

Tamil Nadu Urban Infrastructure Financial Services Limited

**City Corporate Plan cum Business Plan for
Kathivakkam 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 Kathivakkam Municipality (KaM). This exercise intends to enable KaM 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

Kathivakkam is a selection grade municipality situated north of Chennai within Tiruvallur District and is surrounded on north and west by Buckingham Canal back water, East by Bay of Bengal and South by Tiruvottiyur Municipality. Though Kathivakkam is part of the CMA, it is economically dependent only on the industries within /adjoining the town and on the fishing activity within the town. Being water locked almost on three sides, the town faces structural limitations for growth.

Constitution	Selection grade
Area	4.76 sq.km
Wards	24
Population (2001)	32,590
Decadal growth %	19.9%
Population Density (per Ha)	68
Slum population (% of total)	49%

Further, given a sizeable low-income population, the municipality depends largely on the industries for its income generation (for instance, industries account for nearly 85% of the property tax income of the municipality). However, the scope for further expansion of these and other industries within the town are also limited. The key challenge is in improving livelihoods and incomes of the fishing hamlets and slums in the region.

A brief SWOT analysis of the town is presented below.

Strengths <ul style="list-style-type: none"> • Presence of an industrial base • Rail connectivity to rest of Chennai • Nearness to both the major ports of Chennai and Ennore 	Weakness <ul style="list-style-type: none"> • Significant gaps in infrastructure and unplanned residential developments • Significant / visible slum population • Geographic limitations in terms of being water locked and cut-off from the rest of the region
Opportunities <ul style="list-style-type: none"> • Use the property tax base from industries to invest in basic infrastructure • Moot developments in the factory lands that is currently under lock-out 	Threats <ul style="list-style-type: none"> • Overall development in the region has been slow • Gaps in infrastructure and continued outward migration of high income groups / professionals • Persistent threat of and flood related events

The key economic development themes for Chidambaram town are summarized below:

1. **Initiate livelihood development and steps to make the town slum-free** - Kathivakkam has a significant slum population with 12 out of the 24 wards having slum population. Slum population as per records of the municipality was 18580, nearly 57% of the population recorded during Census 2001. Many of these slums are hamlets comprise fishermen and their families. There is therefore a need to look beyond conventional slum rehabilitation towards greater focus on improving employment prospects and increasing incomes of the fishing hamlets. There is a need for an active program to explore specific interventions towards creating fishing and market infrastructure in the town to improve productivity and incomes of households depending on this occupation.
2. **Significant gaps in urban infrastructure – water, sanitation and roads need to be addressed on priority.** Even though the gaps in water supply and sanitation (no house service connections) are significant, the ULB is constrained by the seeming resistance among local community for user charges and other levies. Therefore, it maybe difficult for the ULB to structure projects with user charges and public deposits. Further, there is a need for addressing the flooding problems with the town being water locked on 3 sides. In particular, there is a need for preventing flooding from the Buckingham canal side and need for reinforcements including groynes on the sea side to prevent further land erosion.

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, Streetlights 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 / Initiatives
Water Supply			
1	Daily Per Capita Supply (LPCD)	58	<ul style="list-style-type: none">Bottlenecks prevail in distribution and storageNo House Service connectionsConnection and Collection efficiency extremely poor, even after factoring large slum population
2	Storage Capacity / Daily Supply (%)	25%	
3	Distribution Network / Road Length (%)	49%	
4	Water connections / Assessed properties (%)	0%	
5	Population per Public Fountain (Nos.)	157	
Sanitation			
6	Presence of UGD network (Yes / No)	No.	<ul style="list-style-type: none">Very poor sanitation conditions.Public conveniences network needs to be expanded.Greater thrust on maintenance and upkeep requiredAwareness programs to educate population on importance of sanitation should accompany asset creation.
7	Septic Tanks / assessed properties (%)	59%	
8	Household per Public convenience seat (nos.)	----	
9	Storm Drain Length / road network (%)	39%	
Roads and Street Lights			

Sl. no	Name of the Indicator	Value	Issues and Gaps / Initiatives
10	BT roads / Total (%)	80%	<ul style="list-style-type: none">Several BT surfaced roads are in poor conditionFlood prone nature of town makes roads particularly vulnerable
11	Road length per Street Light (m)	34	
Solid Waste Management			
11	Waste generation per capital (gms)	627	<ul style="list-style-type: none">Significant gaps in SWM practicesNeed for an integrated program to implement SWM rules and regulations on priority.Proposed improvements in the Dumping yard to be implemented on priority.Need for greater awareness creation and investments
12	Collection efficiency (% of waste generated)	100%	
14	Compost yard area (Acres per 10,000 population)	---	
15	Average vehicle trips	10	
16	Source Segregation and Composting (Yes/No)	No	

Analysis of financial performance

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

Exhibit 2 Income and Expenditure summary

	2002-03	2003-04	2004-05	2005-06	CAGR%
INCOME					
OWN INCOME	284	317	308	337	6%
Property tax	151	158	159	158	2%
Profession tax	86	97	111	136	16%
Other Service Charges & Fees	7	7	9	8	6%
Other Income	40	54	30	34	-6%
ASSIGNED REVENUE	13	13	7	1	-62%
DEVOLUTION FUND	43	63	60	-	-100%
GRANTS & CONTRIBUTIONS	30	18	13	-	-82%
PRIOR PERIOD INCOME	0	0	1	-	-100%
TOTAL	370	411	390	338	-3%
EXPENDITURE					
Salaries	151	165	169	144	-2%
Operating Expenses	69	72	74	133	24%
Administrative Expenses	12	12	10	15	7%
Finance Expenses	45	14	25	41	-3%
Depreciation	94	82	97	83	-4%
TOTAL	277	264	278	333	6%
SURPLUS (Excl. Depreciation)	92	147	112	5	-63%
RATIOS					
TE/TR - incl Depreciation	100%	84%	96%	123%	101%
TE/ TR - excl. Depreciation	75%	64%	71%	99%	77%
DS/TR	-	1%	2%	2%	1%

Source: Kam-M

As seen from the table Income has shown a fluctuating trend and an overall decline from FY 03 levels during FY 2003-06 leading to substantial decline in cash surplus during this period.

Capital Investment Plan, priority projects and technical assistance requirements

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

- 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 KaM 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	30	249	249	124	-	652	10	147	809
Sanitation	65	465	465	490	90	1,573	244	103	1,920
Solid Waste Management	50	4	-	-	-	53	129	80	262
Transportation and street lights	-	-	104	104	104	311	96	944	1,351
Urban Services for the poor	84	40	60	20	-	204	120	240	564
Others	426	426	426	426	426	2,128	1,064	1,064	4,256
TOTAL (BY ULB)	654	1,183	1,302	1,163	619	4,921	1,663	2,578	9,162

Priority projects

Priority projects identified for implementation by KaM are listed in Exhibit 4 below.

