

Tamil Nadu Urban Infrastructure Financial Services Limited

**City Corporate Plan cum Business Plan for
Ambattur Municipality**

Final Report

March 2008



ICRA Management Consulting Services Limited

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Executive Summary

The Tamil Nadu Urban Infrastructure Financial Services (TNUIFSL) mandated ICRA Management Consulting Services (IMaCS) for preparation of City Corporate Plan cum Business Plan (CCP-BP) of Ambattur Municipality (Amb-M). This exercise intends to enable Amb-M to develop a holistic, structured and consultative approach to fine-tune and define its development priorities going forward.

The objectives of the exercise are three-fold: a) to assess existing demand-supply gaps in service delivery and derive a comprehensive infrastructure improvement plan (including a Capital Investment Plan), b) to identify revenue enhancement and financial improvement measures and c) to develop a Financial and Operating Plan to implement a sustainable infrastructure improvement plan.

City profile and growth potential

Ambattur is a special grade town located in the Tiruvallur district and is a suburban area within the Chennai Metropolitan Area (ChMA). Ambattur municipality covers an area of **40.36 sq.km** and had a population of **301,967** in 2001. Ambattur is the largest municipality in terms of population and stands second in terms of land area (behind Avadi) within the ChMA. Considering Ambattur's low population density (77 per hectare) vis-à-vis Chennai (240 per hectare), Ambattur offers substantial development potential. Development of arterial roads covering the MTH road, NH Bypass and other proposed new road formations could further boost the developments within Ambattur.

Constitution	Special Grade
Area	40.36 sq.km
Wards	52
Population (2001)	310967
Decadal growth %	44%
Population Density (per Ha)	77
Slum population (% of total)	29%

A brief SWOT analysis of the town is presented below:

Strengths <ul style="list-style-type: none"> Vibrant industrial centre and emerging as a services hub One of the largest and fastest growing suburbs of Chennai Strategically located between Chennai and the rapidly industrializing regions to its west Well connected by road and rail 	Weakness <ul style="list-style-type: none"> Significant gaps in basic infrastructure services – roads, water supply and sanitation Growing slum population Jurisdiction of multiple authorities with the industrial estate falling under SIDCO
Opportunities <ul style="list-style-type: none"> Potential to emerge as a leading industrial and services hub Emerging as a rapidly growing residential area Improvements in road and rail connectivity could spur further growth Proposed move to carve out a Corporation out of Ambattur and adjoining areas could facilitate greater focus and planning for orderly growth. 	Threats <ul style="list-style-type: none"> Town requires significant investments in basic infrastructure Rampant encroachment of public land and weak town and layout planning Inability to address infrastructure deficiencies could constrain growth Slum proliferation. Municipal capacity needs significant upgradation.

The key economic development themes for Ambattur town are articulated below:

1. **There is an urgent need to step up pace of investments to address the glaring gaps in Physical Infrastructure** – Piped water supply and protected sanitation are almost non-existent, arterial roads continue to be congested and there is no composting / scientific landfill facility for solid waste disposal yet. The long delay in the ongoing UGD scheme in 19 wards has caused severe hardships for the local public and needs to be addressed on priority to restore the credibility of public service delivery that has been severely dented due to this project. These serious gaps in physical infrastructure is already constraining growth and is severely hampering quality of life in the town and hence is the starting point for realising the vision of making Ambattur a vibrant suburban town of Chennai.
2. **Accord high priority to planning and developing Social Infrastructure to cater to the rapid population growth** - The potentially explosive growth in the population would require a combination of Government / private investment to address future requirements, particularly in education and health infrastructure. GoTN through CMDA and Amb-M should immediately map land-use to identify and ring-fence public land (including a specific strategy for minimising slum proliferation and removal of encroachments from public spaces) for this purpose. Public stakeholders in particular cited the need to utilise the land available in Century Nagar in Athipattu area for specific social asset development such as a) Engineering or Medical College, b) Integrated Sports complex, c) Modern Government Hospital for the region or d) Government Boys high school. Restoration of water bodies (particularly Ambattur and Korattur lakes) and provision of parks/jogging tracks around decaying and polluted water bodies figured high in the list of felt needs.
3. **Implement world-class road and rail connectivity between Ambattur and Chennai and the growth centres of Sriperumbudur and Tiruvallur** - Ambattur is strategically located between Chennai and the rapidly urbanising regions of Sriperumbudur and Maraimalainagar. Consultations as well as evidence on the ground point to significant growth in both residential settlements and industrial developments along the Ambattur-Avadi-Tiruvallur corridor and the Ambattur-Poonamallee-Sriperumbudur corridor. This is also expected to get accelerated with the completion of the bypass sections connecting National Highway corridors. Completion of the proposed and ongoing road connectivity projects and strengthening and widening of MTH road (NH 205) are important priorities in this direction. In terms of railway connectivity, Ambattur is on the suburban railway line from Chennai Central to Arakonam. Para-transit facilities should be planned between the proposed Chennai metro rail and this railway line to provide seamless connectivity. The recent proposal for feasibility of rail connectivity between Ambattur and Sriperumbudur is also a positive initiative and needs immediate scrutiny.
4. **Invest in industrial infrastructure to reinforce Ambattur's position as a premier industrial hub** - The maintenance of infrastructure services within the Ambattur Industrial Estate has been entrusted to a Special Purpose Vehicle called the 'Chennai Auto Ancillary Industrial

Infrastructure Upgradation Company (CAAIUC)'. The areas identified for improvement as part of this initiative¹ include roads, common facilities, flood management and storm drains, water supply, sewage treatment, street lighting, Logistics services, public amenities and landscaping. There is a need for expediting the project in view of the poor infrastructure conditions that continue to plague this estate. In particular, a truck terminal and a multi-level car park should be developed given the transportation requirements emerging from the industrial area.

5. **Guide the ongoing services/IT developments in a planned manner.** In spite of being a manufacturing oriented industrial estate, there is already a significant presence of IT and ITES units in Ambattur. A number of leading players including HCL and Perot systems already have presence and the trend of IT-ITES companies investing in Ambattur could intensify further. In this regard, there is a need to review the master plan for the town and the land use to support this trend and to facilitate an orderly development of the services sector in Ambattur.

Municipal Services - Status assessment, gaps and actions being taken

Exhibit 1 presents a summary of service levels and status with respect to select indicators in Water Supply, Sanitation, Transportation, Street lights and Solid Waste Management.

Exhibit 1 Summary of prevailing service levels – key indicators, issues and gaps

Sl. no	Name of the Indicator	Value	Issues and Gaps
Water Supply:			
CMWSSB currently preparing a DPR for comprehensive water supply in all wards in Ambattur town.			
1	Daily Per Capita Supply (LPCD)	29	<ul style="list-style-type: none">Current supply on a per capita basis is significantly below municipal normsNeed for significant augmentation of water supply at source, storage and distribution.
2	Storage Capacity / Daily Supply (%)	22%	
3	Distribution Network / Road Length (%)	35%	
4	Water connections / Assessed properties (%)	22%	
Sanitation:			
Ongoing UGD scheme in 19 wards. DPR for uncovered wards being prepared by CMWSSB for comprehensive sanitation and sewerage program			
5	Presence of UGD network (Yes / No)	Partial	<ul style="list-style-type: none">Coverage of UG network inadequateStorm water drainage coverage in just 31% of roadsPublic convenience network needs augmentation in view of high floating population.
6	UG connections / assessed properties (%)	27%.	
7	Household per Public convenience (nos.)	3506	
8	Storm Drain Length / road network (%)	31%	
Roads and Street Lights:			
Flyovers under implementation and arterial road improvements planned.			
9	BT roads / Total (%)	85%	<ul style="list-style-type: none">Poor condition of Arterial road. Improvements envisaged in Chennai master

¹ www.caauiic.com

Sl. no	Name of the Indicator	Value	Issues and Gaps
10	Road length per Street Light (m)	23 m	<ul style="list-style-type: none"> plan needs to be implemented on priority Municipal roads would require comprehensive up gradation following water supply and UGD implementation.
Solid Waste Management: Collection activity in 27 wards including industrial area privatised. Land procurement for scientific disposal for ultimate population requirement under evaluation. Need for preparation of a Detailed Project Report on actions needed in the entire chain of activities from collection to disposal.			
11	Waste generation per capita (gms)	470	<ul style="list-style-type: none"> Need for a comprehensive program for SWM Scope for greater private participation covering end-to-end given the size and scope of the SWM service requirement. Composing, Source segregation and Door-to-door collection needs implementation in a phased manner.
12	Compost yard area (Acres per 10,000 population)	88%	
13	Average vehicle trips	n.a	
14	Source Segregation and Composting (Yes/No)	partial	

Analysis of financial performance

Exhibit 2 provides a summary of the income and expenditure of Ambattur Municipality.

Exhibit 2 Income and Expenditure summary

	FY 2003	FY 2004	FY 2005	FY 2006	CAGR%
INCOME					
OWN INCOME	1393	1516	1888	2038	14%
Property tax	886	956	1096	1030	5%
Profession tax	143	167	224	271	24%
Water & Sewerage Charges	104	101	118	106	1%
Other Service Charges & Fees	60	74	105	96	17%
Other Income	200	218	346	536	39%
ASSIGNED REVENUE	618	1281	1343	598	-1%
DEVOLUTION FUND	506	712	512	534	2%
GRANTS & CONTRIBUTIONS	67	-	-	-	-100%
PRIOR PERIOD INCOME	56	54	233	144	37%
TOTAL	2640	3563	3976	3314	8%
EXPENDITURE					
Salaries	503	504	499	504	0%
Operating Expenses	376	411	569	577	15%
Program Expenses	0	56	294	329	
Administrative Expenses	39	59	80	42	3%
Finance Expenses	173	181	244	174	0%
Depreciation	1304	1241	527	1192	-3%
Prior Period Expenses	19	1	39	6	-32%
TOTAL	1110	1212	1724	1632	14%
SURPLUS - (Excl.Depr)	1529	2351	2252	1682	3%
TE / TR incl Depreciation	91%	69%	57%	85%	79%
TE / TR excl. Depreciation	42%	34%	43%	49%	42%
DS / TR	6%	8%	4%	4%	6%

Income growth (CAGR of 8%) has lagged expenditure (CAGR of 14%). However, the municipality has shown a positive cash balance and overall surplus over past four years.

Capital Investment Plan, priority projects and technical assistance requirements

Exhibit 3 provides a summary of the CIP for Amb-M. The CIP has been prepared based on

- Normative gaps in infrastructure services given existing status and norms for service delivery.
- Status and progress on projects identified as part of the Vision Plan (2004-09)
- Consultations with stakeholders and feedback on our presentation to the Council.
- Discussion with Amb-M officials and review with TNUIFSL and CMA

Exhibit 3 Capital Investment Plan summary

Segment	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Water Supply	-	4,167	4,217	4,217	50	12,650	656	5,202	18,508
Sanitation	448	6,368	6,368	5,820	820	19,823	2,480	4,545	26,848
Solid Waste Management	-	823	1,053	180	-	2,056	1,342	1,058	4,457
Transportation	-	2,149	2,149	2,149	46	6,493	2,244	11,754	20,490
Urban Services for the poor	158	158	158	-	4,242	4,717	21,210	-	25,927
Others	147	100	230	205	75	757	830	960	2,547
TOTAL	753	13,765	14,175	12,571	5,233	46,496	28,762	23,518	98,776

Priority projects

Priority projects identified for implementation by Amb-M are listed in Exhibit 4 below.

Exhibit 4 Priority projects: FY 2008-12

Sl. No	Sector	Project	Cost Rs. Lakh	Status	DPR needed
1	Water Supply	Implementation of comprehensive scheme for protected water supply	12500	DPR under preparation	Yes
2	Sanitation	UGD scheme for uncovered areas	15000	DPR ready. Under TS	-
3	Sanitation	Restoration of water bodies	200	Proposed	Yes
4	Sanitation	Storm water drains	3800	Proposed	Yes
5	SWM	Land acquisition and compost yard development	900	In progress	Yes
6	SWM	Development of Transfer station	750	Phase I to be started	-
7	Transportation	Road up gradation and restoration	4811	Proposed	Yes
8	Transportation	Category A Bus stand at Kallikuppam	600	Resolution adopted	Yes
9	Social	Development of 26 parks	260	Proposed	-
10	Social	Gasifier crematorium and Slaughter house	93	Ongoing projects	-

Technical assistance requirements

A list of project level / sector specific technical assistance requirements needed from CMA/TNUISFL is given below:

1. Comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
2. Technical assistance for digitization of layout records and town planning information
3. Roadmap for 135 LPCD water supply and 24x7 supply
4. DPR for restoration of water bodies and flood management measures covering storm water drain and canal network design.
5. DPR for Traffic and Transportation improvement plan for the town including feasibility of specific junction improvements and road strengthening suggested in section 7.8.3. of the report.
6. DPR for solid waste management with focus on scientific disposal and mechanised handling of waste with private sector participation

Projects by other departments / agencies

Projects to be taken up for implementation by other Government departments include the following:

1. **State Highways/National highways** – a) Feasibility study for widening and strengthening MTH road (NH 205) including widening of bridge on MTH road near Ambattur municipal office.
2. **CMDA** – Review of master plan / land-use and roadmap for extension of city limits.
3. **Chennai Metro Water / CMA** – Comprehensive plan for water supply and sanitation for Ambattur municipality and implementation of the same.
4. **PWD** – Restoration and development of Ambattur and Korattur lakes
5. **Department of Education, GoTN** – a) Feasibility for setting up a Government High School for boys and b) Feasibility for setting up an Engineering or Medical college in Ambattur.
6. **Department of Youth welfare and Sports** – a) Feasibility study for setting up an integrated sports complex in Ambattur.

Reform Agenda

Amb-M's ability to improve on its financial performance hinges primarily on its ability to sustain and improve on the revenue growth noticeable in recent years.

State level - 10 point agenda

1. Implement recommendations of the Third State Finance Commission, particularly those relating to the revenue buoyancy including property tax reform and devolution income from GoTN.
2. Ensure stability of tenure of key officials. Except under extraordinary circumstances, there should be a minimum tenure of at least 2 years for all the key positions including Commissioner, Municipal Engineer, Manager, Town Planning Inspector, Sanitary and public health head and Accountant. Further, guidelines need to be clarified and enforced for formal charge handover to ensure continuity, when there is a transfer of officials.

3. Conduct a zero-base assessment of skill gaps and manpower needs of ULBs to ascertain the appropriate manpower plan in terms of skill sets and experience/seniority. This is particularly relevant given the recent developments, specifically in urban planning and GIS, accrual accounting, e-governance and modern practices in infrastructure service delivery including Public-Private Partnerships.
4. Address critical operational areas through focused training and capacity building interventions, particularly in the areas of a) Engineering and project development, b) Accounting and Finance and c) Use of CAD/GIS applications in Town Planning and Engineering functions.
5. CMA, GoTN should continue with its ongoing technical assistance to ULBs to improve their accounting systems and computerisation. Setting up of the Debt Monitoring Cell to reconcile and disseminate information on debt status of the ULBs is also a positive step in this direction.
6. CMA, GoTN should insist and make ULBs finalise accounts and audit of the same within 3 months of completion of financial year. TNUIFSL should consider a grading system to categorise ULBs on the basis of quality of accounting and reporting practices.
7. Develop / enforce technical standards with specific applicability to municipal projects construction and execution particularly in the areas of a) integrated road asset creation and management, b) Flood management and guidelines for storm water drain construction and c) Solid Waste Management with greater implementation focus on waste processing and disposal.
8. CMA, GoTN along with TNUIFSL should develop a framework for PPP covering specific policies and guidelines and model concessions for PPP in urban services including Water supply, Sanitation, Solid waste management, Street light maintenance and remunerative projects.
9. ULBs should be required to conduct an independent systems audit annually. This would enable ULBs to build in robust processes for disaster recovery and security of their IT systems.
10. Create a apex-level committee comprising decision makers across multiple agencies including TNEB, CMWSSB, State Highways, Telecom service providers that would meet every month to manage functional overlaps and coordinate provision of respective services in a seamless manner.

ULB level

Amb-M could potentially double its own income to **Rs. 6875 lakh** by FY ending 2012 through focused interventions in the following areas. Specific actions for revenue enhancement and improvement in collection efficiency are outlined in the report.

1. **Property tax:** – through revision in ARV, widening assessee base and closer scrutiny.
2. **Professional tax** – sustaining growth in assessments through widening tax base among traders and self-employed professionals
3. **User charges** – through increased penetration of water connections and new sewerage connections could potentially triple user charges income from the current levels.
4. **PPP / remunerative projects** - Amb-M also needs to explore land development as a revenue enhancement mechanism and should focus on attracting private sector participation through appropriate BOT/ SPV structures for implementing remunerative projects.
5. **Energy costs** - A savings of 15-20% reduction in energy costs appears imminently achievable and could translate to annual savings of nearly Rs.10-15 lakh on the current cost base of Rs. 160 lakh.

6. **Collection Efficiencies** in both taxes and user charges indicate scope for improvement.
7. **NGOs / Corporate participation** - Intensify focus on attracting NGOs/advertising revenue for city beautification projects to reduce reliance on grants for such projects.

FOP, borrowing capacity and investment capacity

The borrowing capacity of Ambattur works out to Rs. **33,070** lakh. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment capacity works out to Rs. **66,141 lakh**, which translates to about 67 % of the total investment requirement (including slum rehabilitation). If we exclude slum rehabilitation and urban services for poor projects which are largely grant funded, the borrowing capacity translates to **91%** of the total investment requirement. Hence Amb-M is well placed to meet its capital investment requirements. Exhibit 5 provides a summary of the results of the FOP, prepared for a 20-year horizon.

Exhibit 5 Financial and Operating Plan - summary

Estd. Revenues – FY 2008 (Rs. Lakh)	5,205
Estd. Revenues – FY 2016 (Rs. Lakh)	13,057
Estd. Revenues - FY 2027 (Rs. Lakh)	31,434
Revenue CAGR % - FY 2008-17	11.0%
Revenue CAGR % - FY 2008-27	9.9%
Average TE (excl. depreciation)/TR (%)	53%
Average DS/TR (%)	29%
Average DSCR	1.88
Borrowing Capacity	33,070
Investment Requirement	98,776
Investment Capacity (at 50% loan)	66,141
IC/IR (including Urban Service for Poor)	67%
IC/IR (without USP investment)	91%

As can be seen, Amb-M's revenues could potentially go up to **Rs. 13,057 lakh** by 2016 and **Rs. 31,434 lakh** by 2027. If we exclude slum rehabilitation and urban services for poor projects which are largely grant funded, the borrowing capacity translates to **91%** of the total investment requirement.

While it appears that Amb-M would be largely capable of meeting its Capital Investment Requirements, it needs to put in place systems and improve capacity to meet the revenue and cost targets set forth in the Financial and Operating Plan. Further, it would also need to work with other Government agencies responsible for various infrastructure services to enable development of physical infrastructure and other urban services that are currently beyond the scope of execution of Amb-M.

1. Introduction

1.1 Background to the study

The Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) intends to assist Ambattur Municipality (also referred to as Amb-M in this document) in strengthening and improving its financial position for effective capital investment management and urban service delivery. As part of its project development and capacity building role, TNUIFSL retained ICRA Management Consulting Services Limited (IMaCS) for assistance in preparation of a City Corporate Plan cum Business Plan for Amb-M.

This exercise intends to build on internal efforts of Amb-M and the Vision Plan prepared by Amb-M in FY 2005 that identified projects and development priorities in various areas of municipal functioning and also enable Amb-M to develop a holistic, structured and consultative approach to fine-tune and define its development priorities going forward. The objectives of the exercise are three-fold: a) to assess existing demand-supply gaps in service delivery and derive a comprehensive infrastructure improvement plan (including a Capital Investment Plan) required, b) to identify revenue enhancement and financial improvement measures and c) to develop a Financial and Operating Plan for a 10-year period to implement a sustainable infrastructure improvement plan.

1.2 Objectives, Scope of Work and study modules²

1.2.1 Objectives of the study

The objectives of this exercise as defined by TNUIFSL were to:

- a) Define the growth directions and service up-gradations in relation to the activity mix / growth
- b) Look at the demand for the projects specified by the ULBs, and identify gaps in services to broadly outline infrastructure needs;
- c) Identify specific capital improvement needs with regard to priority city infrastructure in both slums and other areas
- d) Define revenue enhancement and revenue management improvements required to sustain the rehabilitation proposed
- e) Identify reforms required in local administration and service delivery and management changes required at the local level to improve O&M of assets
- f) Suggest measures to address common growth and infrastructure issues.

² Compiled from the Terms of Reference document prepared by TNUIFSL

1.2.2 Scope of work

A brief summary of the scope of work for the study is given below:

- a) Assessment of demand for projects identified by ULB.
- b) Assessment of the financial and operating aspects of Ambattur
- c) Review issues relating to revenue realisation, asset management and institutional constraints
- d) Development of a Financial and Operating Plan (FOP), taking into account potential revenue enhancement and cost reduction measures
- e) Prepare a draft Memorandum of Association between ULB and TNUIFSL that will outline. base line indicators and the performance targets on the same.
- f) Initiate consultations with council and local stakeholders on the priorities; redefine priorities and work with the Council to resolve on adoption of the City's FOP and CCP actions.
- g) Finalize Action Plan for the City, with a resolution from the council on the priorities and commitment to implement revenue and management improvement measures.

The detailed Terms of reference provided by TNUIFSL is enclosed in Annexure I.

1.2.3 Study outputs and modules

We have clubbed overlapping and related study outputs defined in TNUIFSL's RFP into the following modules:

- **Module I** - Rapid Urban Assessment
- **Module II** - Strategic Plan, Capital Investment Needs and Asset Management Plan
- **Module III** - Project risk, environmental and social assessment
- **Module IV** - Financial and Operating Plan
- **Module V** - Policy Interventions and Technical Assistance requirements

1.3 Approach and Methodology

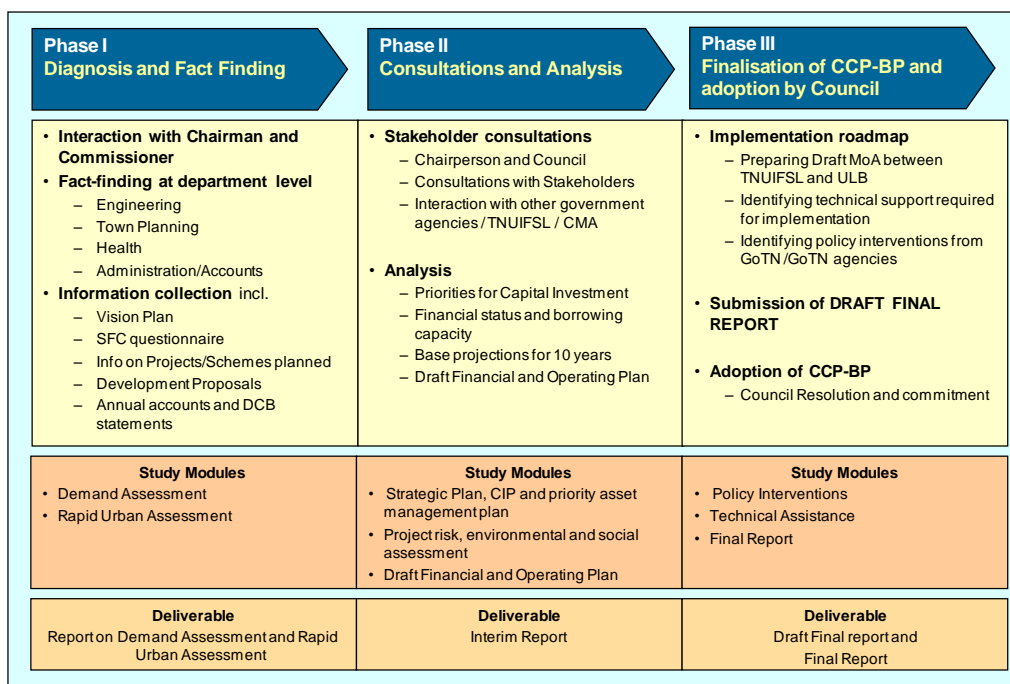
We conducted this study in three phases. Exhibit 1.1 provides a snapshot of the approach and methodology along the study modules and the deliverable(s) covered in each phase.

1.3.1 Phase I – Diagnosis and Fact-finding

The diagnostic review was directed towards achieving an understanding of demographic and economic profile of the town along with a review of the operating and financial performance of Ambattur municipality. During this phase, we focused our fact gathering on the following:

- Understanding of the city context and characteristics in terms of demographics, land-use and economic development
- Assessment of current status and requirements for various urban services
- Review of operational performance and service delivery of Amb-M in infrastructure segments
- Compilation of information on ongoing and proposed schemes and projects.

Exhibit 1.1 IMaCS' approach and methodology



Our methodology for this phase covered the following:

a) Primary research

- We had interactions with the Commissioner and officials in various departments of Ambattur municipality. The objectives of these interactions were to get a first-hand view of the perspectives of these officials with respect to the overall status of the town and the issues in delivery of urban services.

b) City Visits

- Our team made several reconnaissance visits to different parts of the town to understand the spatial characteristics of the town and to get hang of the 'visible' issues facing municipal management in the town.
- During these visits, IMaCS' team also had informal dipstick interactions with the local populace to capture select perceptions on the town and its municipal administration.

c) Collection of information on aspects relating to the town and municipality

- We spent substantial time during this phase in perusing various documents and information available with Amb-M and in follow-up discussions with ULB officials on the information gathered. In preparing this report, we have relied on the information provided by the ULB.

Phase I of the study culminated with the submission of Rapid Urban Assessment Report.

1.3.2 Phase II - Consultations and Analysis

In phase II, we validated the findings of our rapid urban assessment report through extensive consultations in the town. The activities during this phase included:

- a) **Consultations with the Council** - The focus was to understand issues in urban services and to drive a consensus on the future actions for the town. We deliberated the projects needed in order to factor the council's priorities. Refer Annexure II for minutes of the discussions
- b) **Public consultations** – We had public consultations with key stakeholders in the city organised with the support of the Federation of Residents' Welfare Associations of Ambattur. The objective of this session was to facilitate a wider participation of stakeholders in this exercise. Annexure III provides minutes of our meeting with the public stakeholders.
- c) **Analysis and finalisation of Capital Investment Plan** – Based on the findings of the rapid urban assessment and consultations with Council and stakeholders, we arrived at the Capital Investment Requirements for the town for the next 20 years. (i.e., 2008-2027).

Phase II of the report culminated with the submission of the report on Strategic Plan, Capital Investment Plan and Asset Management Plan report for the municipality.

1.3.3 Phase III – Finalization of report

This phase involved finalizing the contours of the City Corporate Plan cum Business Plan of Ambattur municipality. During this phase we crystallized

- a) Reform agenda to be adopted by Amb-M including revenue enhancement options.
- b) Policy interventions and technical assistance required for Amb-M to implement the CCP-BP.
- c) Assessment of borrowing capacity and preparation of a sustainable Financial and Operating Plan.

1.4 Organization of this report

This document presents our Final Report of the study and is structured along the sections given below. Prior to finalisation, the Draft Final Report was submitted and reviewed by TNUIFSL, CMA and Amb-M. The report with the incorporated changes was presented to the municipal council, which passed a **Council Resolution**³, approving the report in its meeting on **18.02.2008**

- Section 1 Introduction
- Section 2 City profile and demographics
- Section 3 Economic profile and Land use
- Section 4 Rapid urban assessment – services, issues and gaps
- Section 5 Urban Governance and management
- Section 6 Analysis of financial performance
- Section 7 Vision and strategic plan, CIP and asset management plan
- Section 8 Project profiles including analysis of risks and ESA considerations
- Section 9 Reform Agenda and Technical Assistance
- Section 10 Financial and Operating Plan

³ Copy enclosed with Executive Summary of report

2. Town profile and city demographics

2.1 Geography

2.1.1 Location

Ambattur is located at 13.1° N 80.16° E and has an average elevation of 17 m. Situated on the western side of Chennai city as one of its suburban areas and to the south of Red Hills Lake, one of the important reservoirs that supply water to Chennai city. Ambattur is within the Chennai Metropolitan Area (CMA) and is at a distance of about 20-km from Chennai on Chennai - Thiruvallur High Road. Ambattur falls within the district of Tiruvallur, which was carved out by bifurcating erstwhile Chengalpattu district. At present this district is comprised of eight taluks namely Ambattur, Gummindipoondi, Ponneri, Uthukkottai, Tiruvallur, Poonamallee, Tiruttani and Pallipattu.

2.1.2 Road and rail connectivity

Exhibit 2.1 provides the location of Ambattur within Chennai Metropolitan Area along with a map of Ambattur town. The Chennai Tiruvallur highway (MTH Road or NH 205) passes through Ambattur and the Chennai-Kolkata highway is about 7 km from Ambattur. The new Chennai Bypass between Maduravoyal and Madhavaram would pass through Ambattur. The completed first phase of the Bypass connects NH 45 with NH 4. The second phase, under construction, connects NH 4 with NH 5 and NH 205 via Ambattur Industrial Estate.

