the list of linked documents in Appendix 2).

exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for the ordinary capital resources (OCR) loan has been computed at the 5-year United States dollar fixed swap rate plus a spread of 0.5% and a maturity premium of 0.2%. Commitment charges for the OCR loan are 0.15% per year to be charged on the undisbursed loan amount. Source: Asian Development Bank.

20. **Financing plan.** The government has requested an MFF in an amount of up to \$500 million from ADB's ordinary capital resources to help finance a part of the investment program. The MFF will consist of three tranches, subject to the government's submission of related periodic financing requests, execution of the related loan and project agreements for each tranche, and fulfillment of terms and conditions and undertakings set forth in the framework financing agreement.²³ Cofinancing on a collaborative basis will be explored.²⁴ The first tranche of the MFF will comprise a regular loan of \$169 million with a 25-year term, including a grace period of 5 years; 10% annuity repayment method, an annual interest rate determined in accordance with the ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year; a maturity premium of 0.2%; and such other terms and conditions set forth in the loan and project agreements.²⁵ The Asian Clean Energy Fund (footnote 1) under the Clean Energy Financing Partnership Facility will provide grant cofinancing equivalent to \$2 million to be administered by ADB. The Tamil Nadu state government, the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), and project ULBs will contribute \$766.4 million to finance taxes and duties, road restoration, land acquisition and resettlement, incremental administration costs, contingencies, financing charges during implementation, and part of the works and equipment. The financing plan is in Table 2.

Table 2: Summary Financing Plan
(\$ million)

Source	Tranche (estimated year of PFR submission)				Share of Total (%)
	1 (2018)	2 (2019)	3 (2022)	Total	
Asian Development Bank					
Ordinary capital resources (regular loan)	169.0	253.0	78.0	500.0	39.4
Asian Clean Energy Fund ^a under the Clean Energy Financing Partnership Facility	2.0			2.0	0.2
Government of Tamil Nadu, CMWSSB, ULBs	306.5	407.7	52.2	766.4	60.4
Total	477.5	660.7	130.2	1,268.4	100.0

CMWSSB = Chennai Metropolitan Water Supply and Sewerage Board, PFR = periodic financing request, ULB = urban local body.

^a Established by the Government of Japan and administered by the Asian Development Bank. The Government of Japan approved the grant amount on 21 May 2018.

Source: Asian Development Bank estimates.

21. **Climate finance.** Climate mitigation is estimated to cost \$225.04 million and climate adaptation is estimated to cost \$71.82 million. ADB will finance 43.8% of the mitigation cost and 44.3% of the adaptation costs under Tranche 1.²⁶ Key climate change measures include the use of renewable solar energy for STP operations, greenhouse gas capture through new sewerage systems, water conservation through NRW management in water scarce areas, and raised elevation of critical infrastructure considering high flood levels.

²³ Framework Financing Agreement (accessible from the list of linked documents in Appendix 2).

²⁴ ADB initiated constructive discussions with the Japan International Cooperation Agency, German Development Cooperation through KfW, and the World Bank, which currently implement urban projects in similar areas in Tamil Nadu. ADB will continue to explore parallel collaborative cofinancing in future tranches of \$194 million from the Japan International Cooperation Agency, \$100 million from KfW, and \$197 million from the World Bank.

²⁵ A maturity-based premium of 0.2% per annum payable to ADB is based on the loan term and the government's repayment method.

²⁶ Climate Risk Assessment and Management Report (accessible from the list of linked documents in Appendix 2).

D. Implementation Arrangements

22. The MAWS, acting through Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), is the executing agency and will establish a program management unit (PMU).²⁷ ULBs will be the implementing agencies for the subprojects and will establish program implementation units (PIUs).²⁸ CMWSSB will be the implementing agency for water and sewerage works in Chennai, while CMA will be the implementing agency for output 3. The investment program implementation arrangements are summarized in Table 3 and described in detail, including specific arrangements for Tranche 1, in the facility administration manual (FAM).²⁹

