

# Technical Assistance Report

#### **PUBLIC**

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India: Creating Green, Inclusive, Sustainable, and Resilient Amaravati Capital City

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Asian Development Bank

# **CURRENCY EQUIVALENTS**

(as of 11 November 2024)

Currency Unit – Indian rupee/s (₹)

₹1.00 = \$0.0118

\$1.00 = ₹84.3989 or ¥154.6300

\$1.00 = \$0.0065

## **ABBREVIATIONS**

ADB – Asian Development Bank
DLI – Disbursement-linked indicator

FY – fiscal year

G20 – Group of Twenty (countries)
GDP – gross domestic product

GOAP – Government of Andhra Pradesh

RBL – results-based lending
TA – technical assistance

TASF – Technical Assistance Special Fund

#### **NOTES**

- (i) The fiscal year (FY) of the Government of India and its agencies ends on 31 March. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2025 ends on 31 March 2025.
- (ii) In this report, "\$" refers to United States dollars.

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#### I. THE PROPOSED PROGRAM

- 1. The Government of Andhra Pradesh (GOAP) plans to build Amaravati as a new capital city on a 217.23 square kilometer site in Guntur district targeting an ultimate population of 3.5 million by 2050.¹ Amaravati represents India's largest greenfield city development initiative for transformative integrated urban planning and world-class infrastructure services and is intended to serve as a regional economic growth hub generating significant employment opportunities through public and private investments. The GOAP has planned the Amaravati Capital City Development Program with an estimated investment of \$6.3 billion. Phase I of Amaravati development will be implemented over a period of 5 years (2025–2029) with an estimated investment of \$3.64 billion.² The Government of India has requested the Asian Development Bank (ADB) and the World Bank to support bridging financial gaps for the timely, high-quality delivery of the infrastructure assets and services in phase I.
- 2. **Strategic context.** India is experiencing rapid urbanization, with its urban population projected to grow from 498 million in 2021 to about 600 million by 2030 and 876 million by 2050.<sup>3</sup> The urbanization rate in India (36.4% in 2023) remains low compared with the rest of Asia (56.9% in 2022) and the Organisation for Economic Co-operation and Development member countries (81.7% in 2023).<sup>4</sup> The fast pace of urban population growth and consequent high urbanization (projected at 40% by 2030 and 60% by 2050) is aggravating the already severe challenges in existing cities such as growing infrastructure deficits, poor urban service delivery, congestion, increasing risks of climate change and disasters, and environmental degradation. Additionally, Indian cities face challenges of urban spillover and proliferation of slums and informal settlements, exacerbating social inequality and the urbanization process.
- 3. **Cities as engines of growth.** Even with the current low level of urbanization, urban areas in India contribute about 60% to its gross domestic product (GDP) and generate more economic opportunities, provide better access to health and education services, and offer improved living conditions.<sup>5</sup> ADB estimates that every 1% increase in urbanization is associated with a 3%–5% rise in real GDP per capita in Asia.<sup>6</sup> However, haphazard and unsystematic urbanization has not led to the economic benefits associated with increasing urbanization. Despite the challenges, cities in India are poised to become the engines of growth—generating higher-value economic outputs, creating well-paying jobs, streamlining urban logistics, and improving the livability of their residents. Indian cities could generate 70% of net new jobs, 70% of the country's GDP, and drive a fourfold increase in per capita incomes by 2030.<sup>7</sup> Further, climate change- and disaster-resilient

<sup>&</sup>lt;sup>1</sup> The state of Andhra Pradesh went through the bifurcation process in 2014 following the enactment of the Andhra Pradesh Reorganization Act, which led to the creation of two separate states: Telangana and the residuary Andhra Pradesh. After bifurcation, Telangana retained the state's original capital city of Hyderabad. The residuary Andhra Pradesh state, therefore, announced the decision to build Amaravati as the new capital.