The Chennai Central - Arakonam suburban railway line passes through Ambattur and has 3 railway station at Korattur, Patravakkam and Ambattur within Amb-M. Suburban broad gauge trains operate on this route daily from Chennai Central and Chennai Beach to Arakonam, Avadi and Tirutani.

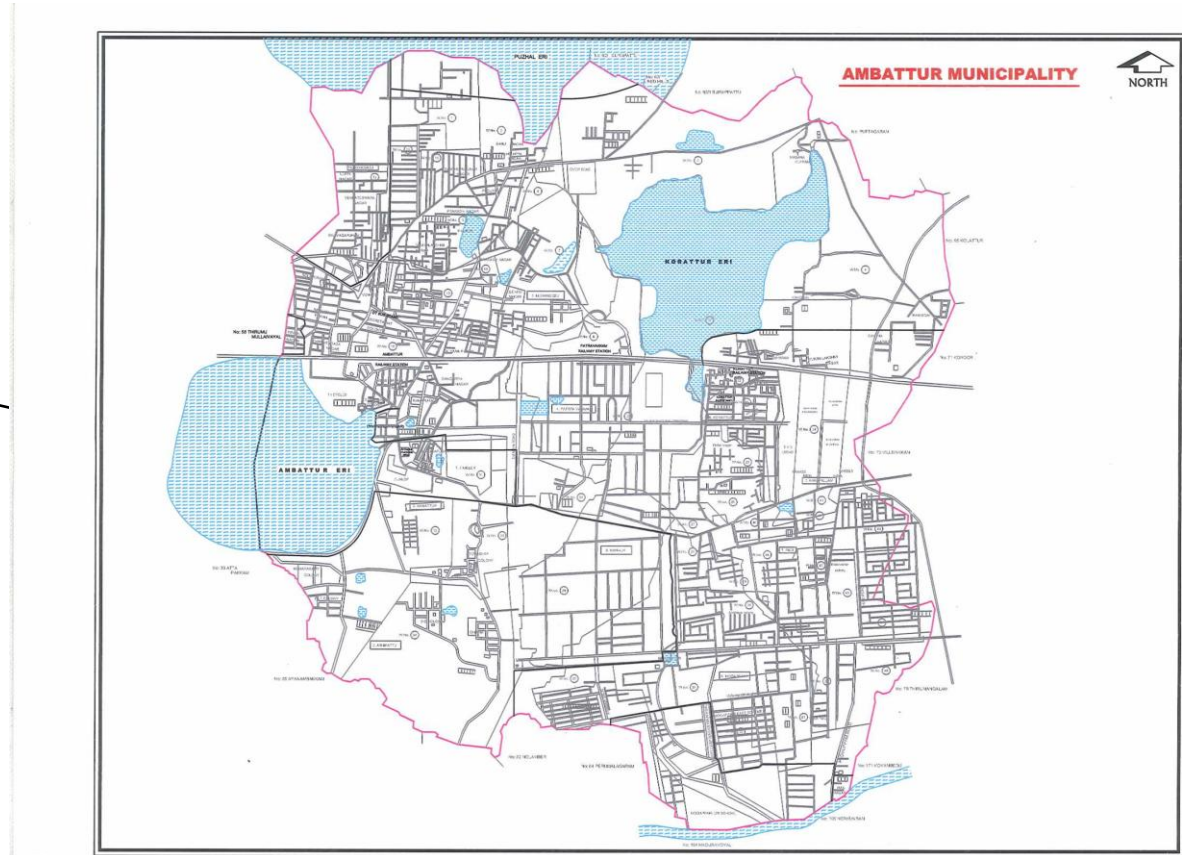
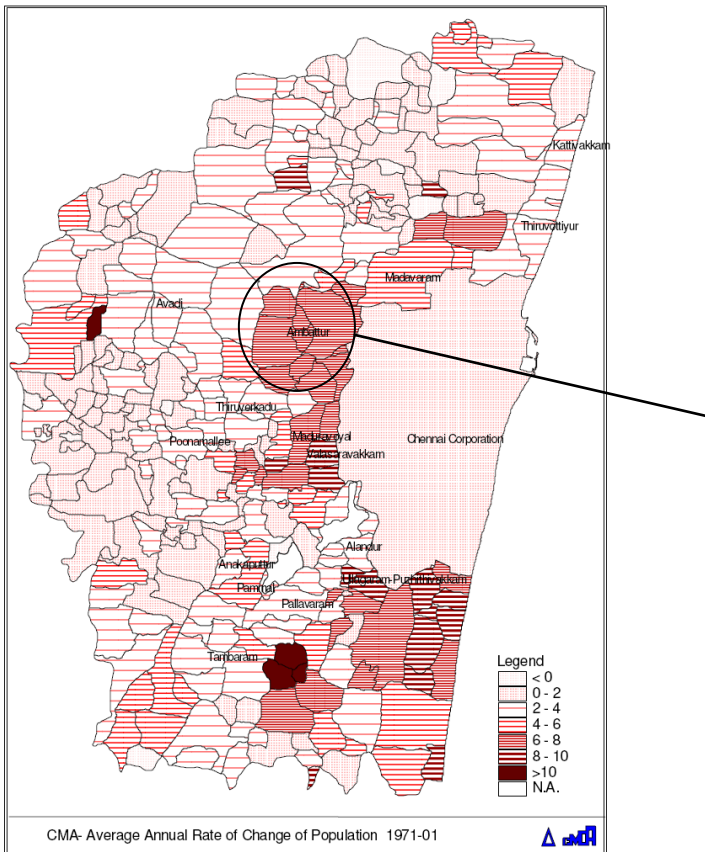
2.2 Ambattur municipality - administrative status

Ambattur comes under the North Chennai parliamentary constituency and Villivakkam assembly constituency. Earlier a major panchayat, Ambattur was constituted as a township municipality on 30th January 1971, by bringing together 10 revenue villages namely, Ambattur, Athipattu, Mannurpet Parravaakkam, Menampet, Kakkapalam, Padi, Koratur, Mogappair and Oragadam.

It was upgraded to a selection grade municipality on 1st April 1975 and subsequently as a Special Grade Municipality on 26th May 1992. Amb-M includes the areas of Padi, Koratur, Anna Nagar Western Extension, Moggapair and Ambattur Industrial Estate areas.

The Municipal Council, comprising of 52 ward members, one of whom is elected as the Chairperson. The executive wing is headed by Commissioner, who is assisted by a team of officials including Municipal Engineer, Municipal Health Officer and Manager. The current Municipal Council took charge in October 2006.

Exhibit 2.1 Location of Ambattur within CMA



Source: II Master Plan Document. CMDA, Ambattur Municipality

2.3 Population

2.3.1 Decadal trends

Exhibit 2.2 provides a snapshot of the population growth over the last few decades.

Exhibit 2.2 Population growth trend

Year	Population	Census households	Growth Rate (%)	
			Annual	Decadal
1961	27,000	37,271		
1971	52,750	42,597	5.38%	69%
1981	115,901	48,429	9.78%	154%
1991	215,424	53,845	6.39%	86%
2001	310,967	73,630	3.74%	44%

Source: www.tnmlbs.tn.gov.in

As per the latest census, Population of Amb-M was 310967 (~ 73630 households). The spike in population growth since 1960 is attributable to creation of Ambattur municipality, Ambattur Industrial Estate and industrial developments that followed. Though population growth rate decreased relatively during 1991-2001, but continues to be substantially high.

Discussions with municipal officials reveal that the town has an average floating population of about 100,000, which is due to the industrial area within the town and proximity to the Chennai city. The town is an important node on the rail and road corridors connecting Chennai to Avadi, Tiruvallur, Tiruttani, Renigunta and Tirupati which also explains the high floating population and the traffic trips attracted by arterial roads of Ambattur.

2.3.2 Ward wise population

Wards 2-6, 11-12, 20, 24, 29, 32, 35-37, 46, 48, 50-52 had a population of more than 6000 at the time of Census 2001 and constitute the residential areas of the town. The Ambattur Industrial Estate is spread across wards 29 and 30 and parts of ward 21.

2.3.3 Population vis-à-vis other suburban areas within CMA

Exhibit 2.3 provides details of population growth trend in Ambattur vis-à-vis other suburbs within CMA. Ambattur is the largest municipality in the CMA in terms of population and stands second in terms of land area (behind Avadi). In spite of being the largest municipality in the CMA, the population growth in Ambattur has been healthy even during the 1990s. With its proximity to Chennai, large land area and lower population density (77 per hectare) vis-à-vis Chennai city area (247 per ha), the population growth is expected to be strong in Amb-M.

Exhibit 2.3 Amb-M vis-à-vis other suburban areas in CMA

Sl. No.	Municipality	Area sq.km	Population (Thousands)				Growth %		Pop.density / Ha
			1971	1981	1991	2001	1971-2001	1991-2001	
1	Alandur	8.08	65.04	97.45	125.24	146.29	2.7%	1.6%	181
2	Ambattur	40.36	45.59	115.90	215.42	310.97	6.6%	3.7%	77
3	Anakaputhur	2.98	10.88	15.30	24.35	31.92	3.7%	2.7%	107
4	Avadi	61.57	77.41	124.70	183.22	229.40	3.7%	2.3%	37
5	Kathivakkam	4.75	16.14	22.10	27.17	32.59	2.4%	1.8%	69
6	Madhavaram	17.41	21.05	29.46	49.26	76.09	4.4%	4.4%	44
7	Maduravoyal	4.78	6.46	7.45	14.88	43.61	6.6%	11.4%	91
8	Manali	7.49	3.34	11.96	19.09	28.60	7.4%	4.1%	38
9	Pallavaram	16.10	51.37	83.90	111.87	137.93	3.3%	2.1%	86
10	Pammal	5.19	9.05	27.82	36.51	50.00	5.9%	3.2%	96
11	Poonamallee	6.55	18.72	23.67	28.83	42.60	2.8%	4.0%	65
12	Tambaram	20.72	58.81	86.92	113.29	137.93	2.9%	2.0%	67
13	Thiruverkadu	18.63	13.08	17.23	27.84	32.20	3.0%	1.5%	17
14	Tiruvottiyur	21.35	82.85	134.01	168.64	212.20	3.2%	2.3%	99
15	Ullagaram	3.64	2.38	8.58	16.13	30.42	8.9%	6.5%	84
16	Valasaravakkam	2.97	2.41	7.58	21.95	30.98	8.9%	3.5%	104
All Municipalities		242.57	484.58	814.03	1,183.69	1,573.73	4.0%	2.9%	65
Chennai Corporation		176	2642.00	3285.00	3843.00	4344.00	1.7%	1.2%	247
Town Panchayats (20)		156.02	111.18	164.19	271.35	385.72	4.2%	3.6%	25
Panchayat Unions (10)		617.00	267.3	338.74	520.24	730.79	3.4%	3.5%	12
TOTAL CMA		1,191.59	3,505.06	4,601.96	5,818.28	7,034.24	2.3%	1.9%	59

Source: Chennai draft II Master Plan document. www.cmdachennai.org, IMaCS analysis.

2.3.4 Literacy Rate and sex ratio

Exhibit 2.4 provides details of the sex ratio along with details of Literates for Ambattur, Chennai City, CMA and Urban areas in Tamil Nadu.

Exhibit 2.4 Literacy and sex ratio

Particular	Male	Female	Total	Region	Sex Ratio
Literates (nos) - Ambattur	134,067	113,291	247,358	Ambattur	940
Literacy % - Ambattur	93.59	84.27	89.07	CMA	956
Literacy Rate - CMA	n.a	n.a	76.09	Chennai City	957
Literacy Rate - Chennai City	n.a	n.a	n.a	Tamil Nadu Urban	982
Literacy % - State - Urban	88.97	75.99	82.53		

Source: <http://www.census.tn.nic.in>

As seen, literacy rates in the town are greater than the overall urban literacy scenario in Tamil Nadu. The number of literates has shown positive trend in absolute terms as per the latest census data. There has been also been a significant increase in female literacy over the last decade. This may be attributed to migration of educated male population to other cities in search of employment opportunities and increase in proportion of girls enrolling into schools. The sex ratio for Amb-M at 940 is lower than the state average of 982 (as per Census 2001) reflecting the lower female population. Ambattur falls even below Chennai city, which has a sex ratio for 957 and CMA where the sex ratio is 956.

2.4 Population projections

We have projected the population for Ambattur town has been made using the following methods:

- d) **Arithmetical Increase Method**
- e) **Geometric Increase Method**
- f) **Incremental Increase Method**

Exhibit 2.5 provides the summary of the population projects made for the town. Annexure IV provides the detailed computations.

Exhibit 2.5 Population Projections

	Arithmetic	Geometrical	Incremental	Average	CMDA Master Plan estimate
2001 (Actual)	310,967	310,967	310,967	310,967	310,967
2011	381,959	558,947	407,610	449,505	488,000
2016	417,455	749,375	465,550	544,127	611,000
2021	452,951	1,004,680	529,904	662,511	765,000
2026	488,446	1,346,964	600,670	812,027	958,000

Source: IMaCS analysis, CMDA II Master Plan for Chennai

The enumerated population for Ambattur in 2005 as provided in the Solid Waste Management Action Plan is 4.01 lakh. Therefore, the population in the town appears to growing geometrically during 2001 and 2005. The population of Ambattur town could potentially triple in the next two decades going up to 0.81 mn to 0.95 mn. by 2026. It is therefore critical that land-use and master planning for the town and adjoining areas factor this population growth. Amb-M should need to take into account these population projections and trends for planning, execution and implementation of infrastructure projects in order to ensure adequate provision of urban services.

3. Economic profile and Land use

This section analyzes issues relating to Town planning, land-use and economic status of the town.

3.1 Planning efforts within CMA

3.1.1 Chennai Metropolitan Area

Ambattur falls within the Chennai Metropolitan Area. The Chennai Metropolitan Area (CMA) comprises of Chennai City and areas to an extent of 376.59 sq.km. in Kancheepuram District and 637 sq.km. in Thiruvallur District. According to 2001 Census, 38.6.percent of population of Kancheepuram District and 57.5 percent of population in Thiruvallur District live within CMA.

Chennai Metropolitan Development Authority (CMDA) constituted by Government in 1975 by an order formulated the 1st Master Plan, which was consented by the Government in G.O.Ms.No.2395, Rural Development and Local Administration, dated 04.12.1976. The Chennai Metropolitan Area consisting of 306 villages in 10 Panchayat Unions, besides 28 Town Panchayats, 8 Municipalities and 1 cantonment covers an extent of 1177 sq.km.

3.1.2 Role of Chennai Metropolitan Development Authority

The functions of the CMDA as per section 9-C of the Tamil Nadu Town & Country Planning Act, 1971 (Tamil Nadu Act No. XXXV of 1972) are

- a) To carry out a survey of the Chennai Metropolitan Planning Area and prepare reports on the surveys so carried out;
- b) To prepare a master plan or a detailed development plan or a new town development plan as the case may be, for the Madras Metropolitan Planning Area;
- c) To prepare an existing land use map and such other maps as may be necessary for the purpose of preparing any development plan;
- d) To cause to be carried out such works as are contemplated in any development plan;
- e) To designate the whole of the Madras Metropolitan Planning Area or any part thereof within its jurisdiction as a new town and to perform the following functions, namely (a) to prepare a new town development plan for the area concerned; and (b) to secure the laying out and development of the new town in accordance with the new town development plan;
- f) To perform such other functions as may be entrusted to it by the Government.

3.1.3 Chennai Master Plan - evolution and status

The first Master Plan for the Chennai Metropolitan Area was prepared by CMDA and approved by the Government in G.O.Ms.No. 2395, R.D. & L.A., dated 4.12.76. The 1st Master Plan was followed up with Detailed Development Plan taken up mostly within the city where it was experiencing rapid growth.

- a) Land-use regulation and Development Control Rules were implemented to regulate development.
- b) A set of measures including shifting the wholesale markets, bus terminus were taken to decongest the city was suggested such as from the core to the city periphery.
- c) Periodic review of Land Use Zoning depending on demand for housing, services, and employment generation projects in industrial and information Technology sectors etc. apart from processing of individual requests for reclassification also became a feature of urban planning.
- d) Of the three satellite towns proposed at Maraimalai Nagar, Thiruvallur and Gummidipoondi with target population of 1 lakh each. CMDA had taken up development of Maraimalai Nagar Satellite Town over an area of about 1200 acres; of which about 50% of the land area has been developed for industries and the remaining for housing with all infrastructures. The Maraimalai Nagar Municipality comprising the new town and also the adjoining areas has about 0.5 lakh population. In respect of the other two satellite towns identified the population as per 2001 was 0.75 lakh in Thiruvallur and 1.95 lakh in Gummidipoondi. These two towns, even without intervention by CMDA has grown as satellite town because of good rail and road network connectivity to the parent city.
- e) In respect of urban node at Manali, CMDA acquired about 500 acres of land and developed for residential developments to accommodate a population of about 70,000. In the remaining 5 nodes viz. Minjur, Avadi, Ambattur, Alandur and Tambaram through land use regulation, the target population had been achieved.

Further to the implementation of the I Master Plan, CMDA submitted the draft Second Master Plan (SMP) for Chennai Metropolitan Area - 2011. Since there were delays in implementing the Master Plan, GoTN observed that during the long gap between the date of consent of Second Master (1995) and date of dismissed Writ Petition filed against the finalisation of said draft (2001), GoTN returned the draft master plan for CMA - 2011 to CMDA directing CMDA to modify the draft second Master Plan taking into account the urban developments made, amendments made to DCR, future needs of CMA and also the CRZ regulations etc. An updated draft SMP was submitted by CMDA to GoTN in December 2005 with the request that an opportunity to the public and local bodies may be given for giving their objections / suggestions before finally approving the plan. The consultations on the draft SMP is currently under progress.

3.2 Economic status

Being a part of the CMA and an adjacent urban area, Ambattur's economic status and growth is entwined with the economic activities and growth potential within the CMA. The following section captures some of the key economic drivers for Ambattur municipality.

3.2.1 Developments in CMA

Over the years, the economic base of Chennai had shifted from trade and commerce to administration and services by the early part of the 20th Century. In the post independence period, manufacturing became an important sector and CMA continues to be the most important industrial center in the State. Recent trend shows that the economic structure of the city is getting tertiarised with growing

contribution by Information Technology (IT) / Business Process Outsourcing (BPO) and other services. Analysis presented in Chennai SMP indicates that the CMA region alone accounts for nearly 16.21% of the state's income from all sectors with a similar proportion of the labor force in the state. Agriculture enterprise and establishments in Chennai and Kancheepuram Districts accounts for minimum and contributes only about 5% to the state's total.

Major industries in CMA are Auto, Auto Components, Railway Coach building, Petrochemicals and Fertilizers, Light Engineering and Leather products. Some of the large units are located at Ennore, Thiruvottiur, Manali, Sembiam, Padi, Ambattur, and Porur and along GST Road, apart from the Integral Coach Factory at Perambur, and Heavy Vehicles Factory at Avadi. Many Small and Medium Enterprises (SMEs) are located at Vyasarpadi, Ambattur, Villivakkam, Guindy and Thirumazhisai industrial estates, at Madhavaram, Kodungaiyur, Poonamallee, Noombal, Perungudi, Seevaram and Sholinganallur. Simpson, Addison and TVS industries are located in the heart of the city along Anna Salai. MEPZ spreading over an area of 261 acres is functioning at Tambaram. Leather tanneries and leather based industries are located at Pammal and Madhavaram. Thermal Power Plants are located at Basin Bridge and Ennore. Many of the smaller units are scattered in various parts of the Chennai City and the rest of CMA. Industrial estate for leather goods is being developed at Thirumudivakkam.

Large Scale automobile engineering, glass and ceramic industries are located within 50 Km. from CMA at Marai Malai Nagar, Irungattukottai, Sriperumbudhur, Thiruvallore and Gummudipoondi; to mention a few are Mahindra Ford factory - manufacturing cars at Marai Malai Nagar, Hyundai Car factory and Saint Gobin Glass factory at Sriperumbudur, Spartek Ceramic tile manufacturing industry and Hindustan Earth Movers and HM Mitsubishi at Thiruvallur. Mahindra Industrial Park developed over an area of 1300 acres located along GST Road (near Chengalpattu) is about 42 Km. from CMA.

Tamil Nadu accounts for about 21percent passenger cars, 33percent commercial vehicles and 35percent automobile components produced in India. Chennai, the 'Detroit of India' is emerging as a major export hub for cars in South East Asia. In July 2005, the Government of India has decided to establish a new testing and homologation centre near Chennai. It is expected to bring about large savings in the foreign exchange spent on testing exportable vehicles at overseas facilities and also attract foreign exchange inflows by providing a competitive platform for manufacturer abroad to test their vehicles here. Tamil Nadu accounts for 70percent of leather tanning companies in India and 38percent of leather foot wear and components; most of the footwear industries are located within CMA. A cluster of chemical industries is located at and around Manali in CMA. The presence of two major ports (Chennai and Ennore) and an international airport has made the CMA region attractive for investments with international trade linkages.

3.2.2 Economic drivers - Ambattur

Ambattur Industrial Estate

The Ambattur Industrial Estate was established in 1964 and is one of the largest industrial areas in Asia. Majority of the manufacturing units are auto ancillary units catering to many large industries

located in Chennai and elsewhere. The industrial area employs around 1 lakh employees, of which women form 1/3 rd of the total workforce. The industrial area's annual turnover is Rs 2000 crore with exports of more than Rs 500 crore.

Ambattur Industrial Estate had its functioning commissioned in the year 1964, by the Government of Tamil Nadu. Several factors such as suitability of the soil, communication facilities, availability of raw materials and availability of ground water suitable for industrial and domestic purposes, etc., were responsible for seeking this place for the setting up of this industrial Estate. An extent of 4 km² adjoining the estate was acquired by the Tamil Nadu Housing Board for housing purposes.

Companies like Britannia Industries Limited, TI Cycles of India, Dunlop, TVS have their plants in Ambattur. Videsh Sanchar Nigam Limited has its Satellite earth station at the Ambattur-Red Hills road. Jaya TV, Vijay TV, Asianet and Kairali relay signals from this facility. The estate is also becoming home to a number of IT-ITES facilities. Software companies like HCL Technologies and Tata Consultancy Services have set up their development centres in the Ambattur industrial estate. There are also a few BPOs like Perot Systems within the estate.

The maintenance of infrastructure services within the Ambattur Industrial Estate has been entrusted to a Special Purpose Vehicle called the 'Chennai Auto Ancillary Industrial Infrastructure Up gradation Company (CAAUIUC)'. CAAUIUC has been formed to improve infrastructure facilities in the Ambattur Industrial estate and two other industrial estates in Thirumudivakkam and Thirumazhisai. Ambattur municipality only provides Solid Waste management services in the Industrial estate. Other infrastructure services have been entrusted to CAAUIUC.

Linkages to nearby industrial centres and Chennai city

Ambattur is well connected to Chennai city to other industrial areas of Tiruvallur, Sriperumbudur, Manali and Ennore. The Chennai Tiruvallur highway (MTH Road or NH 205) passes through Ambattur and the Chennai-Kolkata highway is about 7 km from Ambattur. The new Chennai Bypass between Maduravoyal and Madhavaram would pass through Ambattur. The completed first phase of the Bypass connects NH 45 with NH 4. The second phase, under construction, connects NH 4 with NH 5 and NH 205 via Ambattur Industrial Estate. The Chennai Central - Arakonam railway line passes through Ambattur and has a railway station at Ambattur. Suburban broad gauge trains operate daily from Chennai Central and Chennai Beach to Arakonam, Avadi and Tirutani via Ambattur.

The connectivity to these nearby areas, proximity to Chennai city and local employment opportunities due to the presence of the industrial estate and other commercial developments has made Ambattur one of the fastest growing residential settlements in the CMA region as well.

3.3 Land-use and development

Ambattur was identified as a major node for development in the first Master Plan of the Chennai Metropolitan Area, through which major transport corridors and development was envisaged to take place. As per the draft Second Master Plan, the large scale neighbourhood development of Tamil

Nadu Housing Board (TNHB) with full infrastructure catalysed further private developments for residential use in Mogappair and parts of Ambattur adjoining Chennai city (near Anna Nagar).

The establishment of the industrial estate in 1963 and the subsequent growth of industries in the region catalysed further development in Ambattur municipality. A number of large industrial units including Sundaram Clayton, Wheels India etc are present outside of the limits of the Ambattur Industrial Estate, within Ambattur municipality.

3.3.1 Land-use

Development pattern and trends

This section further details the qualitative dimensions of the development and growth corridors in Ambattur town.

Residential developments

The south west part of Ambattur (wards 36-52) close to Anna Nagar covering Mogappair area has become a strong residential development largely due to neighbourhood development by TNHB that catalysed substantial private residential construction in this area as well. This followed efforts of the state government, through schemes anchored by the Tamil Nadu Housing Board, to make Mogappair a residential suburb, primarily for those employed in industrial units in neighbouring areas. Korattur area around the railway station (24-26) in the central part of the town along the railway station also was developed by TNHB as a residential settlement. Wards 36 and 50 account for bulk of the slum population in this part of town. Apart from these areas, development is also noticeable along the North West part of the town (along wards 10-18) along Ambattur Railway station and Ambattur OT bus stand.

Developments along the railway line

The Chennai – Tiruvallur – Renigunta railway line traverses through the middle of Ambattur municipality crossing the town from east to west. Three stations on the Chennai-Arakonam suburban railway network fall within the municipal limits namely, Korattur, Pattaravakkam and Ambattur. Commercial developments and residential clusters are seen along the railway stations. Data available from the municipality also suggests substantial slum population along Pattaravakkam and Ambattur railway stations. (Wards 6 and 16).

Industrial Estate

Wards 29, 30 and part of 21 form the SIDCO Industrial Estate inside which bulk of the industrial units of the municipality are housed. The total extent of the land is 1167 acres and the industrial estate has around 2000 large, medium, small and tiny industries. This area is being managed by SIDCO and all infrastructure facilities and requirements of this area (except Solid waste management) is being handled by SIDCO.

Areas adjoining Water bodies – Red Hills lakh, Ambattur Eri and Korattur Eri

Wards 1-3 fall along the boundary of Red Hill reservoir and forms part of the catchment area for the reservoir. These wards are sparsely developed. Similarly the areas around Koratur Eri (Wards 3-8) and Wards (32-34) south of ambattur eri have not witnessed substantial development. However, these areas seem to have a substantial slum population (8 wards 3,4,6,7,8 and 32-34 falling in this area account for approximately 25% of the slum population of the town).

3.3.2 Growth potential

Considering Ambattur's low population density (77 per hectare) vis-à-vis Chennai (240 per hectare) and the fact that only the south east part of the town is completely developed, Ambattur offers substantial development potential. This is also reflected in the growth trend of population and population projections of the Second Draft Master Plan, which expects the population of the town to cross 0.75 million in the next two decades. Development of arterial roads covering MTH road, NH Bypass and the proposed Outer Ring Road and other proposed new road formations could further boost the developments within Ambattur.

4. Rapid urban assessment - services, issues and gaps

This section provides details of the current status of various urban services in Ambattur Municipality and summarizes key issues. The section also covers an analysis of the projects identified by Ambattur municipality as part of its Vision Plan and the demand assessment of these projects. Finally, the section summarizes the normative gaps in infrastructure provisioning in water supply, underground drainage, roads, streetlights and solid waste management.

The Ambattur Industrial Estate falls within the boundaries of Amb-M. However, infrastructure services within AIE have been entrusted to a separate Special Purpose Vehicle (SPV). Amb-M handles only Solid Waste Management activity within the AIE. The remaining urban services in the Estate including roads, water supply, sanitation and street lights etc are managed by the SPV.

4.1 Water Supply – existing status

Ambattur Municipality does not have an integrated and comprehensive water supply scheme covering the entire town. Water supply in 11 wards of the municipality is catered to by the Chennai Metro Water Supply and Sewerage Board. A water supply network designed and developed by the Tamil Nadu Housing Board (TNHB) in the Korattur area was handed over to Amb-M in 1983 and has been managed by Amb-M since then. Other parts of the town are yet to have a water supply network in place and are catered to by a combination of public fountains and Sintex tanks serviced by lorries and from local wells / bore wells. Exhibit 4.1 provides a summary of the water supply situation in various wards of the town.