Table 3: Implementation Arrangements

Aspects	Arrangements
MFF availability period	30 September 2018–30 June 2026 (MFF); 30 September 2018–30 June 2023 (Tranche 1)
Estimated loan closing date	31 December 2026 (MFF); 31 December 2023 (Tranche 1)
Estimated grant closing date	31 December 2021
Management	
(i) Oversight body	Program steering committee Chair: principal secretary, MAWS Members: heads of CMA, CMWSSB, TNUIFSL, TUFIDCO, TWAD, and other invited agencies such as the Department of Finance and Department of Planning
(ii) Executing agency	MAWS through TNUIFSL
(iii) Key implementing agencies	ULBs, CMWSSB, CMA, TWAD
(iv) Implementation unit	Program management unit in TNUIFSL: 10 staff Program implementation units in CMA, CMWSSB, TWAD, and ULBs: 5 staff each
Procurement	Tranche 1 will procure 2 contracts (\$122.49 million) under international competitive bidding, 13 contracts (\$211.43 million) under national competitive bidding, and 2 contracts (\$0.1 million) under shopping. The subsequent projects will have similar composition of contract packages.
Consulting services	Tranche 1 will engage 2,462 person-months (\$14.72 million) to be selected through quality- and cost-based selection, and 48 person-months (\$0.70 million) to be selected through individual consultant selection. Subsequent projects will have similar requirements for consulting services. Outline terms of references included in the facility administration manual.
Retroactive financing and/or advance contracting	TNUIFSL requested advance contracting for works and consultants. Retroactive financing will be up to 20% of the ADB loan amount for eligible expenditures incurred no more than 12 months before signing of the loan agreement.
Disbursement ^a	Each of the loan proceeds will be disbursed following ADB's <i>Loan Disbursement Handbook</i> (2017, as amended from time to time) and detailed arrangements agreed between the government and ADB.

ADB = Asian Development Bank, CMA = Commissionerate of Municipal Administration, CMWSSB = Chennai Metropolitan Water Supply and Sewerage Board, MAWS = Municipal Administration and Water Supply Department, MFF = multitranche financing facility, TNUIFSL = Tamil Nadu Urban Infrastructure Financial Services Limited, TUFIDCO = Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited, TWAD = Tamil Nadu Water Supply and Drainage Board, ULB = urban local body.

^a MAWS through TNUIFSL will fully comply with relevant ADB guidelines. Details in the Facility Administration Manual. Source: Asian Development Bank.

IV. ATTACHED TECHNICAL ASSISTANCE

23. The TA for Strengthening Institutional Capacity for Project Development and Urban Governance in Tamil Nadu is estimated to cost \$1.1 million, of which \$1.0 million will be financed

²⁷ TNUIFSL is a fund manager on behalf of the state and serves as the PMU for externally-funded urban projects.

²⁸ In the case of Ambur, Coimbatore, Cuddalore, and Rajapalayam, the Tamil Nadu Water and Drainage Board, a state-level agency with strong engineering capability in local and regional offices, will establish PIUs to support implementation. ULBs will provide counterpart staff to coordinate project activities.

²⁹ Facility Administration Manual (accessible from the list of linked documents in Appendix 2).

on a grant basis by ADB's Technical Assistance Special Fund (TASF-Others).³⁰ The TA has two outputs: (i) capacity of CMA to support ULBs in preparing and scaling up urban infrastructure projects in Tamil Nadu strengthened, and (ii) capacity of CMA to implement urban governance improvement programs strengthened. The TA will strengthen the capacity of the new project design and management center in CMA to support ULBs in preparing project proposals and applying innovative approaches in the sector. It will also strengthen the capacity of CMA to apply best practices in urban governance improvement programs. The government will provide counterpart support in the form of staff, office space, and other in-kind contributions. CMA will be the implementing agency for the TA from September 2018 to December 2020.

V. DUE DILIGENCE

A. Technical

24. ADB conducted technical due diligence of Tranche 1 to ensure subprojects designs are robust, including a comprehensive review of feasibility studies, engineering designs, cost estimates, and site investigations. ADB appraised subprojects based on (i) rationale and relevance, benefits, and ease of implementation and operations; (ii) technical alternatives and their viability, including STP technology and NRW management; (iii) life cycle costs, including capital and operating costs; and achievable cost savings through energy efficiency, renewable energy, and climate-resilient measures; (iv) maximizing beneficiary area coverage including the poor; (v) minimizing adverse environmental and social impacts; and (vi) optimizing implementation timelines through high project readiness. In all subprojects with existing facilities, ADB assessed the viability of the facilities and, where possible, incorporated them into the new systems through renovation and expansion.