Exhibit 4 Priority projects: FY 2008-12

Sl. No	Sector	Project	Cost Rs. Lakh	Status
1	Water Supply	Comprehensive scheme for provision of house service connections	622	Under implementation by CMWSSB
2	Sanitation	Underground Drainage scheme	1200	Under implementation
3	Sanitation	Storm water Drains	323	Under implementation
4	Sanitation	Restoration of Tamarai Kulam	50	Proposed
5	Solid waste Management	Development of compost yard	50	Proposed
5	Roads	Up gradation of all roads after UGD implementation	300	Proposed
6	Slum rehab	Slum rehabilitation under BSUP	371	Ongoing under BSUP

Technical assistance requirements

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

1. Development of a comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
2. DPR on flood management and integrated storm water drains.
3. Feasibility study for development of sea-side beautification / recreation amenities.
4. DPR for Solid waste management.

Projects by other departments / agencies

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

1. **State Highways/National highways** – Explore scope for a new road formation through the town towards Ennore parallel to the railway line along the creek. The need for this project was strongly expressed during our interactions with the municipal council.
2. **PWD** – a) Restoration and development of Tamarai Kulam and b) flood mitigation works along the Buckingham Canal
3. **Department of Education, GoTN** – In view of lack of adequate education facilities within Kathivakkam, transportation facilities for children from the slum areas to schools in nearby areas could be provided.
4. **TNPCB** – During our consultations with the Municipal Council, members expressed serious concerns about the pollution from industrial units within the town and wanted TNPCB to conduct a detailed review of the pollution levels of the industrial units in this regard.

Reform Agenda

KaM'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. Detailed recommendations for financial performance improvement are presented in the report. A summary of the same are presented below.

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 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 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, 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, 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 complete accounts closing and audit within 3 months of completion of financial year. TNUDF could consider a grading system to categorise ULBs based on 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) Building on ongoing initiatives in Solid Waste Management with greater focus on scientific waste processing and disposal mechanisms.
8. CMA, GoTN along with TNUFSL 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 establish the practices of an independent systems audit to be conducted annually. This would enable ULBs to build in robust processes for disaster recovery and security of the IT architecture of the ULB.
10. Facilitate creation of a formal institutional mechanism to manage functional overlaps among nodal agencies/state level agencies and the ULB at the city level.

ULB level

KaM could potentially increase its own income to Rs. 883 lakh by FY ending 2012 through focused interventions in the following areas:

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** - KaM 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. **Collection Efficiencies** in both taxes and user charges indicate scope for improvement.
6. **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 Kathivakkam works out to Rs. **3812** lakh. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment capacity works out to Rs. **7625 lakh**, which translates to about 83 % of the total investment requirement (including slum rehabilitation). 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)	743
Estd. Revenues – FY 2016 (Rs. Lakh)	1,700
Estd. Revenues - FY 2027 (Rs. Lakh)	3,416
Revenue CAGR % - FY 2008-17	9.5%
Revenue CAGR % - FY 2008-27	8.4%
Average TE (excluding depreciation)/TR (%)	40%
Average DS/TR (%)	17%
Average DSCR	2.01
Borrowing Capacity	3812
Investment Requirement	9,162
Investment Capacity (at 50% loan)	7,625
IC/IR (including Urban Service for Poor)	83%
IC/IR (without USP investment)	89%

As can be seen, Kathivakkam's revenues could potentially go up to **Rs.1700 lakh** by 2016 and **Rs. 3416 lakh** by 2027. If we exclude slum rehabilitation and urban services for poor projects, which are largely, grant funded, the borrowing capacity translates to **89%** of the total investment requirement. Hence, Kathivakkam seems well placed to meet its capital investment requirements.

1. Introduction

1.1 Background to the study

The Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) intends to assist Kathivakkam Municipality (also referred to as KaM 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 KaM.

This exercise intends to build on internal efforts of KaM and the Vision Plan prepared by KaM in FY 2005 that identified projects and development priorities in various areas of municipal functioning and also enable KaM 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 modules¹

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.

¹ 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 Kathivakkam
- 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 and scope of work 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

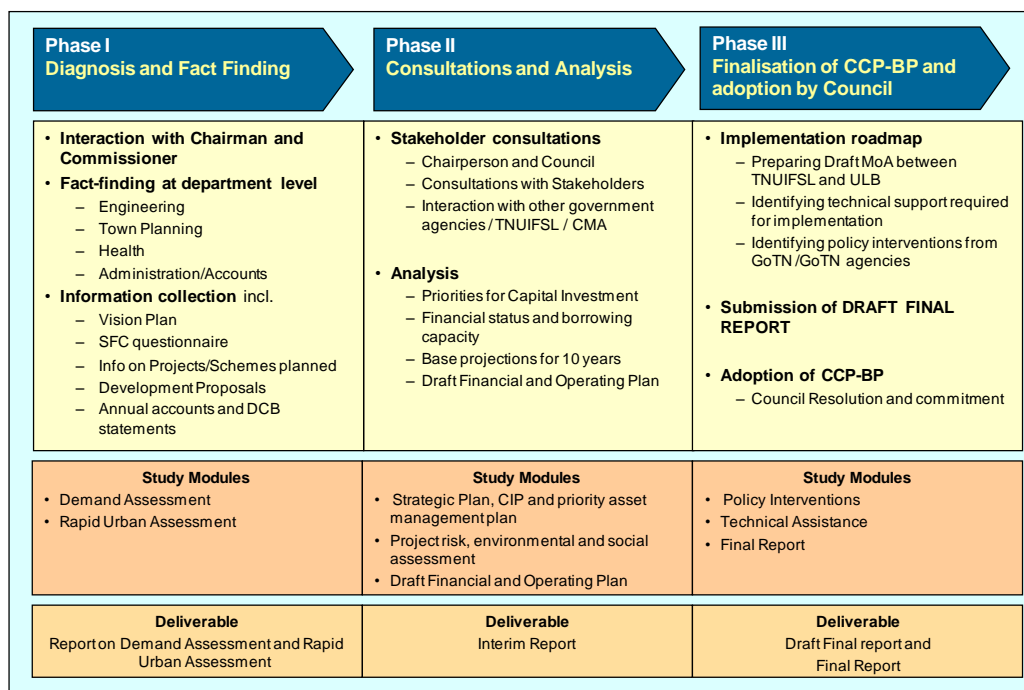
The study was conducted in three phases. Exhibit 1.1 provides a snapshot of the approach and methodology along the study modules and the deliverable(s) covered in each phase.

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 Kathivakkam 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 KaM 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 interacted with the Commissioner and officials in various departments of Kathivakkam 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 KaM 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 of these consultations was to understand issues in urban services and to discuss options and drive a consensus on the future vision and strategy for the town. We also deliberate on the ongoing and proposed projects in order to understand and factor the council's priorities. Refer Annexure II for minutes of the discussions
- b) **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 – Finalisation of report

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

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

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 KaM. The report with the incorporated changes was presented to the municipal council, which passed a **Council Resolution**², approving the report in its meeting on **27.03.2008**

- 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

² Copy enclosed with Executive Summary of report

2. Town profile and city demographics

2.1 Geography

2.1.1 Location

Kathivakkam is situated north of Chennai within Tiruvallur District. The town is surrounded on north and west by Buckingham Canal backwater, East by Bay of Bengal and South by Tiruvottiyur Municipality. Kathivakkam technically 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 Kathivakkam, Gummidipoondi, Ponneri, Uthukkottai, Tiruvallur, Poonamallee, Tiruttani and Pallipattu. Though Kathivakkam is part of the Tiruvallur district, it is more of a suburb of Chennai city and falls within the northern limits of the Chennai Metropolitan Area (CMA).