The Phase I of Amaravati development is the government's overarching program that comprises of development of the Amaravati Government Complex, construction of the trunk infrastructure works (e.g., major arterial and subarterial roads, and associated utility corridors for water, sewerage, drainage, and communications); the delivery of neighborhood basic infrastructure in the land pooling scheme zones 1 to 7 and 10; and strengthening governance and financing framework; and promoting inclusive socio-economic growth and community development.

<sup>&</sup>lt;sup>3</sup> Government of India. 2019. <u>Census of India, 2011: Population Projections for India and States, 2011–2036—Report of the Technical Group on Population Projections.</u>

<sup>&</sup>lt;sup>4</sup> The World Bank. World Development Indicators (accessed 23 October 2024).

<sup>5</sup> Government of India, Ministry of Housing and Urban Affairs (MOHUA). 2019. <u>Consultation Paper on City GDP</u> Measurement Framework.

<sup>&</sup>lt;sup>6</sup> ADB. 2019. Asian Development Outlook 2019 Update—Fostering Growth and Inclusion in Asia's Cities.

<sup>7</sup> S. Sankhe et al. 2010. <u>India's urban awakening: Building inclusive cities, sustaining economic growth</u>. McKinsey Global Institute.

development is becoming increasingly necessary to ensure that cities can sustainably support growth, while also leveraging private capital to finance long-term needs.

- 4. **India's urban strategy.** Recognizing this potential of its cities, India emphasized the need to make cities inclusive, resilient, and sustainable as one of the main agenda under its Group of Twenty (G20) Presidency in 2023.8 The Government of India has strengthened its urban sector strategy with a focus on urban reforms, as reflected in successive central government annual budgets from FY2023 to FY2025. The budget of FY2025 has laid out an agenda of facilitating the development of "Cities as Growth Hubs" through economic and transit planning, and orderly development of peri-urban areas through town planning schemes. The development of greenfield cities is a key priority to address the challenges of rapid urbanization and to foster economic growth. Amaravati is the first such city to be developed and will become a replicable example for other cities in the country. The Government of India has provided special financial assistance through multilateral development banks and other sources in the central budget of FY2025.9
- 5. **Need for a new capital city.** Redeveloping an organically grown existing city of Andhra Pradesh into the new capital city has been constrained by unavailability of space for expansion and encountered inherent social challenges. On the other hand, the development of a new city presents an opportunity for integrated spatial and economic planning with socially inclusive, and gender-responsive interventions to drive inclusive economic growth, attracting people to this new city. Additionally, it provides an opportunity for integrating modern infrastructure with smart technologies, fostering green and low-carbon development to enhance livability. Such a planned city, with investor-friendly policies and institutional and governance frameworks would attract the private investment crucial for the fast-paced development of a new city, generating high-paying jobs, and efficient service delivery through public—private partnerships (PPPs).
- 6. **Regional development strategy.** The GOAP has proposed developing Amaravati as a growth hub for the region given its strategic connectivity and proximity to the surrounding major cities of Vijayawada and Guntur. Rooted in an agrarian economy, the region presents opportunities for economic diversification into high-technology and non-polluting industries for creating high-paying jobs. Drawing on global examples, such as Songdo smart city, Amaravati seeks to build on successful practices of promoting green and low carbon mixed development.
- 7. **Government program.** The GOAP has prepared the Perspective Plan 2050, and the Detailed Master Plan 2016–2036 for development of Amaravati. These plans outline the following key goals: (i) create high-quality jobs; (ii) attract investments; (iii) ensure good-quality housing for all, particularly for low-income groups that will help ease the population pressure on neighboring cities; (iv) preserve natural ecosystems and build resilience against climate change by improving flood management infrastructure; and (v) integrate heritage and cultural preservation into the city's development. With an overall objective of developing a knowledge-based economy, nine theme-based districts are being proposed for the economic development of Amaravati. The results-based lending (RBL) program is carved out of phase I and is estimated to cost \$1.774 billion for ADB and the World Bank financing. The RBL program, aligned with the government's objectives, aims to support developing Amaravati into a vibrant, climate-resilient, and inclusive city through targeted geographic, temporal, and scope-based interventions.