B. Economic and Financial

25. **Economic analysis.** The economic rationale for government intervention is sound. Tranche 1 aims to provide stronger and more sustainable water supply and sewerage services in six project cities. The estimated economic internal rates of return of the seven subprojects under Tranche 1 are 10.6%–15.3%, while the combined economic internal rate of return was about 12.2%, higher than the economic opportunity cost of capital of about 9.0%, indicating significant economic returns. The sensitivity analysis also revealed the results are satisfactory, except under a scenario in which all downside risks are combined, i.e., (i) a 20% capital cost overrun, (ii) a 20% O&M cost overrun, (iii) a 20% decline in estimated benefits, and (iv) a 1-year delay in implementation. Tranche 1 is likely to be economically more viable because of unquantifiable benefits not reflected in the analysis, such as environmental improvements and increased property values.

26. **Financial analysis.** ADB conducted a financial analysis for the subprojects under Tranche 1 to ensure their sustainability and to determine whether revenues generated will cover O&M costs. The financial analysis indicates all Tranche 1 subprojects would generate sufficient revenues to cover full O&M costs, provided CMWSSB and the project ULBs implement regular tariff revisions. The financial performance, at the entity level, of CMWSSB and project ULBs indicated they all depend substantially on state grants. The financial projections for CMWSSB and project ULBs demonstrate that the revenue account will remain in surplus given (i) tariff rationalization, (ii) improved collection efficiency, and (iii) continued government support.

³⁰ Attached Technical Assistance Report (accessible from the list of linked documents in Appendix 2).

C. Governance

27. **Financial management.** A financial management assessment concluded that the executing and implementing agencies can undertake the financial management of ADB-financed projects.³¹ TNUIFSL has extensive experience in handling large-scale development partner-supported projects with substantial value. In addition, TNUIFSL, CMWSSB, and project ULBs have an established legal, institutional, and monitoring framework for budgeting, accounting, and auditing. The overall risk assessment for the investment program is *moderate*. The risk mitigation measures include (i) extending full training and capacity building support to enhance the financial management capacity of TNUIFSL, CMWSSB, and project ULBs; (ii) obtaining the state's commitment that it will set up the PMU and PIUs in a timely manner, with qualified staff; and (iii) effectively implementing the systematic plans by CMWSSB and project ULBs to enhance revenues and reduce costs.

28. **Procurement.** Procurement of civil works and goods including consulting services will follow ADB's Procurement Guidelines (2015, as amended from time to time).³² The procurement of consultants will follow ADB's Guidelines on the use of Consultants (2013, as amended from time to time). A procurement capacity assessment concluded that the overall procurement risk for the project is *moderate*. TNUIFSL has extensive experience in development partner-supported procurement of large works and will provide advisory support to CMA and ULBs.

29. **Anticorruption.** ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and TNUIFSL. The specific policy requirements and supplementary measures are described in the FAM. Based on the risk assessments, some of the mitigation measures incorporated in the program design aim to (i) establish a mechanism for regular voluntary disclosure of relevant information; (ii) develop and update a website to enhance transparency in project implementation, procurement, and safeguards; and (iii) establish a grievance redress mechanism to ensure effective resolution of any grievances.

D. Poverty, Social, and Gender

30. In Tamil Nadu, nearly 13% of the population lives in urban poverty, and rapid urbanization is accelerating the growth of urban slums. The program will indirectly contribute to poverty reduction in urban areas and to achievement of Sustainable Development Goal 6, which supports access to clean water and sanitation for all. Pro-poor designs include (i) providing water and sanitation services to slums; (ii) conducting awareness campaigns in poor communities in areas of water conservation, health, sanitation, and women's safety; and (iii) providing skills training to poor project-affected persons.

31. **Gender.** Tranche 1 is classified *effective gender mainstreaming*. Gender design features include (i) increasing women's access to safe water and sanitation, especially in poor areas; (ii) promoting the participation of women from poor urban communities and increasing representation of women in decision-making bodies; (iii) gender-related capacity building for project stakeholders; (iv) promoting equitable access to project employment opportunities; and (v) providing equal opportunity employment across positions in ULBs. ADB prepared a gender action

³¹ Financial Management Assessment (accessible from the list of linked documents in Appendix 2).

³² The concept paper was approved in December 2015 prior to the cut-off date (1 July 2017) for the new Procurement Policy (2017).

plan, and a community awareness and participation plan.³³ CMA and ULBs will implement pro-poor and gender activities with support from consultants.

