



Periodic Financing Request Report

PUBLIC

Project Number: 49107-010
MFF Number: 0105
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India: Tamil Nadu Urban Flagship Investment Program (Tranche 3)

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CURRENCY EQUIVALENTS

(as of 5 July 2022)

Currency unit	–	Indian rupee (₹)
₹1.00	=	\$78.92
\$1.00	=	₹0.01

ABBREVIATIONS

ADB	–	Asian Development Bank
COVID-19	–	coronavirus disease
DMA	–	Directorate of Municipal Administration
EMP	–	environmental management plan
FFA	–	framework financing agreement
GOTN	–	Government of Tamil Nadu
IEE	–	initial environmental examination
km	–	kilometer
kW	–	kilowatt
MAWS	–	Municipal Administration and Water Supply Department
MLD	–	million liters per day
MFF	–	multitranchise financing facility
O&M	–	operation and maintenance
PAM	–	project administration manual
PIU	–	program implementation unit
RRP	–	report and recommendation of the President to the Board of Directors
STP	–	sewage treatment plant
TA	–	technical assistance
TNUIFSL	–	Tamil Nadu Urban Infrastructure Financial Services Limited
ULB	–	urban local body

NOTES

- (i) The fiscal year (FY) of the Government of India ends on 31 March. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2022 ended on 31 March 2022.
- (ii) In this report, “\$” refers to United States dollars.

Vice-President	Shixin Chen, Operations 1
Director General	Kenichi Yokoyama, South Asia Department (SARD)
Deputy Director General	Manmohan Parkash, SARD
Director	Norio Saito, Urban Development and Water Division (SAUW), SARD
Team leaders	Sourav Majumder, Senior Project Officer (Urban), India Resident Mission (INRM), SARD
Team members	Hikaru Shoji, Senior Urban Development Specialist, SAUW, SARD
	Deepa Ahluwalia, Senior Social Development Officer (Gender), INRM, SARD
	Achyutha Rao Aleti, Environment Specialist, SAUW, SARD
	Mikael Anderson; Financial Management Specialist; Portfolio, Results and Quality Control Unit, Office of the Director General; SARD
	Saswati Belliappa, Senior Safeguards Specialist, SAUW, SARD
	Dharmesh Dawda; Senior Procurement Specialist; Procurement Division 1; Procurement, Portfolio and Financial Management Department
	Jade Marie Dumaguing, Associate Project Analyst, SAUW, SARD
	Jogendra Ghimire, Principal Counsel, Office of the General Counsel
	Jaemin Nam, Senior Urban Development Specialist, SAUW, SARD
	Amrit Ajay Sharma, Project Analyst, INRM, SARD
	Maria Angelica Zosa, Senior Operations Assistant, SAUW, SARD
Peer reviewer	Ramola Naik Singru, Principal Urban Development Specialist, Urban Development and Water Division, Central and West Asia Department

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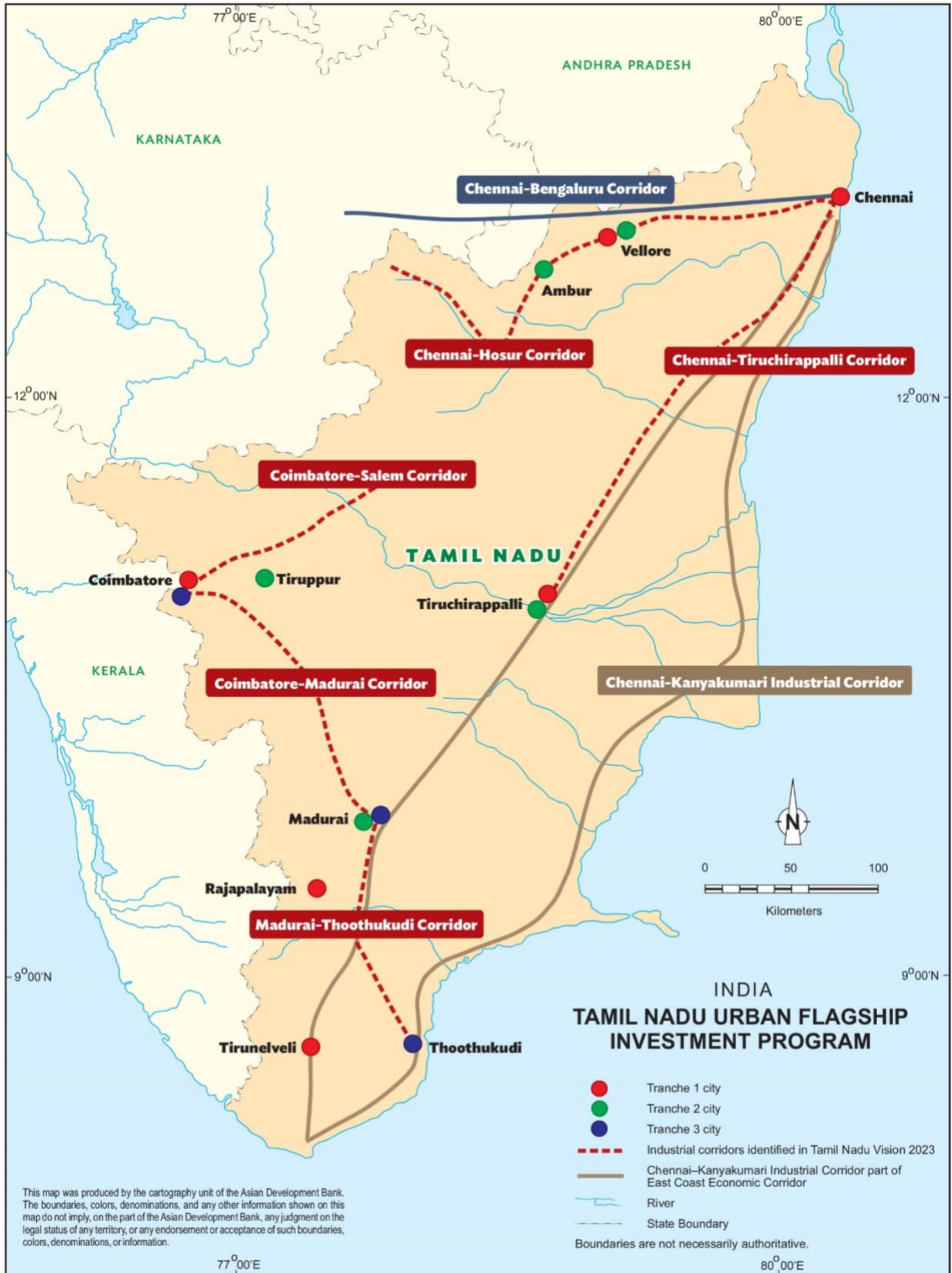
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TRANCHE AT A GLANCE