India G20 Presidency. 2023. <u>Principles on Financing Cities of Tomorrow: Inclusive, Resilient, Sustainable</u>. As part of Infrastructure Working Group of India G20 Presidency, ADB prepared a deliverable on <u>G20 Framework on Capacity Building of Urban Administrations for Financing Cities of Tomorrow</u>.

<sup>&</sup>lt;sup>9</sup> Government of India. 2024. <u>Budget 2024-25. Speech of Nirmala Sitharaman, Minister of Finance.</u>

<sup>&</sup>lt;sup>10</sup> The proposed nine cluster cities include Education, Electronic, Finance, Government, Health, Justice, Knowledge, Sports, and Tourism.

- 8. **Impact, outcome, and outputs.** The RBL program's impact will be Amaravati developed as a pioneer world class green, smart city as an economic powerhouse with global quality of living standards for all people. <sup>11</sup> The outcome will be access to inclusive, efficient, and resilient infrastructure and public services, and jobs provided, measured by: (i) developing urban space with 8,000 parcels having improved access to infrastructure services and green recreational spaces (DLI 8); <sup>12</sup> (ii) 45,000 persons (including 22,500 women) having access to water and sanitation; (iii) 100,000 persons (including 50,000 women) having access to climate-resilient, and sustainable transport infrastructure and services; <sup>13</sup> (iv) 3,315 hectares of area with new or improved drainage systems protected from flood risks; (v) 20 anchor investors attracted by Amaravati (DLI 4); (vi) \$900 million in private capital inflows enabled; and (vii) 12,000 new jobs created, including 7,000 for women and 2,400 for youth (DLI 4). <sup>14</sup> The program will have three outputs: (i) inclusive governance and financing framework strengthened; (ii) inclusive green economic growth and social development supported; and (iii) climate-resilient, sustainable, and inclusive infrastructure and service delivery solutions implemented.
- 9. **Program financing.** The program will be jointly financed by ADB and the World Bank in equal amounts of ¥121.972 billion.

#### II. INTRODUCTION

- The technical assistance (TA) will support the implementation of the program by 10. (i) strengthening the institutional capacity of the implementing agencies and new entities like Amaravati city government, water utility, Unified Metropolitan Transportation Authority, etc. to promote inclusive, green, and economic planning, and sustainable urban services delivery; (ii) reviewing, strengthening, and updating the flood management plan considering the high vulnerability of Amaravati to the risk of floods aggravated by climate change impacts and supporting the GOAP in implementing and monitoring the revised flood management plan; (iii) conducting climate risk assessment to inform the preparation and implementation of the city climate change action plan; (iv) mainstreaming sustainable, gender-responsive approaches into the infrastructure development; (v) strengthening capacity of implementing agencies to apply digital technology solutions for urban planning, resource management, service delivery, and datainformed decision-making; and (vi) strengthening institutional capacity and governance-related aspects to attract private sector investments, including PPP. The TA will also support city-to-city partnerships for exchanging good practices and knowledge sharing. These activities will be undertaken in close collaboration with the World Bank. The TA financing amount is \$1.5 million, which will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-other sources). GOAP will provide counterpart staff and other in-kind contributions.
- 11. The GOAP submitted a proposal to the Government of India requesting TA to support institutional strengthening activities (para. 10) in the development of Amaravati. The Government of India posed the GOAP's proposal for financing by ADB on 16 October 2024.

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<sup>&</sup>lt;sup>11</sup> GOAP, Municipal Administration and Urban Development Department. 2024. White Paper on Amaravati.

<sup>&</sup>lt;sup>12</sup> A parcel refers to a developed plot of land that will be handed over to landowners who contributed to the LPS.

<sup>&</sup>lt;sup>13</sup> The water supply and sewerage systems will serve Amaravati residents, while the transport system will extend beyond Amaravati, including nearby urban centers like Vijayawada and Guntur.

<sup>14</sup> The design and monitoring framework for the program is in the Appendix of the Report and Recommendation of the President.

