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# Urban Transformation through AMRUT: Achievements and Implementation Challenges in Urban India

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**Abstract**

Urban transformation depends upon reliable and equitable public services. Infrastructure expenditure alone cannot establish improvements in urban welfare. This paper examines the Atal Mission for Rejuvenation and Urban Transformation (AMRUT). It evaluates infrastructure expansion alongside implementation and service-delivery constraints. Documentary analysis combines administrative records with urban governance scholarship. The findings reveal substantial investment and expanded water connections. However, operationalisation remains uneven across successive mission phases. Sewage-treatment capacity provides a particularly revealing comparison. Under the original mission, 85.67% of capacity was operational. The corresponding second-phase proportion stood at 9.66%. These figures represent differently aged portfolios, requiring careful interpretation. Chandigarh illustrates similar differences between approvals and completed projects. The analysis identifies municipal capacity and institutional coordination as pivotal. Financial sustainability and inclusive access remain equally consequential. Durable transformation requires stronger municipal stewardship and verifiable service outcomes.

**Keywords:** Urban Infrastructure; Municipal Governance; Water Security; Sanitation; Service Delivery.

## 1. Introduction

India's urban development challenge extends beyond constructing physical assets. Cities require dependable services throughout their expanding settlement systems. Water supply and sanitation directly influence everyday living conditions. Their distribution also determines who benefits from public investment. Infrastructure can expand while service inequalities remain entrenched. Evaluating urban transformation therefore requires attention to functionality and inclusion.

The Atal Mission for Rejuvenation and Urban Transformation began in June 2015. Its original coverage comprised 500 selected cities and towns. Water supply and sanitation occupied its principal investment priorities. Drainage, green spaces and non-motorised transport complemented these interventions. The second phase commenced on 1 October 2021. It extended the water-supply mandate across all statutory towns. Universal sewerage and septage coverage remained focused on 500 mission cities. This distinction prevents misleading claims about uniform sectoral coverage.[8]. The central research question concerns the conversion of investment into services. How effectively has infrastructure expansion produced operational urban systems? The question requires examining achievements alongside unresolved implementation constraints. Connections indicate access, but cannot establish continuity or affordability. Treatment capacity matters only when collection networks function effectively. Municipal accountability must therefore extend throughout the infrastructure lifecycle. This paper argues that AMRUT's achievements are substantial but incomplete. Its developmental significance depends upon institutional consolidation after construction.

## 2. Research Objectives

The study pursues four interconnected objectives:

1. Assess infrastructure expansion and documented service-delivery achievements under AMRUT.
2. Compare planned and operational sewage-treatment capacity across mission phases.
3. Examine institutional, financial and distributive constraints affecting implementation.
4. Formulate practical reforms for sustainable and accountable urban services.

## 3. Research Methodology

This study adopts a descriptive and evaluative research design. It draws upon secondary evidence from official programme records. Parliamentary assessments, operational guidelines and scholarly literature supplement the analysis. National trends are examined alongside an illustrative Chandigarh case. Quantitative assessment compares infrastructure approvals with completion and operational capacity. Percentage calculations identify differences between planned and functional provision. Qualitative analysis examines institutional coordination, municipal finance and equitable access. Indicators are interpreted within their respective reporting periods and programme boundaries. The study relies on administrative reporting.

## 4. Infrastructure Expansion and Urban Service Delivery

AMRUT has established a substantial urban infrastructure investment programme. By June 2026, sanctioned projects approached ₹2.79 lakh crore. This combined total covered the original and second phases. Around 2.53 crore tap connections were recorded through convergence. These figures demonstrate the scale of the development effort. However, sanctioned project value does not represent actual expenditure. Convergent achievements also involve contributions beyond a single funding stream. They should therefore be interpreted as collective service-expansion outputs.[16] The original mission concentrated resources on essential network infrastructure. By February 2026, grounded water-supply projects totalled ₹43,359.60 crore. Sewerage and septage projects accounted for ₹34,467.01 crore. Their respective shares were 51.94% and 41.29%. These allocations demonstrate the predominance of basic service investment. They also indicate why water and sanitation warrant particular scrutiny. Grounded expenditure commitments establish project scale rather than operational reliability. Public benefits depend upon commissioning and sustained municipal management.[9]

Planning capacity has also acquired a stronger spatial foundation. By August 2026, 437 cities had final geospatial databases. Draft master plans covered 404 cities within the same sub-scheme. Finalised master plans numbered 292 against 461 participating cities. The finalisation proportion therefore stood at approximately 63.34%. These figures indicate progress within a defined planning portfolio. They do not establish implementation of every proposed intervention. Effective planning additionally requires updated maps and coordinated development permissions. Without administrative integration, digital records can remain disconnected from investment decisions.[10]