1. Basic Data		Project Number: 49107-010	
Project Name	Tamil Nadu Urban Flagship Investment Program Tranche 3	Department/Division	SARD/SAUW
Country	India	Executing Agency	Municipal Administration and Water Supply Dep't, Tamil Nadu Urban Infrastructure Financial Services Ltd.
Borrower	India		
Country Economic Indicators	https://www.adb.org/Documents/LinkedDocs/?id=49107-010-CEI		
Portfolio at a Glance	https://www.adb.org/Documents/LinkedDocs/?id=49107-010-PortAtaGlance		
2. Sector		ADB Financing (\$ million)	
✓ Water and other urban infrastructure and services	Urban flood protection		8.900
	Urban sewerage		80.500
	Urban water supply		35.600
		Total	125.000
3. Operational Priorities		Climate Change Information	
✓ OP2: Accelerating progress in gender equality		GHG reductions (tons per annum)	10,178
✓ OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		Climate Change impact on the Project	Medium
✓ OP4: Making cities more livable			
		ADB Financing	
		Adaptation (\$ million)	32.750
		Mitigation (\$ million)	31.320
		Cofinancing	
		Adaptation (\$ million)	0.000
		Mitigation (\$ million)	0.000
Sustainable Development Goals		Gender Equity and Mainstreaming	
SDG 5.5		Effective gender mainstreaming (EGM)	✓
SDG 6.1, 6.2, 6.3			
SDG 11.1, 11.5, 11.b			
SDG 13.a			
4. Risk Categorization: Low		Poverty Targeting	
		General Intervention on Poverty	✓
5. Safeguard Categorization Environment: B Involuntary Resettlement: B Indigenous Peoples: C			
6. Financing			
Modality and Sources		Amount (\$ million)	
ADB		125.000	
Sovereign MFF-Tranche (Regular Loan): Ordinary capital resources		125.000	
Cofinancing		0.000	
None		0.000	
Counterpart		68.500	
Government		68.500	
		Total	193.500
Currency of ADB Financing: US Dollar			

MAP



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. BACKGROUND

1. **Multitranches financing facility.** On 25 September 2018, the Asian Development Bank (ADB) approved a multitranches financing facility (MFF) for the Tamil Nadu Urban Flagship Investment Program for an amount not exceeding \$500 million with an end date of 30 June 2026.¹ The aim is to build priority water supply, sewerage, and drainage infrastructure in strategic industrial corridors in India's southern state of Tamil Nadu. The Municipal Administration and Water Supply Department (MAWS), acting through Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), is the executing agency. The implementing agencies are urban local bodies (ULBs), the Chennai Metropolitan Water Supply and Sewerage Board, the Commissionerate of Municipal Administration, and the Tamil Nadu Water Supply and Drainage Board. The MFF serves to address or support the following:

- (i) **Rapid urbanization.** Tamil Nadu is the most urbanized of India's large states: 49% of its inhabitants live in urban areas, and this is projected to increase to 67% by 2030.² The MFF will help tackle key urbanization challenges such as (a) acute infrastructure deficits and low service levels, (b) water scarcity from recurring droughts linked to climate change, (c) environmental pollution, (d) weak capacity of ULBs to undertake operation and maintenance (O&M), (e) inadequate tariff revisions, and (f) weak governance.
- (ii) **Low urban service levels.** As of 2017, Tamil Nadu's cities had (a) 48% of households served by piped water, (b) 20% of households with more than 80 liters of water per capita per day compared with a national standard of 135 liters per capita per day, (c) 30% to 50% nonrevenue water, (d) 42% of households covered by a sewerage network, (e) wastewater treatment capacity at 43% of sewage generation, and (f) 50% urban drainage coverage.³
- (iii) **Road map.** The Government of Tamil Nadu defined seven areas for making cities more livable: (a) mobilize finance for urban infrastructure, (b) provide universal access to water and sanitation services, (c) accelerate green technologies, (d) ensure climate resilience, (e) advance municipal reforms, (f) provide capacity building, and (g) support industrial corridors (footnote 2).
- (iv) **Investment program.** Vision Tamil Nadu 2023 estimated urban investment at \$42.70 billion, with short-term needs at \$4.46 billion.⁴ Given the large requirement, the state government requested ADB to support part of the \$1.268 billion investment under the MFF.
- (v) **Policy framework.** The mandate of the Directorate of Municipal Administration (DMA) is to (a) help ULBs plan infrastructure to meet national service-level standards; and (b) advance urban reforms outlined in India's Constitution (Seventy-fourth Amendment) Act, 1992, focusing mostly on the devolution of urban services and revenue generation to ULBs. The MFF supports these goals with investments, performance-based grants for governance improvement, and institutional capacity building through technical assistance (TA).

2. **Value added by ADB.** The program takes innovative approaches and builds on lessons

¹ ADB. 2018. [*Report and Recommendations \(RRP\) of the President to the Board of Directors: Proposed Multitranches Financing Facility, Technical Assistance \(TA\) Grant, and Administration of Grant, India: Tamil Nadu Urban Flagship Investment Program*](#). Manila.