2.1.2 Connectivity

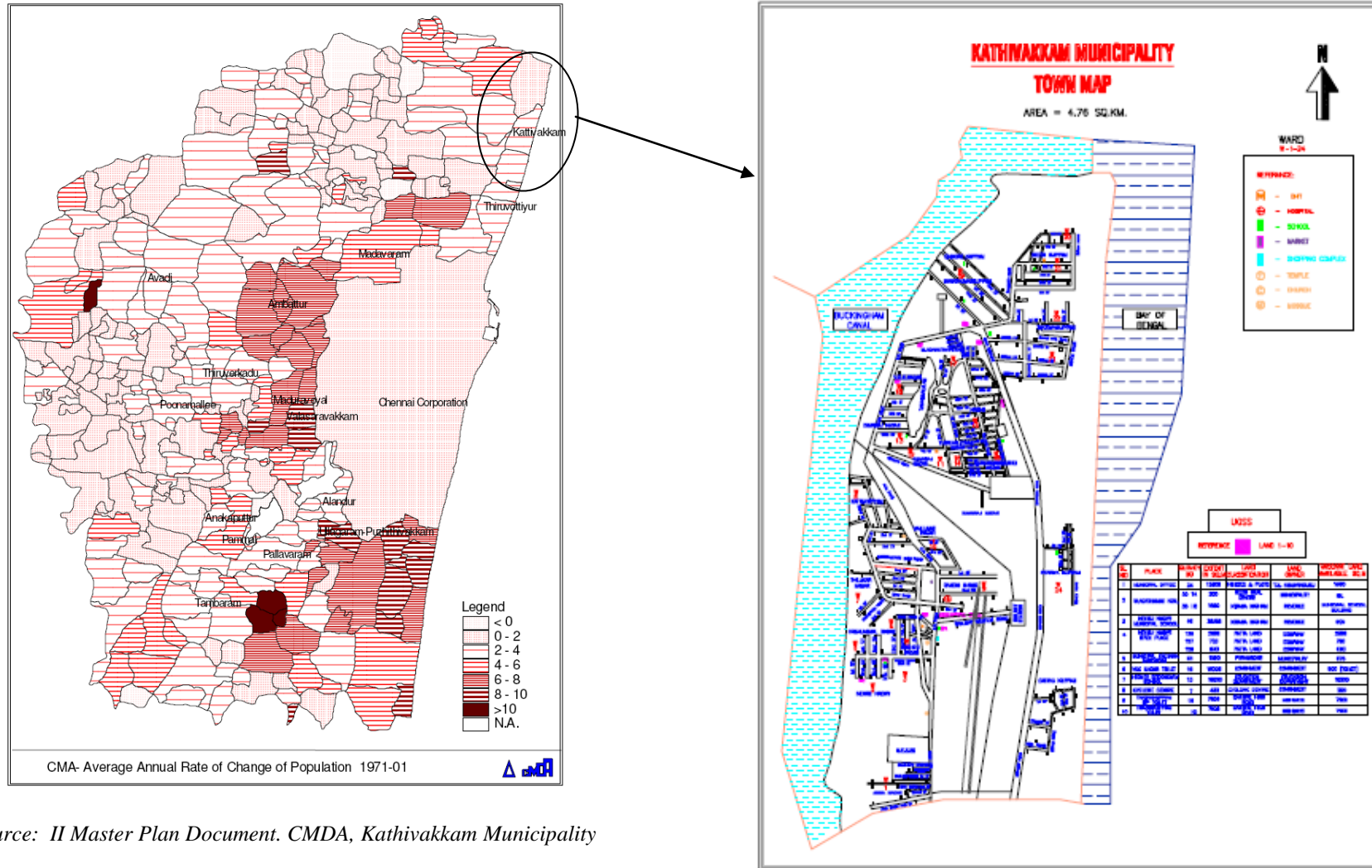
Kathivakkam Municipality is located 18 km north of Chennai along eastern seaboard of Tamil Nadu. The town is serviced by suburban railway service plying between Chennai Central and Gummidipoondi and is connected by metropolitan bus services from Chennai. The Chennai Central-Gummidipoondi-Sulurpetta Railway line runs North-South along the central portion of the municipality and turns west crossing the Buckingham canal and running further north. This town is connected with train service from Chennai Central to Gummidipoondi, besides Bus services to interior part of cities from the town.

2.2 Kathivakkam municipality - administrative status

Kathivakkam town was upgraded to a special grade Panchayat from third grade Municipality on 19.11.1970 in G.O.No.2394 R.D.& L.A. This town again upgraded to selection Grade Municipality form 03.05.1994 onwards.

The Municipal Council comprises 24 ward members, one of which is elected as the Chairperson. The executive wing is headed by Commissioner, who is assisted by a team of officials including Municipal engineer, Sanitary Officer and Manager. The current Municipal Council took charge in October 2006.

Exhibit 2.1 Location of Kathivakkam within CMA



Source: II Master Plan Document. CMDA, Kathivakkam 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	13,141	n.a	22.8%	2.1%
1971	16,141	n.a	36.9%	3.2%
1981	22,101	n.a	22.7%	2.1%
1991	27,113	n.a	20.2%	1.9%
2001	32,590	7282	22.8%	2.1%

Source: www.tnmlbs.gov.in. Census 2001

As per the latest census, Population of KaM was 32,590 (~ 7282 households). The Town has an area of only about 4.76 sq.km. and is bounded by the Bay of Bengal and Buckingham canal on either sides. This town mainly comprises of 8 Fishermen hamlets and 4 major industries (i.e. Ashok Leyland, Ennore Foundries, Kothari Fertilizers and EID Parry (I) Limited). Apart from these four major industries, there are a few small-scale industries.

Further, the town is subject to CRZ-II regulation that limits seaside development. Hence the structural aspects of the town along with relatively less land area translates into limited population growth potential. This is also evident in the historical trend in the town, which shows lower growth compared to other Adjacent Urban areas within CMA.

Exhibit 2.3 gives details of ward wise population in the town.

Exhibit 2.3 Ward wise population

Ward No.	Total Population	Male	Female
1	1479	853	626
2	528	263	265
3	975	491	484
4	2069	1084	985
5	876	438	438
6	2388	1240	1148
7	1228	617	611
8	1232	609	623
9	939	472	467
10	2116	1057	1059
11	1085	568	517

Ward No.	Total Population	Male	Female
12	1834	920	914
13	1285	599	686
14	1483	755	728
15	1106	569	537
16	1348	676	672
17	1392	724	668
18	1388	712	676
19	1676	800	876
20	819	420	399
21	1183	607	576
22	1262	629	633
23	1318	684	634
24	1581	813	768
Total	32590	16600	15990

Source: Census 2001.

Wards 4, 6, 10, 12, 19 and 24 had a population of more than 1500 at the time of Census 2001. There are 12 slums in the town located in 9 out of the 24 wards, which accounted for nearly 17480 as per recent information available from KaM (which is more than 50% of the population of the town). The 4 major industrial units are located in wards 1 (Ennore Foundries), 2 (Ashok Leyland) and 24 (Kothari Fertilisers and EID Parry)

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

Exhibit 2.4 provides details of population growth trend in Kathivakkam vis-à-vis other suburbs within CMA. As explained earlier, Kathivakkam has shown the lowest population growth over the last four decades relative to other AUAs within CMA, in spite of being relatively closer to Chennai Corporation and having an overall population density of 69 persons per hectare, which is relatively lower than many of the other suburban areas of Chennai.