Water security now extends beyond increasing treatment and distribution capacity. By July 2026, shallow aquifer interventions covered 75 urban local bodies. Mapping had identified 870 sites for groundwater-related attributes. Preparation included 539 detailed project reports worth over ₹28 crore. These outputs strengthen the basis for scientific recharge interventions. However, mapped sites do not equal completed recharge structures. Environmental performance requires subsequent monitoring of groundwater and water quality. The mission's ecological contribution therefore remains partly prospective. Its assessment should distinguish preparatory achievements from demonstrated restoration.[13]

## 5. Sewage-Treatment Capacity and Operational Performance

The original mission had operationalised most of its treatment portfolio. The second phase still faced a substantial commissioning requirement. Its low operational proportion demands close project-level examination. However, different project ages qualify any direct performance judgement. Large networks require land, permissions and coordinated construction schedules. Remaining capacity cannot automatically be classified as overdue capacity. Nevertheless, approved infrastructure cannot deliver its intended environmental benefits beforehand. Operational capacity also requires adequate inflows and compliant treatment. Plant commissioning therefore represents an intermediate service outcome.

Investment distribution requires equally careful interpretation of project counts. In August 2026, sanitation represented approximately 6.8% of second-phase projects. Its approved value reached around ₹71,133 crore. This comprised approximately 36% of the ₹1,97,191 crore portfolio. A small numerical share therefore concealed substantial capital intensity. At that stage, 394 sanitation projects remained under implementation. Their prospective benefits included 48.76 lakh new household connections. Another 60.59 lakh households were expected to receive upgrades or servicing. These were anticipated benefits rather than completed coverage.[12]

### 6. Service Quality and Coverage Assessment

Connection totals provide an incomplete measure of urban water security. Adequate pressure and dependable supply determine practical household access. Affordability and contamination risks also shape the service experience. A formally connected dwelling can still face recurrent interruptions. These dimensions require direct monitoring alongside infrastructure completion.

Water-quality assessment provides evidence of an additional monitoring function. During January–December 2024, household testing covered 22.45 lakh samples. Approximately 22.19 lakh samples passed the recorded assessments. The calculated pass proportion was 98.83%. These results describe tested samples within that reporting period. They cannot establish uninterrupted safety across every connected household. Repeated samples may also concern the same service locations. Sampling intensity and coverage therefore matter when interpreting aggregate performance.[7]

Sanitation coverage presents another difficulty concerning programme boundaries and denominators. The August 2026 clarification distinguished 7.41 crore mission-city households from a broader 11.32 crore urban-household universe. Coverage within mission cities was placed at approximately 55%. Sewer networks and on-site sanitation could also coexist locally. These distinctions prevent mechanically combining overlapping service categories. They demonstrate why national coverage claims require consistent geographical boundaries. A credible assessment must identify the population actually represented. Otherwise, apparent performance differences can arise from incompatible definitions.[12]

### 7. Chandigarh: Project Implementation and Local Implications

Chandigarh illustrates implementation within an established urban administrative setting. Its second-phase portfolio comprised seven projects worth ₹169.64 crore. Two completed sewerage projects together accounted for ₹6.96 crore. Five other projects carried the milestone “Contract Awarded”. Completed projects therefore represented 28.57% of the project count. Their approved value represented 4.10% of the total portfolio. These proportions describe the project listings consulted in October 2026. They do not measure expenditure or physical progress within ongoing works.[6]

The distinction between numerical and financial completion is consequential. Smaller completed works can raise the project-completion proportion quickly. Larger network schemes may continue absorbing administrative and engineering effort. Consequently, project counts should accompany project value and commissioning indicators. Chandigarh’s experience cannot establish national implementation performance independently. It nevertheless demonstrates why approvals require more discriminating interpretation. A defensible local evaluation would examine service continuity after commissioning. It would also assess benefits across villages and peripheral settlements. Such assessment requires household evidence beyond administrative project milestones.

### 8. Institutional and Financial Implementation Challenges

**Institutional fragmentation** weakens responsibility across the service-delivery chain. Article 243W provides a framework for empowering municipal institutions. Its practical operation depends upon powers assigned through state legislation. Municipal responsibility therefore requires examination within specific state arrangements.[5] Water utilities, development authorities and municipal bodies may share interdependent functions. Unclear responsibilities can obstruct land availability and infrastructure integration. Accountability becomes diffuse when different agencies control successive implementation stages. Effective coordination requires enforceable responsibilities rather than additional review meetings alone.