² Government of Tamil Nadu (GOTN). 2012. *Twelfth Five-Year Plan Tamil Nadu, 2012–2017*. Chennai; GOTN. 2017. *Tamil Nadu State Annual Action Plan (2017–2020)*. Chennai; GOTN. 2012. *Vision Tamil Nadu 2023: Strategic Plan for Infrastructure Development in Tamil Nadu*. Chennai; and GOTN. 2014. *State Action Plan on Climate Change: Towards Balanced Growth and Resilience*. Chennai.

³ GOTN. 2017. *State Annual Action Plan, 2017–2020*. Chennai.

⁴ GOTN. 2012. *Tamil Nadu Vision 2023: Strategic Plan for Infrastructure Development in Tamil Nadu*. Chennai.

from past urban projects by (i) including household service connections in water supply and sewerage contracts to ensure immediate use of new facilities;⁵ (ii) deploying new technologies such as solar-powered sewage treatment plant (STP), automatic water meters, and supervisory control and data acquisition systems for real-time monitoring; (iii) reusing treated wastewater for industrial purposes; (iv) using extended O&M services in works contracts for a smooth startup; and (v) aligning urban investments to support strategic industrial corridor development.⁶

3. **Tranches.** Three tranches are sequenced based on readiness, absorptive capacity, and logical progression of investments. The MFF amount converted to loans is \$375.0 million (75%) through the first periodic financing request of \$169.0 million approved on 28 September 2018 and the second periodic financing request of \$206.0 million approved on 26 November 2019.⁷ Project 1 is supporting six cities (Chennai, Coimbatore, Rajapalayam, Tiruchirappalli, Tirunelveli, and Vellore); capacity development of the DMA and ULBs; and improvement in urban governance and financial management in all 135 ULBs. The \$1.0 million transactional TA approved in 2018 is strengthening the capacity of the DMA to better support ULBs in preparing urban infrastructure projects and implementing urban governance improvement programs.⁸ Project 2 is supporting five cities (Ambur, Madurai, Tiruchirappalli, Tiruppur, and Vellore) and facilitates reforms for better service delivery and innovation in the program ULBs (footnote 7). ADB received a periodic financing request for the third and last tranche under the MFF from the Government of India on 22 June 2022 for a loan amount of \$125 million.

II. ASSESSMENT OF MULTITRANCHE FINANCING FACILITY IMPLEMENTATION

4. **Progress on road map.** Tamil Nadu's budget for fiscal year FY2022–2023 continues to prioritize investments to improve urban services that help realize livable cities. Of the estimated urban infrastructure investment of ₹2,750.00 billion required to achieve the aspiration of Tamil Nadu Vision 2023 (footnote 4), ₹233.78 billion was approved for water supply, sanitation, housing, and urban development—an increase of 18% on the revised FY2021–2022 budget estimate and of 95% on the actual FY2020–2021 budget.⁹ Tamil Nadu remains committed to establishing high-performing industrial corridors, a key feature of the road map, to increase manufacturing's share of gross state domestic product from 17% in 2010 to 22% by 2023. The state demonstrated progress in improving financial sustainability with several initiatives to enhance ULB revenues, including increased property tax collection and user charges. The MFF also helps strengthen the revenue base through a performance-based incentive grant under projects 1 and 2, payable for an increase in household water supply and underground drainage connections and for better efficiency in collecting underground drainage user charges and professional taxes.

5. **Improvements in policy framework.** No change was made to the policy framework that would negatively affect the viability or sustainability of the investment program. The latest MAWS Policy Note (2022–2023) continues to prioritize urban sector investments while ensuring sustainability through more financing for O&M, which is in line with Vision Tamil Nadu 2023 to "promote and facilitate the development of inclusive and sustainable cities."¹⁰

⁵ 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.)

⁶ ADB. 2016. [RRP: Proposed Multitranche Financing Facility, Policy-Based Loan, TA Grant, and Administration of Grant, India: Visakhapatnam–Chennai Industrial Corridor Development Program](#). Manila.

⁷ ADB. 2019. [Periodic Financing Request Report: India: Tamil Nadu Urban Flagship Investment Program \(Tranche 2\)](#). Manila.

⁸ ADB. 2018. [Technical Assistance to India for Strengthening Institutional Capacity for Project Development and Urban Governance in Tamil Nadu](#). Manila.

⁹ GOTN, Finance Department. 2022. *Annual Financial Statement 2022–2023*. Chennai.

¹⁰ GOTN. 2022. *Municipal Administration and Water Supply Department Policy Note 2022–2023*. Chennai.

6. **Progress of investment program.** The 2021 MFF rating and Project 1 rating are *on track*, while Project 2 is *for attention* as of the second quarter of 2022 mainly because of delays caused by the coronavirus disease (COVID-19) pandemic. Project 1 is progressing with (i) contract award of \$149.2 million (88.0%), (ii) disbursement of \$65.6 million (38.8%), and (iii) overall physical progress of 65% against 75% time elapsed. Project 2 is progressing with (i) contract award of \$182.6 million (88.6%), (ii) disbursement of \$69.9 million (33.9%), and (iii) overall physical progress of 55% against 43% time elapsed.¹¹ The startup of the urban governance improvement component (output 3) was severely affected by the COVID-19 pandemic. Nonetheless, it is now on track, and a performance-based incentive grant of \$2.2 million was paid from Project 1 for achieving the targets of preparing audited accounts on time, timely resolution of audit objections, and filling key staff positions in ULBs for the 2018–2019 and 2019–2020 performance years.

7. **Progress of grant and technical assistance.** The \$2 million Asian Clean Energy Fund grant will be used to develop a solar facility for the Coimbatore STP. The works are ongoing and are expected to be completed by December 2022. The \$1 million TA grant (Technical Assistance Special Fund [TASF]-other sources), which is expected to close by the end of 2022, will strengthen the capacity of the DMA and ULBs to improve urban governance and service delivery (footnote 8). A consulting firm is on board and is building the capacity of the newly established Project Management and Design Center within DMA.