Exhibit 2.4 KaM 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	Ambattur	40.36	45.59	115.90	215.42	310.97	6.6%	3.7%	77
2	Avadi	61.57	77.41	124.70	183.22	229.40	3.7%	2.3%	37
3	Tiruvottiyur	21.35	82.85	134.01	168.64	212.20	3.2%	2.3%	99
4	Alandur	8.08	65.04	97.45	125.24	146.29	2.7%	1.6%	181
5	Pallavaram	16.10	51.37	83.90	111.87	137.93	3.3%	2.1%	86
6	Tambaram	20.72	58.81	86.92	113.29	137.93	2.9%	2.0%	67
7	Madhavaram	17.41	21.05	29.46	49.26	76.09	4.4%	4.4%	44
8	Pammal	5.19	9.05	27.82	36.51	50.00	5.9%	3.2%	96
9	Maduravoyal	4.78	6.46	7.45	14.88	43.61	6.6%	11.4%	91
10	Poonamallee	6.55	18.72	23.67	28.83	42.60	2.8%	4.0%	65
11	Kathivakkam	4.75	16.14	22.10	27.17	32.59	2.4%	1.8%	69
12	Thiruverkadu	18.63	13.08	17.23	27.84	32.20	3.0%	1.5%	17
13	Anakaputhur	2.98	10.88	15.30	24.35	31.92	3.7%	2.7%	107
14	Valasaravakkam	2.97	2.41	7.58	21.95	30.98	8.9%	3.5%	104
15	Ullagaram	3.64	2.38	8.58	16.13	30.42	8.9%	6.5%	84
16	Manali	7.49	3.34	11.96	19.09	28.60	7.4%	4.1%	38
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.

2.3.3 Literacy Rate and sex ratio

Exhibit 2.5 provides details of the sex ratio along with details of Literates for Kathivakkam, Chennai City, CMA and Urban areas in Tamil Nadu.

Exhibit 2.5 Literacy and sex ratio

Particular	Male	Female	Total	Region	Sex Ratio
Literates (nos) - Kathivakkam	12715	10057	22772	Kathivakkam	963
Literacy % - Kathivakkam	87.7%	71.7%	79.9%	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 slightly lower than the overall urban literacy scenario in Tamil Nadu, which can be partly explained by the relatively higher presence of slums and low income fishing hamlets, where literacy levels tend to be lower. The sex ratio for KaM at 963 is lower than the state average of 982 (as per Census 2001) reflecting the lower female population, but better than that of 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 Kathivakkam town has been made using the following methods:

- a) **Arithmetical Increase Method**
- b) **Geometric Increase Method**
- c) **Incremental Increase Method**

Exhibit 2.6 provides the summary of the population projects made for the town. Details of computations of population projections are given in Annexure III.

Exhibit 2.6 Population Projections

	Arithmetic	Geometrical	Incremental	Average	CMDA Master Plan estimate
2001 (Actual)	32,590	32,590	32,590	32,590	32,590
2011	37,452	40,712	38,259	38,808	40,000
2016	39,883	45,507	41,432	42,274	43,000
2021	42,315	50,857	44,736	45,969	49,000
2026	44,746	56,842	48,276	49,955	54,000

Source: iMaCS analysis, CMDA II Master Plan for Chennai

CMDA Master plan estimate seems to factor a geometric growth trend in their projections and sees the town population at 54,000 by 2026 as the average projections across the three methods show a slightly lesser population of ~ 50,000 by 2026. It is therefore critical that land-use and master planning for the town and adjoining areas factor this population growth. The above population projections would form the basis for evaluation of gaps in urban services and for arriving at capital investments needed to meet urban service norms and provide adequate and reliable infrastructure 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

Kathivakkam 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 Land-use and development

The existing land use pattern of Kathivakkam town base on Municipal records is furnished in Table. From the table, it can be observed that area covered by the industries in the town is approximately 83.28 hectares, which amounts to 17.5% of total developed area of the town. Buckingham canal occupies a substantial area of 37% within Municipal limits.

Exhibit 3.1 Land use distribution in Kathivakkam town (1991)

Land use	Extent (Ha)	% to Total Area
Primary Residential	7.67	1.61
Mixed Residential	102.99	21.64

Land use	Extent (Ha)	% to Total Area
Commercial	15.08	3.17
General Industry	5.43	1.14
Special and Hazardous Industry	77.85	16.36
Institutional	15.00	3.15
Open Space and recreational	16.18	3.40
Buckingham Canal	177.00	37.18
Others	58.80	12.35
Total Town Area	476.00	100.00

Source: www.tnulbs.tn.gov.in.

3.3 Development pattern and Economic status

This section further details the qualitative dimensions of the development in Kathivakkam town. As mentioned earlier, Kathivakkam has limited land area and its developments have been largely limited to the 4 large industrial units and the fishing hamlets that form part of this town. The town faces structural limitations with a limited land area, locked by the sea and Buckingham canal on either side and the Tiruvottiyur municipality to the south. Further, being close to the Bay of Bengal, Kathivakkam is classified as a CRZ-II zone, where large scale developments on the sea side of the existing road is not allowed.

The regulation and guidelines³ regarding CRZ-II zones are presented below:

- a) CRZ II areas are those that have already been developed up to or close to the shoreline. For this purpose, "developed area" is referred to as that area within the municipal limits or in other legally designated urban areas which is already substantially built up and which has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains.
- b) Buildings shall be permitted only on the landward side of the existing road (or roads approved in the Coastal Zone Management Plan of the area) or on the landward side of existing authorised structures. Buildings permitted on the landward side of the existing and proposed roads/existing authorised structures shall be subject to the existing local Town and Country Planning Regulations including the existing norms of Floor Space Index/Floor Area Ratio:
 - Provided that no permission for construction of buildings shall be given on landward side of any new roads (except roads approved in the Coastal Zone Management Plan) which are constructed on the seaward side of an existing road.
- c) Reconstruction of the authorised buildings to be permitted subject to the existing FSI/FAR norms and without change in the existing use.
- d) The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style.

³ Source: <http://envfor.nic.in/legis/crz/crznew.html>

3.3.1 Industries

There are 4 major industrial units within Kathivakkam municipality. **Ennore Foundry** is an associate company of Ashok Leyland that commenced commercial production in 1961. Castings manufactured here cater to the automotive sector. Ennore Foundry is the largest automotive jobbing foundry with production capacity of 48000 MT of Grey Iron Casting and 3000 MT of aluminium gravity die-casting. **Ashok Leyland Ennore** is a highly integrated Mother Plant accounting for over 40% ALL production and is spread over 135 acres. The plant manufactures a wide range of vehicles and house production facilities for important aggregates such as Engines, Gear Box, Axles and other key in-house components. Apart from this **Kothari fertilizers** and **Coramandel** fertilizer units are also located in Kathivakkam.

3.3.2 Residential developments and Slums

Residential areas are noticeable along wards 1-7. Kathivakkam has a significant slum population with 12 out of the 24 wards showing slum population. Slum population as per records of the municipality was 18580, nearly 57% of the population recorded during Census 2001. Many of these slums are hamlets comprise fishermen and families.