Exhibit 4.1 Water Supply in Amb-M - Ward wise status

Sl. No	Agency managing water supply	Wards	Type
I	CMWSSB (Development and maintenance) Source: Puzhal Eri (Red Hills)	11 Wards 35,37,38,43,46-52	House Service Connections, lorries and Sintex tanks. Charges collected by CMWSSB
II	CMWSSB (Bulk supply) with Amb-M maintenance and supply Source: Puzhal Eri Red Hills, local Hand pumps and bore wells	21 Wards 6-9,11-21,27,29-31,33,34	Water Supply through 4 OHTs to Public Fountains and tankers only. Charged at Rs. 7 per KL by both Amb-M and CMWSSB
III	Developed by TNHB and maintained by Amb-M Source: Bulk water supply from Puzhal Eri to Koratur OHT	7 wards 22-24 (HSCs), 4,5, 25-26 (PFs)	~ 2400 House Service Connections (in wards 22-24) and Public fountains/ Lorry supply
IV	Amb-M and CMWSSB (Uncovered Areas) Source: Puzhal Eri, Red Hills	13 wards 1-3, 17, 28, 39, 40, 41, 42,44,45	Water supply through 7 tanker lorries and mini power pumps by both CMWSSB and Amb-M

Source: Note on Water Supply provided by Amb-M. Discussions, iMaCS analysis

4.2 CMWSSB network - Anna Nagar Extension and Mogappair area - 11 wards

Water supply in **11 wards** (Ward 35, 37, 38, 43, 46-52) is managed by CMWSSB. These wards are supplied through a combination of House Service Connections and supply through water tanks which are filled periodically through Lorries by CMWSSB. Protected water supply in these areas through piped household connections and Sintex tanks is provided by CMWSSB. Water supply in the 11 wards is provided in 4 zones by CMWSSB through a) depot 923 b) depot 924 c) depot 925 and d) depots 926 & 927. Details of the supply in these four depots is provided in the table below.

Exhibit 4.2 Details of water supply in 11 wards maintained by CMWSSB

Particulars	Depot 923	Depot 924	Depot 925	Depot 926 & 927	Total
Areas served	Annanagar west extn. I	Annanagar West extn II	Mogappair East	Mogappair West	-
Source and Volume of Supply					
Source of Supply	Puzhal lake & Krishna water	Served by common mains from Veeranam-Porur lake and Chembarambakkam lake			
Current supply volume (MLD)	1.85	2.20	1.97	3.00	9.02
Population served (Lakh)	0.42	0.5	0.5	0.35	1.77
Per capita supply	44	44	39	86	51
Distribution main					
Street Length (km)	16.69	26.50	26.30	25.60	95.09
Water pipe length	21.98	22.11	22.70	25.20	91.99
Connections					
Number of Connections	1582	2458	6077	4849	14966
Public Fountains	-	34	10	-	44
IM-II Hand pumps	-	21	87	64	172
Total public supply points	-	55	97	64	216

As seen from the above table, Water supply in these wards is to the extent of about 9.02 MLD implying a daily supply per capita of approximately 50 LPCD which falls below the municipal norm of 90 LPCD. As per details available for these 11 wards, the number of water connections translate to roughly 60% of the assessed properties. Apart from the piped connections, there is 1 public connections (fountains and IM-II hand pumps) for every 820 persons in these 11 wards.

4.3 Water supply in other wards – maintained by Amb-M

4.3.1 Koratur TNHB area - 7 wards

In this zone, water is supplied from Korattur OHT (capacity of 5 lakh litres) and Ground Level Reservoir (GLR) (capacity of 5 lakh litres). The OHT along with a distribution network in three wards (Wards 22-24) was originally implemented by Tamil Nadu Housing Board (TNHB) and was handed over to Amb-M during 1983. Water is supplied through piped connections to 2400 households in this area. The OHT from this network also serves public fountains in wards 4, 5, 25 and 26. In view of the

water shortages, CMWSSB is not supplying water to this area. Amb-M supplies water to this zone using lorries on hire.

4.3.2 Ambattur area - 21 wards

Venkatapuram, Varadharajpuram, Mannurpet and Athipattu areas have nearly 475 public taps through which nearly 13 lakh litre of water per day is provided. Water is supplied from 4 Over Head Tanks through public fountains. At times of shortage nearly 6-7 lakh litres are being provided. The water is sourced from Puzhal Eri (earlier from Surapet headworks maintained by TWAD). Water supply in 21 wards is provided through this source covering 156,000 people providing 25 LPCD

4.3.3 Water supply through Municipal lorries – Other uncovered wards

Amb-M supplies water through lorries from wells in Dunlop factory. 7 lorries carry 90 loads of water daily and supply to 120 sintex tanks, serving 45000 people at an average of 12 LPCD.

4.3.4 Water sources

Amb-M meets its water demand through Surface and Sub-Surface sources, through water supply schemes. Exhibit 4.3 provides details of the sources of water and the total daily supply.

Exhibit 4.3 Water supply in Ambattur - Sources of water and daily supply in MLD

Sl. No	Source / Agency	Daily supply (MLD)
1	Bore wells with Hand Pump and Open Wells 651 bore wells x 60 x 15 x 2 LPM	1.2
2	Power Pumps Power pumps in wards 1, 4, 11 and 12	0.6
3	Supply through Lorries by Amb-M	1.26
4	Supply through lorries / Sintex Tanks by CMWSSB (9 wards)	0.3
5	Supply by TWAD to 4 OHTs in Ambattur From Puzhal Eri	2.0
TOTAL SUPPLY (in MLD)		5.36

Source: Note on Water Supply provided by Amb-M. Discussions, IMaCS analysis

4.3.5 Storage

Exhibit 4.4 gives details of the storage infrastructure available within Amb-M in terms of Over Head Tanks (OHTs) and Ground Level Reservoirs (GLRs). There are a total of 5 OHTs with a capacity of 15 lakh litres and 5 GLRs with a capacity of 25 lakh litres, adding up to 40 lakh litres of storage capacity. However, of these, 4 OHTs are fully damaged and not in usable condition. Therefore, effective operational storage capacity is 30.5 lakh litres only (5 GLRs plus 1 OHT). The pumping main of all the OHTs and GLRs are maintained by CMWSSB.

Exhibit 4.4 Water Supply - Storage infrastructure

	Area	OHT / GLR	Capacity (Lakh litres)	Year of construction	Remarks
1	Koratur (2 Pumps, 20 HP)	OHT	5.5	1982	
		GLR	5.0	1992	
2	Venkatapuram (3 Pumps, 12.50 HP)	OHT	3.0	1984	Not in use
		GLR	5.0	1998	
3	Mannurpet (3 Pumps, 10 HP)	OHT	4.0	1984	Not in use
		GLR	5.0	1998	
4	Opposite TI Cycles (3 Pumps, 20 HP)	OHT	1.5	1984	Not in use
		GLR	5.0	1998	
5	Attipettu (2 Pumps, 30 HP)	OHT	1.5	1984	Not in use.
		GLR	5.0	1998	
Operationally Available Storage (Lakh litres)			30.5	Gap in Storage - 110 Lakh Litres	
Required (50% of requirement) (Lakh litres)			140.0		

Source: Note on Water Supply provided by Amb-M. Discussions, iMaCS analysis

4.3.6 Distribution Network

Only 9 wards in Amb-M out of the total of 52 wards have direct household service connections for water supply. The distribution line length in Amb-M is about 148.90 km. Seen in the context of the total road length of Amb-M, which extends over 426 km (including roads managed by State highways). Therefore **less than 35% of road network** in Amb-M is covered by distribution network.

4.3.7 House Service Connections

Amb-M municipality manages about 2456 House Service Connections within its limits, for which it collects user charges at the rate of Rs 60 per month. These fall within the following wards namely, 22, 23 and 24. In addition, CMWSSB provides House Service Connections in about 11 wards in the municipality. Exhibit 4.5 provides the details of House Service Connections in Amb-M

Exhibit 4.5 House service connections

Managed by	No. of connections
CMWSSB	14966
Amb-M	2456
Total connections	17422
Assessed properties	79918
% of Properties	22%

4.3.8 Issues and gaps

Exhibit 4.6 summarises the current status vis-à-vis ultimate population requirements (2026 population projections assumed as per Chennai II Master Plan document)

Exhibit 4.6 Water Supply – Gap analysis

Indicator	Unit	Norm	Existing	Gap
Per Capita Water Supply	LPCD	90	29	(61)
Storage and Distribution				
Storage - % of Current Demand	%	50%	22 %	(28%)
Distribution Network - % of Road Network	%	100%	35%	(65%)
Connections / Properties	%	70%	~22%	48%
Demand - Supply Gap				
Water Demand - Current	MLD		~ 35.5	
Water Demand – 2026	MLD		~ 120	
Water Supply – Current	MLD		~ 14.5	
Demand Supply Gap – Current	MLD			~ (21)
Demand Supply Gap – 2026	MLD			~ (85)

Source: Inputs from Amb-M and CMWSSB, iMaCS analysis

a. Lack of adequate access

Amb-M has 52 wards and had a population of 310,967 during Census 2001. Given municipal norm of 90 Litres per capita per day, demand for water supply in Amb-M was approximately **28 Million Litres per day (MLD)** in 2001. As against this, the total water supplied within Amb-M by various agencies is only about **5.36 MLD** implying that Amb-M is meeting only about 19% of its 2001 requirements currently. As explained in Section 2 earlier, the II Master Plan document for Chennai prepared by CMDA indicates that population in Amb-M could reach 958,000 by 2026. Even at 110 LPCD, this would imply that Amb-M water demand would go up to **106 MLD** by 2026, which is nearly 3.7 times the demand as of 2001.

b. Mode of supply

Even within the wards where there is access to drinking water, supply is largely through lorries. Only 35% of the road network is covered with a distribution network and large parts of Ambattur are unserved by piped water network. Water Supply by Lorries is not sustainable and leads to other problems including traffic congestion and accidents.

c. Need for comprehensive scheme to address Water supply

Ambattur is one of the fastest growing suburbs and the population could potentially double in the next decade and triple by 2031. Given this context, measures taken in the recent past by CMWSSB and Amb-M including increase in lorry supplies and additional bore wells and power pumps are adhoc measures that can alleviate short-term demand at best. There is therefore a need for a comprehensive plan keeping in mind the ultimate population requirements of the town.

Substantial gap between Water demand and supply in Ambattur Municipality is evident. There is an urgent need for implementing a comprehensive Water Supply Program on priority.

4.4 Sewerage and Sanitation

4.4.1 Underground Drainage (UGD)

Current status

There are two existing Underground Drainage Schemes in Amb-M covering a total of 17 wards.

- 11 wards managed by CMWSSB
- 3 wards under Ambattur Eri scheme managed by Amb-M
- 3 wards under Korattur scheme managed by Amb-M.

Another UGD scheme is under implementation in 19 wards of the municipality. Thus out of 52 wards, 16 wards are uncovered. Amb-M has prepared a feasibility study for undertaking a UGD scheme in these 16 wards through ASK consultants. This report was submitted to CMWSSB, which is reviewing and updating the same for implementation. Exhibit 4.7 provides a summary of existing and work-in-progress UGD schemes in Amb-M.

Exhibit 4.7 UGD schemes - current status

Scheme	Wards	Connections	UGD Network (Km)	Pumping stations (Nos.)	STP Location
CMWSSB - Old Scheme	11 Wards 37,38, 43, 46,47, 48, 50-52	18490	87.94	3	Koyambedu Treatment Plant of CMWSSB
Amb-M - Eri scheme	3 Wards 34-36	1168	~ 10 km	1	Let out as waste water.
Koratur scheme	3 Wards 22,23,24	~ 2500		1	n.a
CMWSSB - New Scheme	19 Wards 1-3,6-20 and 31	18,000	148.87	4	Koyambedu Treatment plant of CMWSSB
Uncovered Areas	16 Wards 4,5, 25-28, 35-38, 41, 42, 44, 45, 49	Not covered yet.			

Source: Presentation on proposed UG scheme given by Amb-M. Discussions. IMaCS analysis

4.4.2 Ongoing UGD scheme

Amb-M is currently executing a UGD scheme covering 19 wards at an outlay of Rs. 39.60 crore. Of the 40.36 sq.km of Amb-M, the proposed project would cover an area of 10 sq.km. While the current water supply per capita in this area is 28 LPCD, the project has been assumed to handle 120 LPCD. About 18000 households are expected to benefit from the proposed scheme. The total length of the UGD network is 148.87 km with 4 pumping stations. The project was commenced in November 2004 and is expected to fully completed during the current financial year. Exhibit 4.8 provides the details of the pumping stations and their locations.

Exhibit 4.8 Ongoing UGD scheme - Pumping stations

Zone / Wards	Location
1-A / Ward 18	Teachers Colony Ward 18
2 / Wards 17 and parts of 12	Nehru Nagar 4 th Street Ward 17
3/ Ward 1-3, 10,11 and 12	Oragadam Ward 10-12
4/ Ward 3, 6-9 13-16, 18-20 and 31	Koratur Ward 23.

Source: Presentation on proposed UG scheme given by Amb-M

4.4.3 Public conveniences (PC)

There are 9 Integrated Sanitary Complexes (ISCs) and 4 public toilets within Ambattur municipality. In addition there are 2 pay and use toilets. Exhibit 4.9 provides details of PCs in Amb-M.

Exhibit 4.9 Public Conveniences

Details	Units
Public Toilets	10
Pay and Use Toilets	2
Integrated Sanitary Complexes	9
Total	21

Source: Amb-M

4.4.4 Storm water drains

Storm water drains carry the wastewater in addition to storm water generated during rains. With a total length of 134.25 km, the drainage system covers the road network of the town only partially. Only **31 % of the road network** has some form of drains in place. Even in roads covered by drain network, there are inadequacies relating to poor design, lack of connection to main channels, clogging and waste accumulation. There is water stagnation in these drains in a number of wards, which are being used for letting out sullage water from households leading to pollution and poor hygiene conditions. Exhibit 4.6 provides the details of coverage of storm water drains.

Exhibit 4.9 Storm water drain network

Type	Length (km)	% of total road network
Kutcha	4.3	1%
Pucca open	125	29%
Pucca closed	4.95	1%
Total Drain length	134.25	31%
Uncovered Road Length	292	69%
Total road length (km)	426	100%

Source: Filled SFC questionnaire. March 2006.

4.4.5 Issues and gaps

Specific issues relating to sewerage and sanitation in Ambattur municipality are highlighted below:

- 1. Incomplete coverage of UGD network** - 16 wards are yet to be covered with UGD system. Though Amb-M has reasonably coverage through septic tanks, an integrated UG system covering the entire town is critical, given the expected growth of the town.
- 2. Need for an integrated approach to sanitation** - Amb-M has 2 UGD schemes and a new scheme for 19 wards is under execution. There is also a proposal for executing a UGD scheme for the remaining 16 wards in the town. While executing the system for the uncovered areas, it is necessary to undertake an audit of the performance of the existing schemes and address deficiencies as part of the project to ensure comprehensive coverage.
- 3. Need to evolve a common user charge policy and connection policy.** Since there are multiple schemes of UGD in the town, there is confusion in terms of issues relating to connection deposits and user charges. While CMWSSB levies user charges in 11 wards, there are no user charges in the 3 wards where the UGD scheme is maintained by Amb-M. Amb-M should consider therefore an integrated policy for sanitation requirements of the town.
- 4. Need for greater coverage and better maintenance of Public conveniences** - Given the significant proportion of slum population and substantial floating population, there is a need for providing additional public conveniences and on their upkeep and maintenance. While Amb-M has initiated steps for construction of ISCs and public toilets, there is scope for greater improvement in this area.
- 5. Poor coverage, inadequacies in design and dumping of sullage in Storm water drains** - With the growth in population of the town, the poor coverage of road networks by storm water drains and the inadequacies in their design without adequate linkages to main channels requires immediate attention. Dumping of sullage and stagnant pools of water is also visibly disturbing and leads to pollution and mosquito menace.

4.5 Solid Waste Management (SWM)

Exhibit 4.10 summarizes the status of SWM in Ambattur municipality.

4.5.1 Waste Generation and collection

Ambattur town generates around 196 MT of waste every day. It is estimated⁴ that nearly 67% of the waste generated in the town is organic waste, while about 33% is inorganic waste. Solid Waste Management in 27 wards is managed by the municipality, while SWM in 25 wards (including the industrial estate areas) has been privatized.

⁴ Source: Solid waste management Action Plan. Ambattur Municipality

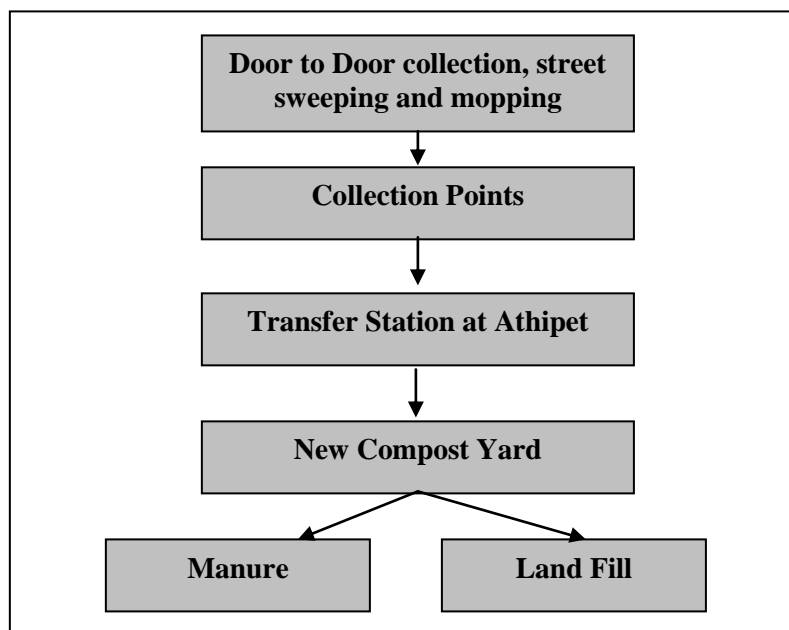
Exhibit 4.10 Solid Waste Management - Current status

Particulars	Units	Values
Generation		
Daily Waste Generation	MT	196
Daily Waste Collection	MT	196
Waste generation per capita	gms	433
Collection efficiency	%	98%
Transfer Stations / Compost Yard / Dumping Yard		
1. Athipet		7.4 acres
Collection / Transfer		
Wards with door-to-door collection		All Wards
Privatisation of collection		25 wards
	Amb-M	Private
Number of Wards	27	25 (incl Ind.Est)
Population (2004)	269,887	191,659
Daily Collection (MT)	102	94
Number of Workers	581	294
Primary Collection		
Door-to-Door collection	Partial	Partial
Tricycles in use	75	23
Autos	5	
Secondary Collection		
Collection points	27	
Tipper Lorries	11	13
Dumper Placer		3
Dumper Placer bins		22
Bobcat	1	
Compactor – 10 MT capacity	1	-
Compactor Bins	45	

4.5.2 Solid Waste Management Action Plan

Exhibit 4.11 gives the process of Garbage Collection and transportation process proposed in the Solid Waste Management Action Plan of Amb-M. Primary collection is to be done through tricycles and conveyed to the collection points. As per the proposed action plan, the existing dumping yard at Athipet is to be converted to a Transfer station. Dumper Placers and compactors would be used to convey the waste from the collection points to the Transfer station at Athipet. Here the waste is to be segregated. The biodegradable waste will be sent to a new compost yard being planned at Kuthambalkam, while the non-biodegradable waste is sent for land fill.

Exhibit 4.11 Garbage collection and transportation process – Proposed plan



4.5.3 Primary and secondary collection

Primary collection is handled through 110 tricycles in wards maintained by Amb-M and through 80 tricycles in wards privatized. Apart from this 5 auto rickshaws are also used in the privatized wards. Collection in Mogappair area, Ambattur O.T area and Industrial estate areas has been privatized. Apart from this, collection in 2 wards is envisaged through Self-Help groups. Of the total waste generation of 196 MT, 110 MT is generated in the wards maintained by Amb-M, while the remaining 86 MT is handled in the privatized wards.

The action plan estimates that a total of 320 bins in the privatized wards and a total of 865 bins in Amb-M maintained wards is required and estimated the additional requirement outlay at Rs. 21 lakh. The action plan assumes 1 collection point for each ward.

Movement of garbage from collection points to transfer station is handled through tipper lorries in wards maintained by Amb-M and by a combination of tipper lorries and dumper placers/ bins in the privatized wards. Given the capacity of 11 tippers and 45 Compactor bins, the total waste collection capacity at the secondary collection stage works out to 86 MT which falls short of the requirement of 110 MT.

4.5.4 Transfer Station and Compost yard infrastructure

The existing dumping yard at Athipet is envisaged to be converted to a transfer station (at an outlay of Rs 40 lakh) from which waste will be moved to a newly developed compost yard at Kuthambalkam

4.5.5 Issues and Gaps

Specific issues and gaps in Solid waste management are highlighted below:

1. **Need for a comprehensive study** - The Solid Waste Management Action Plan prepared earlier does not factor the potential growth of the town. For example, with the population likely to double over the next 20 years, the land area is likely to be inadequate. We understand that Amb-M is already in the process of identifying land for developing scientific disposal facilities. There is a need to undertake a detailed study on SWM requirements of the town considering future population requirement.
2. **Scope for private participation** – While Amb-M has privatized garbage collection in select wards, there appears to be potential for comprehensive end-to-end management of solid waste through a public private partnership covering collection, transfer and scientific disposal.
3. **Intensifying drive for segregation at source and door-to-door collection in a phased manner** - There is need for increasing awareness on SWM practices at the grassroots. Amb-M should progressively move towards source level segregation of waste for more efficient disposal and conversion. It may need to intensify promotion campaigns in this regard.

4.6 Transportation, Bus stands and street lights

4.6.1 Municipal roads

Amb-M maintains a road network of nearly 426 km of which surfaced roads (both B.T. and CC) constitute nearly 85 %. In addition, nearly 14.5 km of highway roads traverses the Amb-M area. Exhibit 4.12 provide the details.

Exhibit 4.12 Road network

Type	Length in km
Municipal Roads	
Cement Concrete	12.51
Bitumen Top roads	363.10
WBM roads	46.09
Earthen roads	4.42
Total	426.12
% of roads surfaced (BT + CC)	84.5%
Roads maintained by other agencies	
National Highways	14.5
State Highways	
Other Roads	
Total	14.5
Total Length of Road	440.67

Source: Amb-M

4.6.2 Arterial road connectivity

As mentioned earlier, Ambattur is an important node on one of radial corridors converging at Chennai along Avadi and Tiruvallur. However, the transportation infrastructure has not kept pace with the growth of the town leading to fairly visible traffic snarls along the arterial roads.

The Chennai-Tiruvallur Highway (MTH Road or NH 205) is an important arterial road that passes through Ambattur and strengthening and widening of the same is overdue. A new Chennai Bypass between Maduravoyal and Madhavaram being developed under the NHDP would pass through Ambattur IE.

The completed first phase of the Bypass connects NH 45 with NH 4. The second phase, under construction, connects NH4 with NH5 and NH205 via Ambattur Industrial Estate. Further, the roads within the industrial estate are being upgraded by the SPV formed for infrastructure development within the SIDCO industrial estate. These road projects and Two Grade separator / flyover projects, currently under implementation at the Padi junction and Wheels India junctions are expected to substantially alleviate the traffic congestion problems within Amb-M.

Apart from the road connectivity, Ambattur falls on the Chennai Central Arakonam railway line. Suburban trains daily operate from Chennai Central and Chennai Beach to Arakonam, Avadi and Tiruttani via Ambattur. By rail, Ambattur is 30 minutes from Chennai Central, 20 mins from Perambur and 10 minutes from Villivakkam. The Draft Second Master Plan proposes quadrupling the railway line from Pattabiram to Tiruvallur and tripling the line up to Arakonam.

4.6.3 Bus terminus

There are 5 bus stands in the municipality. 2 bus stands are maintained by the municipality while 3 are maintained by the Chennai Metropolitan Transport Corporation (MTC). The two bus stands maintained by Amb-M are the Korattur Bus stand (2163 sq.m) and Ambattur OT (2132 sq.m) bus stand. Three bus stands in Mogappair East, Mogappair West and Estate Bus stand are maintained by MTC.

4.6.4 Strbeet Lights

Ambattur has a fairly good coverage of the roads with street lights. As of 2006, the town has a total of 18396 streetlights of which 19 % is high power tube lights. The town has 43 streetlights per kilometer of road or an average spacing of 23 meters between lampposts. This coverage is lower than the municipal norm of one street light every 30 m. Exhibit 4.13 provides details of provision of street lights. Of the 52 wards, maintenance of streetlights in 17 wards (wards 1-17) have been privatised.

Exhibit 4.13 Street Lighting

Type	All Wards		Managed by	
	Nos	%	Amb-M	Private
Tube lights	14894	80.96%	8635	6259
Sodium Vapor Lamps	3495	19.00%	2259	1236
Mercury Vapor Lamps	0			
High Mast lamps	7	0.04%	7	
Total	18396	100%	10901	7495
Average distance between street lights		~ 23 m		
Street Lights per km		~ 43 lights		

Source: Administrative report FY 2006

4.6.5 Issues and gaps

Specific issues and gaps with respect to roads and street lighting are summarized below:

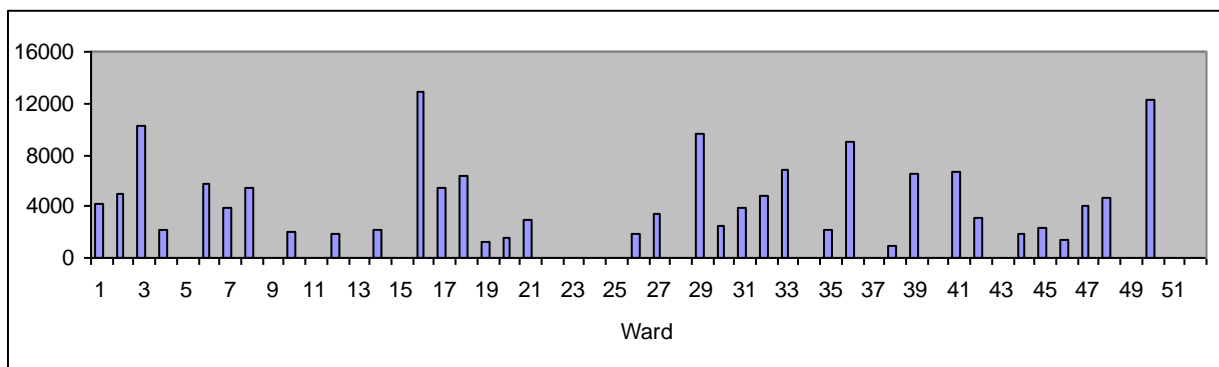
1. **Poor quality and congestion in arterial roads** - Though nearly 95% of the road network is in the surfaced category, a number of roads are in poor condition. The ongoing and planned transportation infrastructure improvements need to be implemented on priority.
2. **Lack of adequate organised parking facilities** - Increase in the number of vehicles and inadequate road networks are leading to traffic congestion. Further, given the high floating population, there is a need to earmark dedicated parking lots and better traffic planning.
3. **Encroachments along the roads** - Informal activities along the road margins and illegal encroachments of pedestrian areas and footpaths are the other causes for traffic congestion in the town. Many shops along these roads have encroached the road / footpath which creates congestion in the centre of the town.
4. **Need for planning restoration post UGD scheme** - With the plans to create an UGD scheme in the city, the entire road network in the town would need to be restored. So it may be appropriate to take up any large scale up gradation of the road network in a phased manner after completion of the UGD scheme.
5. **Energy efficiency in street lighting** - Amb-M needs to accord priority to improve energy efficiency and to reduce power costs incurred on street lighting.

4.7 Urban Services for poor

4.7.1 Slum details

A recent survey done in 2005 by Ambattur municipality indicates that there are 63 slums in Ambattur with a total population of 161378. **This is almost double the slum population of 86,692 as per the 2001.** The rapid proliferation of slums in Ambattur municipality is a serious cause for concern. Ward wise details of slums and slum population is provided in exhibit 4.14 below.

Exhibit 4.14 Ward wise slum population



35 wards out of the 52 wards in Ambattur have slums. Out of these, wards 3, 16 and 50 have more than 10,000 people living in slums, while wards 29 and 36 have more than 9000 people. With a total of 63 slums, the average population per slum works out to more than 2500.

4.7.2 Slum up gradation under BSUP

Amb-M has taken up a comprehensive proposal for up gradation of 12 slums at an outlay of Rs. 475.05 lakh. This project involves the following components:

- Building 295 new houses at an outlay of Rs. 236 lakh
- Developing and upgrading existing houses at an outlay of Rs. 47.6 lakh
- Cement Concrete Roads at an outlay of Rs. 175 lakh
- Street lights and sanitation at an outlay of Rs. 16 lakh

With the overall population of Ambattur estimated at 4.01 lakh in 2005, the slum population is estimated to have gone up to nearly 40% of the population in Ambattur. Provision of urban services for the poor and slum rehabilitation should be a critical component of Amb-M's plans.

4.8 Markets and other assets

4.8.1 Markets

As per the vision plan of Amb-M, Amb-M is maintaining 3 markets at Padi, Korattur and Elango Nagar. Of these markets, the market at Elango Nagar is not operational. Proposals have been prepared for improvements to buildings, providing amenities to Public viz., Toilet and water supply facilities. The approximate estimate cost work out to Rs.46.00 lakh for these 3 markets. As part of the Vision Plan of the municipality prepared in 2005, Amb-M envisaged construction of a new market complex at TVS colony, Elango nagar in a land area of 50,500 sq.ft with 72 shops. However, these proposals are still in the concept stage.