8. **Satisfactory compliance with undertakings and loan covenants.** The loan agreement for Project 1 was signed on 16 November 2018. Out of the 23 covenants under Project 1, (i) 20 are either complied with or being complied with, (ii) 2 are not yet due, and (iii) 1 was delayed by the COVID-19 pandemic. The delayed covenant—the approval and implementation of plans for revenue enhancement and cost reduction by ULBs—will be complied with before the closure of Project 1. For Project 2, the loan agreement was signed on 2 December 2019. Of the 23 covenants under Project 2, (i) 21 are being complied with, including those related to audits, financial sustainability, implementation arrangements, subproject selection criteria, counterpart funds, project accounts, procurement, anticorruption measures, reporting, and safeguards; and (ii) 2 are not yet due. ADB is closely monitoring compliance. All undertakings of the framework financing agreement (FFA) (footnote 1) are being complied with, including the state’s commitment to implementing the Program. The executing agency also demonstrated the capacity and commitment to comply with ADB safeguard requirements. The grievance redress system and gender action plans are being implemented adequately.

III. PERIODIC FINANCING REQUEST

A. Impact and Outcome

9. The impact, outcome, and output statements are aligned with those of earlier projects and that of the MFF. Project 3 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 and reduced vulnerability to climate change in urban areas achieved.¹² Project 3 will have the following outcome: livability and climate resilience in selected cities in priority industrial corridors enhanced.¹³

¹¹ The figures are as of 14 October 2022. The baseline disbursement projections for Project 2 will be updated following the midterm review planned for the first quarter of 2023, which would result in an *on track* rating of the projects.

¹² Footnote 4; GOTN. 2015. *Tamil Nadu Sustainable Water Security Mission*. Chennai; and GOTN. 2014. *State Action Plan on Climate Change: Towards Balanced Growth and Resilience*. Chennai.

¹³ The design and monitoring framework is in Appendix 1.

B. Outputs

10. **Output 1: Climate-resilient sewage collection and treatment, and drainage systems developed in two cities.** Sewerage works in Coimbatore include the construction of (i) 2 STPs with a combined treatment capacity of 34.92 million liters per day (MLD)—zone 5: 15.43 MLD; zone 7: 19.49 MLD; (ii) 529 kilometers (km) of sewage collection pipelines—zone 5: 230.2 km; zone 7: 298.9 km—with 100% of the 67,545 households connected (zone 5: 24,969; zone 7: 42,576); (iii) 14 pump and lift stations with a combined capacity of 348 kilowatts (kW) (zone 5: 9 and 108 kW; zone 7: 5 and 240 kW); and (iv) 14 km of sewage pumping mains (zone 5: 9.8 km; zone 7: 4.4 km). Climate-resilient stormwater drainage systems (36 km of tertiary drains and enhancement of an existing stormwater pump station) will be established in Thoothukudi. In Coimbatore and Madurai, two all-female self-help groups (one in each city) will be trained on the benefits of household connection to the sewage collection system, water conservation, sanitation, health and hygiene, and in areas of leadership.

11. **Output 2: Water supply system in one city improved with smart features.** Works in Madurai include the (i) commissioning of 813 km of new distribution pipelines, with 100% of the 163,958 households connected to 115 newly established district metered areas with smart water features to reduce nonrevenue water; and (ii) construction of 15 inline booster pumps (combined capacity of 70 kW).

12. **Output 3: Institutional capacity, public awareness, and urban governance strengthened.** This output includes targets to raise the awareness of students, teachers, and women’s groups about water conservation and hygiene, and develop the capacity of stakeholders for gender mainstreaming in urban governance. The governance improvement and awareness consultants engaged under Project 1 for the program will continue to support output 3.

13. Lessons, successful replicable elements, and innovative features are embedded in the project design. The water supply subproject in Madurai will introduce district metered areas and smart features to manage nonrevenue water. The sewerage and water supply subprojects will incorporate household connections to ensure that project benefits accrue at the onset of the commissioning. Works contracts under these subprojects will include operation services to capitalize on the knowledge of private operators, ensure capacity development of ULBs before the takeover of the assets, and nurture a culture of service-level accountability. Access to water and sanitation services is key in combating health risks such as the COVID-19 pandemic. Project 3 will ensure inclusive water and sewerage services in line with ADB guidance.¹⁴ The design of the stormwater drainage subproject in Thoothukudi builds on the study done through ADB TA funded by the Urban Climate Change Resilience Trust Fund and caters to projected increases in rainfall intensity because of climate change.¹⁵ Project 3 is an integral part of ADB’s cross-sector interventions that support comprehensive infrastructure development in the industrial corridors.¹⁶ ADB will also support the government in disseminating experiences gained from this project through appropriate platforms, such as the Capacity Development Resource Center in the ADB India Resident Mission. The effort is expected to facilitate twinning and cross-fertilization among the government officials for future replications of keys to success in other states and

¹⁴ ADB. 2020. [COVID-19 and Livable Cities in Asia and the Pacific Guidance Note](#). Manila; and ADB. 2021. [COVID-19 and Water in Asia and the Pacific Guidance Note](#). Manila.

¹⁵ ADB. 2019. [Strengthening Climate Change Resilience in Urban India - Strengthening Smart Water Management and Urban Climate Change Resilience in Tamil Nadu \[Subproject 1\]: Consultant’s report](#). Manila (TA9129-IND).

¹⁶ ADB. 2019. [RRP: Proposed Loan and TA Grant, India: Chennai–Kanyakumari Industrial Corridor: Power Sector Investment Project](#). Manila; and ADB. 2021. [RRP: Proposed Loan, India: Tamil Nadu Industrial Connectivity Project](#). Manila.

beyond.

C. Summary Cost Estimates and Financing Plan

14. Project 3 is estimated to cost \$193.5 million (Table 1). Detailed cost estimates by expenditure category and by financier are included in the project administration manual (PAM).¹⁷

Table 1: Summary Cost Estimates
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Climate-resilient sewage collection and treatment, drainage systems developed	120.8
2. Water supply system in one city improved with smart features	43.6
3. Institutional capacity, public awareness, and urban governance strengthened	4.0
Subtotal (A)	168.4
B. Contingencies^c	17.6
C. Financial Charges During Implementation^d	7.5
Total (A+B+C)	193.5

^a In mid-2022 prices as of 5 March 2022 using the exchange rate of \$1 = ₹76.4.