3.4 Structural limitations and challenges.

Though Kathivakkam is part of the CMA, it is economically dependent only on the industries within /adjoining the town and on the fishing activity within the town. Being water locked almost on three sides, the prospects of the town appear limited.

Further, given a sizeable low-income population, the municipality depends largely on the industries for its income generation (for instance, industries account for nearly 85% of the property tax income of the municipality). However, the scope for further expansion of these and other industries within the town are also limited. The key challenge seems to be relating to improving livelihoods and incomes of the fishing hamlets and slums in the region.

4. Rapid Urban Assessment - services, issues and gaps

This section provides details of the status of various urban services in Kathivakkam Municipality and summarizes key issues. The section also covers an analysis of the projects identified by Kathivakkam 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.

4.1 Water Supply

The available sources of water supply within KaM is estimated at 1.88 MLD (58 LPCD) as mentioned in Exhibit 4.1. Water supplied by CMWSSB is to the tune of 37 LPCD and other sources within KaM contribute to 21 LPCD.

4.1.1 Sources

CMWSSB sources the 1.2 MLD of water meant for KaM from multiple sources like well fields, surface water and Puzhaleri located in Red Hills. This water is then pumped to an Under Ground Tank (UGT) located in Ernavoor (pump house) and then distributed to the Over Head Tank (OHT) located at Nehru Nagar in KaM.

Exhibit 4.1 Water supply - sources of supply and distance

Nos.	Source	Type	Distance from town (km)	Supply (MLD)	LPCD
1	CMWSSB	Ground/Lakes	15	1.2	37
2	Hand Pumps	Ground	-	0.18	
3	Open wells, hand pumps and bore wells	Ground	-	0.20	
4	Residential wells & Bore wells	Ground	-	0.30	
		Total		1.88	58

Source: Kathivakkam Municipality

As per municipal norms of 90 litres per capita per day (LPCD), Kathivakkam Municipality's requirement was 3.15 MLD in 2007 (based on estimated 2007 population of 35056) to meet its water supply needs completely. Salient features of the existing water supply system in KaM are furnished in Exhibit 4.2.

Exhibit 4.2 Water supply details

Description	Value/ Quantity
Estimated demand (@ 90 LPCD)	3.15
Daily current water supply (MLD)	1.88
Gap	1.27
Water from CMWSSB (MLD)	1.20
Per Capita Supply (LPCD)	58
Over Head Tanks (OHTs)	2
Total Capacity of OHT (million litres)	0.2
Ground Level Sumps (50000 Lit Capacity)	5
Total Capacity of Sumps (million litres)	0.25
Total Storage capacity	0.45
Number of House Service Connections	Nil
No. of Public Fountains	224
Distribution System Length (km)	29.59
Total nos. of hand pumps (filter point)	167
Total nos. of hand pumps (shallow bore wells)	140
Total nos. of power pumps	9

Source: Kathivakkam Municipality

4.1.2 Storage and Distribution

KaM has 2 OHTs and 5 Ground Level Sumps (GLSs) with capacities of 1 lakh litre (LL) and 0.5 LL respectively adding up to 4.5 LL of storage capacity. Of the 12 LL of water supplied within KaM, 4 LL is supplied to wards 1 to 10 through the OHT, 6 LL is supplied to wards 11 to 24 through GLS and 2 LL is supplied to unserved streets within wards 1 to 24 as mentioned in Exhibit 4.3.

Exhibit 4.3 Water supply - sources of supply and distance

Distribution Source	Volume of water distributed (LL)	Wards
OHT	4.00	1 to 10
GLS	6.00	11 to 24
Lorries	2.00	Unserved streets in all wards

Source: KaM-M

4.1.5 Access

As of FY ending 2006, KaM has a distribution network of **29.86 km**. Given a total road length of 30.16 km as of 2006, distribution network covers **99%** of the town. Under the ongoing new scheme, new distribution pipeline is being laid across the entire town covering 34 km. There are however no House Services connections in KaM and water supply is completely through public fountains.

4.1.6 Ongoing water projects

a) Comprehensive Water Supply Scheme - CMWSSB

CMWSSB is presently undertaking a 34 km long comprehensive water supply scheme for KaM with the objective of providing 90 LPCD of water. The Rs.6.22 crore project envisages construction of one UGT (of 11 LL each) and 2 nos of OHT (of 5 LL each). The funding details the scheme are provided below in exhibit 4.4

Exhibit 4.4 Financing structure – Proposed water supply project

Source	Rs. Lakh	Contribution
Grant Fund I	186.60	30%
Local Body/Public Contribution	101.97	16.4%
Loan from TNUDF	333.43	53.6%
Total	622.00	100%

Source : KaM -M

This project is presently under implementation and as per KaM, the project is around 10% complete and is expected to achieve completion by March 2008. Through this project, KaM intends to provide House service connections. The proposed HSC deposit and tariff charges are provided in Exhibit 4.5

Exhibit 4.5 Proposed User charges and connection deposit

Area in sq.ft	Deposit (Rs)	Tariff (Rs)	Deposit (Rs)	Tariff (Rs)
	Domestic	Domestic	Commercial	Commercial
< 500	3000	50	6000	80
500 to 1200	4000	60	8000	90
1200 to 2400	5000	70	10000	400
>2400	6000	90	12000	450
Special	7000	100	100000	1000

Source : KaM -M

b) Tsunami Emergency Assistance Project (TEAP) – Asian Development Bank

The project envisages providing, laying and testing conveying main from Kathivakkam High Road to GLS at Nettukuppam. The estimated project cost is around Rs.30 Lakh and the project has presently achieved 50% completion.

4.1.7 Issues and Gaps

Exhibit 4.6 summarises the current status vis-à-vis ultimate population requirements.

Exhibit 4.6 Water Supply - connections and tariff

Indicator	Unit	Norm	Existing	Gap
Per Capita Water Supply	LPCD	90	~ 58	(32)
Storage and Distribution				
Storage - % of Current Demand	%	50%	14.2%	(35.8%)

Indicator	Unit	Norm	Existing	Gap
Distribution Network - % of Road Network	%	100%	99%	(1%)
Connections - % of assessed properties	%	80%	0%	(80%)
Demand - Supply Gap				
Water Demand - Current	MLD		3.15	
Water Demand - Ultimate *	MLD		4.86	
Water Supply – Current	MLD		1.88	
Demand Supply Gap – Current		MLD		1.27
Demand Supply Gap – Ultimate		MLD		2.98

Source: Inputs from KaM, iMaCS analysis

a. Capacity gap

KaM has 24 wards and has an estimated population of 35,056 presently in 2007 (against a population of 32,556 as per census, 2001). Given municipal norm of 90 Litres per capita per day, demand for water supply in KaM is approximately 3.15 MLD in 2007. As against this, the total water supplied within KaM by various agencies is only about 1.88 MLD, implying 58 LPCD (based on 2007 population). Draft Master Plan – II for Chennai Metropolitan Area, 2026 prepared by CMDA indicate that the ultimate population of Kathivakkam by 2026 would be around 54000 implying an ultimate demand of 4.86 MLD by 2026 at 90 LPCD.

b. Absence of House Service Connections

KaM presently lacks any HSC and the present mode of water distribution has been through Public Fountains and Lorries.

c. Insufficient Storage Capacity

The present storage capacity available within KaM at 4.5 LL is 25% of today's supply, 14% of today's demand (considering 90 LPCD) and 9% of ultimate demand (in 2026). The present comprehensive water supply scheme undertaken by CMWSSB addresses this gap by providing an additional storage capacity of 2.1 MLD implying 136% of today's supply, 81% of today's demand (considering 90 LPCD) and 56% of ultimate demand (in 2026).