4.8.2 Crematoria and burial grounds

There are 20 burial grounds and 1 crematorium within Ambattur municipality. A modern electric crematorium was proposed to be developed in Officers Colony, as part of the Vision Plan prepared by the municipality in 2005. In addition, Amb-M also envisaged phased development of its burial grounds. An outlay of Rs. 170 lakh was envisaged in the Vision plan for these activities.

However, further to the announcement of support for Gasifier crematorium by GoTN, Amb-M is implementing a Gasifier crematorium at an outlay of Rs. 65.35 lakh. Feasibility study for the same has been completed and the works for the same is expected to be contracted out shortly. The crematorium is likely to be located in the burial ground on Vanagaram road

4.8.3 Slaughter house

Amb-M is also envisaging development of a modern Slaughter house at an outlay of Rs. 20 lakh.

4.9 Social infrastructure

4.9.1 Schools

There are 19 schools maintained by Amb-M. Of this, 13 are elementary schools, while 9 are middle schools. Exhibit 4.15 provides the details of schools and educational institutions within Amb-M.

Exhibit 4.15 Educational institutions

Type	Nos.
Municipal Primary Schools	16
Middle Schools	3
Primary Schools	74
Middle schools	23
High Schools	21
Matriculation Schools	27
Noon Meal Centres	75
Colleges	4
ITI – Government	4
ITI – Private	2
TOTAL INSTITUTIONS	249

Source: Amb-M

4.9.2 Hospitals and medical facilities

Exhibit 4.16 provides the details of medical institutions maintained by Amb-M and other medical institutions in Ambattur.

Exhibit 4.16 Medical institutions in Amb-M

Type	Nos.
Government	
ESI Dispensary	2
Municipal Dispensary	1
Maternity Centres	3
Health Post	5
20 Bed Operation Theatres	2
Private	
Hospitals	3
Nursing Homes	26
Clinics	121

Source: Amb-M

4.10 Status of Vision Plan projects

Exhibit 4.17 provides a summary of the projects envisaged as part of the Vision Plan and the current status of these projects.

Exhibit 4.17 Vision Plan projects and status

Segment	Projects	Outlay	Total	Remarks
Water Supply	Purchase of Tanker Lorries 10,000 litres capacity (4 Nos)	40	640	Not procured. Jointly managing with CMWSSB supply
	Providing Distribution mains Works taken up by CMWSSB	400		Ambattur Eri scheme dropped as water was found non-potable. New DPR for comprehensive water supply scheme being prepared by CMWSSB.
	New Scheme proposed at Ambattur Eri	200		
Storm Drains	74.24 km of uncovered drains	300	300	Partly done.
SWM	Transfer Station	24	311	Not done yet.
	Compost Yard	82		
	Vehicles	131		
	Container	73		
	IEC	1		
UGD	19 wards	3,960	3,960	In progress
Hospitals	Building improvement - Padi, Venkatapuram	3	21	Ongoing
	Borewell	3		
	Landscaping / Gardening 6 Nos	1		
	Providing Adequate lighting 6	1		

Segment	Projects	Outlay	Total	Remarks
	Nos			
	Furniture (Padi, Venkatapuram, Varadarajapuram)	7		
	Medical equipment (Padi, Venkatapuram, Varadarajapuram, Korattur)	6		
Bus terminus	Koratur bus stand improvements	55	55	Partially done to be completed
Roads	WBM to BT - 50.51 kms	562	562	Ongoing
Schools	New Additional Classroom 15 Works	56	100	Ongoing
	Compound Wall 6 Works	12		
	Improvements of existing building 12 works	4		
	Pro Water Supply 4 works	2		
	Pro Toilet facilities 9 works	13		
	Purchase of Computers and Furniture	12		
Markets	Elango Nagar	110	110	Yet to be started
Street Lights	4 high mast lights	20	35	High mast lights done and 200 Energy saver lamps done
	1000 Energy Saver	15		
Toilets	12 Vambay toilets	48	48	Done
Parks	7 parks	70	70	Completed
Tree plantation	30000 saplings	10	10	Completed
Burial Grounds	Electric crematorium	75	170	Not done yet. Gasifier and slaughter house projects under progress
	20 burial grounds	95		4 nos. being developed currently
	TOTAL	6,391	6,391	

Completed
 Partially done / under implementation
 Not taken up yet

Source: Discussion with municipal officials.

4.11 Service level indicators and demand assessment summary

Exhibit 4.18 below captures the status of core urban services of Ambattur Municipality in terms of key indicators and summarises key issues and gaps in these areas. The table summarizes the baseline situation in some critical performance indicators from the analysis presented above and highlights the critical gaps in the core urban services namely, Water Supply, Sanitation, Roads, Street lighting and Solid waste Management. In the next phase of the study, these gaps would be analysed in greater detail to arrive the vision for urban services in Ambattur and to estimate the capital investments required to address these gaps. Based on consultations, we would then define the Capital Investment priorities for the town.

Exhibit 4.18 Core urban services - Ongoing initiatives, Baseline indicators and gaps

Sl. no	Name of the Indicator	Value	Issues and Gaps
Water Supply:			
CMWSSB currently preparing a DPR for comprehensive water supply in all wards in Ambattur town.			
1	Daily Per Capita Supply (LPCD)	29	<ul style="list-style-type: none">Current supply on a per capita basis is significantly below municipal normsNeed for significant augmentation of water supply at source, storage and distribution.
2	Storage Capacity / Daily Supply (%)	22%	
3	Distribution Network / Road Length (%)	35%	
4	Water connections / Assessed properties (%)	22%	
Sanitation:			
Ongoing UGD scheme in 19 wards. DPR for uncovered wards being prepared by CMWSSB for comprehensive sanitation and sewerage program			
5	Presence of UGD network (Yes / No)	Partial	<ul style="list-style-type: none">Coverage of UG network inadequateStorm water drainage coverage in just 31% of roadsPublic convenience network needs augmentation in view of high floating population.
6	UG connections / assessed properties (%)	27%.	
7	Household per Public convenience (nos.)	3506	
8	Storm Drain Length / road network (%)	31%	
Roads and Street Lights:			
Flyovers under implementation and arterial road improvements planned.			
9	BT roads / Total (%)	85%	<ul style="list-style-type: none">Poor condition of Arterial road. Improvements envisaged in Chennai master plan needs to be implemented on priorityMunicipal roads would require comprehensive up gradation following water supply and UGD implementation.
10	Road length per Street Light (m)	23 m	
Solid Waste Management:			
Collection activity in 27 wards including industrial area privatized. Land procurement for scientific disposal for ultimate population requirement under evaluation. Closure of dumping at Ahipattu and conversion of the location into a transfer station being examined.			
11	Waste generation per capita (gms)	470	<ul style="list-style-type: none">Need for a comprehensive program for SWMScope for greater private participation covering end-to-end given the size and scope of the SWM service requirement.Composing, Source segregation and Door-to-door collection needs implementation in a phased manner.
12	Compost yard area (Acres per 10,000 population)	88%	
13	Average vehicle trips	n.a	
14	Source Segregation and Composting (Yes/No)	partial	

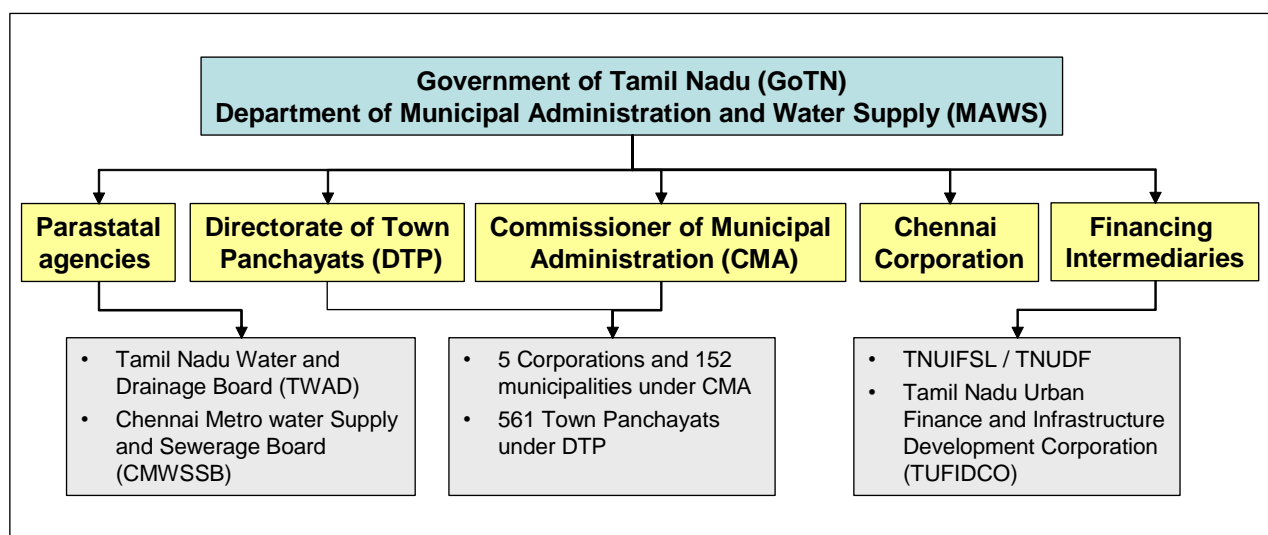
5. Urban governance and management

5.1 Policy oversight and institutional framework – State level

The governance of urban local bodies assumes importance with the adoption of 74th Constitutional Amendment Act. The Act proposes mandatory elections and greater devolution of functions to the urban local bodies including Town Corporations. The enactment of the 74th CAA provides an entirely new framework for the governance of the Urban Local Body. The Act provides for mandatory elections and a substantially larger devolution of functions to the ULBs, including several new areas hitherto not under their control. The Tamil Nadu District Municipalities Act (1920) governs the management of Municipality and Town Panchayats of Tamil Nadu. An amendment to the Municipalities Act (1920) was made in 2003 to provide impetus for environment improvement through Rain Water Harvesting.

The Urban sector in Tamil Nadu comes under the oversight of the Department of Municipal Administration and Water Supply, Government of Tamil Nadu (MAWS). The institutional structure for the urban sector is presented in Exhibit 2.3 below:

Exhibit 5.1 Urban sector - Institutional framework - State Level



Source: Policy notes, MAWS, Government of Tamil Nadu, IMaCS analysis.

The department of Municipal Administration and Water Supply administers Urban Local Bodies and also implements development programs for the Urban Local Bodies in the State. The department is also responsible for planning and implementing water supply and under ground sewerage schemes in both rural and urban areas in the State.

5.1.1 Municipal Administration

The institutional framework for municipal administration is described below:

- **Corporations and Municipalities** - There are 6 Municipal Corporations, namely, Chennai, Madurai, Coimbatore, Tiruchirappalli, Salem and Tirunelveli in the State of Tamilnadu. Five Corporations (except Chennai) and 152 Municipalities including 49 Third Grade Municipalities are under the oversight of the Commissioner of Municipal Administration. Recently GoTN has initiated steps to upgrade Erode and Tiruppur municipalities as Corporations.
- **Town Panchayats** - The Town Panchayats are governed by the Tamil Nadu District Municipalities Act, 1920. There are 561 Town Panchayats in the State. Towns have become drivers of economic growth and offer opportunities for social and economic development of people. The population of the Town Panchayats is 76,46,386, which accounts for 12% of the total population of the State as per Census 2001. Town Panchayats have become service centres drawing huge floating population from adjoining rural areas. The Directorate of Town Panchayats was created in 1981, to look after the affairs of the Town Panchayats. The Director of Town Panchayats is the Head of the Department and looks after the affairs of 561 Town Panchayats. The District Collector is the controlling authority for the Town Panchayats at the District level. Under the Directorate, the Department has 16 Zonal offices, headed by Assistant Directors of Town Panchayats.

5.1.2 Parastatal agencies

- **Tamil Nadu Water and Drainage Board** - TWAD is a statutory body formed by the Government of Tamil Nadu, vested with the twin task of providing water supply and sewerage facilities to the entire state of Tamil Nadu except Chennai Metropolitan Area. TWAD came into existence on 14-4-1971.
- **Chennai Metropolitan Water Supply and Sewerage Board** - The Board is attending to the growing needs of and for planned development and appropriate regulation of Water Supply and Sewerage Services in the Chennai Metropolitan Area with particular reference to the protection of Public Health and for all matters connected therewith or incidental thereto. The Board was established under "The CMWSSB Act. 1978' (Act No.28 of 1978) and commenced functioning from 01.08.1978

5.1.3 Financial Intermediaries

- **TNUIFSL / TNUDF** - The Government of Tamil Nadu established the Tamil Nadu Urban Development Fund (TNUDF) on a 'Public-Private Partnership' mode, with the participation of ICICI, Housing Development Finance Corporation (HDFC) and Infrastructure Leasing & Financial Services (IL&FS). The Fund is managed by Tamil Nadu Urban Infrastructure Financial Services Limited. TNUDF provides various services including project advisory, financial advisory and consultancy services to various ULBs through its fund manager, viz. Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL).

- **TUFIDCO** - TUFIDCO, a State owned Organization, was incorporated to extend financial assistance to urban infrastructure schemes in Tamil Nadu. The State Government have also appointed TUFIDCO as a State level nodal agency for the following centrally sponsored schemes including Jawaharlal Nehru Urban Renewal Mission (JNNURM) and Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT)

5.2 Governance structure of Ambattur municipality

Ambattur municipality has two wings, namely, a political wing and an administrative wing. While the Municipal Council, headed by a Chairperson and constituting ward level council members constitutes the Political wing and is directly elected by the people, the Executive wing is headed by the Commissioner and consists of various operational departments.

5.2.1 Political wing

The municipal council with a 52 elected councilors, each representing a ward, forms the political wing of the municipality. One of the elected representatives is selected by the council as the Chairperson. Three committees viz., appointment committee, contract committee, tax appeal committee have been formed consisting of elected representatives and commissioner as members.

Appointment Committee

The committee is responsible for all appointments in the municipality. It consists of three members including the Chairman and the Commissioner.

Contract Committee

The three member contract committee is responsible for approval of all contracts costing up to Rs.5000. Works above Rs.5000 is approved by the municipal council through a sealed tender.

Tax Appeal Committee

This committee addresses appeals filed by the public against orders on revision of taxes. The committee consists of six members comprising of the commissioner, chairman and four councilors.

5.2.2 Administrative Wing

The administrative wing is responsible for the day-to-day functioning of the corporation and assists the deliberative wing in the decision-making process. The Municipal Commissioner heads the executive wing of the ULB, and various officers in charge of different departments or sections assist the Commissioner in managing the ULB. Apart from its own employees, the ULB also employs daily wage basis workers or contractual workers for services such as street lighting, and sanitation and water supply. These include electricians, watchmen, water boys, drivers, valve operators etc. Certain jobs like sanitary works and garbage clearance are done through contracts, where the usual procedure followed is selection through tenders.

The **Municipal Commissioner** heads the administrative wing of the municipality. The functions of the administrative wing include:

- All executive functions with the Administrative Head (Commissioner)
- Establishment matters such as appointment, transfers, Pay and allowances, etc., correspondence with Government and other departments,
- Public relations, redressal of public grievances, Legal matters etc.
- Sanctioning of estimates and approval of contracts, payments, etc.

5.2.3 Departments of municipality

Various departments under the ULB, share the responsibility of service delivery within the Corporation. The functions of various officials/departments, under the Administrative wing, are elucidated hereunder:

- a) **Commissioner**. The Commissioner is at the apex of this structure and is responsible for all activities carried out by the ULB. The Commissioner is responsible for preparation and certification of all periodical records, returns and furnishes all information as may from time to time be required by the Municipal Council or the Standing committees. He is also responsible for preparation of accounts. At each general meeting, the Commissioner along with some other key officials, discuss various issues with the elected representatives.
- b) **General Administration Department**. - This department is responsible for establishment, other essential matters relating to office, officers, staff and their welfare like preparation of staff pay bills, maintenance of registers for advances, GPF, pension, PF's etc.
- c) **Engineering and Water Supply Department**. This department looks after all the works relating to execution and maintenance of basic amenities like Water Supply, Drainage, Sewerage, Storm water drains, Roads, Street lights, etc. The Engineering department is also responsible for ensuring the quality of works and their execution within the time frame.
- d) **Accounts Department** : The Accounts Section is responsible for supervising all financial transactions related to the CMC, advising the Commissioner on all internal financial matters, updating financial receipts and expenditure details in accordance with the utilization of funds, reporting deviations in expenditure of funds in any of the allocated schemes, assisting preparation of the CMC budget, maintenance of accounts regarding stamp duty, SFC Grants, MP Grants, maintenance of petty cash book and general cash book and attending to audit requirements and other such accounts-related duties.
- e) **Revenue Department**: Revenue Officer, heading the Revenue Section, is responsible for collecting taxes such as, trade tax, house tax, advertisement tax, and entertainment tax; development charges; transfer of properties; collection of duty; issuing notices for recovery of tax; and monitoring revenue collections of the ULB.
- f) **Public Health Department**. The is responsible for ULB services such as Solid waste management, public health related works like malaria control, family planning, mother and child health care, birth and death registration etc, and other government assisted programs related to health and poverty reduction and awareness programs. Besides, this department is responsible for the enforcement of the Public Health Act. The department is also involved in promotion of health

awareness programs and implements various State and Central assisted schemes like pulse polio project, SJSRY etc.

- g) Town Planning Department. The major function of this department is issue of building license, preparation and implementation of development plans and eviction of encroachments, urban planning and building regulation.

5.3 Manpower position

Exhibit 5.2 provides the manpower position vis-à-vis sanctioned posts as of October 2007.

Exhibit 5.2 Manpower status (as of October 2007)

			No. of posts sanctioned	Staff in position			Posts vacant
				Perma- nent	Consoli- dated Pay	NMRs	
A	General Administration						
	1	Commissioner	1	1			-
	2	PA to Commissioner	1	1			-
	3	Manager	1	1			-
	4	Assistant	4	4			-
	5	Junior Assistant	19	19			-
	6	Typist	3	3			-
	7	Record clerk	2	2			-
	8	Office Assistant	4	4			-
	9	Asst. Programmer	1	1			-
	10	Data Entry Operator	1	1			-
	11	Night watchman	1	1			-
B	Accounts Department						-
	1	Accountant	1	1			-
C	Revenue Section						-
	1	Revenue Officer	1	1			-
	2	Asst. Revenue Officer	2	2			-
	3	Revenue Inspectors	4	4			-
	4	Bill Collectors	21	21			-
D	Engineering Wing						-
	1	Municipal Engineer (E.E.)	1	1			-
	2	Asst. Executive Engineer	2	2			-
	3	Assistant Engineer	4	4			-
	4	Overseer	1	1			-
	5	Work Inspector	4	4			-
E	Street Lighting						-
	1	Wireman	10	10			-
	2	Helper	22	22			-
F	Water Supply						-
	1	Electrician Gr-II	1	1			-
	2	Switch Board Operator	3	3			-
	3	Fitters	1	1			-
	4	Pump room attender	4	4			-
	5	Driver	11	11			-
	6	Cleaner					-
	7	NMR	6			6	-
G	Public Health						-

			No. of	Staff in position		Posts
	1	Health Officer	1	1		-
	2	Sanitary Inspector	9	9		-
	3	Supervisor	15	15		-
	4	Conservancy staff	580	580		-
	5	Drivers	15	15		-
	6	Cleaner	6	6		-
H	MEDICAL SERVICE & IPPV					-
	1	Medical Officer	7	7		-
	2	Staff nurse	6	6		-
	3	Pharmacist	1	1		-
	4	Mat. Assistant	5	5		-
	5	Mat. Ayah	6	6		-
	6	Health Visitor	6	6		-
	7	Computer cum clerk	5	5		-
	8	M.P.H. Worker	20	20		-
	9	Female Attendant	5	5		-
	10	Watchman	2	2		-
	11	Ward attender	1			1.00
	12	Theatre attender	1			1.00
I	Town Planning					-
	1	Town Planning Officer	1	1		-
	2	Town Planning Inspector	3	3		-
	5	Chainman	4	4		-
J	Parks & Gardens					-
	1	Gardener	1	1		-
	2	Gang Mazdoor	4	4		-
K	Other Staff					-
	1	Community Organiser (NM)	20	20		-
	2	Community Ayah(NM)	20	20		-
	3	Cook	20	20		-
	4	Assistant	20	20		-
		TOTAL	921	913	0	6
						2

Source: Amb-M

As seen from the table, Amb-M however, appears well placed in terms of availability of staff vis-à-vis the sanctioned manpower.

5.4 Role of other agencies

The State Government's line departments continue to play a crucial role in urban basic service delivery. Sectors and agency involvement include:

- Water Supply & Sewerage. CMWSSB is responsible for creation of water and sewerage infrastructure in ChMA. It is managing water supply network in 11 wards within Amb-M and is in the process of preparing a DPR for water supply and sanitation covering the entire town.
- Master Plan. Chennai Metropolitan Development Authority (CMDA) prepares the Master Plan and Comprehensive Development Plan (CDP) for the city/town, and the mandate of implementing the Master Plan lies with the ULB.

- c) Roads and Highways. Department of Highways, Government of Tamil Nadu maintains the National, State Highways and select arterial roads that pass through the city. Municipal roads are however created and maintained by the ULB.
- d) Environmental Protection. The Tamil Nadu Pollution Control Board (TNPCB) is responsible for environmental protection and enforcement of rulings related to the same.
- e) Slum Upgradation. The Tamil Nadu Slum Clearance Board (TNSCB) develops improvement schemes for notified/regularized slum settlements in the city/town.

5.5 Reforms undertaken by Ambattur municipality

5.5.1 Accrual accounting

Fund based accrual accounting has been implemented in the urban local bodies in Tamil Nadu under TNUDP-II and Ambattur municipality has also been following the system for the last 4-5 years.

5.5.2 E-Governance

E-Governance of Ambattur Municipality is aimed to provide online citizen services and information to all hierarchies and monitoring performance of Municipality. All Municipal records are computerised and information stored in a central server and connected to an uplink which online on the internet. Property tax, Water Charges, Nontax, Profession Tax and trader license fees and Birth and Death certificate may be obtained from the computerized civic center at the municipal premises. Through the e-governance program, Ambattur Municipality hopes to provide easy access to the municipality and municipal records to its citizens.

5.5.3 Citizen's Charter

As per the directions of the Government of Tamil Nadu, the Ambattur Municipality has published its 'Citizen's Charter' during 1998 to bring ULBs function closer to the people. The main focus of this charter is to introduce transparency, responsibility and user friendliness in its service provision and maintenance. Its basic objectives were to:

- Provide fast and quality service to the citizens.
- Inform the public about time limits to address the problems, and
- Provide transparency in administration.

This publication of citizen's charter brings people and administration closer and to let people know how much time is required to get works done. If the work is not attended to even after stipulated time, they can approach the Commissioner/ Chairperson. Thus, people's rights are made known to them. This also reduces time on the part of public, as they need not follow the movement of their applications at the municipal office. Further, through this charter, they also create awareness about sanitation, town improvement, tax payment and the like. Based on the time frame given for understanding / compliance, various works/ activities can be evaluated either by citizens or by Amb-M, paving the way for improving performance. Specific interventions in human resource development and systems dealt with in the section 9 - Reform agenda subsequently in the report.

6. Analysis of financials

This section provides a summary analysis of the financial performance of Ambattur Municipality.

6.1 Income and Expenditure summary of Ambattur Municipality

Exhibit 6.1 provides a summary of the income and expenditure of Ambattur Municipality. This summary has been prepared based on information provided by Ambattur Municipality covering audited accounts for FY 2003 to 2005 and unaudited accounts for 2006.

Exhibit 6.1 Consolidated Income and Expenditure trend

	2002-03	2003-04	2004-05	2005-06	CAGR%
INCOME (Rs in lacks)					
OWN INCOME	1393	1516	1888	2038	14%
Property tax	886	956	1096	1030	5%
Profession tax	143	167	224	271	24%
Water & Sewerage Charges	104	101	118	106	1%
Other Service Charges & Fees	60	74	105	96	17%
Other Income	200	218	346	536	39%
ASSIGNED REVENUE	618	1281	1343	598	-1%
DEVOLUTION FUND	506	712	512	534	2%
GRANTS & CONTRIBUTIONS	67	-	-	-	-100%
PRIOR PERIOD INCOME	56	54	233	144	37%
TOTAL	2640	3563	3976	3314	8%
EXPENDITURE (Rs in lacks)					
Salaries	503	504	499	504	0%
Operating Expenses	376	411	569	577	15%
Program Expenses	0	56	294	329	
Administrative Expenses	39	59	80	42	3%
Finance Expenses	173	181	244	174	0%
Depreciation	1304	1241	527	1192	-3%
Prior Period Expenses	19	1	39	6	-32%
TOTAL	1110	1212	1724	1632	14%
SURPLUS - (Excl.Depr)	1529	2351	2252	1682	3%
Operational Ratio (All are in percentage)					
TE / TR incl Depreciation	91%	69%	57%	85%	76%
TE / TR excl. Depreciation	42%	34%	43%	49%	42%
Debt servicing (Rs in lacks)					
Loan repayments - Interest	96.54	94.35	71.20	52.43	314.52
Loan repayments - Principal	70.10	195.17	87.76	88.47	441.51
DS / TR	6%	8%	4%	4%	6%

Source: Amb-M, iMaCS analysis

Income growth (CAGR of 8%) has lagged expenditure (CAGR of 14%). The municipality has observed a positive cash balance and overall surplus over past four years. Annexure V provides the consolidated Income Expenditure statement, Balance Sheet for 2002-06 and DCB statements for 2002-2007.

6.2 Revenue streams of ULB in Tamil Nadu

Revenue of ULBs in Tamil Nadu can be categorised along three areas:

- **Own Revenue** - comprising taxes (property tax and professional tax), user charges (water, sewerage, solid waste etc.) and other non-tax income (lease and rents, sale & hire charges etc)
- **Assigned Revenue** - Income generated revenues shared with the ULB
- **Grants and Contributions** - Grants and transfers made by GoTN

Exhibit 6.2 provides a detailed classification of the revenue streams.

Exhibit 6.2 Revenue streams - ULBs in Tamil Nadu

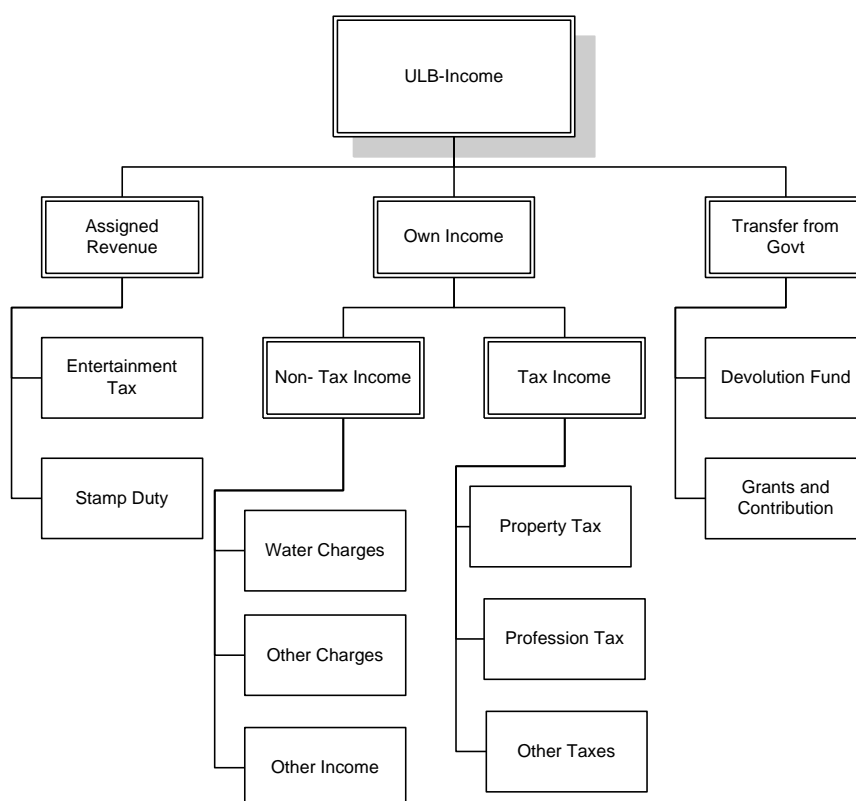
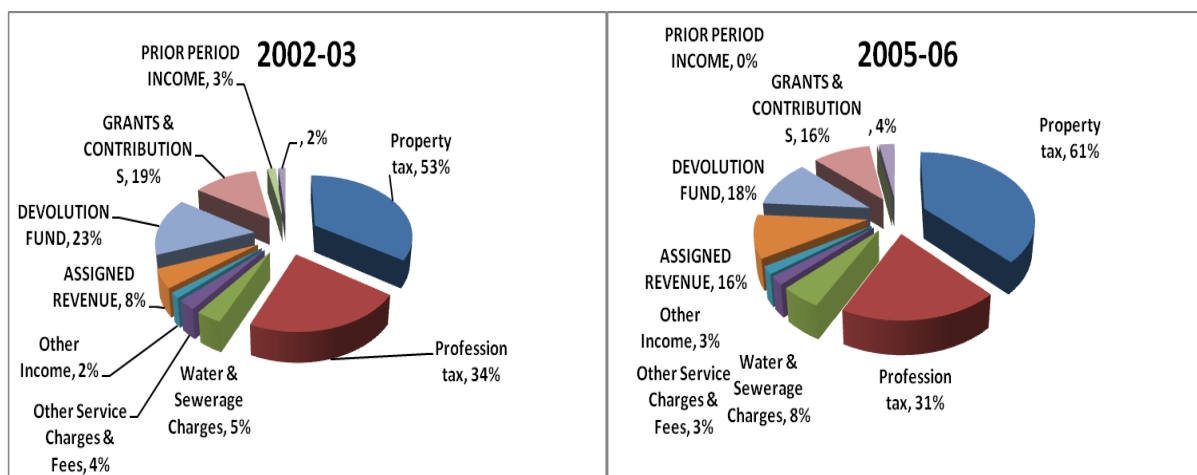


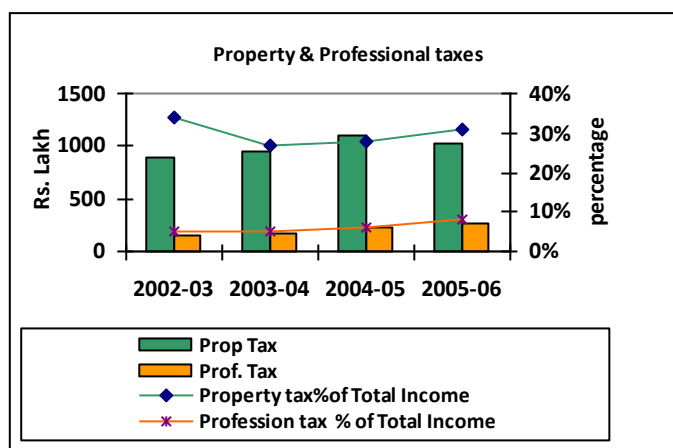
Exhibit 6.3 provides details of revenue of Ambattur Municipality along various heads between FY 2003 and FY 2006. These are based on information provided by Ambattur Municipality.