^b Includes taxes and duties of \$15.9 million to be financed from government resources by cash contribution.

^c Physical contingencies are computed at 5.0% for civil works and equipment. Price contingencies are computed at an average of 1.7%–1.8% on foreign exchange costs and 4.0%–5.0% on local currency costs and include provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest, commitment, and other charges on all sources of financing.

Source: Asian Development Bank estimates.

15. The government on 22 June 2022 submitted a periodic financing request for the third tranche of the MFF: a regular loan of \$125.0 million with a 25-year term, including a grace period of 5 years, 10.00% annuity repayment method, an interest rate determined in accordance with ADB's Flexible Loan Product, a commitment charge of 0.15% per year, a maturity premium of 0.20%, and such other terms and conditions outlined in the loan and project agreements.¹⁸

16. The summary financing plan is in Table 2. ADB will finance the expenditures in relation to works, equipment, consulting services, and contingencies. The Government of India will relend the ADB loan proceeds to the state government. The state government and project ULBs will contribute \$68.5 million to finance taxes and duties, provisional items, incremental administrative costs, financing charges during implementation, and part of works, equipment, and contingencies.

Table 2: Summary Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (regular loan)	125.0	64.6
Government of Tamil Nadu	68.5	35.4
Total	193.5	100.0

Source: Asian Development Bank estimates.

17. Climate mitigation is estimated to cost \$48.5 million and climate adaptation is estimated to cost \$50.6 million. ADB will finance \$31.3 million (64.6%) of mitigation costs and \$32.7 million (64.7%) of adaptation costs.¹⁹ Details are in the climate change assessment (Appendix 18).

¹⁷ The PAM for Project 3 is in Appendix 4.

¹⁸ Based on the 10% annuity method, the average maturity is 18.31 years, and the maturity premium payable to ADB is 0.2%.

¹⁹ The adaptation contribution includes the conservation of water resources as a result of avoided pollution and physical water losses, less discharge to stormwater drainage, enhanced drainage capacity, and better awareness. The mitigation contribution includes avoided anaerobic reaction at onsite sanitation facilities.

D. Implementation Arrangements

18. The implementation arrangements are summarized in Table 3 and described in detail in the PAM (footnote 17).

Table 3: Implementation Arrangements for Project 3

Aspects	Arrangements		
Implementation period	December 2022–June 2026		
Estimated completion date	June 2026		
Estimated loan closing date	December 2026		
Management			
(i) Oversight body	Program steering committee: Additional Chief Secretary, MAWS (chairperson) DMA, TNUIFSL, and TWAD (members)		
(ii) Executing agency	MAWS through TNUIFSL		
(iii) Key implementing agencies	ULBs (Coimbatore, Madurai, and Thoothukudi city corporations), TWAD (support to Coimbatore City Corporation), and DMA		
(iv) Implementation unit	Program management unit in TNUIFSL, 10 staff Program implementation units in all three ULBs. Coimbatore with the support of TWAD, five staff each		
Procurement	ICB works	2 contracts	\$99.0 million
	NCB works	6 contracts	\$55.0 million
Consulting services	QCBS (90:10)	225 person-months	\$2.3 million
	ICS	100 person-months	\$0.5 million
Retroactive financing and/or advance contracting	Advance contracting is requested for civil 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 the signing of the loan agreement.		
Disbursement	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, DMA = Directorate of Municipal Administration, ICB = international competitive bidding, ICS = individual consultant selection, MAWS = Municipal Administration and Water Supply Department, NCB = national competitive bidding, QCBS = quality and cost-based selection, TNUIFSL = Tamil Nadu Urban Infrastructure Financial Services Limited, TWAD = Tamil Nadu Water Supply and Drainage Board, ULB = urban local body.

Source: Asian Development Bank.

E. Project Readiness

19. Project readiness is on track: (i) out of the three packages that reached the price bid evaluation stage, one package totaling 30% of civil works cost is ready for contract award and the rest are under price negotiations. The total cost of these three packages is about 65% of the project cost, (ii) invitation for bids for one additional package published in June 2022, (iii) publication of invitations for bids for the remaining works packages expected by December 2022, (iv) the program management unit and program implementation units (PIUs) staffed, and (v) all contract management and supervision consultants in place.

IV. DUE DILIGENCE

A. Technical

20. All proposed subprojects are technically robust, based on a review of detailed project studies, cost estimates, and site investigations such as geotechnical surveys. All subprojects were confirmed to be in accordance with schedule 4 of the FFA (footnote 1). The criteria included (i) rationale and relevance, (ii) economic viability and sustainability, (iii) environmental and social safeguard adherence, (iv) beneficiary coverage and social inclusion, (v) climate change

adaptation and mitigation benefits, (vi) project readiness, and (vii) alignment with strategic industrial corridor development.

B. Economic and Financial

21. **Economic analysis.** The economic rationale for a government intervention is sound, as Project 3 aims to improve access to urban infrastructure and services for the urban population of Tamil Nadu. The economic analysis evaluated the economic feasibility of interventions for three subprojects comprising water supply (in Madurai), sewerage (in Coimbatore), and drainage (in Thoothukudi) systems. The results of the economic analysis show that all subprojects are economically viable with a combined economic internal rate of return of 12.8% (13.5% for water supply, 11.3% for sewerage, and 17.0% for drainage), which is higher than the economic opportunity cost of capital, estimated at 9.0%. The sensitivity analysis is also found satisfactory, except under the scenarios of a decrease in benefits of 20% for the sewerage subproject and combined downside risks for all subprojects. Project 3 is expected to further increase its economic viability if unquantifiable benefits such as environmental improvements are included in the analysis. The poverty impact ratio of Project 3 is estimated at 22.4%. Considering that 13.8%–19.0% of the urban population in project ULBs live below the poverty line, Project 3 is expected to contribute considerably to helping the poor.