4.2 Sewerage and Sanitation

4.2.1 Underground Drainage

Kathivakkam Municipality does not have an Under Ground Drainage System. Presently, about 40 % of households of the town have water seal toilets with septic tanks. Effluent from septic tank is let into soak pits. The septic tanks are emptied by tankers owned and operated by the municipality during monsoon and overflow conditions. Sullage from all the households in the town is discharged into open storm water drains which ultimately stagnate forming cesspools in low-lying areas, resulting in breeding of mosquitoes, unsanitary conditions and odour problems.

Exhibit 4.7 Existing Sanitation System

Description	Quantity
Total nos. of households	5000
No. of households with water seal latrine and septic tanks	2000
No. of public toilets	19

(Based on secondary data provided. Above details to be confirmed)

4.2.2 Ongoing UGD project

As per the Detailed Project Report prepared through TNUIFSL, the cost of the UGD scheme has been estimated at Rs.15.03 crore. The proposal had been submitted through CMA to TUFIDCO and the same was sent to Ministry of Urban Development, Government of India, New Delhi for financial assistance under JNNURM. The ministry advised revision of capacity to 120 LPCD instead of 90 LPCD as per CPHEEO norms. The revised project envisages four pumping stations and one Sewage Treatment Plant (STP). Locations identified for pumping stations are given below:

Exhibit 4.8 Pumping station locations

S.NO:	Location	SQM
1	Cyclone Centre	300
2	VOC Nagar	300
3	Nehru Nagar	600
4	Adjacent to Municipal Office	1150

Source: KaM

Around 4800 sq.m land (owned by Tamil Nadu Fisheries Development Corporation Limited) has been identified for the STP. The project is proposed under the JNNURM scheme and CMWSSB is the implementation agency. The UGD project is expected to be completed by 2010.

4.2.3 Public conveniences (PC)

The main mode of individual disposal in the town is through septic tanks. There are an estimated 3126 septic tanks in Kathivakkam. This translates to coverage 59% of assessed properties in Kathivakkam. There are 8 public toilets under Vambay scheme, 4 toilets under Integrated Sanitation Program (ISP) and 4 existing toilets

Exhibit 4.9 Public Conveniences

Details	Units
Public Toilets (under Vambay scheme)	8
Integrated Sanitary Complexes	4
Existing toilets	4
Total	16

4.2.4 Storm water drains

Storm water drains carry the wastewater in addition to storm water generated during rains. With a total length of 12 km, the drainage system covers the road network of the town only partially. Only 39 % of the road network has some form of drains in place.

Exhibit 4.10 Storm water drains

Type	Length (km)	% of Road Network
Total Drain Length	12	39%
Uncovered Road Length	18.16	61%
Total Road Length	30.16	

Source: KaM

4.2.5 Ongoing storm water drainage projects

a) Infrastructure Project (2007-08) – BSUP (Basic Services for Urban Poor)

Under the BSUP scheme 7 storm water drains are proposed to be constructed at an estimated project cost of Rs.38.50 lakh for a distance of 3.5 km. The DPR has been prepared and sent through CMA to HUDCO and subsequently to Ministry of Urban Development. The central sanctioning committee has approved the project and construction is expected to commence shortly.

b) Construction of storm water drain – NCRMP

Under the NCRMP scheme, 15 no's of storm water drain are proposed to be constructed at an estimated project cost of Rs. 150 Lakh for a distance of 4.65 km. The necessary DPR has been submitted to CMA.

c) Reconstruction of storm water drain - ADB (Tsunami Emergency Assistance Project)

Under the TEAP scheme, a reconstruction project of storm water drain from Metro Bus Terminal to Church in Kathivakkam High Road is presently being carried out at an estimated project cost of Rs. 20 lakh. The project has achieved 10% completion.

4.2.6 Issues and gaps

Specific issues relating to sanitation are highlighted below:

- 1. Poor access of household sanitation** - Nearly half the households do not have household level access to protected sanitation, even septic tank or LCS. The proposed implementation of UG scheme could improve the situation. But along with it, it is probably important for KaM to take up steps and awareness campaigns for encouraging people and households to implement protected sanitation measures including septic tanks and LCS for safe disposal and prevention of pollution and health related issues.

2. **Need for greater coverage and better maintenance of Public conveniences** - Given the above deficiencies, a significant proportion of slum population⁴ and seasonal increase in floating population, there is a need for a greater thrust on providing adequate public conveniences and on their upkeep and maintenance. KaM has taken a few steps including construction of ISCs. However, we believe that there is scope for greater improvement in this area.
3. **Poor coverage, inadequacies in design and dumping of Sullage in Storm water drains** - Apart from low coverage being a key concern, especially considering that Kathivakkam Municipality is a flood prone town, the poor state of the existing storm water drains and the inadequacies in their design without adequate linkages to main channels requires substantial attention. Pollution due to dumping of sullage and stagnant pools of water is also visibly disturbing.

4.3 Solid Waste Management (SWM)

22.00 M.T of garbage is being generated in Municipal area. There are 87 Municipal Sanitary workers employed to remove the garbage from ward 11 to 24 wards and the rest of garbage is removed under privatisation. Both the Municipal and Private vehicles are used to dispose the garbage which has been dumped near Sathangadu as a combined compost yard for Thiruvottiyur and Kathivakkam Municipalities. (Source: BSUP report). A sum of Rs.73.08 Lakh has been sanctioned for Solid Waste Management for purchase of seven tipper auto for primary collection and one tipper lorry for secondary collection and compost yard improvement. These vehicles are presently under use by the Municipality. Exhibit 4.8 summarizes the status of SWM in KaM.

Exhibit 4.11 Solid Waste Management - Current status

Particulars	Units	Values
Generation		
Daily Waste Generation	T	22
Daily Waste Collection	T	22
Waste generation per capita	gms	627
Collection efficiency	%	~ 100 %
Compost Yard / Dumping Yard Particulars		
Dumping / Compost Yard area	acres	2
Distance from Town	Km	14
Composting in place?	Being planned. Presently only dumping	
Collection / Transfer		
Wards with door-to-door collection	All 24 wards	
Privatisation of collection	11 wards	
Primary collection - Door-to-Door (by mode)	Tricycle/Push cart	
Vehicles / Equipment Details		
Tricycle	24 nos	
Auto	7 nos	
Tipper lorry	1 no	

⁴ This issue is covered in greater details under Urban services for the poor.

Particulars	Units	Values
Tractors		5 nos
Trucks		5 nos
Average no of trips per day		10

Source: KaM, SFC questionnaire, Vision Plan-KaM

4.3.1 Waste Generation and Collection:

Kathivakkam town generates around 22 tones of waste every day. On an average 22 MT of waste is being collected from all the health zones and disposed off through dumping by the agency with a collection efficiency of 100%. The collected waste is segregated into bio-degradable and bio-non degradable before dumping the same using “land filling method”.