Exhibit 6.3 Analysis of Revenues of Ambattur Municipality



6.2.1 Tax Income

Tax income has grown at a CAGR of 7 % over the last four years aided by a 19% growth in Professional tax. Property Tax has grown at 5 % during this period. As a result, while share of property tax in overall revenue has declined from 34% to 31% of income, share of professional tax in revenue has increased from 5% to 7%.



6.2.2 Property Tax

Property tax alone accounted for almost a third of income of Ambattur Municipality in FY 2006 and is an important contributor of revenues to Ambattur Municipality. Following are the key issues / observations with respect to property tax. Exhibit 6.4 provides a summary.

Exhibit 6.4 Property tax - analysis of key revenue drivers

Year	Collection Efficiency			Properties		Growth Rate Of properties	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	Tax/property		
2002-03	26%	54%	38%	65569	1447	NA	NA
2003-04	24%	58%	39%	68206	1507	4%	8%
2004-05	19%	55%	35%	73286	1599	7%	14%
2005-06	29%	59%	41%	78675	1505	7%	1%
2006-07	29%	64%	44%	79365	1578	1%	6%

Source: Amb-M

- a) **Decline in share of property tax** - Even though the property tax has increased in absolute terms, its share in total income has declined from 34% to 31 % over the last four years.
- b) **Demand per assessment** - There has been an overall increase of 5.7% in the number of assessments and the average demand per property assessed has shown a 5.1% increase. During FY 2003 to FY 2005, the average demand per property assessed has increased from Rs. 1477 per property to Rs 1600 per property. Last revision of property tax was undertaken in October 1998. Quinquennial revision due in 2003 has not been undertaken yet.
- c) **Low collection efficiencies** - Collection efficiency is a cause for concern. While collection efficiency in current demand has grown from 54% to 59% (which itself is very low), recovery of arrears is even low. In FY 2005, arrears collection efficiency dipped to 19%.
- d) **Aging of arrears** - 18% of the arrears are outstanding for more than five years. Ambattur Municipality may need to review the arrears, as some of these may not be collectable and would require provisioning.
- e) **Break-up of assesses** - Residential segment contributes more than 76% of the total assessments and about 51% of the total property tax demand. Exhibit 6.5 below gives the detailed break-up of assesses for property tax.

Exhibit 6.5 Property Tax - breakup of assesseees (2005)

Category of Property	Number of Assessments	%	Annual Tax Demand (Rs. lakh)	%
Residential	55978	76.4	553.56	50.7
Commercial	14437	19.7	215.44	19.7
Industrial	2864	3.9	320.35	29.4
State Government Properties	7	0.01	2.06	0.2
Total	73286	100%	1091.41	100%

6.2.3 Professional tax

Exhibit 6.6 provides an analysis of key drivers for professional tax revenue.

Exhibit 6.6 Professional Tax - revenue drivers

Year	Collection Efficiency			Assesses		Growth rate of Assesses	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	Tax demand/assessee		
2002-03	11%	64%	37%	15712	910	NA	NA
2003-04	22%	69%	46%	17510	954	11%	17%
2004-05	20%	75%	50%	17970	1247	3%	34%
2005-06	22%	82%	55%	17450	1387	-3%	8%
2006-07	18%	75%	49%	17646	1410	1%	3%

Source: Amb-M

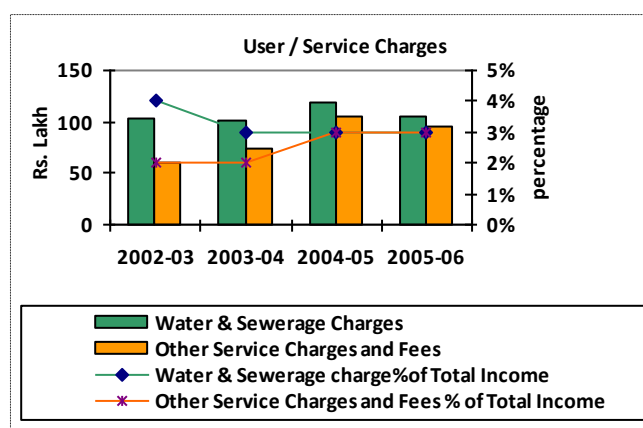
- Share of professional tax in total income** has increased from 5% to 7% of total income
- Demand per assessment** has increased from Rs 910 in FY2003 to Rs 1244 in FY2005.
- Collection efficiency was 55%** in FY 2006, aided by improvement in current collection. While current collections are high at around 82%, there is still a scope for improvement. An ageing analysis reveals that nearly 27% of arrears are more than 5 years old.
- Composition of professional tax assessments** - Exhibit 6.7 below shows the composition of assessments. Only about 1.7% of the traders file returns and hence Ambattur Municipality should take steps to widen its tax base through a closer scrutiny of traders.

Exhibit 6.7 Professional Tax – assessee break up (2005)

Category	Number of Assessments	%	Return filed	Assessment Gap	Annual Tax demand (Rs in Lakh)	%
State/Central/Quasi Govt. Employees	8455	47%	8455	0	31.70	10%
Traders	4805	27%	80	4725	115.39	36%
Self-employed professionals	1710	10%	1710	0	27.69	9%
Private employers/ Companies	1500	8%	500	1000	138.30	43%
Private employees	1500	8%	1500	0	10.45	3%
Total	17970	100%	12245	5725	323.53	100%

6.2.4 User Charges / Fees

User charges have also grown by 2%, aided by marginal increase in collection of water charges and other fee income including lease and rents. Share of other service charges and fees in total income has declined from 6% in FY2003 to 5% in FY2006. Share of water charges has remained constant at around 1% of total income across the period. As a result the share of total user charges/fees has declined from 7% of revenue to 6% of revenue over the last four years.



6.2.5 Water charges

Exhibit 6.8 provides an analysis of key drivers for water charges.

Exhibit 6.8 Water charges - revenue drivers

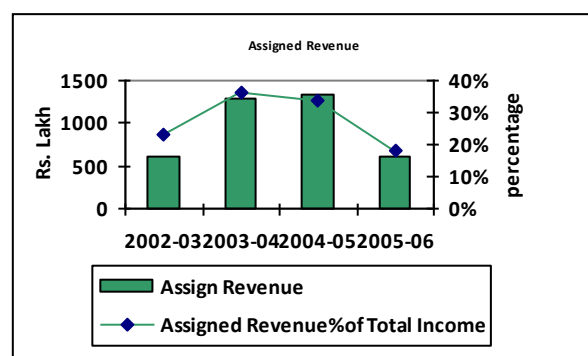
Year	Collection Efficiency			Connections		Growth rate of Connections	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	water charges per assessee		
2002-03	18%	15%	17%	2290	785	NA	NA
2003-04	16%	20%	17%	2351	785	3%	3%
2004-05	7%	11%	8%	2374	783	1%	1%
2005-06	13%	24%	16%	2373	784	0%	0%
2006-07	12%	22%	14%	2373	784	0%	0%

Source: Amb-M

- No. of connections** - There has been a marginal increase in number of connections from 2290 in FY2003 to 2373 in FY2006. None of the water connections are metered. There are 2371 residential unmetered connections. Thus, there exist a lot of scope for the municipality to increase its revenue by converting unmetered connections to metered connections.
- Water tariff / connection** has remained constant at around Rs 785 over period from FY2003 to FY2005.
- Collection efficiency** - Current collection efficiencies have ranged from a low of 11% (FY 2005) to a high of only 24% (FY 2006). Arrears collection efficiency has also been very low and has ranged between 7% and 18%. The overall collection efficiency of 16% is quite low and needs significant improvement. This improvement cannot be achieved until the municipality converts its water connections into metered connections.

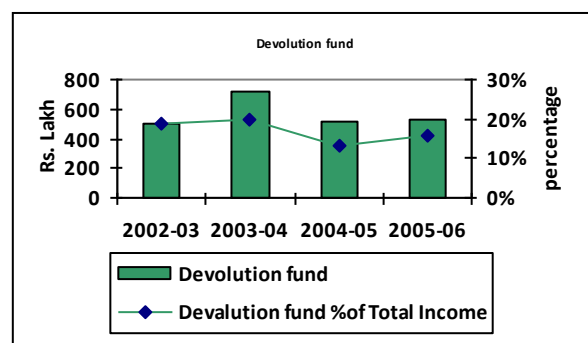
6.2.6 Assigned Revenue

Assigned Revenue (which includes transfers of stamp duty and entertainment tax) increased from Rs 618 lakh in FY2003 to Rs 1343 lakh in FY2005 and then declined to nearly Rs 600 lakh in FY2006. Share of assigned revenue in total income declined from 23% of revenue in FY 2003 to 18% of revenue in FY 2006.



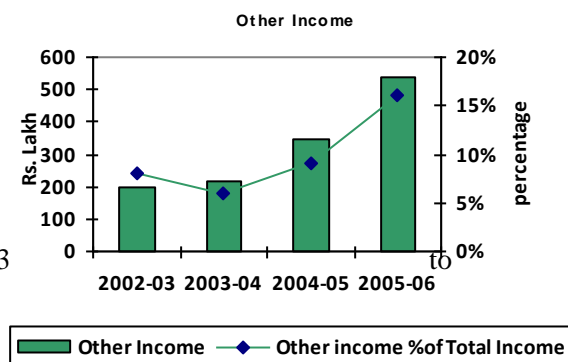
6.2.7 Devolution Fund

Devolution fund increased marginally from slightly more than Rs 500 lakh in FY2003 to nearly Rs 535 lakh in FY2006. Share of this fund in total revenue of the municipality has declined from 19% to 16% in respective years.



6.2.8 Other Income

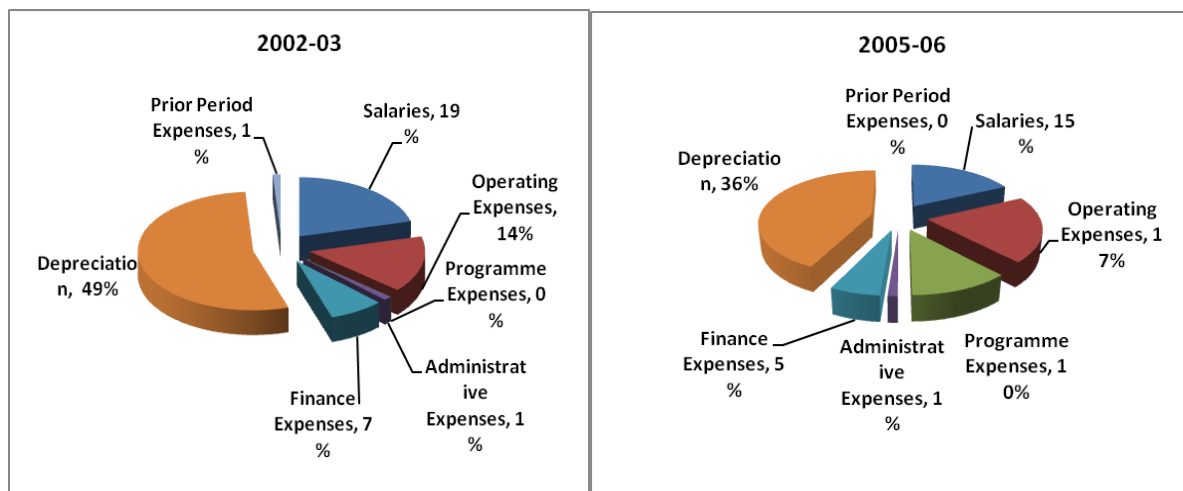
Other Income, which includes sale and hire charges, has increased from Rs 190 lakh in FY2003 to slightly above Rs 580 lakh in FY2006. Its share in total income of the municipality has more than doubled from nearly 7% in FY2003 around 18% in FY2006.



6.3 Analysis of Costs

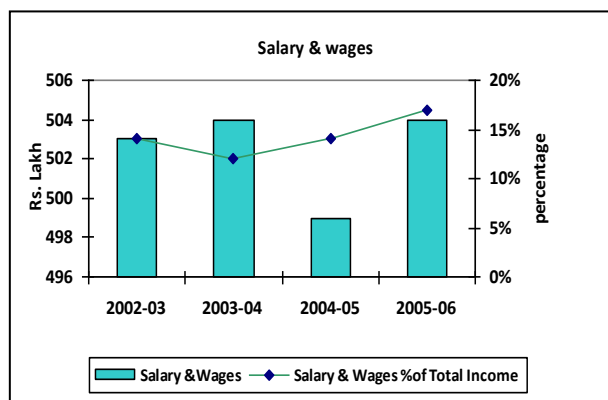
Exhibit 6.9 provides details of costs of Ambattur Municipality along various heads between FY2003 and FY2006. Total expenditure has shown an upward trend, except for a dip in FY2005. This decline in total expenditure in FY2005 is due to decline in depreciation by more than half. Operating expenditure has shown a steady upward trend over the period.

Exhibit 6.9 Costs (as a % of income) – FY 2003 and FY 2006



6.3.1 Salary and wages

While salary and wages account for almost a fifth of total expenditure incurred by the municipality, it has fluctuated marginally around Rs 500 lakh over this period.



6.3.2 Operations and Maintenance

Repairs and maintenance form the other major component of total expenditure. In absolute terms, repairs and maintenance expenditure has increased steadily over the last four years, growing from Rs 375 lakh in FY2003 to Rs 575 lakh in FY2006. Its share in total expenditure has increased from 16% to 20% in FY2003 and FY2006, respectively. Exhibit 6.10 provides details of sector wise composition. Though streetlights form the major proportion of operating expenses, there has been a downward trend in expenditure between FY 2003 to FY 2006. Expenditure on water and sewerage has increased marginally by 1% over past four years. Overall repairs and maintenance has grown at a CAGR of more than 15% over the period.

Exhibit 6.10 Repair and maintenance expenditure - Sector wise break up

Item	FY2002	%	FY2003	%	FY2004	%	FY2005	%
Roads	60.63	16%	58.95	14%	90.70	16%	86.75	15%
Water & Sewerage	109.56	29%	153.99	37%	226.75	40%	246.79	43%
Street Lights	159.28	42%	154.63	38%	203.92	36%	189.80	33%
Others	46.35	12%	43.34	11%	47.29	8%	53.75	9%
Total	375.83	100%	410.91	100%	568.67	100%	577.09	100%

6.3.3 Power costs

Exhibit 6.11 gives the details of power costs out of the total repair and maintenance expenditure relating to Water & Sewerage and Street lights. Power costs have grown at a CAGR of 10%.

Exhibit 6.11 Power costs - Water & Sewerage and Street Lights (Rs in Lakh)

Item	FY2002	%	FY2003	%	FY2004	%	FY2005	%
Water	7	100%	33	100%	161	100%	110	100%
Power	0	0%	0	0%	0	0%	0	0%
Non Power	6.74	100%	32.83	100%	161.11	100%	109.96	100%
Street Lights	159	100%	155	100%	204	100%	190	100%
Power	118	74%	128	83%	134	66%	154	81%
Non Power	40.93	26%	26.30	17%	70.27	34%	35.53	19%
Total	166		187		365		300	

Power costs account for nearly 80% of repair & maintenance costs of operating streetlights.

6.4 Trends in Capital Expenditure

Exhibit 6.12 gives details of capital expenditure by Ambattur Municipality over the last five years.

Exhibit 6.12 Capital Expenditure (Rs in Lakh) - Last five years

Sector	Actuals				
	2000-01	2001-02	2002-03	2003-04	2004-05
Roads	236.28	407.53	145.34	207.89	222.26
Storm water drains	40.00	10.47	25.18	33.03	154.48
Water supply	22.20	75.50	55.04	91.55	221.05
Total	298.48	493.50	225.56	332.47	597.79

6.5 Loans and Finance charges

Exhibit 6.13 gives the details of outstanding loans of Ambattur Municipality at the end of year 2006.

Exhibit 6.13 Loan Statement (Rs in Lakh)

Lending Agency	Outstanding	Balance Years	Instalment (Rs in lakh)	Rate of Interest (%)	Year of drawal	Repayment period
WSPF (TNUDF)	53.85	9	6	9%	2000	15
TUFIDCO	66.26	3.5	19	9%	2000	9.5
TUFIDCO (99-67c)	202.25	8.5	24	5%	2000	14.5
TUFIDCO (Own fund)	224.17	10	22	13%	2001	15
TUFIDO (take over finance)	102.16	4	26	9%	2003	7
TUFIDCO	528.57	4	132	9%	2000	10
TNUDF	115	4	29	9%	2000	10
TOTAL	1292					

Source: Amb-M

7. Vision & Strategic plan, CIP and Asset Management plan

This section articulates a strategic plan for urban development in Ambattur town and crystallizes the Capital Investment Plan (CIP) for urban infrastructure needs of the town in the short term (5 years) and long term (20 years). The strategic plan and CIP follow from an analysis and articulation of the potential themes for economic development for the town, a SWOT analysis of the current status of the town and the expectations elucidated by stakeholders of the town namely, elected municipal council representatives and public stakeholders during our consultations with them.

7.1 Potential themes for economic development

The key economic development themes for Ambattur town are articulated below:

7.1.1 Invest in industrial infrastructure to reinforce Ambattur's position as a premier industrial hub

The Ambattur Industrial Estate is one of the largest industrial areas in Asia and employs nearly 1 lakh employees. The maintenance of infrastructure services within the Ambattur Industrial Estate has been entrusted to a Special Purpose Vehicle called the 'Chennai Auto Ancillary Industrial Infrastructure Up gradation Company (CAAIIUC)'. CAAUIUC has been formed to improve infrastructure facilities in the Ambattur Industrial estate. Ambattur municipality only provides Solid Waste management services in the Industrial estate. Other infrastructure services have been entrusted to CAAIIUC.

The areas identified for improvement as part of this initiative⁵ include roads, common facilities, flood management and storm drains, water supply, sewage treatment, street lighting, Logistics services, public amenities and landscaping. There is a need for expediting the project in view of poor infrastructure conditions that continue to plague this estate. In particular, a truck terminal and a multi-level car park are required given the transportation requirements emerging from the industrial area.

7.1.2 Guide the ongoing services/IT developments in a planned manner

In spite of being a largely manufacturing oriented industrial estate, there is a significant presence of IT and ITES industries in Ambattur. A number of leading players including HCL and Perot systems already have presence in Ambattur and this trend of IT-ITES companies setting up base in Ambattur is expected to intensify. In this regard, there is a need to review the master plan for the town and the land use to support this likely trend to facilitate an orderly development of the industry in Ambattur.

7.1.3 Address glaring gaps in physical infrastructure on priority

In spite of being a large growing city with a population of nearly 0.4 million, there are serious gaps in urban service provisioning in Ambattur, which is likely to constrain growth of the town in an orderly manner. Water supply and sanitation are almost non-existent while arterial roads continue to be

⁵ www.caauiic.com

congested. While ongoing and proposed projects on the arterial roads could lead to easing of congestion, the town's water supply and sanitation problems are more acute. In particular, the delay ongoing UGD scheme in 19 wards has caused severe inconvenience among the local public and has severely dented the credibility of the municipality among public stakeholders as evident from our consultations. Therefore water supply and sanitation infrastructure needs to be addressed on a fast-track basis. We understand that Chennai Metro Water Supply and Sewerage Board (CMWSSB) has completed the DPR for underground sewage systems for the uncovered areas and is preparing a DPR for comprehensive water supply for Ambattur.

Similarly while ongoing arterial road projects including flyovers and bypass road being developed by NHAI are expected to relieve congestion from the current levels, there is a need to address further traffic and transportation improvements covering linkages to the bypass roads, new road formation along MTH road/railway stations and other junction improvements in the city (some specific interventions are addressed in subsequent sections).

7.1.4 Plan investments in social infrastructure in line with the population growth

The potentially explosive growth in the population would require a combination of private/Government investments to address future requirements in education and health infrastructure. A Government High School and Government Hospital figured high on the list of felt needs in our interactions with both the Council and the public stakeholders. GoTN through CMDA and Amb-M should immediately map land-use to identify and ring-fence public land (including a specific strategy for minimising slum proliferation and removal of encroachments from public spaces) for this purpose. Public stakeholders in particular cited the need to utilise the land available in Century Nagar in Athipattu area for specific social asset development such as a) Engineering or Medical College, b) Integrated Sports complex, c) Modern Government Hospital for the region or d) Government Boys high school. Restoration of water bodies (particularly Ambattur and Korattur eris) and provision of parks/jogging tracks around decaying and polluted water bodies figured high in the list of felt needs.

7.1.5 Plan for world-class connectivity between Ambattur and Chennai and the growth centres of Sriperumbudur and Tiruvallur

Ambattur is strategically located between Chennai and the rapidly urbanizing regions of Sriperumbudur and Maraimalainagar. Consultations as well as evidence on the ground point to significant growth in both residential settlements and industrial developments along the Ambattur-Avadi-Tiruvallur corridor and the Ambattur-Poonamallee-Sriperumbudur corridors. This is also expected to get accelerated with the completion of the bypass sections connecting National Highway corridors (Bypass-Phase I is already completed and Phase II is under progress). Completion of the proposed and ongoing road connectivity projects and strengthening and widening of MTH road (NH 205) are clearly important priorities in this direction.

In terms of railway connectivity, Ambattur is already on the suburban railway line from Chennai Central to Arakonam. Para-transit facilities should be planned between the proposed Chennai metro and this railway line to provide seamless connectivity. Further, the recent proposal for evaluating the feasibility of railway connectivity between Ambattur and Sriperumbudur is also a positive step in this direction and should be expedited.

7.2 SWOT analysis

A brief SWOT analysis of the town is presented below:

Strengths <ul style="list-style-type: none"> • Vibrant industrial centre and emerging as a services hub as well • One of the largest and fastest growing suburbs • Strategically located between Chennai and the rapidly industrializing regions to its west • Well connected by road and rail 	Weakness <ul style="list-style-type: none"> • Significant gaps in basic infrastructure services – roads, water supply and sanitation • Growing slum population • Jurisdiction of Multiple authorities (SIDCO manages the industrial estate area)
Opportunities <ul style="list-style-type: none"> • Potential to emerge as a leading industrial and services hub • Emerging as a rapidly growing residential area • Improvements in arterial road connectivity and rail connectivity and basic infrastructure could enable it emerge as an important extended area • Proposed move to carve out a Corporation out of Ambattur and adjoining areas could facilitate greater focus and planning for orderly growth in the region. 	Threats <ul style="list-style-type: none"> • Town requires significant investments in basic infrastructure • Rampant encroachment of public land and weak town and layout planning • Inability to address infrastructure deficiencies could constrain growth • Slum proliferation.

7.3 Strategic plan – focus areas and time horizon

The focus of the City Corporate Plan exercise and the strategic plan is on provisioning of urban services in 8 areas including

- a) **Water Supply**
- b) **Sewerage and Sanitation**
- c) **Roads, Transportation and street lighting**
- d) **Solid Waste Management**
- e) **Urban services for the Poor**
- f) **Social infrastructure and other urban amenities**

The strategic plan for urban service delivery involves identification of interventions to address the gaps in service delivery between the prevailing levels and the required levels of services in the short term (covering a period of 5 years starting 2007-08 up to 2011-12) and long term (covering a period of 15 years starting 2012-13 up to 2026-27). The geographical coverage of the plan includes the area under the jurisdiction Ambattur municipality as of March 2007.

7.4 Population projections underlying the strategic plan

Exhibit 2.1 provides the population projections that form the basis of arriving at the sector wise service delivery gaps, interventions required and capital investment estimates.

Exhibit 7.1 Population projections and related estimates - Ambattur town

	Unit	Baseline	Projected		
		2007	2012	2017	2027
Population	nos	394,090	470,806	577,309	866,535
Households (Estd.)	nos	97,646	117,701	144,327	216,634
Assessed Properties	nos	79,365	103,577	132,781	199,303
Road length	km	426	426	494	587

The population projections have been arrived at as an average of the population projected based on Arithmetical Increase Method, Geometric Increase Method and Incremental Increase Method. A household size of 4.0 is assumed (in line with Census 2001), while property tax assessments are assumed to be 20% of population by 2012, gradually going up to 23 % of population by 2027 (reflecting a 5% annual growth in number of properties vis-à-vis a population growth of 4.2%)

7.5 Water Supply

7.5.1 Service Goals and Reform targets

Exhibit 7.2 provides the service goal/outcomes and reform targets for 2008-12. As observed, Amb-M is significantly deficient in all parameters of service delivery including supply, storage infrastructure, distribution network and house service connections. Thus substantial investments are required to meet the JNNURM norm of 135 LPCD. Exhibit 7.2 also provides a roadmap and targets for reform agenda in water supply provision. Apart from initiating projects to address service level gaps, Amb-M should focus on five areas for reform in order to translate better service levels into increased revenue and to encourage water conservation.

Exhibit 7.2 Water supply - Service Goals and Reform Targets

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
Service Goals					
Per capita supply at doorstep	LPCD	29	135	135	135
Storage capacity / Total demand	%	28%	50%	50%	50%
Distribution network / Road length	%	55%	80%	80%	90%
Frequency of supply	hours/day	< 1	2	2	24X7
Reform targets					
Current collection efficiency	%	22%	90%	90%	95%
House Service Connections / Assessed Properties	%	22%	50%	60%	70%
Population per water fountain	nos.	224	200	200	200
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes
User charge collection - % of O&M plus debt servicing	%	N.A	60%	100%	100%

7.5.2 Baseline status and requirements – short term & long term

Exhibit 7.3 provides additional details in terms of the current status of water supply infrastructure and the requirements and gaps in the short, medium and long term. As against a requirement of 64 MLD in 2012 and 117 MLD in 2026, Amb-M is currently servicing requirements to the tune of about 14 MLD only. Similarly there exists significant gaps in both storage and distribution network vis-à-vis even current requirements.

Exhibit 7.3 Water Supply - Baseline status and gaps (short term and long term)

	Unit	Baseline	Required / Target			Incremental requirement		
			2012	2017	2027	2012	2017	2027
Gross Water Supply	MLD	14	64	78	117	49	14	39
Storage Capacity	ML	4	32	39	58	28	7	20
Distribution network	km	241	320	396	528	79	76	133
HSCs	Nos.	17,422	58,851	86,596	151,644	41,429	27,746	65,047
Public fountains	Nos.	1,756	2,354	2,887	4,333	598	533	1,446

7.5.3 Interventions - short term

CMWSSB is currently preparing a Detailed Project Report for comprehensive water supply covering all wards in Amb-M to provide 135 LPCD. Preliminary estimates provided to Amb-M indicate a capital outlay of the order of Rs. 125 crore for carrying out this project. The DPR is expected to be ready shortly. Officials at Amb-M indicate that this project will be taken up on priority with JNNURM funding given the poor water service levels in the municipality. Amb-M expects that this project will be completed within the next 3-4 years. The description of this project and the components are described below.

a) Implementation of comprehensive protected water supply in all wards (DPR currently under preparation) at an estimated outlay of Rs. 125 crore. This outlay is based on initial estimates provided by CMWSSB to Amb-M and exact details of the scope of the DPR are not available. An assessment of normative gaps that need to be addressed are highlighted below.