22. **Financial analysis.** Project 3 comprises both revenue-generating (water supply and sewerage) and nonrevenue (drainage) subprojects. An incremental recurrent cost analysis for revenue-generating subprojects revealed that the revenues from the water supply subproject in Madurai were estimated to cover the full O&M costs during the entire analysis period, while the revenues generated from the sewerage subproject in Coimbatore were estimated to cover the O&M costs only for the first 16 years of the analysis period. A cash-flow analysis of project ULBs for both revenue-generating and nonrevenue subprojects was also conducted to ensure their capacity to absorb incremental recurrent costs from their own revenues. With the current trend of own-source income, and transfers and grants from the state government, Madurai and Coimbatore would be able to operate and maintain Project 3 subprojects, but Thoothukudi would require additional support from the state to meet the expenditure. Hence, the sustainability risk of Project 3 is *substantial* since full O&M cost recovery will be achieved only if project ULBs implement regular tariff revisions, the target collection efficiencies are met, and project ULBs receive additional financial support. The state government is committed to ensuring gap funding for the O&M of subprojects through budgetary allocations to ULBs. Thoothukudi shall prepare a systematic plan to improve its revenue base by (i) implementing property tax revisions ranging from 25% to 75% based on the state government's notification, and (ii) rationalizing user charges and other fees. The 5-year performance-based O&M contract and other reforms built into the MFF will help the project ULBs improve their financial efficiency and sustainability.

C. Governance

23. **Financial management.** A financial management assessment of the executing and implementing agencies was conducted in accordance with ADB guidelines.²⁰ Project 3 will follow the financial management arrangements already established under the program. The assessed pre-mitigation financial management risk is *moderate* mainly because (i) the flow of funds is decentralized, with several implementing agencies incurring expenditures; (ii) accounts staff positions in the Thoothukudi City Municipal Corporation PIU are still vacant, and the corporation accounts staff lack experience in implementing ADB-assisted projects; and (iii) as part of the

²⁰ ADB. 2015. *Financial Management Technical Guidance Note: Financial Management Assessment*.

ongoing projects 1 and 2, the audited project financial statements and audited entity financial statements were submitted to ADB with some delays. These risks will be mitigated by (i) assigning an accounts officer to the Thoothukudi City Municipal Corporation PIU, (ii) providing continuous training in ADB's financial management requirements and disbursement procedures, (iii) including comprehensive financial information in the quarterly project progress reports to be submitted to ADB, and (iv) monitoring closely the submission of audited project and audited entity financial statements to ensure that the reports are submitted to ADB within the agreed deadlines. Also, the project and subproject financial statements will be audited annually by an auditor acceptable to ADB, following auditing standards acceptable to ADB. A detailed financial management action plan with target dates is in the PAM (footnote 17).

24. **Procurement.** All procurement under Project 3 will continue to follow ADB's Procurement Guidelines (2015, as amended from time to time) and its Guidelines on the Use of Consultants (2013, as amended from time to time) as per the FFA. The project enhances value for money by building on experience from the ongoing two tranches. The STP will be procured through the design-build-operate modality. Sewerage network and water distribution packages adopted the employer's design-based construction contract and have an extended operation service period since ULBs are best placed to identify the local needs and ensure links with the existing systems. These procurement modalities will enable private sector participation in service delivery and capacity development of the public sector and ensure economic efficiency through the evaluation of lifecycle costs for the design-build-operate contract, and operation service costs for the works contracts with extended operation services.

25. **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 PAM (footnote 17).

D. Poverty, Social, and Gender

26. **Poverty and social.** The overall urban poverty headcount ratio for Tamil Nadu is 20.3%.²¹ The latest census data (2011) indicates that 16.6% of the state's urban population lives in slums.²² Project 3 interventions will support underserved areas, including slums in the project towns, and will indirectly contribute to poverty reduction in urban areas through the provision of access to clean water, sanitation, and stormwater drains. Pro-poor designs call for (i) providing universal access to water supply and sewerage services within project wards, including slums in Madurai and Coimbatore, and stormwater drainage for flood-prone and climate-vulnerable wards in Thoothukudi; (ii) conducting awareness campaigns in vulnerable communities on issues of water conservation, health, sanitation, and women and children's safety during floods; and (iii) closely involving young people in the community, including the poor, in the design of awareness materials and their dissemination.

27. **Gender equality and social inclusion.** Project 3 is classified *effective gender mainstreaming*. It extends the initiatives of projects 1 and 2 for improved infrastructure and service delivery to the poor in the project cities, i.e., the provision of (i) new sewage connections in Coimbatore, including 100% of poor households; (ii) metered water connections in Madurai, including 100% of poor households; and (iii) new tertiary stormwater drains with features

²¹ The poverty data is based on state-level figures, which constitute the most recent reliable poverty data (Government of India, Planning Commission. 2014. Report of the Expert Group to Review the Methodology for Measurement of Poverty. New Delhi).

²² Ministry of Home Affairs. Census of India. Slum Census 2011. The figure is based on 2011 census data because the 2021 census had to be postponed on account of the COVID-19 outbreak.

responsive to gender equality and social inclusion. Though the implementation of gender activities in projects 1 and 2 was impacted by the COVID-19 pandemic, it has now gained traction with an increase in women's participation in training sessions and awareness campaigns. Notably, women hold 8 of 11 positions filled in the Project Management and Design Center.²³ The ULBs are acquiring and updating sex-disaggregated data, which will be integrated into the Urban Data and Governance Improvement Cell that is being set up in the DMA. Project 3 seeks to build opportunities for women through (i) representation of women in decision-making at all levels for project planning and management; (ii) awareness generation among teachers, students, and women's groups on water conservation and hygiene; and (iii) capacity building of ULB staff for gender mainstreaming in urban governance, sexual harassment policies, implementation of a gender action plan, and monitoring and reporting of gender quality results.