#### III. ISSUES

- 12. While developing Amravati as a capital city, the GOAP may face several challenges including weak institutional capacity and governance structure, high cost and financing gaps for sustainable infrastructure service delivery, complexity in building a cohesive social fabric, lack of livelihood support and uncertainty in market trends and the investment necessary for long-term economic vibrancy. Amaravati will also face significant climate change and disaster-related risks such as floods, rising temperatures and extreme heats, changing rainfall patterns, and cyclones. These risks can adversely affect essential urban infrastructure and services, in turn affecting residents' economic and social activities and well-being.
- 13. Given Amaravati's early stage of development, significant upfront capital costs are required for provision of infrastructure through public sector investments, particularly to construct trunk infrastructure (such as connectivity of roads, water supply, and drainage), and access to basic infrastructure services for the land parcels for those contributing through the land pooling scheme (LPS). As Amaravati's infrastructure evolves, the private sector needs to play a more prominent role not only by way of investments but also in financing infrastructure and driving economic growth in designated economic clusters. Amaravati can attract private investments and generate own-source revenues through land monetization.
- 14. The program implementing agencies, the Andhra Pradesh Capital Region Development Authority and Amaravati Development Corporation Limited, have limited experience in implementing large-scale infrastructure projects. As a result, there may be challenges in scaling up their capacity to effectively manage the comprehensive demands of the Program's implementation and sustainability. The TA is therefore needed to build their institutional capacities to (i) address urbanization challenges posed by new city development; and (ii) impart knowledge on sustainable, inclusive urban development models to reduce carbon footprints, offers digital technology solutions, and focus on inclusive growth for marginalized groups.
- 15. The TA is aligned with the country knowledge plan under ADB's country partnership strategy for India, 2023–2027, with the objectives of strengthening multisector urban planning for cities to act as engines of growth, supporting low-carbon development and green growth, building awareness on climate mitigation and adaptation and in disaster resilience, mainstreaming gender equality and social inclusion to promote inclusivity and impact of interventions, and enhancing implementation capacity of government departments. <sup>16</sup> The program and TA will use experience from ADB's more than 10 years of engagement with the GOAP in conducting analytical work on urbanization through the Visakhapatnam–Chennai Industrial Corridor Development Program, which has been supporting the state's industrial growth and urbanization since 2016. <sup>17</sup>

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<sup>&</sup>lt;sup>15</sup> The climate risks are intrinsically linked to the location and topography of the city, on a low-lying alluvial agricultural land on the banks of the Krishna River. Flood management is a critical component of climate-resilient urban development for protecting Amaravati from both pluvial and fluvial floods.

<sup>&</sup>lt;sup>16</sup> ADB. 2023. <u>Country Partnership Strategy: India, 2023–2027—Catalyze Robust, Climate-Resilient, and Inclusive</u> Growth.

<sup>&</sup>lt;sup>17</sup> ADB. <u>India: Visakhapatnam–Chennai Industrial Corridor Development Program</u>; ADB. 2016. <u>Scaling New Heights:</u> *Vizag–Chennai Industrial Corridor, India's First Coastal Corridor.* 

#### IV. THE TECHNICAL ASSISTANCE

## A. Impact and Outcome

16. The TA will help facilitate the implementation of the RBL program to develop Amaravati as the pioneer world class green, smart city as an economic powerhouse and global quality living standards for all people. The TA outcomes will be as follows: institutional capacity strengthened to (i) design and construct sustainable, climate- and disaster-resilient, and gender-responsive urban infrastructure; (ii) deliver efficient public services; and (iii) mobilize private capital finance through delivering land monetization and asset management.