E. Safeguards

32. In compliance with ADB’s Safeguard Policy Statement (2009), the safeguard categories of Tranche 1 are as follows.³⁴

33. **Environment (category B).** Initial environmental examinations were prepared by the implementing agencies for all Tranche 1 subprojects, which showed no significant environmental impacts. The anticipated impacts are temporary and will be avoided or minimized through proven mitigation measures and engineering-construction practices, as outlined in the environmental management plans. In Vellore and Tiruchirappalli, potentially significant impacts from works occurring within the regulated areas of the protected monuments of the Archaeological Society of India will be avoided by (i) consulting with and obtaining permission from the Archaeological Society of India, and (ii) appointing an archaeological expert to assess impacts and supervise construction.

34. **Involuntary resettlement (category B).** The implementing agencies prepared resettlement plans for all subprojects to assess and adequately address (i) potential temporary loss of income for street vendors on proposed pipe alignments; and (ii) permanent impacts in the Vellore sewerage subproject, including 100% structure loss leading to relocation of 87 vulnerable affected persons in 22 households. No private land acquisition is required for Tranche 1.

35. **Indigenous peoples (category C).** There are no indigenous people communities present at or around subproject sites under Tranche 1.

36. The mitigation measures outlined in the safeguard documents adequately address the assessed impacts. Tranche 1 and the MFF, as per the selection criteria, will not include *Category A* subprojects, and safeguard frameworks will guide subproject preparation.³⁵ The implementing agencies conducted public consultations and safeguard documents are disclosed on the ADB and project websites. A grievance redress mechanism will address issues in a timely and effective manner. TNUIFSL has sufficient capacity to monitor safeguards based on its experience in managing development partner-funded urban projects and will submit semiannual safeguard monitoring reports to ADB. Consultants will assist the PIUs in monitoring safeguards compliance.

F. Summary of Risk Assessment and Risk Management Plan

37. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.³⁶ The integrated benefits and impacts are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigation Measures
Water shortages from intensified droughts linked to climate change which exceed	The program includes climate change adaptation measures to reduce water loss, monitor consumption, reuse treated wastewater, and raise

³³ Gender Action Plan (accessible from the list of linked documents in Appendix 2).
³⁴ ADB. Safeguards Categories: <https://www.adb.org/site/safeguards/safeguard-categories>.
³⁵ Safeguard documents (accessible from the list of linked documents in Appendix 2).
³⁶ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Risks	Mitigation Measures
projections lead to poor performance of water and sewerage facilities.	public awareness on water conservation. Tamil Nadu is also implementing projects to augment water supply in program cities.
Political pressure prevents regular revision or collection of water and sewerage tariffs, constraining the sustainability of services.	Project ULBs and CMWSSB agreed, through the onlending agreements with TNUIFSL, to rationalize water and sewage tariffs, including specific plans for tariff increases over the project implementation period to achieve sustainability. The Government of Tamil Nadu will continue gap funding to sustain O&M where shortfalls exist. The governance improvement program under output 3 incentivizes the collection of sewerage user fees.
Competing priorities within ULBs and staff turnover hinder participation in capacity building.	The performance-based urban governance improvement program under output 3 incentivizes and rewards ULBs willing to improve capacity and governance.
Weak ULB capacity for advanced sewage treatment plant technology O&M.	Sewage treatment plant contracts include a 10-year O&M period.
Construction delays from heavy monsoons that exceed projections and sudden price surges of materials result in cost overruns and delays in work completion.	High project readiness and a sufficient implementation period will mitigate monsoon-related delays. Sufficient contingency is built into the budget to cover unexpected cost overruns.

CMWSSB = Chennai Metropolitan Water Supply and Sewerage Board, O&M = operation and maintenance, TNUIFSL = Tamil Nadu Urban Infrastructure Financial Services Limited, ULB = urban local body.
Source: Asian Development Bank.

VI. ASSURANCES

38. The national and state governments and TNUIFSL have assured ADB that implementation of the investment program shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the FAM and loan documents.

39. The national and state governments and TNUIFSL have given ADB certain undertakings for the MFF, which are set forth in the framework financing agreement. Specific covenants agreed by the national and state governments and TNUIFSL with respect to individual tranches under the MFF are set forth in the loan agreement and project agreement for the respective tranches.

VII. RECOMMENDATION

40. I am satisfied that the proposed multitranche financing facility would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the multitranche financing facility to India for the Tamil Nadu Urban Flagship Investment Program in an aggregate principal amount not exceeding the equivalent of \$500,000,000, which comprises the provision of loans from ADB's ordinary capital resources, in regular terms, with interest and other terms to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; and is subject to such other terms and conditions as are substantially in accordance with those set forth in the framework financing agreement presented to the Board.