E. Safeguards

28. In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows.²⁴

29. **Environment (category B).** The implementing agencies prepared initial environmental examinations (IEE) reports and the corresponding environmental monitoring plans (EMPs) for the three subprojects in line with the environmental assessment and review framework, the Safeguard Policy Statement, and government laws and regulations.²⁵ The Madurai water supply and Coimbatore sewerage subprojects will complement the ongoing works under projects 1 and 2 in the respective towns and expand the services, while the subproject in Thoothukudi focuses on providing tertiary drains and upgrading a pumping facility. The subproject sites are in urban areas and surroundings, and the IEEs confirm that potential impacts are mostly short-term, localized, site-specific, and mainly relating to construction, and can be mitigated or minimized to acceptable levels with good construction practices and the mitigation measures defined in the EMPs. Appropriate measures are incorporated into site planning and design. Impacts arising from project design or location are not significant. Stakeholder consultations were conducted and will continue during the implementation. A grievance redress mechanism will be implemented. The IEE reports will be updated to reflect detailed designs, cleared, and disclosed by ADB prior to the start of construction. The project team will ensure regulatory compliance, including obtaining the consent of the Tamil Nadu Pollution Control Board to build and operate the STPs. Contractors will develop site-specific EMPs before the works begin. Suitable institutional arrangements are proposed to ensure compliance with environmental safeguards. TNUIFSL will submit semiannual monitoring reports to ADB. It will also ensure compliance with government laws and regulations. In accordance with the Safeguard Policy Statement and ADB's Access to Information Policy, safeguard reports will be disclosed on the ADB website.

30. **Involuntary resettlement (category B).** The implementing agencies prepared resettlement plans for the three subprojects under Project 3 to assess and adequately address (i) potential temporary loss of income to street vendors on proposed pipe alignments in Coimbatore and Madurai; and (ii) loss of minor structures, including soak pits, ramps, and trees in the stormwater drainage alignment in Thoothukudi. No land acquisition or loss of residential or commercial structures is envisaged for the subprojects. Measures in the resettlement plans are adequate to manage the identified risks. TNUIFSL has demonstrated capacity and commitment in implementing the resettlement plans under projects 1 and 2. Project 3 includes capacity

²³ Projects 1 and 2 quarterly progress reports for January–March 2022.

²⁴ ADB. [Safeguard Categories](#).

²⁵ The IEE reports are in Appendixes 10–12. The environmental assessment review framework prepared for the Program in 2018 and agreed between ADB and the government remains relevant.

development for project staff on resettlement planning, implementation, and monitoring.

31. **Indigenous peoples (category C).** No indigenous peoples' communities are present in or around subproject sites and the coverage areas of Project 3.

F. Summary of Risk Assessment and Risk Management Plan

32. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.²⁶

Table 4: Summary of Risks and Mitigating Measures

Risk Description	Mitigation Measures
Water shortages arising from extreme drought beyond projections undermining performance of water supply and sewerage facilities.	The project includes measures for water conservation and climate change adaptation (e.g., reducing water losses, monitoring consumption, reusing wastewater, and raising awareness). The state is planning and implementing water augmentation in program cities.
Increased flood risk caused by more intense precipitation because of climate change.	The design of the stormwater drainage system considers projected increases in rainfall intensity as a result of climate change. The project will also raise community awareness of flood risks.
Inadequate ULB revenue undermining the sustainability of water supply and sanitation services, and flood management infrastructure.	The state government and project ULBs will implement systematic plans to achieve more revenues, better O&M cost recovery, and cost reductions. The state government is committed to continued gap funding through transfers to sustain O&M where shortfalls exist. The governance improvement program (output 3) provides incentives for the collection of sewerage user fees in all ULBs.

ADB = Asian Development Bank, O&M = operation and maintenance, ULB = urban local body.
Source: Asian Development Bank.

V. ASSURANCES

33. The Government of India, the state government, MAWS, and TNUIFSL have assured ADB that the implementation of the project 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 PAM and the loan documents.

34. The Government of India, the state government, MAWS, and TNUIFSL have given certain undertakings for the MFF, which are set forth in the FFA. The Government of India, the state government, MAWS, and TNUIFSL have further agreed with ADB on specific assurances and conditions with respect to Project 3 under the MFF, which will be set forth in the loan agreement and project agreement.

VI. THE PRESIDENT'S DECISION

35. On the basis of the approval by ADB's Board of Directors for the provision of loans under the multitranchise financing facility in an aggregate principal amount not exceeding \$500,000,000 to India for the Tamil Nadu Urban Flagship Investment Program, the President has approved the tranche as described in para. 15, and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements.

²⁶ The updated risk assessment and risk management plan is in Appendix 17.

DESIGN AND MONITORING FRAMEWORK FOR PROJECT 3

Impact(s) the Project is Aligned with			
(i) Universal access to basic water and sanitation services achieved (Vision Tamil Nadu 2023) ^a (ii) “World-class” cities and industrial corridors across the state developed (Vision Tamil Nadu 2023) ^a (iii) Water security and reduced vulnerability to climate change in urban areas achieved (Tamil Nadu Sustainable Water Security Mission, State Action Plan on Climate Change) ^b			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Livability and climate resilience in selected cities in priority industrial corridors enhanced ^c	By 2027 a. Collection and treatment of sewage in project coverage areas of one city (Coimbatore) increased to 100% of households (2021 baseline: sewage collected from 0% of households in coverage areas) (OP 1.3; OP 3.3, OP 4.1) b. 600 ha. of flood-prone areas covered by new drainage systems adapted to climate change and flood risk reduced in one city (Thoothukudi) (2021 baseline: 0) (OP 3.2; OP 4.3) c. Frequency and duration of water supply improved to 24 hours/day for 100% of households in coverage areas in one city (Madurai) (2021 baseline: water provided on average 1-2 hours/day, once in 1-2 days, 94% piped water coverage) (OP 1.3; OP 4.1) d. Nonrevenue water in coverage areas in one city (Madurai) reduced to 20% (2021 baseline: 30%) (OP 4.2)	a–d. Program quarterly progress reports.	R: Water shortages due to extreme drought beyond projections undermine performance of water supply and sewerage facilities. R: No regular revisions of water and sewerage tariffs and insufficient revenue base will constrain the sustainability of services.
Outputs 1. Climate resilient sewage collection and treatment, and drainage systems developed in two	By June 2026 1a. Two new STPs with total capacity of 34.92 MLD added in Coimbatore (2021 baseline: 0) (OP 3.3.1, OP 3.3.2, OP 4.1.2)	1a–e. Periodic ULB records and project quarterly progress reports	R: Extreme monsoons and sudden price surges of materials beyond projections result in cost overruns