Ongoing Solid Waste Management projects

The construction of a compost yard exclusively for KaM has been planned to be carried out at an estimated cost of Rs.49.53 lakh. Five acres of land in Manali village has been identified and allocated for this compost yard. The project is presently in tender stage and the construction of compost yard is expected to commence soon.

4.3.2 Issues and Gaps

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

- 1. Need for integrated approach to SWM** - There appears to be substantial deficiencies in Solid Waste management within Kathivakkam Municipality and this aspect of the municipal management requires immediate attention across the entire chain of activities starting with segregation and collection, transfer and improvement of disposal yard and setting up composting facilities.
- 2. Dumping Yard** - The dumping yard on the periphery of the town is in a very bad state where dumping has been carried out in an indiscriminate manner. The dumping area is not properly fenced and waste is scattered all over the place.
- 3. Deficiencies in collection** - There are visible garbage pile-ups in various pockets of the town indicating the need for better collection efficiencies. There may also be a need to intensify awareness campaigns to educate citizens on the need for handling and segregating their waste.

4.4 Roads, Bus stands and street lights

4.4.1 Roads

This Municipality is maintaining to a length of 30.1 Km of Roads as detailed below

Exhibit 4.12 Type of roads and length

Description	Quantity
B.T. Road (154 nos)	24.5 km.
C.C. Road (66 nos)	5.6 km
Total	30.1 Km

Source: www.tnulbs.tn.gov.in

Around two highway roads of about 5 km roads passing through KaM are maintained by the State Highways department. The 30.1 km of municipal roads are maintained periodically by KaM

4.4.2 Bus terminus

KaM has one metropolitan bus terminal (Ennore Bus Stand) and 8 bus shelters.

4.4.3 Street Lights

There are 234 streets with a length of 30.1 Km, which is maintained by this Municipality, and a length of 5.00 Km of State Highways is crossing this town. 1230 street lights are maintained by replacing then and there with Tube lights, Sodium Vapour Light, Mercury Vapour light and High Mass light as detailed below⁵.

Exhibit 4.13 Street Lighting

Type	Nos	%
Tube lights	820	66.67
Sodium Vapour Lamps 70 W	20	1.63
Sodium Vapour Lamps 250 W	326	26.50
Mercury Vapour Lamps 250 W	63	5.12
High Mast lamps	1	0.08
Total	1230	100.00
Average distance between street lights		~ 34 m

4.4.4 Issues and gaps

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

- 1. 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.
- 2. Flood-prone region** - Being a flood-prone town, the roads in the town are subject to constant water logging and damage. Therefore, the investments on roads typically tends to be higher than average.
- 3. 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 keeping this in consideration.
- 4. Energy efficiency in street lighting** - While Kathivakkam appears well placed with respect to average norms for street lighting (one street light for every 30 m), KaM needs to accord priority to improve energy efficiency and to reduce power costs incurred on street lighting.

⁵ As provided by ULB

4.5 Other assets

4.5.1 Markets, Shops and Slaughter House

KaM has maintained one daily market named Gandhi market. The market has six shops and 62 stalls. Presently there is no slaughter house in KaM. KaM is presently undertaking a project to increase the number of shops and stalls as well as a slaughter house as indicated in Exhibit 4.14. Around 50% of the planned market facilities are expected to be available by end of 2007.

Exhibit 4.14 Markets and Slaughter House

Category	Existing	Planned
Shops	6	13
Stalls	62	114
Slaughter House	Nil	1

Source: KaM, Vision Plan

4.5.2 Crematorium and burial facilities

There are three burial grounds and cremation facilities in KaM. Two new burial grounds are under the planning stage at Thazhankupam and Periyakuppam.

4.5.3 Issues and gaps

- 1. Dilapidated condition of municipal shops** - Several of the shops owned and rented by KaM are in a poor condition and need to be restored and re-developed. Lack of adequate infrastructure facilities in commercial areas like proper parking roads, roads, and pavements lead to traffic congestion and public inconvenience.
- 2. No slaughter house in the town** – Presently there is no slaughter house available in KaM. The planned Slaughter house as part of the market could address this problem.

4.6 Social infrastructure

4.6.1 Education

There are 11 schools in the municipality as mentioned in the table below:

Exhibit 4.15 Schools maintained by KaM

Description	No.
Municipal middle schools	3
Elementary municipal school	6
Government higher secondary school	1
Matriculation school	1
Colleges	Nil

Source: KaM

4.6.2 Health

Urban Local Bodies have Primary Maternity and Child Health Centres. In Kathivakkam Municipality one municipal hospital and one municipal dispensary are functioning. These centres cater free service to the urban poor. They are managed by Medical Officers and other para medical staff. They are under the overall supervision of Commissioner.

The Municipality has been provided with Medical Officer, MPHWS and Ayyas to look after the post and antenatal cases of women. The Sanitary Officer is the overall in-charge of the Health Section and looks after the prevention of Food Adulteration, conservatory work, sweeping streets, maintenance of drainage, controlling of epidemic diseases, ensuring of license to D&O trades, Birth and Death Registration, issuing certificate to birth and death registration. The Sanitary Inspector and Sanitary Workers are assisting the Sanitary Officer.

4.6.3 Parks and recreational facilities

Recreational facilities include parks, playgrounds, open spaces and cinema theatres. Ideally, open spaces including parks and playgrounds should constitute about 10% of the town area. There are a total of 3 parks in the town namely Anna Park, Ulaganathan Park and Nettukuppam Park.

4.7 Urban services for the poor

4.7.1 Slum details

A recent survey by KaM indicates that there are 12 slums in KaM as detailed below. These twelve slums with a population of 17480 contribute to around 49.9% of the population of KaM. Therefore, provision of urban services to poor is of significant importance to KaM.

Exhibit 4.16 Slum details

Sl. No.	Location	Ward	Population	Area (sq.km)
1	Thilagar nagar	7	614	0.09
2	Kattukuppam	8	1232	0.08
3	Gandhi nagar	9	939	0.07
4	Valluvar nagar	10	2116	0.09
5	Sathiyavani muthu nagar	15	3937	0.24
6	VOC Nagar	18	1388	0.16
7	Ennore Kuppam	19	832	0.08
8	Mugathuvara Kuppam	19	835	0.08
9	Nettukuppam	20	2002	0.16
10	Thazankuppam	22	2002	0.16
11	Periyakuppam	24	781	0.08
12	Chinnakuppam	24	792	0.04
			17470	

Source: DPR prepared for BSUP scheme

4.7.2 Provision for Tsunami and flood affected areas

The town situated in the coastal area of Bay of Bengal due to which it is vulnerable to the Cyclone and Tsunami. During October '2005 due to the heavy rain and flood, entire area of this town was badly affected and inundated. The 23 roads were badly affected during this flooding.

Under the National Cyclone Risk Mitigation Programme (NCRMP) it is proposed to construct 23 new roads to avoid flood inundation in the low-level area at an estimated cost of Rs.182.00 Lakh. Also, under Tsunami Reconstruction Project, drainage to length of 0.50 Km at an estimated cost of Rs.20.00 lakh has been taken up and the work is in progress.