# B. Outputs, Methods, and Activities

17. The major outputs, methods and activities are summarized in Table 1.

**Table 1: Summary of Major Outputs and Activities** 

Delivery			
Major Outputs	Dates	Methods and Key Activities	
Output 1: Institutional capacity to promote private sector financing strengthened	Q2 2027	<ul> <li>1.1 Support State Economic Development Board to adopt and update the business roadmap of Amaravati city by the economic development unit</li> <li>1.2 Develop effective mechanisms to mobilize private capital finance through land monetization and asset management</li> <li>1.3 Support APCRDA in establishing investor-friendly policies and regulations to encourage private sector participation, including PPP models for service delivery and streamlined approval processes</li> <li>1.4 Foster dialogue between government and private stakeholders to build trust, share knowledge, and identify mutually beneficial investment opportunities</li> <li>1.5 Support in development of at least three PPP transactions</li> <li>1.6 Pilot tests for financing frameworks, including PPPs, launched</li> </ul>	
Output 2: Amaravati city climate change action plan strengthened.	Q4 2026	<ul> <li>2.1 Review and update the climate change risk assessment framework</li> <li>2.2 Review and support APCRDA to incorporate climate change elements in the sustainable urban design guidelines</li> <li>2.3 Identify strategies for low-carbon transportation and reduction of greenhouse gas emissions, circular economy, etc.</li> <li>2.4 Prepare Amaravati City Climate Change Action Plan</li> <li>2.5 Undertake a dissemination workshop</li> </ul>	
3. Output 3: Amaravati city disaster resilience including flood management plan strengthened.	Q4 2026	<ul> <li>3.1 Review, update, and strengthen flood management plan from climate change perspective for Amaravati city to minimize risk of future flooding</li> <li>3.2 Prepare Disaster Resilience Action Plan (including updated flood management plan)</li> <li>3.3 Support APCRDA in operationalization of Disaster Risk Management and Flood Monitoring Agency for Amaravati</li> <li>3.4 Undertake a dissemination workshop</li> </ul>	

Major Outputs	Delivery Dates		Methods and Key Activities
4. Output 4: Sustainable, resilient and gender- responsive approaches and	Q3 2027	4.1	disaster-resilient, and gender-responsive features in urban design guidelines for infrastructure and service delivery.
design guidelines mainstreamed into the infrastructure development  5. Output 5: Capacity to	Q4 2027	4.3	meaningful and context-appropriate engagement and participation of women and other vulnerable populations. Roll out gender responsive and inclusive training program in at least three locations, promoting social development.  Support APCRDA and urban utilities for the adoption of
apply digital technology solutions for urban planning, resource management, service delivery and	Q4 2021	3.1	smart digital technology and solutions to improve urban planning, resource management, service delivery, public service accessibility and data-informed decision and policymaking leveraging latest technologies not limited to geographical information system, internet of things and artificial intelligence
data-informed decision-making and policy making strengthened		5.2	<del>_</del>
		5.3	infrastructure asset management, and governance performance. The platform will be used to monitor progress and to generate real-time performance evaluation reports and informed decision-making.
		5.4	Support APCRDA in implementation of an information and communication technology platform for procurement and contract management to ensure efficiency and integrity of the procurement function including contract lifecycle management.
6. Output 6: Institutional capacity to promote inclusive, green, and	Q4 2027	6.1	Develop institutional strengthening roadmap for Amaravati city government, ring-fenced urban transport authority and water utilities
economic planning, and sustainable urban services delivery strengthened		6.2	
G C		6.3	Develop comprehensive training modules focusing on digital technologies, gender mainstreaming in urban management, and strategies for climate adaptation and disaster preparedness and launch training programs
		6.4	Conduct exposure visits to greenfield cities or cities recognized for their smart city initiatives, climate-resilient urban planning, and innovative disaster management practices.
		6.5	Facilitate interactions with international experts and local authorities to understand best practices and lessons learned.
		6.6	Conduct city to city knowledge and experience sharing on greenfield and brownfield developments through virtual and

Major Outputs Dates		Methods and Key Activities
		in-person exchanges to discuss challenges, solutions, and innovative approaches in urban development and governance.

APCRDA = Andhra Pradesh Capital Region Development Authority, PPP = public–private partnership, Q = quarter. Source: Asian Development Bank.