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>cities (Coimbatore and Thoothukudi)</p> <p>2. Water supply system in one city (Madurai) improved with smart features</p>	<p>1b. 529 km of new sewage collection pipelines commissioned and connected to 67,545 households in Coimbatore, including 100% of the poor^d households in the coverage area (2021 baseline: 0) (OP 1.3.1; OP 2.1.4; OP 4.1.2)</p> <p>1c. 14 sewage pump and lift stations with combined capacity of 348 kW added in Coimbatore (2021 baseline: 0) (OP 3.1.3; OP 4.1.2)</p> <p>1d. 36 km of new tertiary stormwater drains constructed with GESI-responsive^e climate-resilient designs in Thoothukudi (2021 baseline: 0) (OP 2.5.2; OP 3.2.1; OP 4.3.1)</p> <p>1e. Two all-female SHGs^f trained (one each in Madurai and Coimbatore) and 80% of trained members reported improved knowledge on benefits of household connection to sewage collection system, sanitation, health and hygiene, water conservation and in areas of leadership^g (2021 baseline: 0) (OP 2.3.1)</p> <p>2a. A total of 813 km of new water distribution pipelines commissioned within 115 new district metered areas and metered connections provided to 163,958 households in Madurai (100% households, including poor^d households in coverage area) (2021 baseline: 0) (OP 1.3.1; OP 2.1.4; OP 4.1.2)</p>	<p>2a–b. Periodic ULB records and project quarterly progress reports</p>	<p>and delays in civil works completion.</p>

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>3. Institutional capacity, public awareness, and urban governance strengthened</p>	<p>2b. 15 inline booster pumps with capacity of 70 kW installed in Madurai (2021 baseline: 0) (OP 4.1.2)</p> <p>3a. By 2026, 200 students, teachers, and administrators (at least 50% women); and at least 50% of members of three women groups reported improved awareness of water conservation and hygiene in Coimbatore, Thoothukudi, and Madurai (2021 baseline: 0) (OP 3.2.2)</p> <p>3b. By 2026, new database on urban management for Thoothukudi established at the urban data and governance improvement cell in DMA, with sex-disaggregated data (2021 baseline: 0)^h (OP 4.2.1)</p> <p>3c. By 2026, improved knowledge on approaches to integrating gender in urban governanceⁱ, implementing gender action plans, and monitoring and reporting on gender equality results, reported by 60 ULB staff (including at least 30 women staff) (2021 baseline: 0) (OP 2.3.2)</p> <p>3d. By 2025, systematic plans for financially sustainable O&M prepared/updated by 3 ULBs (Coimbatore, Madurai and Thoothukudi) (2021 baseline: 0)</p>	<p>3a–d. Periodic ULB records and project quarterly progress reports</p>	
<p>Key Activities with Milestones</p> <p>1. Climate-resilient sewage collection and treatment, and drainage systems developed in two cities</p> <p>1.1 Award all sewerage contracts by October 2022, complete all civil works by June 2026, and conduct user satisfaction surveys by June 2026.</p> <p>1.2 Award drainage contract by June 2023, complete all civil works by June 2026, and conduct user satisfaction surveys by June 2026.</p>			

2. Water supply system in one city improved with smart features

2.1 Award water supply contract by October 2022, complete all civil works by June 2026, and conduct user satisfaction surveys by June 2026.

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

3.1 Conduct pre-training surveys by January 2023 and post-training surveys by June 2023 to measure increased awareness and knowledge of water conservation and hygiene from awareness activities.

Project Management Activities

Establishment of PIU in Coimbatore by TWAD

Inputs

ADB: \$125.0 million (regular ordinary capital resources loan)

Government: \$68.5 million

ADB = Asian Development Bank, DMA = Directorate of Municipal Administration, GESI = gender equality and social inclusion, km = kilometer, kW = kilowatts, MLD = million liters per day, O&M = operations and maintenance, OP = operational priority, PIU = program implementation unit, R = risk, SHG = self-help group, STP = sewage treatment plant, TWAD = Tamil Nadu Water Supply and Drainage Board, ULB = urban local body.

^a Government of Tamil Nadu. 2012. *Vision Tamil Nadu 2023: Strategic Plan for Infrastructure Development in Tamil Nadu*. Chennai.

^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 Project target cities are Coimbatore, Madurai, and Thoothukudi.

^d "Poor" is defined as those households classified by the state as below the poverty line (BPL).

^e GESI-responsive: (i) Barricades with night-glowing signages; (ii) streetlights along drains; (iii) fencing along open drain sections; (iv) in line with the Tamil Nadu State New Policy for Women 2021 (Draft) install safety alarm devices, tools, and panic buttons which will act as deterrents and inform the nearby police stations when women in a public place are harmed and act as emergency response support system.

^f As per the [National Urban Livelihood Mission guidelines](#), an SHG is a group of more than five members joined for setting up a group enterprise for self-employment and for availing loans for the purpose.

^g Areas of leadership include developing capacities for mentoring and awareness generation at community level for imparting knowledge.

^h Output indicator 3b for Thoothukudi is aligned with the multi-tranche financing facility design and monitoring framework with implementation support from the governance improvement and awareness consultants engaged under Project 1. The other Project 3 cities (Coimbatore and Madurai) are covered under the same indicators in the design and monitoring framework of projects 1 and 2.

ⁱ Integration of gender through the involvement of female SHGs in urban service delivery; and collection, assessment, and integration of sex-disaggregated data for urban development planning.

Contribution to Strategy 2030 Operational Priorities

Expected values and methodological details for all OP indicators to which this operation will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (Appendix 5 of the periodic financing request report).

Source: Asian Development Bank.