Municipal finance presents a related challenge of long-term sustainability. A 2022 financing assessment identified dependence on higher-government funding. Central and state governments financed over 75% of city infrastructure. Municipal surplus revenues contributed approximately 15%, while private sources supplied 5%. These are historical urban-financing estimates rather than current AMRUT expenditure shares.[3] Their analytical relevance concerns the structure of municipal financing. Capital grants cannot independently sustain electricity and maintenance expenditure. Cities require predictable revenue and transparent operational budgets. User-charge reform must also protect households facing genuine financial vulnerability. Otherwise, financial consolidation may produce exclusion from essential services.

Administrative capacity influences the quality of each investment stage. Weak project preparation can generate subsequent design and procurement changes. Delayed permissions may obstruct otherwise adequately financed

construction. Poor asset records complicate maintenance planning and emergency responses. These constraints cannot be resolved through technology procurement alone. Municipal institutions require engineering expertise alongside financial and contractual competence. Smaller bodies may need shared specialist support across neighbouring jurisdictions. The practical objective should be stronger implementation capability throughout project delivery.

Equity requires attention beyond aggregate infrastructure and connection totals. Informal settlements may face difficulties securing recognised service access. Tenants and peripheral households can remain statistically inconspicuous. Limited household-level evidence prevents measuring these inequalities within this study. Their importance nevertheless follows from citizenship-centred urban scholarship.[2] [4] Evaluation should therefore disaggregate outcomes across settlement and income categories. Universal coverage becomes meaningful when previously excluded residents receive dependable services. The absence of disaggregated evidence should remain an explicit limitation.

## 9. Policy Priorities for Sustainable Service Delivery

Future implementation should begin with integrated service-completion plans. Each project should identify dependencies across the entire network. Treatment plants require coordinated sewer connections and assured operational financing. Reviews should distinguish procurement delay from construction and commissioning constraints. Corrective action can then address the actual implementation bottleneck. This approach would strengthen the relationship between expenditure and functionality. It would also reduce reliance on aggregate project-completion claims. Performance monitoring should combine engineering indicators with household service standards. Cities should publish supply hours and verified water-quality results. Sanitation reporting should include functional connections and compliant treatment. Data should distinguish new access from rehabilitation of existing services. Independent technical checks should complement administrative milestone reporting. Public disclosure would strengthen probity without replacing professional supervision. Accessible grievance procedures should connect resident complaints with remedial responsibilities. Such arrangements would make accountability observable within everyday service provision.

Municipal financial reform should accompany asset creation from inception. Project appraisal should specify maintenance requirements and committed funding sources. State transfers require predictability alongside transparent municipal accounting. Affordability protections should be explicit within revised charging arrangements. Staff development should include procurement and asset-management competencies. Shared technical units could assist institutions lacking sufficient specialists. Their effectiveness should be assessed through improvements in implementation performance. Training participation alone cannot establish stronger administrative capability.

AMRUT Mitra provides an institutional basis for community involvement. By February 2026, approved projects numbered 6,067, worth ₹376.95 crore. Participation involved more than 0.38 lakh women's self-help group members. Water-quality testing accounted for 697 projects worth ₹60.68 crore.[9] These figures establish programme scale rather than demonstrated empowerment. Meaningful participation additionally requires remuneration and influence over corrective decisions. Community monitoring should supplement professional accountability within municipal institutions. The Used Water Marketplace was launched on 25 October 2026. It enables municipal bodies to list treated-water quantities and quality. Potential users can identify opportunities for procurement and investment.[11] This development creates a mechanism supporting productive wastewater reuse. However, a new platform cannot establish realised market demand. Reuse arrangements require consistent quality and viable conveyance infrastructure. Contracts should specify responsibilities for testing, delivery and payment. Commercial opportunities must remain aligned with environmental and public-health safeguards.

## 10. Conclusion

AMRUT has expanded the institutional scale of urban infrastructure development. Its investment programme and convergent water connections demonstrate substantial reach. Spatial planning and groundwater initiatives broaden its developmental contribution. However, these achievements coexist with significant operationalisation requirements. The capacity comparison demonstrates why approved infrastructure needs differentiated evaluation. Chandigarh similarly reveals the limits of project-count indicators. Institutional fragmentation and financial dependence complicate sustained service delivery. Disaggregated evidence remains insufficient for comprehensive distributional assessment. Together, these findings support a clear policy conclusion. Urban transformation requires stronger municipal capability alongside

physical infrastructure. Completion must be followed by reliable operation and inclusive access. **The decisive achievement is sustained public service performance.**

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