Takehiko Nakao
President

3 September 2018

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>2. Water supply systems in at least five cities improved with smart features⁹</p> <p>3. Institutional capacity, public awareness, and urban governance strengthened</p>	<p>1d. 173 sewage pump stations with combined capacity of 6,390 kilowatts added (2017 baseline: 0)</p> <p>1e. 250 km of new tertiary and 50 km of primary and secondary stormwater drains constructed and improved with climate-resilient designs (2017 baseline: 0)</p> <p>1f. 20 all-female community-based organizations trained as water and sanitation committees and 100% participants reporting improved knowledge of benefits of sewage collection systems and household connections (2017 baseline: 0)</p> <p>By June 2026</p> <p>2a. 1,520 km new water distribution pipelines commissioned within 110 new DMAs and metered connections provided to 171,000 households (100% households including poor and women-headed households in coverage area) (2017 baseline: 0)</p> <p>2b. 30 new pump stations with combined capacity of 1,530 kilowatts installed, and 120 km of new transmission mains constructed (2017 baseline: 0)</p> <p>2c. 40 new reservoirs with combined capacity of 70 million liters constructed (2017 baseline: 0)</p> <p>2d. At least 80% technical staff from each implementing agency in four cities reported improved knowledge and/or skills in NRW reduction as a result of training, with 75% participation of women technical staff (2017 baseline: 0)</p> <p>3a. By 2026, 1,000 school students, teachers, and administrators (at least 50% women); and 30 women SHGs reported improved awareness on water conservation and hygiene (2017 baseline: 0)</p> <p>3b. By 2023, PDMC established in CMA (2017 baseline: not established)</p> <p>3c. By 2020,^h at least 80% of technical staff in PDMC (75% participation of female technical staff) trained in the design and implementation of urban infrastructure projects reported improved knowledge and/or skills (2017 baseline: 0)</p> <p>3d. By 2020, project design and implementation manuals for urban service delivery, with applicable standards for PDMC, developed (2017 baseline: 0)</p> <p>3e. By 2023, new database for at least 10 project cities established at urban data and governance improvement cell, with sex-disaggregated data where applicable (2017 baseline: 0)</p> <p>3f. By 2026, 10 CMA and 100 ULB staff (including 100% of eligible women staff) reported knowledge on approaches to integrating gender and social inclusion in urban governance, implementing gender action plans, and monitoring and reporting on gender equality results (2017 baseline: 0)</p>	<p>1f. Post-training surveys</p> <p>2a–d. ULB records and program quarterly progress reports</p> <p>3a. Post-awareness campaign sample survey</p> <p>3b–f. MAWS Annual Policy Note, and program quarterly progress reports</p>	<p>the work completion.</p> <p>Competing priorities within ULBs and staff turnover hinder participation in capacity building</p>

Key Activities with Milestones**1. Climate-resilient sewage collection and treatment, and drainage systems developed in at least eight cities**

- 1.1 Award all sewerage contracts in Tranche 1 by December 2018, complete all civil works in Tranche 1 by April 2023, and conduct user satisfaction surveys in April 2023
- 1.2 Award all sewerage contracts in Tranche 2 in April 2019, complete all civil works in Tranches 2 and 3 by April 2026, and conduct user satisfaction surveys in April 2026
- 1.3 Award all sewerage contracts in Tranche 3 in April 2022

2. Water supply systems in at least five cities improved with smart features

- 2.1 Award all water supply contracts in Tranche 1 by December 2018, complete all civil works in Tranche 1 by April 2023, and conduct user satisfaction surveys in April 2023
- 2.2 Award all water supply contracts in Tranche 2 in April 2019, complete all civil works in Tranches 2 and 3 by April 2026, and conduct user satisfaction surveys in April 2026
- 2.3 Award all water supply contracts in Tranche 3 in April 2022

3. Institutional capacity, public awareness, and urban governance strengthened

- 3.1 Mobilize urban governance and awareness consultants by December 2018
- 3.2 Evaluate reform indicators and decide on incentives annually through September 2026

Inputs

Asian Development Bank:

\$500 million (regular OCR loan)

\$1 million (technical assistance)

Asian Clean Energy Fund under the Clean Energy Financing Partnership Facility: \$2 million (grant)

Government: \$766.4 million

CMA = Commissionerate of Municipal Administration, DMA = district metered area, km = kilometer, MAWS = Municipal Administration and Water Supply Department, MLD = million liters per day, NRW = nonrevenue water, OCR = ordinary capital resources, PDMC = project design and management center, SHG = self-help group, STP = sewage treatment plant, ULB = urban local body.