18. ADB will bring the following value additions to the program through the attached TA: (i) fostering economic development, attracting private investments to the city, creating enabling environments for PPPs in sustainable service delivery, and supporting innovative financing mechanisms by leveraging land assets; (ii) mainstreaming climate- and disaster-resilient solutions including addressing climate change-related risks such as flooding; (iii) supporting the adoption of digital technological solutions to improve urban planning, resource management, service delivery and data informed decision-making and policy making; (iv) carrying out capacity building and knowledge dissemination activities through ADB and partner networks including city-to-city collaboration; and (v) preparing updated sustainable, resilient and gender-responsive urban design guidelines.

# C. Cost and Financing

- 19. The TA financing amount is \$1.5 million, which will be financed on a grant basis by ADB's TASF-other sources. GOAP will provide counterpart support in the form of counterpart staff and other in-kind contributions. The key expenditure items are listed in Annex 1.
- 20. The total TA amount is broken down per output in Table 2.

**Table 2: Cost Breakdown per Output** 

Output	Indicative Cost (\$)	Percentage of TA Amount (%)
Output 1: Institutional capacity to promote private sector financing strengthened	375,000	25%
Output 2: Amaravati city climate change action plan strengthened	300,000	20%
Output 3: Amaravati city disaster resilience including flood management plan strengthened	200,000	13%
Output 4: Sustainable, resilient and gender-responsive approaches and design guidelines mainstreamed into the infrastructure development	100,000	7%
Output 5: Capacity to apply digital technology solutions for urban planning, resource management, service delivery and data informed decision-making and policymaking strengthened	150,000	10%
Output 6: Institutional capacity to promote inclusive, green, and economic planning, and sustainable urban services delivery strengthened	375,000	25%
Total	1,500,000	100%

TA = technical assistance.

Source: Asian Development Bank.

#### D. Implementation Arrangements

21. ADB will administer TASF funds, and the South Asia Team, Water and Urban Development Sector Office, Sectors Group will select, supervise, and evaluate consultants.

22. Implementation arrangements are summarized in Table 3.

**Table 3: Implementation Arrangements** 

Aspects Arrangements					
Indicative implementation period	January 2025–December 2029				
Executing agency	Andhra Pradesh Capital Region Development Authority, Government of Andhra Pradesh				
Implementing agency	Andhra Pradesh C	Capital Region Development Auth	nority		
Consultants	To be selected and engaged by ADB in consultation with APCRDA				
	Firm: QCBS (90:10) using STP	Preparation of climate change action plan (44 personmonths)	\$0.30 million		
	Firm: QCBS (90:10) using STP	Preparation of disaster resilience plan including flood management plan (44 person-months)	\$0.20 million		
	ICS	International expertise (20 person-months)	\$0.30 million		
		National expertise (42 person-months)	\$0.20 million		
Procurement	To be procured by consultants following the ADB Procurement Policy (2017, as amended from time to time)				
	Shopping	Estimated 5–10 contracts	\$100,000		
Advance contracting and retroactive financing	Not applicable				
Disbursement	Disbursement of TA resources will follow ADB's <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time).				
Asset turnover or disposal arrangement upon TA completion	Fixed assets will be handed over to respective government agencies upon TA completion <sup>a</sup>				

ADB = Asian Development Bank, ICS = individual consultant selection, QCBS = quality- and cost-based selection, STP = simplified technical proposal, TA = technical assistance.

Source: ADB.

23. **Consulting services.** ADB will engage consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions. Consultants or ADB will procure works and goods (as applicable).

#### E. Governance

24. The TA follows national laws on public financial management, while GOAP's employees abide by the conditions of ethics in the national government's published gazettes.

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<sup>&</sup>lt;sup>a</sup> Consultants and/or ADB will be the signatory for supply contracts for all equipment purchased under the TA. Procurement of goods by consultants will be in alignment with ADB Procurement Policy 2017 (as amended from time to time). For the definition of fixed assets, refer to ADB. 2016. Asset Management and Inventory Control. *Administrative Orders*. AO 4.02.

<sup>&</sup>lt;sup>18</sup> Terms of Reference for Consultants (Annex 2).