- **Supply augmentation, Transmission and primary storage** for supply of at least 49 MLD (by 2012) and 117 MLD (by 2027)
- **Local storage and pumping** - Additional 28 ML of storage capacity by 2012 and another 20 MLD by 2027.
- **Investments in pumping and distribution network** - Comprehensive provision of protected piped water supply in all wards covering about 320 km of roads in the short term.
- **Rapid scale up in House service connections** – which would potentially need to increase nearly 8-fold in the next 5 years to more than 150,000 connections

7.5.4 Interventions – Long term

The proposed water supply scheme and the capital investment estimates are expected to address ultimate population requirements for in supply augmentation. Amb-M is expected to source bulk water from CMWSSB to meet ultimate population requirements and we have not factored any capital investments for the long term. However, we have provided for addition of distribution network (estimated at 77 km) considering the scope for new roads/layout formation and for additional storage requirements. Amb-M should strive towards 24x7 water supply in the medium to long term. This would require comprehensive metering of all HSC connections and implementing user charges on the basis of consumption. Given that Amb-M is yet to even meet access targets, we have provided for investments in metering only during 2018-27.

7.5.5 Investment summary - Water supply

The total outlay and phasing of investments for water supply is given in Exhibit 7.4 below.

Exhibit 7.4 Water Supply - Capital Investment outlay and phasing

Rs. Lakh

CAPEX PLAN AND PHASING	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
PRIORITY PROJECT									
Comprehensive Water supply scheme	-	4,167	4,167	4,167	-	12,500			12,500
LONG TERM NEEDS									
Storage capacity augmentation							359	976	1,336
Public fountains			50	50	50	150	164	398	712
Metering						-	-	3,033	3,033
Pumping and Distribution network						-	133	362	495
TOTAL CAPEX - Water supply	-	4,167	4,217	4,217	50	12,650	656	4,769	18,075

7.6 Sanitation

7.6.1 Service Goals and Reform targets

Exhibit 7.5 provides the service goal/outcomes and reform targets for 2008-12. As can be seen from the above, there are significant gaps in sewerage and sanitation services in Amb-M. Amb-M has a partial coverage of UGD with the sewer network covering only 22% of the road length. Underground Sewerage connections account of about 28% of assessed properties.

Exhibit 7.5 Sanitation - Service Goals and Reform Targets

	Unit	Baseline	Target		
		2007	2012	2017	2027
SERVICE GOALS					
UGD Network					
Availability	Yes/no	Partial	Yes	Yes	Yes
Design capacity	lpcd	-	120	120	120
Sewer network - % of road length	%	22%	80%	80%	80%
Storm Water Drains					
Drain length / Road length	%	30%	70%	80%	100%
Public Conveniences					
Slum population per PC seat	Nos.	289	300	200	200
REFORM TARGETS					
Sanitation coverage - % of population	%	60%	100%	100%	100%
Current collection efficiency	%	n.a	70%	90%	90%
Connections / Assessed Properties	%	28%	50%	60%	75%

7.6.2 Baseline status and gaps

Exhibit 7.6 provides the baseline status on sanitation and the requirements and gaps in the short, medium and long term. There are significant gaps in sanitation particularly in storm drain coverage. Public conveniences also require improvement given the increase in slum population in the town.

Exhibit 7.6 Sanitation- Baseline status and gaps (short term and long term)

	Unit	Baseline + Ongoing	Required			Gap		
			2012	2017	2027	2012	2017	2027
Sewerage Treatment Capacity		To be addressed	56	69	104	-	-	-
Sewer Length			341	396	470		55	74
Storm Water Drains	km	134	298	396	587	164	97	191
Public convenience seats	nos	400	471	722	867	71	251	145
Household connections	nos	22,158	58,851	86,596	162,475	36,693	27,746	75,879

7.6.3 Ongoing / Proposed projects

UGD scheme

An Underground sewerage scheme is currently under implementation in 19 wards of the town being implemented at an outlay of Rs. 39.60 crore. This project has been substantially delayed with the existing contractor renegotiating for price escalation in view of increase in input prices. Apart from this, there are 16 wards that are uncovered. CMWSSB has recently completed DPR for a comprehensive Underground Drainage scheme for the uncovered areas at an outlay of Rs. 130 crore. Exhibit 2.6 provides a summary of the various cost components of this project.

Exhibit 7.7 UGD scheme for uncovered areas – cost break-up

Sl. No	Description	Cost (Rs. Lakh)
1	Providing Sewerage facilities to Amb-M (Phase III) consisting of Collection system, pumping station and Force Main in 9 zones	7531.34
2	Strengthening of Villivakkam Sector A pumping station	113.55
3	Base Cost	7444.89
4	Centage cost (3%)	230.10
5	Proportionate cost for 900mm dia DI main to STP	2208.00
6	Consultancy services	75.45
7	Road restoration	2784.44
8	TNEB service connection	20.03
9	Third Party Inspection	13.09
10	Railway crossing	49.00
	TOTAL	13025.00

Discussions with Amb-M indicate that there are a number of uncovered areas even in the wards that are currently covered with an UGD scheme. Amb-M has requested CMWSSB to address these uncovered areas as part of the ongoing DPR. Amb-M officials estimate the cost of coverage and price escalation in ongoing project to be of the order of Rs. 20 crore. Therefore the estimates for comprehensively addressing the UGD requirements is of the order of Rs. 150 crore

Storm water drains, water bodies and public conveniences

Storm water drains account for just 30% of road length and there are significant gaps. Amb-M has identified a list of flood prone low lying areas which require immediate attention. Exhibit 7.8 gives a list of areas identified by Amb-M. Amb-M has identified damaged roads (38 works – 14.94 km) and storm water drains (10 works – 1.05 km) at an estimated outlay of Rs. 183.80 lakh.

Exhibit 7.8 Low lying / flood prone areas in Amb-M

Sl. No	Location	Houses	Population	Depth of water	Remarks
1	Ram Nagar	200	600	0.8	Low lying
2	Lakshmiammannagar	150	680	0.95	Low lying
3	Gnanamoorthy nagar	475	1400	1.15	Low lying
4	Srinivasapuram	150	700	1.10	Low lying
5	Balaji nagar and Annai flats	200	750	1.20	Low lying
6	Golden George nagar	175	540	1.20	Low lying
7	Nakeeran Salai	300	900	0.45	Low lying
8	Paneer nagar	106	530	0.90	Low lying
9	Annaisathya nagar	226	1130	1.50	Ambattur Eri surplus weir outlet

A list of 34 water bodies (along with the area as per municipal records) within Amb-M is enclosed in Annexure VIII. Interaction with residents and reconnaissance visits indicate that many of these lakes have been encroached and are in very poor condition.

As per records, Ambattur lake and Koratur lake account for almost 90% of the land area with the top 15 lakes/ponds accounting for nearly 98% of the total land area. There is a need for restoring these water bodies on priority. Amb-M along with PWD and other government agencies should remove encroachments of Ambattur and Koratur lake initially and another 10 large / restorable water bodies in the town from the list enclosed and undertake desilting and undertaking protective works (including lining of tanks) of all the water bodies.

7.6.4 Interventions - Immediate priorities

There are significant gaps in sanitation in the immediate term and the following projects are required within the next 5 years.

- a) Comprehensive Underground Drainage scheme (Estd. Outlay – Rs. 150 crore)** covering the following components
 - Provision of UGD scheme in 16 wards ~ Rs. 130 crore
 - Provision of existing UGD in uncovered areas in wards with UGD scheme ~ Rs. 10 crore
 - Completion of UGD in 19 wards (ongoing project) ~ Rs. 10 crore
 - Provision of additional 36000 household connections in 5 years and additional sewer network of approximately 165 km.
- b) Phased implementation of pucca Storm water drainage – Rs. 3281 lakh**
 - Storm water drains (10 works – 1.05 km) in areas identified by Amb-M at an estimated outlay of Rs. 183.80 lakh.
 - Coverage of all parts of the town in a phased manner to cover the normative gap of 164 km of new storm drain construction and rehabilitation of existing network of about 134 km.
- c) Restoration of Water bodies**
 - Restoration and beautification 10 other lakes at an estimated outlay of Rs.200 lakh (Rs. 20 lakh per water body for 10 water bodies) with
 - Restoration of Ambattur and Korattur Eri (estimated at Rs. 400 lakh) is envisaged to be handled by PWD.

7.6.5 Interventions – Long term

The proposed investments in UGD and storm water drains recommended in 7.6.4 above will take care of the sanitation requirements in the medium to long term as well. However, additional investments will required to take care of growing population and increase in road length due to new formations / layouts in the areas of public conveniences, addition to sewer and storm drain network. We have provided for investments in these areas on a normative basis, depending on the demand emerging from Exhibit 7.6 above. The restoration of water bodies will continue into the medium term as well.

7.6.6 Project components and Capital Investment

Exhibit 7.9 provides a summary of the project components, capital outlay and phasing for sanitation.

Exhibit 7.9 Sanitation - Capital Investment outlay and phasing

Rs. lakh

	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
ONGOING/PROPOSED									
UGD Scheme	-	5,000	5,000	5,000		15,000			15,000
OTHERS									
Sewer length						-	328	444	772
Storm water drain construction		820	820	820	820	3,281	1,945	3,828	9,053
Storm water drain renovation	448	448	448			1,343	-	-	1,343
Public convenience construction						-	8	72	80
Restoration of water bodies		100	100			200	200	200	600
TOTAL	448	6,368	6,368	5,820	820	19,823	2,480	4,545	26,848

7.7 Solid Waste Management

7.7.1 Service goals and reform targets

Exhibit 7.10 provides the service goal/outcomes and reform targets in SWM during 2008-27.

Exhibit 7.10 Solid Waste Management - Service Goals and Reform Targets

	Unit	Baseline	Target		
		2007	2012	2017	2027
Collection efficiency	%	98%	95%	100%	100%
Door-to-door collection	%	Partial	100%	100%	100%
Source Segregation	%	Partial	60%	100%	100%
Mode of disposal	%	Dumping	Scientific	Scientific	Scientific
Conservancy fee	Yes / no	No	yes	yes	yes

7.7.2 Baseline status and gaps – short term & long term

Exhibit 7.11 provides the baseline status in solid waste management and the requirements and gaps in the short, medium and long term. As can be seen, Amb-M has a significant gap in terms of land available for disposal vis-à-vis municipal norm of 1 acre per 10000 population (2020).

Exhibit 7.11 Solid Waste Management - Baseline status and gaps (short term and long term)

	Unit	Baseline	Required			Incremental gap		
			2012	2017	2027	2012	2017	2027
Waste Generated	MT	196	235	318	520			
Primary collection								
Number of trips	nos	2.17	3	3	3			
Vehicle capacity (per tricycle equivalent)	MT	0.20	0.20	0.20	0.20			
Number of Tricycle equivalent	nos.	210	392	529	867	182	137	337
Replacement - Tricycle equivalents	nos.			210	392		210	392
Secondary collection / Transfer								
Number of trips	nos.	3.70	2	2	2			
Vehicle capacity	MT	28	118	159	260	90	41	101
Replacement - tonnage equivalent	MT			28	118	-	28	118
Disposal								

	Unit	Baseline	Required			Incremental gap		
			2012	2017	2027	2012	2017	2027
Land	acres	7			87			79
Compost yard	acres	-			26			26
Processing yard	acres	-			61			61

The gaps in primary collection and secondary collection have been arrived at on a normative basis in terms of tricycle equivalents for primary collection and tonnage requirement for secondary collection, based on assumptions on waste generation per capita and the no. of trips.

7.7.3 Interventions required – immediate priorities

The following projects have been identified for implementation within the next 5 years.

- a) **Land Acquisition and Compost yard development – Rs. 900 lakh**
 - Acquisition of 40 acres land at Kuthambalkam village at an outlay of **Rs. 500 lakh**
 - Development of a processing and compost yard at Kuthambalkam - **Rs. 400 lakh**
- b) **Transfer station development – Rs. 750 lakh**
 - Clearing existing dumped waste from dumping yard, closing dumping activities and converting the same into a Transfer station – **Rs. 600 lakh**
 - Amenities (Equipment, compound wall, water connection, roads) – **Rs. 150 lakh**
- c) **Equipment procurement – Rs. 401 lakh**
 - Requirements have been arrived at on the basis of normative gaps shown in Exhibit 7.11.
 - Amb-M intends to privatise SWM collection and transfer activities in the 25 wards that are currently handled by it (Collection in the other 27 wards is already being handled by private agencies) and hence all the capital investment on equipment is envisaged to be financed by private operator.

7.7.4 Interventions required – long term

Normative gaps in the long term indicate that, Ambattur would require an additional 39 acres land over and above the 40 acres acquired recently and we have factored that this would be acquired during 2013-17. Further in addition to the compost facility, we have assumed that the new land acquired would be developed as a sanitary land fill facility. Capital investments for equipment requirements have been arrived at on the basis of normative gaps.

7.7.5 Project components and Capital Investment

Exhibit 7.12 provides a summary of the project components, capital outlay and phasing for Solid Waste Management in Ambattur town.

Exhibit 7.12 Solid Waste Management - Capital Investment outlay and phasing

Rs. lakh

	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
ONGOING								
Land Acquisition	500	-	-	-	500	-	-	500
Transfer station development	300	450	-	-	750	-	-	750
Compost yard development		400			400			400
NEW PROJECT COMPONENTS					-			-
Primary collection	23	23			46	87	182	315
Secondary collection		180	180		361	274	876	1,511
Land acquisition					-	196	-	196
Processing facilities development					-	785	-	785
SOLID WASTE MANAGEMENT	823	1,053	180	-	2,056	1,342	1,058	4,457

7.8 Roads, Transportation and Streetlights

7.8.1 Service goals and reform targets

Exhibit 7.13 provides the service goal/outcomes and reform targets for the horizon period.

Exhibit 7.13 Transportation and street lighting - Service Goals and Reform Targets

SERVICE LEVEL GOALS AND OUTCOMES	Unit	Baseline	Target			
		2007	2012	2017	2027	
Municipal roads as % of Total Area	%	10%	10%	11%	13%	
Surfaced roads to Total roads	%	88%	100%	100%	100%	
Pedestrian walkways to Total road length	%	Negligible	20%	40%	40%	
Street Lights - Distance between streetlights	M	24	30	30	30	
Street Lights - Proportion of high power lamps	%	19%	25%	25%	25%	
Street Lights - Proportion of lights with energy saving devices	%	1%	25%	25%	25%	

7.8.2 Baseline status and gaps

Exhibit 7.14 provides the baseline status and interventions in transportation and street lighting in the short term and long term.

Exhibit 7.14 Transportation- Interventions - Physical

	Unit	Total	Phasing (outcome)		
			up to 2012	2013-17	2018-27
Municipal road network					
Upgrading non-surfaced roads to BT roads	km	51	51		
Restoring roads after UGD completion	km	303	303		
New road formation / Surfacing	km		-	68	93
Re-laying all roads once between 2018-27	km				587
Road facilities					
Bus shelters up gradation	nos	20	20		
Pedestrian walkways	km		85	113	122
Bus terminus up gradation	nos	1	1		
New bus stand	nos	1	1		

88% of the total road network is surfaced. However, there is a need for substantial investment in the road network even in the short term given the ongoing and proposed capital works in water supply and sewerage projects in the town.

7.8.3 Interventions required – immediate term

The investment in road up gradation has been arrived at through a combination of normative assessment and discussion with Amb-M and public consultations on specific interventions required. The key investment components in roads and transportation in Amb-M and the basis for the same are detailed below:

a) Conversion of Non BT to BT surface – Rs. 758 lakh

- Based on normative gaps of 51 km of non-BT roads to be upgraded to BT surface @ Rs. 15 lakh per km.

b) Road up gradation, surfacing and restoration – Rs. 3637 lakh

- Of the 426 km of roads, 363 km are BT roads. In 19 wards where sewerage project is being undertaken, Amb-M has already identified 148 km of roads to be restored, of which work in 60 km has been completed. 303 km of roads to be restored and upgraded with new BT surface @ Rs. 12 lakh per km.
- Specific junction improvements. These need to be examined by the Highways department and NHAI and Amb-M for implementation. A diagrammatic representation of the suggested improvements is enclosed in Annexure III along with the minutes of public consultations.
 - ❖ Widening and strengthening of MTH road and widening the bridge between Ambattur OT and Ambattur municipal office to 60 m as shown in CMDA master plan.
 - ❖ Feasibility and implementation of an alternate new road formation along the MTH road
 - ❖ Provision of access to the elevated corridors of the bypass roads being implemented by NHAI at Menambedu.
 - ❖ Need for a box-type underpass for Gyanamurthy nagar and Bharathy salai.
 - ❖ Strengthening / widening roads and removal of encroachments on either side of proposed Patravakam railway station ROB

c) Road facilities – Rs. 956 lakh

- Amb-M maintains 2 bus stands (at Korattur and Ambattur OT). Amb-M proposes to provide bitumen road at Korattur bus stand at Rs. 10 lakh and intends to set up a new bus stand in a 10 acres plot at Kallikuppam near Ambattur OT at an outlay of Rs. 500 lakh.
- Remaining investments pertain to development of bus shelter and pedestrian walkways as shown in Exhibit 7.14 and 7.15.

d) Roads maintained by Highways Department and National Highways Authority of India –

- Amb-M has about 14.5 km of roads maintained by NHAI. NHAI is currently preparing a Detailed Project Report for an 81 km stretch of NH 205 – Chennai Tiruvallur Road, starting from Madhavaram to Tiruttani. Nearly 15 km of this road passes through Ambattur municipality. Further, NHAI's proposed bypass road connecting NH 5 with NH 4 through NH 205 also traverses Amb-M. While the NH 5 – NH 205 part is completed, phase II of this project connecting NH 5 and NH 4 is under implementation. The 13-km Chennai bypass

phase-II will start at Maduravoil junction on National Highway-45 (connecting Chennai-Dindigul), where a full cloverleaf structure has been provided, and join the NH-5 (Chennai-Kolkata) near Madhavaram, where provision for a trumpet interchange has been made. A 3.2-km-long elevated highway is being provided for the bypass through the Ambattur Industrial Estate. A four-lane rotary flyover linking Inner Ring Road and Chennai-Tiruvallur High Road is being constructed at Padi a cost of Rs.65 crore. The flyover will have a six-lane passageway for each of its four arms. The average daily traffic at the Padi junction is 1,42,735 passenger car units (PCU) with peak hour traffic being 8,869 PCUs. The existing arterial roads passing within town also need to be widened and strengthened after removing all encroachments.

7.8.4 Capital outlay and phasing

Exhibit 7.15 provides the details of the capital outlay for transportation and street lighting requirements

Exhibit 7.15 Transportation and Street lighting - Capital Investment outlay and phasing

Rs. lakh

	Phasing (Outlay)			Total
	up to 2012	2013-17	2018-27	
Municipal road network				
Upgrading non-surfaced roads to BT roads	758	-	-	758
Re-surfacing of roads after UGD implementation	3,637	-	-	3,637
New road formation / Surfacing	-	1,707	2,313	4,020
Re-laying all roads once between 2018-27	-	-	8,804	8,804
Road facilities				-
Bus shelters up gradation	150			150
Pedestrian walkways	256	338	367	960
Subways	-			-
Bus terminus up gradation - Korattur	10			10
New bus stand @ Kallikuppam - Land acquisition	1,000			1,000
New bus stand @ Kallikuppam - development	500			500
TOTAL	6,311	2,045	11,484	19,839
Street lights	Phasing (Outlay)			TOTAL
	up to 2012	2013-17	2018-27	
Street lights				
High power lamps	15	171	231	417
Tube lights	-	-	-	-
Lights with Energy savers	168	28	39	235
TOTAL	182	199	270	651

7.9 Urban services for the poor

In Ambattur Municipality there are 63 notified slums. As per a presentation made by Amb-M for funds access under BSUP, the population of the slums is 115721 with 21480 households.

7.9.1 Service levels goals and outcomes

Exhibit 7.16 gives a snapshot of the service level goals and outcomes of Amb-M with respect to provision of urban services for the poor.

Exhibit 7.16 Urban Services for poor – Service level goals and outcomes

	Unit	Target		
		2012	2017	2027
Road Coverage for slum household	%	100%	100%	100%
Sanitation coverage for slum households	%	100%	100%	100%
Streetlights	%	100%	100%	100%
Pucca houses for all slum households	%	100%	100%	100%

7.9.2 Proposed projects

Amb-M has taken up a comprehensive proposal for up gradation of 12 slums at an outlay of Rs. 475.05 lakh under BSUP in 2006.

7.9.3 Capital outlay and phasing

Exhibit 7.17 provides the summary of capital outlay and phasing of investments for provision of urban services for the poor.

Exhibit 7.17 Urban Services for the poor – Slum details Capital outlay and phasing

	Unit	Baseline	Estimated		
		2007	2012	2017	2027
No. of slums	nos	63			
Slum Population	nos	115721	141242	144,327	173307
Slum Households	nos	21480	28248	28865	34661

	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Ongoing BSUP	158	158	158	-	-	475			475
Comprehensive slum rehabilitation and development	-	-	-	-	4,242	4,242	21,210	-	25,452
TOTAL	158	158	158	-	4,242	4,717	21,210	-	25,927

Rs. lakh

7.10 Social infrastructure and other urban amenities

Exhibit 7.18 provides the summary of interventions, capital outlay and phasing of investments for provision of other urban service amenities in Amb-M.

Exhibit 7.18 Social infrastructure and other urban amenities – Capital outlay and phasing

Rs. lakh

Segment	Phasing								Outlay
	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	
Healthcare 6 Health posts to be converted to Urban primary health centres @ Rs. 50 lakh over 10 years				75	75	150	150		300
Schools Rs. 10 lakh/school every 5 years		100	100			200	200	400	800
Remunerative assets									-
Slaughter House	28					28	100	50	178
Gasifier crematorium	65					65			65
Shops at Koratur	20					20			
Shops at Ram nagar	20					20	250	250	520
Shops at Padi	14					14			
Parks and beautification 26 parks @ 10 lakh every 10 years			130	130		260	130	260	650
TOTAL	147	100	230	205	75	757	830	960	2,513

7.11 Capital Investment Plan

7.11.1 Summary of priority projects

The critical priority projects to be implemented by Amb-M in the short term (2008-12) are summarized below in Exhibit 7.19.

Exhibit 7.19 Priority projects - FY 2008-12

Sl. No	Sector	Project	Cost Rs. Lakh	Status	DPR needed
1	Water Supply	Implementation of comprehensive scheme for protected water supply in all wards	12500	DPR under preparation by CMWSSB	Yes
2	Sanitation	UGD scheme for uncovered areas	15000	DPR ready. Under TS	-
3	Sanitation	Restoration of water bodies	200	Proposed	Yes
4	Sanitation	Storm water drains	3800	Proposed	Yes
5	SWM	Land acquisition and compost yard development	900	In progress	Yes
6	SWM	Development of Transfer station	750	Phase I to be started	-
7	Transportation	Road up gradation and restoration	4811	Proposed	Yes

Sl. No	Sector	Project	Cost Rs. Lakh	Status	DPR needed
8	Transportation	Category A Bus stand at Kallikuppam	600	Resolution adopted	Yes
9	Social	Development of 26 parks	260	Proposed	-
10	Social	Gasifier crematorium and Slaughter house	93	Ongoing projects	-

7.11.2 CIP summary

Exhibit 7.20 provides a summary of sector wise phasing of investment needs of Amb-M.

Exhibit 7.20 Capital Investment Plan summary

Segment	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Water Supply	-	4,167	4,217	4,217	50	12,650	656	4,769	18,075
Sanitation	448	6,368	6,368	5,820	820	19,823	2,480	4,545	26,848
Solid Waste Management	-	823	1,053	180	-	2,056	1,342	1,058	4,457
Transportation and street lights	-	2,149	2,149	2,149	46	6,493	2,244	11,754	20,490
Urban Services for the poor	158	158	158	-	4,242	4,717	21,210	-	25,927
Others	147	100	230	205	75	757	830	960	2,513
TOTAL	753	13,765	14,175	12,571	5,233	46,496	28,762	23,085	98,309

7.11.3 Technical assistance

A list of project / sector specific technical assistance requirements needed from CMA/TNUISFL is given below:

1. Comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
2. Support for digitization of layout records and town planning information
3. Roadmap for 135 LPCD water and 24x7 supply
4. DPR for restoration of water bodies and flood management measures covering storm water drain and canal network design.
5. DPR for Traffic and Transportation improvement plan for the town including feasibility of specific junction improvements and road strengthening suggested in section 7.8.3.
6. DPR for solid waste management with focus on scientific disposal and mechanised handling of waste with private sector participation

7.11.4 Interventions required from other agencies/departments of GoTN

Specific initiatives required from departments and agencies of GoTN (other than Amb-M) are detailed below:

1. **State Highways/National highways** – a) Feasibility study for widening and strengthening MTH road (NH 205) including widening of bridge on MTH road
2. **CMDA** – Review of master plan and land-use and roadmap for extension of city limits.
3. **Chennai Metro Water / CMA** – Comprehensive plan for water supply and sanitation for Ambattur municipality
4. **PWD** – a) Restoration and development of Ambattur and Korattur lakes.
5. **Department of Education, GoTN** – a) Feasibility for setting up a Government High School for boys and b) Feasibility for setting up an Engineering or Medical college in Ambattur.
6. **Department of Youth welfare and Sports** – a) Feasibility study for setting up an integrated sports complex in Ambattur.

7.11.5 Reform targets

Exhibits 7.21 and 7.22 summarize reform targets and asset management plan for Amb-M respectively.

Exhibit 7.21 Service level and reform targets – a summary

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
WATER SUPPLY					
<u>Service Goals</u>					
Per capita supply at doorstep	LPCD	29	135	135	135
Storage capacity / Total demand	%	28%	50%	50%	50%
Distribution network / Road length	%	55%	75%	80%	90%
Frequency of supply	hours/day	< 1	2	2	24X7
<u>Reform targets</u>					
Current collection efficiency	%	22%	90%	90%	95%
House Service Connections / Assessed Properties	%	22%	50%	60%	70%
Population per water fountain	nos.	224	200	200	200
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes
User charge collection - % of O&M plus debt servicing	%	N.A	60%	100%	100%
SANITATION					
<u>Service Goals</u>					
<u>UGD Network</u>					
Availability	Yes/no	Partial	Yes	Yes	Yes
Design treatment capacity per capita	lpcd	-	120	120	120
Sewer network - % of road length	%	22%	80%	80%	80%
<u>Storm Water Drains</u>					
Drain length / Road length	%	30%	70%	80%	100%
<u>Public Conveniences</u>					
Slum population per PC seat	Nos.	289	300	200	200
<u>Reform targets</u>					

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
Sanitation coverage - % of population	%	60%	100%	100%	100%
User charges - Current collection efficiency	%	n.a	70%	90%	90%
Household connections / Assessed Properties	%	28%	50%	60%	75%
SOLID WASTE MANAGEMENT					
Collection efficiency	%	98%	95%	100%	100%
Door-to-door collection	%	Partial	100%	100%	100%
Source Segregation	%	Partial	60%	100%	100%
Mode of disposal	%	Dumping	Scientific	Scientific	Scientific
Conservancy fee	Yes / no	No	yes	yes	yes
TRANSPORTATION AND STREET LIGHTS					
Municipal roads as % of Total Area	%	10%	10%	11%	13%
Surfaced roads to Total roads	%	88%	100%	100%	100%
Street Lights - Distance between streetlights	M	24	30	30	30
Street Lights - Proportion of high power lamps	%	19%	25%	25%	25%
Street Lights - Proportion of lights with energy savers	%	19%	25%	25%	25%
URBAN SERVICES FOR POOR					
Road Coverage for slum household	%	100%	100%	100%	100%
Sanitation coverage for slum households	%	100%	100%	100%	100%
Streetlights	%	100%	100%	100%	100%
Pucca houses for all slum households	%	100%	100%	100%	100%

7.12 Asset Management Plan

This section details the asset management plan for various urban service areas and assets owned by Amb-M and follows from a review of the asset register of the municipality particularly relating to its land and buildings and open space areas (such as parks and water bodies).

In the following paragraphs we analyse the information provided to us on land and building assets available with Amb-M and outline specific observations and suggestions on maintaining and updating these assets. The Asset Management Plan for core services areas namely Water Supply, Sanitation, Solid Waste Management and Transportation follows largely from the Capital Investment Plan outlined in the earlier paragraphs and is outlined below under sections 7.12.2 to 7.12.5 below. Specific actions relating to asset management and reform steps in these areas are also summarized in Exhibit 7.24.