- ^a Government of Tamil Nadu. 2012. *Vision Tamil Nadu 2023: Strategic Plan for Infrastructure Development in Tamil Nadu*. Chennai. Vision Tamil Nadu 2023 defines “world-class” cities as those that are free from garbage and open defecation and whose infrastructure is upgraded with continuous (24/7) water supply access, and efficient mass transit and sanitation systems.
- ^b Government of Tamil Nadu. 2015. *Tamil Nadu Sustainable Water Security Mission*. Chennai; and Government of Tamil Nadu. 2014. *State Action Plan on Climate Change: Towards Balanced Growth and Resilience*. Chennai.
- ^c The city corporations and municipalities (collectively referred to as cities) are Ambur, Chennai, Coimbatore, Cuddalore, Rajapalayam, Thoothukudi, Tiruchirappalli, Tirunelveli, Tiruppur, and Vellore. Other cities eligible for support under the MFF are subject to compliance with selection criteria outlined in the framework financing agreement (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).
- ^d Based on output target 1c, 100% of households is 426,600.
- ^e The eight cities are Ambur, Chennai, Coimbatore, Rajapalayam, Tiruppur, Tiruchirappalli, Tirunelveli, and Vellore. Drainage systems are proposed in Chennai, Cuddalore, and Thoothukudi.
- ^f “Poor” is defined as those households classified by the state as below the poverty line (BPL).
- ^g The five cities are Chennai, Coimbatore (bulk water), Cuddalore, Tiruppur, and Thoothukudi.
- ^h Activities for completion by December 2020 are linked to the attached technical assistance.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=49107-003-3>

1. Loan Agreement
2. Grant Agreement
3. Project Agreement
4. Framework Financing Agreement
5. Periodic Financing Request for Tranche 1
6. Sector Assessment (Summary): Water and other Urban Infrastructure and Services
7. Facility Administration Manual
8. Contribution to the ADB Results Framework
9. Development Coordination
10. Attached Technical Assistance Report
11. Financial Analysis
12. Economic Analysis
13. Country Economic Indicators
14. Summary Poverty Reduction and Social Strategy
15. Gender Action Plan
16. Initial Environmental Examination: Providing Comprehensive Sewerage Scheme in Chennai
17. Initial Environmental Examination: Providing Comprehensive Water Supply Scheme in Chennai City
18. Initial Environmental Examination: Coimbatore Underground Sewerage System
19. Initial Environmental Examination: Underground Sewerage System for Rajapalayam Municipality in Virudhunagar District Rajapalayam
20. Initial Environmental Examination: Tiruchirappalli Underground Sewerage System
21. Initial Environmental Examination: Underground Sewerage System for Municipal Area on the West of Tamirabarani River in Tirunelveli
22. Initial Environmental Examination: Underground Sewerage System for Municipal Area on the East of Tamirabarani River in Tirunelveli
23. Initial Environmental Examination: Underground Sewerage System for Phase II of Vellore City
24. Environmental Assessment and Review Framework
25. Resettlement Plan: Chennai Underground Sewerage System
26. Resettlement Plan: Providing Comprehensive Water Supply Scheme to Jalladampettai, Madipakkam, Mathur and Uthandi
27. Resettlement Plan: Coimbatore Underground Sewerage System
28. Resettlement Plan: Rajapalayam Underground Sewerage System
29. Resettlement Plan: Tiruchirappalli Underground Sewerage System
30. Resettlement Plan: Tirunelveli Underground Sewerage System (Phase II)
31. Resettlement Plan: Tirunelveli Underground Sewerage System (Phase III)
32. Resettlement Plan: Vellore Underground Sewerage System
33. Resettlement Framework
34. Indigenous Peoples Planning Framework
35. Risk Assessment and Risk Management Plan
36. Climate Risk Assessment and Management Report

Supplementary Documents

37. Asian Clean Energy Fund Application
38. Comparison of Financing Modalities
39. Financial Management Assessment
40. Urban Governance Assessment
41. Institutional Assessment
42. Community Awareness and Participation Plan