7.12.1 Land and building assets of Amb-M

Details of information on assets of Amb-M have been compiled and enclosed as Annexures as shown below:

- Annexure VI – List of parks and playfield sites
- Annexure VII – List of parks
- Annexure VIII – List of Water bodies
- Annexure IX – Ward wise details of road assets

- Annexure X – Details of OSR sites
- Annexure XI – Land details as per Schedule I of asset register
- Annexure XII - Building details as per Schedule II of asset register
- Annexure XIII - List of SWM equipment

Exhibit 7.22 and 7.23 summarises the details of land and building assets in Amb-M as shown in schedule I and II of the asset register of the municipality.

Exhibit 7.22 Land assets summary

Land use (as shown)	No of sites	Area in sq. m
Basic Amenities	23	227870
Water bodies	7	66267
Public conveniences	16	161603
Social	6	71378
Burial Grounds	1	3228
Library	1	1614
Kalayana mandapams	2	40,636
Hospitals / Maternity centre	2	25900
Schools	5	27400
Schools & Noon Meal Centre	12	99860
Noon Meal Centre	23	40348
Office Places	3	179068
Open Places / Vacant sites	8	478097
Parks	17	397874
Play ground	7	128449
Others	2	4048
Total	106	16,54,392

Exhibit 7.23 Building assets summary

Description	No of sites	Area in sq. m	
		Total area	Plinth Area
Basic Amenities	21	2534.77	2142.23
Public Conveniences	21	2534.77	2142.23
Social	17	6521.26	2601.56
Burial Ground	7	671.98	252.13
Library	1	150	150
Kalayana mandapam	1	672	672
Hospital / Maternity Centre	6	2880.3	1419.3
Parks	2	2146.98	108.13
Play Ground	0	0	0
Schools	11	950	810.58
Noon Meal Centre	29	6891.05	1787.55
Office Buildings	11	3746.23	2807.97
Others	11	3746.23	2807.97
Total	100	24389.54	12957.86

We observe that the asset register of Amb-M has not been updated. Several items in the asset register reflect status as of year 2000, when the asset register was initially created. For instance, the land in which municipal office building which has been constructed in the last few years continues to be shown as vacant land. We recommend the following actions in terms of managing the land and building assets of Amb-M

1. There are several discrepancies between the land details shown in land schedule and in the buildings schedule. We therefore strongly suggest a zero base validation and updation exercise covering the asset register be taken up on priority.
2. Amb-M should prepare and implement an annual maintenance plan (along with an assessment of cost implications) for all land and building assets. This maintenance plan should precede budget preparation process and should feed into the budget, so that the plan is adequately funded.
3. Amb-M should progressively move towards achieving revenue realisations in line with market trends from all its remunerative assets including shops, markets etc. This is achievable through a combination of a) developing a framework for enabling periodic increases in rates charged and b) improvement and better maintenance of the assets through periodic and planned maintenance.

Specific actions relating to management of assets in water supply, sanitation, solid waste management and roads are outlined below and are summarized in Exhibit 7.24

7.12.2 Water supply

As explained in section 4, Water supply is being handled in Amb-M limits by both Amb-M and CMWSSB. While CMWSSB handles O&M for water supply in 11 wards, Amb-M handles water supply in Koratur and other areas. Bulk water supply to the areas serviced by Amb-M is catered to by CMWSSB. Amb-M intends to handle operations and maintenance of the water supply project for the entire town once the proposed water supply scheme is completed. While this would enable focused accountability, it is important that CMWSSB and CMA prepare a roadmap and take the necessary steps for smooth handover of the water supply network during the next 5 years, when implementation of the proposed water supply scheme is completed. This would entail capacity building within Amb-M to ensure appropriate upkeep of the network. Specific Asset management activities relating to the water supply assets and network are listed below along with priority.

Short term

- a) Establish timelines for implementing the proposed water supply scheme along with CMA and CMWSSB and set up a monitoring committee to review progress and expedite the project.
- b) Create a baseline asset register comprising all components of existing water supply components in
 - i) Amb-M maintained areas ii) Areas being maintained by CMWSSB and c) areas to be addressed by the new project, prior to complete hand over of the water supply network to Amb-M.

Medium term

- a) Establish accountability and processes for updating asset register with capital works undertaken.
- b) Provide a ward wise report on capital works undertaken online on a quarterly basis.

- c) Undertake an independent study to assess loss levels in transmission, storage points and distribution and develop a roadmap for providing 24x7 water supply.
- d) Conduct periodic IEC campaigns on water conservation and rainwater harvesting practices.
- e) Review losses and illegal connections and widen the base of house service connections.

Long term

- a) Undertake a comprehensive GIS mapping of the water supply network of the town.
- b) Implement metering and metering-based-tariff /graded water tariff at household level
- c) Implement 24x7 water supply on a pilot basis in select zones / wards and replicate the same in a phased manner within a ten-year timeframe.

7.12.3 Sanitation

Underground drainage is being handled in Amb-M limits by both Amb-M and CMWSSB. While CMWSSB handles O&M for UGD in 11 wards, Amb-M handles UGD in Koratur area and will be handling 19 other wards where UGD scheme is under execution. Amb-M intends to take over operations and maintenance of the entire UGD scheme for the town, once the proposed UGD scheme is completed.

While this would enable focused accountability, it is important that CMWSSB and CMA prepare a roadmap and take the necessary steps for smooth handover of the UGD network during the next 5 years, when implementation of the proposed water supply scheme is completed. This would entail capacity building within Amb-M to ensure appropriate upkeep of the network. Given this backdrop, Amb-M would need to undertake the following activities.

- a) Establish timelines for implementing the proposed UGD scheme along with CMA and CMWSSB and set up a monitoring committee to review progress and expedite the project.
- b) Create a baseline asset register comprising all components of existing UGD components in i) Amb-M maintained areas ii) Areas being maintained by CMWSSB and iii) areas to be addressed by the new project, prior to complete hand over of the water supply network to Amb-M.

Subsequently, Amb-M should


- a) Establish processes and accountability for periodic updation and dissemination.
- b) Conduct IEC campaigns and public consultations to educate citizens on the benefits of Underground drainage scheme.
- c) Ensure adequate upkeep of sanitation assets including public conveniences and storm water drains through encouraging community level participation and feedback
- d) Disseminate information on tariffs a transparent manner and undertake a focused program to mobilise connection deposits
- e) Use a combination of incentives and penalties to encourage timely payment of user charges.

It would be prudent in the medium term for Amb-M to incorporate the sanitation asset details as part of a wider GIS implementation program in the medium to long term. Further, tariffs can be structured on a slab rate structure with property tax assessments as the basis.

Exhibit 7.24 Asset Management Plan and timeline

Sl.No	ASSET MANAGEMENT / DEVELOPMENTAL ACTIVITIES	Responsibility	Short Term	Medium term	Long Term
			2007-12	2013-17	2018-27
WATER SUPPLY					
1	Monitoring committee for expediting water supply project	Amb-M/CMWSSB/CMA			
2	Baseline asset register comprising all components in a) Amb-M maintained areas b) Areas being maintained by CMWSSB and c) areas to be addressed by the new project	Amb-M/CMWSSB			
3	Accountability and computerisation of updation / dissemination of asset register	Amb-M/CMWSSB			
4	IEC campaigns for water conservation and rainwater harvesting	Amb-M			
5	Leak detection plan / Losses assessment	Amb-M/CMWSSB			
6	Implementation of usage based / graded tariffs	Amb-M/CMWSSB			
7	Incentives / penalties to encourage timely payment of water charges	Amb-M/CMWSSB/CMA			
8	GIS mapping of water supply assets/connections	Amb-M/CMWSSB/CMA			
9	Roadmap for 24x7 water supply	Amb-M/CMWSSB			
10	Metering at household level and usage based tariffs	Amb-M/CMWSSB			
11	Piloting 24x7 water supply	Amb-M/CMWSSB			
12	Implementation of 24x7 water supply	Amb-M/CMWSSB			
SANITATION					
1	Monitoring committee for expediting UGD coverage in unserved areas	Amb-M/CMWSSB/CMA			
2	Baseline asset register comprising all components in a) Amb-M maintained areas b) Areas being maintained by CMWSSB and c) areas to be addressed by the new project	Amb-M/CMWSSB			
2	Accountability and computerisation of updation / dissemination of asset register	Amb-M			
3	IEC campaigns and public consultations on UGD benefits	Amb-M			
4	Mobilisation of public deposits	Amb-M			
5	Initiate and encourage Community participation for upkeep of sanitation assets	Amb-M			
6	Incentives / penalties to encourage timely payment of water charges	Amb-M/CMA			

Sl.No	ASSET MANAGEMENT / DEVELOPMENTAL ACTIVITIES	Responsibility	Short Term	Medium term	Long Term
			2007-12	2013-17	2018-27
7	Implementation of graded tariffs	Amb-M Amb-M/CMWSSB/CMA			
8	GIS mapping of sanitation assets/connections				
SOLID WASTE MANAGEMENT					
1	IEC activities	Amb-M Amb-M/CMA/TNUIFSL			
2	Review and updation of SWM action plan				
3	Door to Door Collection				
4	Source Segregation				
5	Identified transfer / collection points				
6	Synchronisation of primary/secondary collection				
7	Development and operationalisation of compost yard				
8	Conservancy fee for primary collection	Amb-M			
9	Commercial exploitation of waste	Amb-M			
10	Increased mechanisation of handling waste	Amb-M			
11	Development of scientific landfill site	Amb-M/CMA/TNUIFSL			
TRANSPORTATION					
1	Baseline data on road assets	Amb-M			
2	Accountability and process for periodic updation / dissemination	Amb-M			
3	Policy on road digging and right of way	Amb-M/CMA			
4	Stakeholder coordination mechanism for synchronized road development	Amb-M			
5	Energy saving in street lights	Amb-M			
6	Study on specific transportation interventions for Amb-M	Amb-M/CMA/TNUIFSL			

 Interventions requiring technical assistance/support in DPR preparation

7.12.4 Solid Waste Management

Short term

- a) Amb-M has taken a right first step in this regard by initiating steps to acquire land for creating a processing facility/compost yard. It intends to convert the existing land available at Athipet into a transfer station and segregation centre and has initiated a project in this regard
- b) While we have arrived at the investment estimates based on normative gaps and ongoing projects, Amb-M should prepare a detailed project report for its solid waste management requirements along the entire value chain from generation to disposal to ascertain. This is required considering the significant changes in requirements and disposal challenges in the last few years.
- c) Being an adjacent urban area within the Chennai Metropolitan Area, Amb-M faces significant challenges with respect to safe disposal of waste. It is highly constrained in terms of availability of land for disposal / waste processing facility. While it has undertaken steps to acquire land (40 acres) to meet its immediate and medium term requirements, Amb-M will still face shortage of land (of 39 acres) to meet its 2027 population requirements. This is not just a situation for Amb-M but for all other ULBs in the region and hence there is a need to explore sustainable approach to Solid waste disposal in an integrated manner. All ULBs including Amb-M should initiate steps to segregate waste, so that the bio-degradable waste is processed within respective towns in a self-sufficient sustainable manner. A common shared landfill facility should be created in the region for safe systematic land fill of non-biodegradable waste instead of indiscriminate dumping that is prevalent currently. We understand that TNUISL is undertaking a feasibility study for setting up engineered landfills in various city clusters. We recommend that the study should be taken up for municipalities in the Tiruvallur district coming under the Chennai Metropolitan Area.

Other asset management and developmental activities to be taken up Amb-M in the short term include the following:

- a) Conduct IEC activities to back other initiatives like door-to-door collection to facilitate effective segregation of waste at source.
- b) Implement door-to-door collection and source segregation in all wards.
- c) Identify transfer points / collection points for every ward and streamline primary and secondary collection trips in synchrony with the proposed disposal / waste processing plans.

Long term

- a) Amb-M should progressively enable greater mechanisation of waste handling and faster adoption of modern waste management practices
- b) Amb-M could consider implementing a conservancy fee for primary collection.
- c) In the medium to long term, Amb-M could focus on commercial exploitation opportunities for revenue enhancement by exploring scope for privatising compost yard management and other options including bio-gas and sale of scrap/recyclable material in a formal manner.

7.12.5 Roads and Transportation

The related asset management and developmental activities in transportation and street lights include the following:

- a) Considering the significant growth of the town and its location connecting Chennai and other western suburbs such as Avadi, Ambattur is witnessing a significant growth in floating population and through traffic. In this regard there is a need to prepare a Detailed Project Report on arterial road improvements and road facilities in Amb-M. Further, we understand that the Ministry of Railways, Government of India is contemplating a railway link between Ambattur and the rapidly industrialising Sriperumbudur-Oragadam region. The proposal should be taken forward and a detailed feasibility study should be undertaken in this regard.
- b) Create a baseline database on road assets at a ward level covering street wise details of length of road, road assets (storm drains, culverts etc), surface and condition
- c) Establish process and accountability for periodically updating this database with details of works done on these roads and disseminating information on the same on Amb-M's website.
- d) Clarify policy on road digging and repair and communicate the same to all agencies. Take stern action on agencies digging without prior permission from the ULB.
- e) Create a coordination committee comprising 'right of way' users including telecom companies, Tamil Nadu Electricity Board, TV cable operators, Traffic police and ULB officials to plan development and maintenance of road assets in a synchronised manner.
- f) Provide ducts for cables and other utilities along all arterial and major roads to minimise road digging.
- g) Adopt energy saving measures including implementation of energy savers in all high power street lights.

8. Project profiles, analysis of risks and ESA considerations

This section follows from the Capital Investment Needs identified in the previous section and provides brief profiles of select priority projects that need to be executed by Amb-M in the short term. These project profiles provide a) Need for the project b) Project cost and phasing c) current status and technical assistance requirements d) possible financial mix and risk factors and e) illustrative classification based on environmental and social framework adopted by TNUDF.

8.1 Water supply

Project Description	Comprehensive water supply scheme for piped water supply in all wards
Project Status	DPR under preparation by CMWSSB.
Need for the project	Water supply is only 29 LPCD while less than 22% of assessed properties have house service connections, indicating the significant gaps in water supply service levels and coverage. Therefore this project needs to be addressed on priority
Project Components	<p>This outlay is based on initial estimates provided by CMWSSB to Amb-M and exact components and scope of DPR are not available. An assessment of normative gaps that need to be addressed are highlighted below.</p> <ul style="list-style-type: none"> • Supply augmentation, Transmission and primary storage for supply of at least 49 MLD (by 2012) and 117 MLD (by 2027) • Local storage and pumping - Additional 28 ML of storage capacity by 2012 and another 20 MLD by 2027. • Investments in pumping and distribution network - Comprehensive provision of protected piped water supply in all wards covering about 320 km of roads in the short term. • Rapid scale up in House service connections – which would potentially need to increase nearly 8-fold in the next 5 years to more than 150,000 connections
Project Cost and basis	<p>Estimated at Rs. 125 crore.</p> <p>Based on discussions with Amb-M, initial estimate provided by CMWSSB of Rs. 100 crore, but is likely to get escalated.</p>
Revenue impact	Direct incremental revenue impact as Amb-M intends to levy house connection deposits and user charges. However, it has still not been decided whether Amb-M or CMWSSB would be handling the maintenance of water supply
Financing mix	Would be structured as a combination of grant, loan and own funds based on a detailed appraisal of potential revenues and other possible credit enhancements including escrow of part of property tax receivables and user charges and creation of debt service reserve. JNNURM grants likely to be accessed.
Risk factors and other remarks.	Given the large size and the complexity of the project, it is important to follow best practices in contracting out this project. Stringent quality considerations must be adopted in selecting contractors. The contract could be structured on a BOT format where the contractor is also responsible for maintaining the network, so that that the risk of non-performance is shared. Further incentives and penalties should be built into the contract to ensure timely completion of the project. To ensure scalability, CMWSSB should ideally make the design amenable for 24x7 supply in the future, even it does not envisage 24x7 supply in the short term.
ESA analysis and tentative rating	<p>E2 -Expected to have only moderate environmental issues. Mostly generic impacts in nature</p> <p>S3 - No social issues expected. Hence socially benign no social mitigation measures required, need to submit SSR</p>

8.2 Sanitation

Sector	Sanitation
Project Description	UGD scheme (ongoing – 19 wards) and uncovered areas (16 wards)
Project Status	DPR already prepared by CMWSSB and under updation.
Need for the project	Only 14 wards out of 52 have some Underground Drainage system in place. While the project to cover 19 wards has been delayed for a long time, CMWSSB has also prepared a DPR for the uncovered areas. Therefore there is significant gaps in sanitation that need to be rectified on priority.
Project Components	Comprehensive Underground Drainage scheme (Estd. Outlay – Rs. 180 crore) covering the following components <ul style="list-style-type: none"> • Provision of UGD scheme in 16 uncovered wards ~ Rs. 130 crore • Provision of UGD in uncovered areas in wards with existing UGD scheme – Rs. 30 crore • Completion of UGD in 19 wards (ongoing project) ~ Rs. 10 crore • Provision of estimated 36000 household connections in 5 years and additional sewer network of approximately 165 km.
Project Cost and basis	Estimated at Rs. 180 crore. Based on estimate for 16 wards provided by CMWSSB, cost escalation sought by contractor for ongoing UGD scheme and discussions with officials of Amb-M.
Revenue impact	Direct incremental revenue impact as Amb-M intends to levy house connection deposits and user charges. However, it has still not been decided whether Amb-M or CMWSSB would be handling the maintenance
Financing mix	Could be structured as a combination of grant, loan and own funds. JNNURM funds likely to be accessed.
Remarks	Given the large size and the complexity of the project, it is important to follow best practices in contracting out this project. Stringent quality considerations must be adopted in selecting contractors. The contract could be structured on a BOT format where the contractor is also responsible for maintaining the network, so that the risk of non-performance is shared. Further incentives and penalties should be built into the contract to ensure timely completion of the project. Modern best practices including biogas based electricity generation should be incorporated in the project design.
ESA analysis and tentative rating	E1 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), S1 or S2 – is likely to have PAPs and hence need fairly detailed assessment.

Sector	Sanitation
Project Description	Desilting and restoration of Ambattur and Koratur lakes and 10 other water bodies from the list of water bodies within Amb-M
Project Status	Proposed. A Detailed Project Report needs to be prepared for ascertaining exact scope and costs and to explore potential for remunerative options such as boating in select water bodies
Need for the project	Amb-M has identified 10 water bodies in the town that need to be desilted and rehabilitated apart from Ambattur and Korattur Eris.
Project Components	This project would involve <ul style="list-style-type: none"> • Removal of encroachments and extending water body limits • Preventing sillage and sewage water from entering the water body. • Deepening and de-silting of water body.

	<ul style="list-style-type: none"> Beautification and provision of amenities including jogging track garden wherever feasible.
Project Cost	Rs. 200 lakh The costs for Ambattur and Koratur lakes have not been considered for Amb-M's budget as these come under the management of PWD. We have considered an outlay of Rs. 20 lakh per water body in the short term.
Revenue impact	Most of the projects are likely to be non-remunerative. However, Amb-M should explore scope for remunerative options including boating and tap commercial opportunities wherever possible, particularly in development of Ambattur and Korattur lakes.
Financing mix	Given the size of the project and the non-remunerative of the project proposals, implementation of the project would require significant grant support.
Remarks	There is a need for a clear O&M strategy involving local community participation at the project implementation stage itself.
ESA analysis and tentative rating	E1 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), S1 or S2 – is likely to have PAPs and hence need fairly detailed assessment.

Sector	Sanitation
Project Description	Implementation of pucca storm water drains and flood management measures.
Project Status	Proposed. A Detailed Project Report needs to be prepared covering a) identification of potential water catchment points (including restoration of water bodies), b) Identify arterial canal networks that need to be developed/strengthened based on a review of flooding and water flow patterns and c) specify ward level guidelines for storm water drain construction in terms of linkages and gradient of local storm water drain construction initiatives.
Need for the project	Amb-M has a number of flood-prone and low-lying areas as identified in section 7.6.3 of the report. Low lying areas are primarily along wards 4,5,6,7,12,35 and areas covering New nagar (Padi) and Annai satya nagar
Project Components	This project would involve <ul style="list-style-type: none"> Construction of new Pucca concrete storm water drains along the road along with interlinking to water bodies in uncovered areas in an estimated length. Cost estimated arrived at based on a normative length of 164 km of existing storm water drains. Rehabilitation and desilting of existing storm water drains. Cost estimate arrived at based on an additional length of 164 km needed to meet 70% of road length.
Project Cost	Rs. 3281 lakh
Revenue impact	The project is likely to be non-remunerative.
Financing mix	Given the size of the project and the non-remunerative of the project proposals, implementation of the project would require significant grant support.
Remarks	There is a need for a clear O&M strategy involving local community participation at the project implementation stage itself to ensure appropriate upkeep and maintenance of the asset. Further, the construction of storm water drains should be done in conjunction with road restoration/development to ensure appropriate alignment and flow patterns.

ESA analysis and tentative rating	E1 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), S1 or S2 – is likely to have PAPs and hence need fairly detailed assessment.
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8.3 Solid waste management

Sector	Solid waste management
Project Description	Land acquisition and compost yard development
Project Status	Proposed.
Need for the project	Amb-M has shortage of land for disposal and has decided to acquire 40 acres of land in Kuthambalkam village for development of an integrated compost yard.
Project Components	This project would involve <ul style="list-style-type: none"> Acquisition of land at a cost of Rs. 500 lakh Development of compost yard at Rs. 400 lakh
Project Cost	Rs. 900 lakh
Revenue impact	The project could enable earnings through sale of compost manufactured.
Financing mix	The project should be implemented with private sector participation on a BOT basis. This will reduce the capital investment from Amb-M and at the same time enable Amb-M to insist and enforce service levels.
Remarks	The project could be clubbed with collection and transfer responsibility in select wards.
ESA analysis and tentative rating	E1 or E2 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), particularly if dumping of non-biodegradable waste is also being done in the location. S1 or S2 – may have PAPs and hence need fairly detailed assessment.

8.4 Transportation

Sector	Roads
Project Description	Upgradation of road network post UGD implementation
Project Status	Ongoing – to be implemented in a phased manner to cover all wards.
Need for the project	Since UGD scheme is expected to be implemented over the next few years, there is a need to restore the entire road network post implementation
Project components	Details have already been outlined in section 7.8.3 under the following components <ul style="list-style-type: none"> Conversion of Non-BT to BT surface (51 km @ Rs. 758 lakh) Road up gradation and restoration after UGD implementation (303 km @ Rs. 3637 lakh) Road facilities at Rs. 406 lakh
Project Cost	Rs. 4801 lakh
Revenue impact	Non-remunerative project
Financing mix	Combination of loans (30%), grant (50%) and own funds
Remarks	The road network up gradation should comprehensively take into account storm water drain design and other road assets including pedestrian foot paths, signage and road medians as appropriate.
ESA analysis and tentative rating	E2 -Expected to have only moderate environmental issues. Mostly generic impacts in nature S3 - No social issues expected. Hence socially benign no social mitigation measures required, need to submit SSR

Sector	Transportation
Project Description	Development of A class bus terminus in Kallikuppam
Project Status	Concept stage.
Need for the project	The existing Ambattur OT bus stand area is very congested and it has been proposed to shift the bus stand to a new developed bus stand at Kallikuppam
Project components	Details have already been outlined in section 7.8.3 under the following components <ul style="list-style-type: none"> • Land acquisition – Rs. 1000 lakh • Development of new bus stand – Rs. 500 lakh
Project Cost	Rs. 1500 lakh
Revenue impact	Can be structured as a remunerative project
Financing mix	Implementation should be attempted on PPP mode.
Remarks	Project would require a DPR to ensure appropriate routing of buses to avoid congestion. Provision for commercial activities should be provided to facilitate revenue augmentation and steps to keep the bus stand encroachment free should be planned and enforced.
ESA analysis and tentative rating	E2 -Expected to have only moderate environmental issues. Mostly generic impacts in nature S3 - No social issues expected. Hence socially benign no social mitigation measures required, need to submit SSR

9. Reform agenda and Technical assistance

This section outlines the reform agenda for Amb-M in the areas of a) capacity building and systems b) measures for improving financial performance and c) summary of targets on select operational and financial indicators

9.1 Urban sector reform in Tamil Nadu – an overview

Tamil Nadu is considered a pioneer in the area of urban reforms. Tamil Nadu has constituted three successive State Finance Commissions for improving resources of local bodies and devolution of funds from the State to Urban Local Bodies and has conducted three successive elections to Urban Local Bodies on due dates. Apart from this, other key reform initiatives undertaken by Tamil Nadu in the urban sector are given below:

1. Reduction in stamp duty on transfer of property from 15 to 8 percent.
2. Implementation of accrual accounting system in all Urban local bodies
3. Introduction of modified area based property tax system
4. Computerization of sub-registrar's offices
5. Repeal of the Land Ceiling Act, while a reformed Rent Control Act is being considered
6. Commitment to levy user charges and improvement in collections for water and sanitation services.
7. Creation of TNUDF to provide access to capital markets in a non-guarantee mode.

Apart from setting in motion a process for financial devolution through creation of SFC, Tamil Nadu has also moved a fair bit towards delegating a number of functions to the ULBs. The 12th Schedule of the Constitution provides for 18 functions to be undertaken by ULBs.

1. Urban planning, including town planning;
2. Regulation of land-use and construction of buildings;
3. Planning for economic and social development;
4. Provision of roads and bridges;
5. Provision of water supply for domestic, industrial, and commercial purposes;
6. Provision of public health, sanitation conservancy, and solid waste management;
7. Provision of fire services;
8. Promotion of urban forestry, protection of the environment, and promotion of ecology;
9. Safeguarding of the interests of weaker sections of society, including the handicapped and mentally retarded;
10. Slum improvement and upgrading;
11. Urban poverty reduction;
12. Provision of urban amenities and facilities such as parks, gardens, and playgrounds
13. Provision of cultural, educational and aesthetic aspects
14. Provision of burials and burial grounds, and cremations, cremation grounds, and electric crematoriums;
15. Provision of cattle pounds, and prevention of cruelty to animals
16. Recording of vital statistics including registration of births and deaths

17. Provision of public amenities including street lighting, parking lots, bus stops and public conveniences
18. Regulation of slaughterhouses and tanneries.

While not mandatory, the provisions direct state governments to decide the powers and functions to be devolved to local bodies. Tamil Nadu has delegated functions 2 to 6 and 8 to 18 to ULBs⁶. Though Urban Planning as a function is vested with the Department of Town and county planning, both the political and administrative heads namely the Chairman and the commissioner are typically involved in the process of preparing master plans.

9.2 Reform agenda – interventions required at the state level

As observed above, GoTN has ushered in a number of reforms in the urban sector. However, there is a need to persist with this direction. The stage is set for the state to usher in a set of second generation reform that furthers the vision of the 74th Constitutional amendment in empowering and strengthening local governance. In this regard, we have outlined below a set of possible reform areas and interventions below:

1. **Implement recommendations of the Third State Finance Commission** – The recommendations relating to the revenue buoyancy of the ULBs including property tax reform and devolution income and transfer are particularly critical for the financial stability of the ULBs and need to be implemented on priority.
2. **Maintain reasonable stability of tenure of key officials** – We recommend that except for extraordinary circumstances, there should be a minimum tenure of at least 2 years for all the key positions including Commissioner, Municipal Engineer, Manager, Town Planning Inspector, Sanitary and public health head and Accountant. Further, guidelines need to be clarified and enforced for formal charge handover whenever there is a transfer of officials to ensure continuity of city level vision, projects and streamlined service delivery.
3. **Carry out an Independent assessment of skill gaps and manpower needs of Amb-M** - There is a need for an independent review of the skill requirements in various grades of municipal bodies to ascertain the appropriate manpower plan in terms of skill sets and experience/seniority. This is particularly relevant given the recent developments and the growing service delivery expectations in the urban sector specifically in urban planning, municipal accounting and systems, e-governance and modern practices in infrastructure service delivery including potential for public-private partnerships.
4. **Address critical operational areas through focused training and capacity building interventions** - Three areas stand out in terms of criticality and the need for significant training interventions. These include:

⁶ Source: *Local Governments Finances and Bond Markets*. ADB. 2003

- **Engineering and project development** – A number of new grant and loan schemes (both central and state) including the UIDSSMT are available for ULBs to tap into for meeting their asset creation requirements. However, there seems to be very little understanding of the scope and potential of using these schemes for implementing local level projects. GoTN and CMA should conduct periodic training and awareness programs for senior management personnel including Commissioners, Managers and Engineering staff. This would enable them work towards developing projects that can leverage such schemes. Agencies like TNUIFSL and TUFIDCO should also take the lead in organising such awareness programs.
- **Accounting and Finance** – Though accrual accounting has been implemented in Amb-M and is under operation for more than 5 years. Computerised Financial and Administrative systems are in place or are in various stage of implementation/up gradation. There is a therefore a need for continued emphasis on training to bring the accounting and finance staff up to speed on these developments.
- **Use of CAD/GIS applications in Town Planning/Engineering** – CMA and GoTN should initiate a state-wide program to train Town planning and engineering staff on CAD and GIS applications.

5. Build on GoTN's pioneering position in implementing accrual accounting by launching a drive improve the timeliness and quality of information dissemination - While all ULBs in Tamil Nadu have implemented a double entry accounting system, there is scope for improvement in the quality of accounting in the areas of classification and recording, consolidation and dissemination of information. Several ULBs have redundant systems involving manual and computerised book keeping and errors often creep into MIS. Often, the DCB statements and accounting statements are not reconciled. The recent initiative of the setting up of the Debt Monitoring Cell at the CMA level is a positive step in getting the loan records at the ULB right. It still takes significantly long time for accounts to be closed and this need to be remedied. GoTN and CMA should continue its thrust in this area to ensure that the real advantages of accrual accounting is realised. In this regard, we recommend that

- CMA, GoTN should continue its focus **on technical assistance to ULBs to improve their accounting systems and practices**. Proper training should be given to the staff on the concepts of double entry book keeping. Apart from the municipal staff, the LFA should also be given training in auditing the new computerised systems being implemented. Currently there is a dual system in operation and this seems to be creating significant reconciliation issues.
- CMA, GoTN should **insist and implement closing of accounts and audit of the same within a fixed time period** subsequent to the completion of financial year.
- TNUDF could consider a **grading system to categorise ULBs** on the basis of quality of accounting and reporting practices.

6. Create technical standards with specific applicability to municipal projects construction and execution. These are particularly required in 2 areas:

- **Integrated road asset creation and management** – The quality of road construction particularly in urban areas is inconsistent ranging from well-laid roads in select areas to

poorly designed roads that does not last even a single monsoon season. In this regard **CMA along with the State Highways department** should

- ❖ **Standards** - Define standards for urban roads construction covering technical specifications (construction material, equipment use, process for road construction)
 - ❖ **Procurement guidelines** - Review procurement guidelines for empanelment / selection of contractors including incentives and penalties to ensure adequate accountability
 - ❖ **Showcase project** - Identify one major arterial high-density road corridor (typically maintained by the State Highways department) in all district headquarters for development in an integrated manner covering strengthening/widening, encroachment removal, de-bottlenecking through junction improvements and grade separators, streamlining parking, guidelines for right of way for road users (such as TNEB, BSNL etc) and aesthetics/signage. Implementation of such projects could potentially have a demonstration effect and could contribute to widespread replication and adoption.
 - **Flood management and interlinked storm drains** – Storm water drains are among the most expensive assets to be created by ULBs and yet least priority gets accorded to maintaining storm drains and keeping them clean. Further there is inadequate planning and sub-optimal drain construction in an isolated manner without a detailed review of interlinking needs with arterial canals and water bodies. In this regard, we recommend that
 - ❖ TNUIFSL and CMA should considering initiating a technical assistance study at a city level for all the district headquarters and other flood-prone and coastal towns (such as Ambattur) in Tamil Nadu in a phased manner to develop a blueprint for an integrated water and flood management plan covering a) identification of potential water catchment points (including restoration of water bodies), b) Identify arterial canal networks that need to be developed/strengthened based on a review of flooding and water flow patterns and c) specify ward level guidelines for storm water drain construction in terms of linkages and gradient of local storm water drain construction initiatives.
- 7. PPPs** - It is necessary to encourage a deeper involvement of private sector (beyond financing) in the areas of design, development and operation of infrastructure. PPPs have been found to be very effective in addressing efficiency and asset management (through pre-defined service levels and accountability for operations and maintenance) aspects of infrastructure development. In this regard,
- CMA, GoTN should develop a framework for PPP including specific policies and guidelines in urban infrastructure and in land development / remunerative projects.
 - TNUIFSL should provide comprehensive assistance covering necessary capacity building (in terms of evaluating mechanisms - BOT, SPV etc) and financing for developing projects through private sector participation.
 - CMA, GoTN along with TNUIFSL should develop model concessions involving Private sector in various areas including Solid waste, STP O&M, Maintenance of head works for water supply, Street light maintenance and remunerative projects

8. Initiate formal and independent Information Systems and Security Audits, given the implemented and ongoing e-governance initiatives of ULBs in Tamil Nadu –

- ULBs should be required to establish the practices of an independent system audit to be conducted annually. This would enable ULBs to establish greater accountability and build in robust processes for disaster recovery and security of the IT architecture of the ULB

9. Facilitate creation of a formal institutional mechanism to manage functional overlaps among nodal agencies/state level agencies and the ULB – As described earlier in section 5.4 – role of other agencies, ULBs shares responsibility for a number of service delivery areas with other agencies/departments of the state including Department of Town Planning, Department of Highway, Tamil Nadu Electricity Board, Tamil Nadu Water and Drainage Board, Road Transport Corporations etc.

- In order to overcome the limitations of these overlaps and to enable operation of these various organs of the state in a coordinated manner, each ULB should be mandated to facilitate creation of a formal steering committee at the city level comprising of 8-10 officials from all government departments/agencies. This committee could meet regularly (once every 2-3 months) to discuss and share information on respective projects/areas and could pave the way for better communication and effective service delivery.

9.3 Suggestions for improving financial performance and collection efficiency

Overall income of Amb-M grew at a 14.5 % CAGR, driven largely by significant growth in Devolution fund income. Own income of the municipality grew at a moderate 4.4 %, while expenditure actually declined during the period at a CAGR of – 6.8% due to a steep decline in operating expenses and finance expenditure. However, this presents only part of the picture. Current collection efficiencies in property tax and water user charges are abysmally low at 59% and 35% respectively.

Amb-M's ability to improve on its financial performance hinges primarily on its ability to sustain and improve on the revenue growth noticeable in recent years. While there is potential for expenditure control in certain areas (as in the case of energy costs), the focus of cost management should be to shift expenditure from administration to better asset management and O&M. The following paragraphs outline select interventions for improvement of financial and operating performance.

9.3.1 Revenue enhancement

Property tax

Specific recommendations for improving property tax revenue and collections are detailed below. Recommendations in bold are actions that can be implemented immediately by the municipality without any significant investment and can enable the municipality to show immediate results

Issues	Recommended Interventions
Rate of taxation and monitoring	<ol style="list-style-type: none"> 1. Implementation of quinquennial ARV revision as recommend by SFC and removal of distortions in rates wherever existent. 2. Apart from collection efficiency, the ratio of assessments to population and growth of assessments should also be tracked and monitored at the highest level. 3. There should be changes instituted to the policy of Vacant Land tax to introduce steep step up in taxes for vacant land particularly in peri-urban areas to incentivise development. Vacant land are often prone to abuse in the form of encroachments, poor maintenance and dumping of garbage. Therefore an increase in Vacant land tax can be ploughed back for supporting the costs municipalities often incur in managing and preventing such abuses. 4. Property tax information of various residential units should be published online in the same manner as the guideline values that are published
Increasing assessments	<ol style="list-style-type: none"> 5. Move to GIS-based database to track, update and retrieve property tax information 6. It should be made compulsory for all new building constructions to display the building permission details obtained from the municipality for construction. The municipality should actively encourage its citizens to report unauthorised buildings construction and should disseminate online information on action taken on such constructions to dissuade such activity. Capturing information on unauthorised construction at the initial stages through such efforts would go a long way in preventing the rampant growth of unauthorised and unassessed constructions in our towns and cities. 7. Conduct a one-time survey to compile database of properties and initiate sample checks in all wards on an ongoing basis. The Commissioner should undertake ‘surprise checks’ on a regular basis in various wards to provide a sense of enforcement both to the municipal officials and to citizens for encouraging compliance. 8. Reconcile and link assessment information with building permissions issued and initiate a drive to bring unassessed properties under the tax net. 9. Reconcile manual and computerised registers to identify and bring in left-out assessments into the tax net. 10. Blanket exemptions should be reviewed. Revenue loss due to exemptions should be compensated by GoTN. 11. A strong coordination between departments within the municipality by itself bring significant increase in assessment base and collection efficiency. The Revenue department should reconcile its information across various databases on households and other commercial properties available within the municipality. Specific suggestions in this regard are listed below: <ul style="list-style-type: none"> o The Property tax database should be regularly updated based on the status of Building permissions issued by Town Planning department o Whenever the Engineering department provides water and sewage

Issues	Recommended Interventions
	<p>connections, it should check with the Revenue department for compliance of those assesses with respect to property tax dues. The water and sewage assesses databases should be regularly updated and reconciled with the property tax database.</p> <ul style="list-style-type: none"> ○ Whenever, the Health Department issues D&O and Trade licenses, they should check on the status of property tax assessment and professional tax assessment status for these license. ○ The D&O licenses and Trade licenses should only be provided for applicants with a clear property tax assessment status and compliance. <p>12. E-governance efforts should be undertaken towards creation of an integrated database that provides for access of information across various departments would enable effective reconciliation of information.</p> <p>13. Along with the above internal coordination, Amb-M should also coordinate with other GoTN departments including TNEB and Commercial taxes department for improving assessment information. This can be done by obtaining and reconcile addresses and properties data of such departments with that of the municipality to identify and update missing data in the property tax database. Apart from improving property tax assessment, such cross-department interaction would facilitate mutual benefits and aid effective working relationships among them.</p> <p>14. There is a need for greater recognition of effort and contributions to improvement in assessment increase and collection efficiency. Municipal officials should be given targets and appreciated with monetary and non-monetary recognition for contribution.</p> <p>15. Similarly, the municipal council should be encouraged to contribute to improvement in collection efficiency. Top 20 default cases in each ward should be brought to notice of individual council members and Council members contributing to improvement in collection efficiency could be recognised through resolutions praising their efforts.</p>
Improving collection efficiency	<p>16. Draw a systematic plan for sending demand notices and ensure despatch of demand notices on time.</p> <p>17. Conducts ward wise analysis of collection efficiency to focus more on troublesome wards/ areas.</p> <p>18. Involve council members and resident welfare associations / NGOs as pressure groups to act against wilful defaulters.</p> <p>19. Simplify payment of property tax dues by providing multiple options; a) payment through banks b) additional facilitation / e-governance counters, c) mobile vans and door-to-door collection drives, d) online payment option and e) payment through credit cards etc.</p> <p>20. Make it compulsory for clearing property tax dues for provision of water and sewerage connections.</p> <p>21. Initiate a One-time drive and settlement scheme for arrears.</p> <p>22. Prepare a list of top100 defaulters and disseminate the information online and through other media to put pressure on such defaulters.</p>

Issues	Recommended Interventions
	<p>23. Municipalities should be made to report details of Litigation cases on a quarterly basis to CMA and the actions taken on them. Municipal officials should be given targets for settlement of litigation cases in a time-bound manner.</p> <p>24. Moot creation of a special tribunal for speedy completion of litigation cases.</p> <p>25. Wherever possible initiate steps for out-of-court settlement to facilitate speedy clearance of such cases.</p> <p>26. Make provisions and take steps for writing off bad debts to clear up arrears history and database</p> <p>27. Encourage greater accountability among bill collection staff by introducing targets and incentivise the same by recognition of top performers.</p> <p>28. The linking of grants to improvement in collection efficiency as in the case of JNNURM and UIDSSMT should be institutionalised for receipt of state government grants too.</p>
Incentivise on-time payment	<p>29. Implement Payment Due Date and penalties to incentivise on-time payment</p> <p>30. Encourage self-disclosure and payment.</p>

Professional Tax

Professional tax has grown at 19% over the last five years and is becoming an important revenue stream. It is also a visible revenue stream, yet collection efficiency (especially on current demand) has been only about 82%. Amb-M should improve collection efficiency to more than 95% and should explore options for enhancing revenues by taking the following steps.

<p>31. Amb-M should focus on <u>widening its professional tax base</u> by bringing more traders and independent professionals within the ambit of professional tax. Specifically, Amb-M should consider tapping into databases of potential professional tax assesses including</p> <ul style="list-style-type: none"> • Professional associations including Institute of Chartered Accountants of India (ICAI), the Bar Council, Medical Council etc. • Databases of Commercial Taxes Department, GoTN to get details of sales tax registrations within Amb-M. • Yellow pages and other local commercial directories to identify and bring in more professionals within the ambit of professional tax. <p>32. A Targeted approach should be followed to widen the tax base for professional tax. In particular, the municipality should focus on gathering information on the following groups that could potentially add to the professional tax assessment base.</p>	
<ul style="list-style-type: none"> • Banks (Commercial and Cooperative) • Government Staff • Doctors • Engineers • Surveyors • Contractors • Advocates 	<ul style="list-style-type: none"> • Architects • Chartered Accountants (Firms) • Income Tax Practitioners • Computer Hardware Shops • Computer Education Institutes • Medical Shops • Private Companies

<ul style="list-style-type: none"> • Business Entities (other than companies) • Stock Broking concerns • Hospitals • Schools and other educational institutions • Cinema Theatres • Clubs 	<ul style="list-style-type: none"> • Chit Funds • Pawn Brokers • Laboratories • Internet Browsing Centres • Stockists and Distributors
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User charges

With the proposed UGD system in uncovered areas and proposed implementation of the Combined Water supply scheme, user charges would need increased monitoring and follow-up given their potential to contribute to Amb-M's revenue. Specifically Amb-M should

33. **Increase penetration of connections for water supply.** As of FY 2006, Amb-M has about 17000 connections (including connections in CMWSSB managed wards), which accounts for only 22% of the properties assessed. Amb-M should target to increase this to at least 60 % in the next 5 years progressively going up to 70% in the next decade.
34. **Providing water fountains only in areas with a predominantly low income population to minimise revenue loss.**
35. **Improve revenue per connection through implementation of either a graded water tariff scheme (as is being considered by CMA, GoTN) or a metering based tariff.** While the metering based system would a better system in principle (charges on the basis of usage) and in terms of incentivising water conservation, ULBs have faced resistance in implementation of metered tariffs. Amb-M could also consider implementation of meter based tariffs through involvement of Self Help Groups as meter readers.
36. **Adopt measures to improve collection efficiency.** Amb-M should consider stiff penalties for non-payment of user charges. Specifically Amb-M should consider implementation of late payment fines and in case of extreme overdue situations, disconnecting supply. Recommendations 8-14 given above under Property tax apply for improving collection efficiency in user charges as well.

Public private partnerships (PPP)

Well-structured PPPs apart from relieving ULBs of some investment burden could also be a potential revenue enhancement option, particularly in structuring remunerative projects. In particular, Amb-M could take the following measures.

37. **Evaluate PPP options for development of proposed remunerative projects including a)** development of Uzhavar Sandhai and other markets and b) Development of sports complex
38. **Actively encourage corporate / NGO partnerships for city beautification and asset management in areas covering bus stops, street lighting, medians, parks and road junctions.** Given that Ambattur has a number of large industrial houses, Amb-M could encourage them to adopt specific municipal assets and maintain them as part of Corporate Social Responsibility.
39. Further Amb-M should also **regulate posters and hoardings and outdoor advertising rights** available to it to incentivise maintenance of above mentioned municipal assets by corporates that depend on outdoor advertising including banks, consumer goods and retail companies.

9.3.2 Measures for cost management

Energy efficiency

Amb-M needs to take steps to address its power costs which have shown a steep increase over the last three years. The following steps are needed in this direction:

40. Amb-M should conduct a **comprehensive energy audit** to identify areas for reducing power consumption and related costs.
41. Amb-M should implement **automatic time based dimmers** on street light network and ensure that all **pumps / motors are energy efficient**.
42. A focused study is needed to assess the level of leakages in water supply and to recommend measures to minimise the same.

10. Sustainable financial and operating plan

10.1 Financial and Operating Plan (FoP)– time horizon, basis and assumptions

10.1.1 Time-horizon

The FOP has been prepared for a 20-year period i.e., FY 2008-2027.

10.1.2 Demographic projections

Exhibit 10.1 provides the population projections that form the basis of developing the Capital Investments and other revenue and cost projections for the municipality.

Exhibit 10.1 Population projections and related estimates - Ambattur town

	Unit	Baseline	Projected		
		2007	2012	2017	2027
Population	nos	394090	470806	577309	866535
Households	nos	97646	117701	144327	216634
Slum population	nos	115721	141242	144327	173307
Slum households	nos	21480	21480	21480	21480
Assessed Properties	nos	79365	103577	132781	199303
Road length	km	426	426	494	587

10.1.3 Revenues

Exhibit 10.2 provides details of the assumptions for projecting revenues for Ambattur

Exhibit 10.2 Revenue related assumptions

Segment	Revenue driver	Basis / Assumptions
Property Tax	Baseline property tax / property (2006)	Rs. 1505 per year
	Growth in tax rate	30% once in 5 years 2008 onwards
	Assessments growth	Population growth. As per trend captured in Exhibit 10.1
Professional Tax	Baseline tax / assessee (2006)	Rs. 1387 per year
	Growth in tax rate -	30% every 5 years from 2008
	Growth in assessments -	Population growth
Water charges	Penetration (Connections / properties)	Baseline – 22%. Connections growth assumed to reach 60% by 2013 and 80% by 2027.
	Deposit and user charges	Connection deposit assumed at Rs. 3000 and Rs. 8000 for household and commercial connections respectively and user charges assumed at Rs. 100 per month and Rs. 200 per month for residential and commercial connections respectively. Tariffs are

Segment	Revenue driver	Basis / Assumptions
		escalated at 5% annually
Sewerage charges	Penetration (Connections / properties)	Connections growth assumed to reach 50% by 2011 and 80% by 2027.
	Deposit and user charges	Connection deposit assumed at Rs. 3000 and Rs. 8000 for household and commercial connections respectively and user charges assumed at Rs. 75 per month and Rs. 250 per month for residential and commercial connections respectively. Tariffs are escalated at 5% annually
Devolution Income	State sales tax	States' sales tax projections assumed to grow at 5%. 10% of sales tax receipts assumed to devolve to ULBs and to the municipality based on 2001 population base.
Assigned revenue and other income	Growth over baseline income (2006)	6% growth during projection period

10.1.4 Expenditure

Exhibit 10.2 provides details of the assumptions for projecting expenditures for Ambattur

Exhibit 10.3 Expenditure related assumptions

Segment	Revenue driver	Basis / Assumptions
Staff Costs	Growth over base salary	10% annually
Operating Expenditure	Existing asset base – Growth on base O&M expenditure of 2006	Assumed to grow at 5% annually
	For new capital investments – O&M has been assumed as a % of capital costs given in Exhibit 10.4 CIP	
	Water Supply	3.00%
	Sewerage and Sanitation	3.00%
	Solid Waste Management	8.00%
	Transportation & Street lighting	20.00%
	Urban services for poor	2.00%
	Others	2.00%
Administrative expenditure	Growth over average base expenditure during 2002-06	4%
Interest expenditure	Refer section 10.1.6 below.	

10.1.5 Assets

The addition to assets is as per the Capital Investment Plan given below

Exhibit 10.4 Capital Investment Plan

Segment	Outlay	Phasing						
		2008	2009	2010	2011	2012	2013-17	2018-27
Water Supply - Project	12500	0	4167	4167	4167	0	0	0
Water Supply - Balance	6008	0	0	50	50	50	656	5202
Sewerage & Sanitation - Project	15000	0	5000	5000	5000	0	0	0
Sewerage & Sanitation - Net	11848	448	1368	1368	820	820	2480	4545
SWM	4457	0	823	1053	180	0	1342	1058
Transportation and Street lighting	20490	0	2149	2149	2149	46	2244	11754
Urban services for poor	25927	158	158	158	0	4242	21210	0
Others	2547	147	100	230	205	75	830	960
TOTAL	98776	753	13765	14175	12571	5233	28762	23518

10.1.6 Liabilities

The Financial and Operating Plan allows for 3 types of loan – short, medium and long term. The assumptions relating to loans are given below:

Exhibit 10.5 Loan related assumptions

Segment		Type of loan	
Water Supply		Medium term	
Sewerage and Sanitation		Long term	
SWM		Medium term	
Lighting		Short term	
Urban Services to poor		Long term	
Others		Medium term	
Type of loan	Tenure years	Moratorium years	Interest rate %
Long	20	5	9
Medium	10	3	10.5
Short	8	2	10.5

10.2 Estimation of borrowing capacity and investment capacity

We have arrived at the borrowing capacity based on the Income and expenditure projections including debt servicing of existing loans as of FY ending 2005. We have arrived at the borrowing capacity of Ambattur as the minimum of

- NPV of 30% of revenue projections and
- NPV of 50% of operating Surplus projections.

10.3 Project specific cash flows

As part of the FoP, we have also prepared project specific cash flow projections for the proposed water supply and underground drainage projects, apart from consolidated financial projections. A summary of the assumptions and the computations for water supply and Underground drainage scheme is enclosed below:

10.3.1 Water Supply

Based on preliminary information available we evaluated the financial viability and potential returns (measured by DSCR and DS/TR) for the comprehensive water supply scheme in Amb-M. Data and underlying assumptions into the model are listed below:

- a) **Project Scope:** Comprehensive water supply covering all wards to provide residential and commercial house service connections. The project is to be completed during 2009-11.
- b) **Investment** assumed at Rs. 125 crore. This is based on the estimates provided to Amb-M by CMWSSB which is in the process of preparing the DPR for the project. We do not have access to the DPR and project components of the project and this is a preliminary estimate arrived at based on our assessment and discussions with Amb-M. **Capital** structure is assumed at 50% debt, 20% Equity and 30% Grant. Debt assumed to be for 20 years (5 year moratorium) and 10% interest rate.
- c) **Residential user charge realization and connection deposits** assumed at Rs. 100 per month and Rs. 3000 initially escalated at 5 % and 2% annually respectively. **Commercial user charge realization and connection deposits** assumed at Rs. 200 per month and Rs. 8000 initially escalated at 5% and 2% annually respectively. In addition, 50% of the property tax allocated to water supply and drainage account (20% of total property tax assumed to be allocated to water supply and drainage account) is assumed to be available for debt servicing and O&M for the project.
- d) **Connections** are assumed to increase to 42,726 by 2012 and to 1, 19,582 by 2027 for the whole of Amb-M. Of this only 75% connections are assumed to accrue revenues to Amb-M considering that 12 wards are being managed by CMWSSB.
- e) **O&M costs** are assumed at 3% of capital costs with a 5% annual escalation and **bulk water** would be supplied to the concessionaire at Rs. 4.5 per KL by CMWSSB. This is in addition to the base O&M costs and has been assumed to increase at 5% annually during the projection period.

Results

The cash flows based on the above assumptions translate to an average DSCR of 1.18 and average DS/TR of 25%. TE/TR for the project works out to about 38.35%. However, Amb-M would need to substantially improve its connection penetration (currently at 22%) and its collection efficiency in order to service the debt on the project. The debt servicing under the above conditions is extremely sensitive to both these parameters.

10.3.2 Underground Drainage scheme

Based on preliminary information available we evaluated the financial viability and potential returns (measured by DSCR and DS/TR) for the comprehensive Underground Drainage scheme in Amb-M. Data and underlying assumptions into the model are listed below:

- a) **Project Scope:** Comprehensive Underground Drainage scheme covering all wards to provide residential and commercial house service connections. The project is expected to be completed during a three year period from 2009-11.
- b) **Investment** assumed at Rs. 150 crore. This is based on the estimates provided to Amb-M by CMWSSB which is in the process of preparing the DPR for the project. **Capital** structure is assumed at 50% debt, 20% Equity and 30% Grant (under JNNURM). Debt assumed to be for 20 years (with a 5 year moratorium) and 10% interest rate.
- c) **Residential user charge realization and connection deposits** assumed at Rs. 75 per month and Rs. 3000 initially escalated at 5 % and 2% annually respectively. **Commercial user charge realization and connection deposits** assumed at Rs. 250 per month and Rs. 8000 initially escalated at 5% and 2% annually respectively. In addition, 50% of the property tax allocated to water supply and drainage account (20% of total property tax assumed to be allocated to water supply and drainage account) is assumed to be available for debt servicing and O&M for the project.
- d) **Connections** are assumed to increase to 46,610 by 2012 and to 1, 19,582 by 2027. Of this only 75% connections are assumed to accrue revenues to Amb-M considering that 11 wards are being managed by CMWSSB.
- e) **O&M costs** are assumed at 3% of capital costs with a 5% annual escalation. This is in addition to the base O&M costs that are incurred currently and have been assumed to increase at 5% annually during the projection period.

Results

The cash flows based on the above assumptions translate to an average DSCR of 1.28 and average DS/TR of 43%. TE/TR for the project works out to about 54.78%. However, Amb-M would need to substantially improve its connection penetration and its collection efficiency in order to service the debt on the project. The debt servicing under the above conditions is extremely sensitive to both these parameters.

10.4 Possible financing mix for achieving full investments

Based on these criteria, the borrowing capacity of Ambattur works out to Rs. **33,070** lakh. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment capacity works out to Rs. **66,141 lakh**, which translates to about 67 % of the total investment requirement (including slum rehabilitation).

If we exclude slum rehabilitation and urban services for poor projects which are largely grant funded, the borrowing capacity translates to **91%** of the total investment requirement. Hence Amb-M is well placed to meet its capital investment requirements. Exhibit 10.6 provides a possible financing mix.

Exhibit 10.6 Possible financing mix

Segment	Outlay	Suggested Financing %			Sustainable structure		
		Loan	Grant/Private	Own	Loan	Grant	Own/Private
Water Supply - Project	12500	50%	20%	30%	6,250	2,500	3,750
Water Supply - Net	6008	30%	40%	30%	1,802	2,403	1,802
Sewerage & Sanitation - Project	15000	50%	17%	33%	7,500	2,501	5,000
Sewerage & Sanitation - Net	11848	30%	40%	30%	3,554	4,739	3,554
SWM	4457	40%	30%	30%	1,783	1,337	1,337
Transportation and Street lighting	20490	30%	40%	30%	6,147	8,196	6,147
Urban services for poor	25927	0%	80%	20%	-	20,742	5,185
Others	2547	0%	90%	10%	-	2,292	255
TOTAL	98776	27%	45%	27%	27,036	44,710	27,030

10.5 Financial and Operating Plan

Exhibit 10.7 below provides a summary of the financial projections for 10 years.

Exhibit 10.7 FOP projections

FY ending	Actual	Estd.	Projections									
	2006	2007	2008	2009	2010	2011	2012	2012	2014	2015	2016	2017
INCOME												
Own income	2,030	2,217	2,800	2,913	3,027	4,498	5,213	6,888	7,261	7,802	8,627	8,551
Property Tax	1,184	1,305	1,756	1,815	1,875	1,935	2,026	2,879	3,003	3,128	3,252	3,377
Profession Tax	242	273	368	380	393	405	424	692	722	752	782	812
Water Charges	102	113	124	136	150	870	1,017	1,343	1,444	1,624	2,071	1,861
Sewerage Charges	-	-	-	-	-	648	1,073	1,269	1,351	1,520	1,704	1,644
Service charges/fees	165	173	182	191	200	210	221	232	243	255	268	282
Other Income	337	354	372	390	410	430	452	474	498	523	549	576
Assigned Revenue	960	1,018	1,079	1,143	1,212	1,285	1,362	1,443	1,530	1,622	1,719	1,822
Devolution Fund	1,101	1,206	1,326	1,456	1,586	1,727	1,890	2,068	2,264	2,477	2,711	2,967
Total Income	4,091	4,441	5,205	5,512	5,825	7,510	8,465	10,400	11,055	11,901	13,057	13,340
Expenditure												
Salaries	504	554	610	671	738	812	893	982	1,080	1,188	1,307	1,438
Operations	577	606	658	1,242	1,304	2,078	1,797	1,996	2,101	2,217	2,344	2,483
Programme	179	24	25	25	26	26	27	28	28	29	29	30
Administrative	183	180	187	193	200	207	215	223	231	239	247	256
Finance	174	83	82	648	1,281	1,914	2,196	2,490	2,797	3,037	3,212	3,323
Total Expenditure	1,623	1,766	1,904	3,555	4,771	6,656	6,911	7,683	8,383	9,037	9,647	10,219
Surplus	2,468	2,675	3,301	1,957	1,054	854	1,555	2,718	2,672	2,865	3,410	3,121

10.5.1 Summary

Exhibit 10.8 below provides a summary of the results of the Financial and Operating Plan.

Exhibit 10.8 FOP summary

Estd. Revenues – FY 2008 (Rs. Lakh)	5,205
Estd. Revenues – FY 2016 (Rs. Lakh)	13,057
Estd. Revenues - FY 2027 (Rs. Lakh)	31,434
Revenue CAGR % - FY 2008-17	11.0%
Revenue CAGR % - FY 2008-27	9.9%
Average TE (excluding depreciation)/TR (%)	53%
Average DS/TR (%)	29%
Average DSCR	1.88
Borrowing Capacity	33070
Investment Requirement	98,776
Investment Capacity (at 50% loan)	66,141
IC/IR (including Urban Service for Poor)	67%
IC/IR (without USP investment)	91%

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