The following relief measures initiatives have also been put in place;

1. 15 (Fifteen) nos. of relief camps have been formed. Contact Officers have been appointed for relief camps.
2. Medical team, Sanitation teams, Water supply team, Electrical teams, Evacuation team and Rain water dewatering team have been formed.
3. List of necessary tools and plants such as lorries, tractors, tanker lorries and diesel engines are kept ready to evacuate the people and Dewatering the rain water in the inundated areas.

4.7.3 Initiatives planned as part of BSUP

KaM proposes to take up 12 slums (with a population of 17,480) for comprehensive infrastructure up gradation and provision of basic services including roads, drains, toilets and community hall under the program Basic Services for Urban Poor (BSUP). This project is envisaged to finance with 80% contribution from Government of India and 20% contribution from GoTN.

Exhibit 4.17 BSUP project

Category	Estimated Project Cost (Rs. Lakh)
Roads/Pavements	45.5
Storm Water Drainage	38.5
Street Lighting	9.00

Source: KaM

The DPR has been prepared and sent through CMA to HUDCO and subsequently to Ministry of Urban Development. The central sanctioning committee has approved the project and construction is expected to commence shortly.

4.8 Status of Vision Plan projects

Exhibit 4.18 provides a summary of the projects envisaged as part of the Vision Plan and the current status of these projects.

Exhibit 4.18 Vision Plan projects and status

Segment	Projects	Total	Remarks
Water Supply	Comprehensive Water Supply scheme in Kathivakkam (to provide 90 LPCD)	622	CMWSSB is presently undertaking a 34km long Rs.6.22 Crore comprehensive water supply scheme for KaM with the objective of providing 90 LPCD of water. This project is presently under implementation and as per KaM, the project is around 10% complete and is expected to achieve completion by March 2008.
Storm Water Drain	Construction of storm water drain for 11 km in Kathivakkam	80	<p>The following storm water drain projects are under progress:</p> <p>a) Infrastructure Project (2007-08) – BSUP (Basic Services for Urban poor): 7 storm water drains are being constructed at a project cost of Rs.38.5 Lakh</p> <p>b) Construction of storm water drain – NCRMP : 15 storm water drains are expected to be constructed at a distance of 4.65 km at a project cost of Rs. 150 Lakh. Project under DPR approval stage</p> <p>c) Reconstruction of storm water drain -ADB(Tsunami Emergency Assistance Project) : A reconstruction project of storm water drain from Metro Bus Terminal to Church in Kathivakkam High Road is presently being carried out at an estimated project cost of Rs. 20 lakh. The project has achieved 10% completion.</p>
SWM	Improvement of infrastructure facilities for SWM	90	a) A sum of Rs.73.08 Lakh has been sanctioned and equipments have been purchased enhancing SWM Infrastructure
	Buying land for Compost Yard		b) Construction of compost yard for KaM : The construction of a compost yard exclusively for KaM has been planned to be carried out at an estimated cost of Rs.49.53 lakh. Five acres of land in Manali village has been identified and allocated for this compost yard. The project is presently

Segment	Projects	Total	Remarks
			in tender stage and the construction of compost yard is expected to commence soon.
UGD	UGD for entire town (No UGD presently)	1000	Proposal was sent to GoI for UGD at 90 LPCD. The ministry had advised to revise the DPR to 120 LPCD instead of 90 LPCD as per CPHEEO norms. The revised project cost of Rs.15.03 Crore has been sent to Ministry of Urban Development, Government of India, New Delhi to get financial assistance under JNNURM.
Hospitals	Construction of additional building and modernization	63	A strong "felt need" for Kathivakkam. No work in progress presently
Bus terminus	Creating 8 nos bus shelters	-	No work in progress presently
Roads	Creation of new roads shall be identified after completion of UGD and Water Supply projects	-	Around Rs. 27 lakh of road work has presently achieved 60% completion at Nettukuppam under ADB – TEAP Around Rs.406 Lakh of road projects have been identified under JNNURM, BSUP and NCRMP. These will be taken up after completion of UGD and Water Supply projects
Schools	Imparting computer Computer Aided Education Modernization of buildings Improvements to toilets	45.70	The entire project has achieved 100% completion in 8 schools in Kathivakkam
Markets	New shops (13 nos) stalls (114 nos) and 1 slaughter house	40	50% completed using MLA fund. Expected to achieve 100% completion by December 2007
Street Lights	Automatic Energy Saver	5	Project not yet taken up.
Public Conveniences/ Toilets	Construction of Vambay (5 nos)	24	The entire project has achieved 100% completion at 5 places in KaM
Parks	Anna Park to be developed	-	Project yet to be taken up
Burial Grounds	Construction of new burial ground at Periyakuppam	6	Project yet to be taken up
Improvement of slums	Slum Up gradation	-	KaM proposes to take up 12 slums (with a population of 17,480) for comprehensive infrastructure up gradation and provision of basic services including roads, drains, toilets and community hall under the program Basic Services for Urban Poor (BSUP). The Rs.92 lakh project proposal has received approval under BSUP. Construction to commence

Segment	Projects	Total	Remarks
			shortly
	TOTAL	1975	

Completed
 Partially done / under implementation
 Not taken up yet

Source: Discussion with municipal officials. To be confirmed.

4.9 Service level indicators and demand assessment summary

Exhibit 4.19 below captures the status of core urban services of Kathivakkam 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 Kathivakkam 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 4.19 Core urban services - Baseline performance, issues and gaps

Sl. no	Name of the Indicator	Value	Issues and Gaps / Initiatives
Water Supply			
1	Daily Per Capita Supply (LPCD)	58	<ul style="list-style-type: none">Bottlenecks prevail in distribution and storageNo House Service connectionsConnection and Collection efficiency extremely poor, even after factoring large slum population
2	Storage Capacity / Daily Supply (%)	25%	
3	Distribution Network / Road Length (%)	49%	
4	Water connections / Assessed properties (%)	0%	
5	Population per Public Fountain (Nos.)	157	
Sanitation			
6	Presence of UGD network (Yes / No)	No.	<ul style="list-style-type: none">Very poor sanitation conditions.Public conveniences network needs to be expanded.Greater thrust on maintenance and upkeep requiredAwareness programs to educate population on importance of sanitation should accompany asset creation.
7	Septic Tanks / assessed properties (%)	59%	
8	Household per Public convenience seat (nos.)	----	
9	Storm Drain Length / road network (%)	39%	
Roads and Street Lights			
10	BT roads / Total (%)	80%	<ul style="list-style-type: none">Several BT surfaced roads are in poor conditionFlood prone nature of town makes roads particularly vulnerable
11	Road length per Street Light (m)	34	

Sl. no	Name of the Indicator	Value	Issues and Gaps / Initiatives
Solid Waste Management			
11	Waste generation per capital (gms)	627	<ul style="list-style-type: none"> Significant gaps in SWM practices Need for an integrated program to implement SWM rules and regulations on priority. Proposed improvements in the Dumping yard to be implemented on priority. Need for greater awareness creation and investments
12	Collection efficiency (% of waste generated)	100%	
14	Compost yard area (Acres per 10,000 population)	---	
15	Average vehicle trips	10	
16	Source Segregation and Composting (Yes/No)	No	

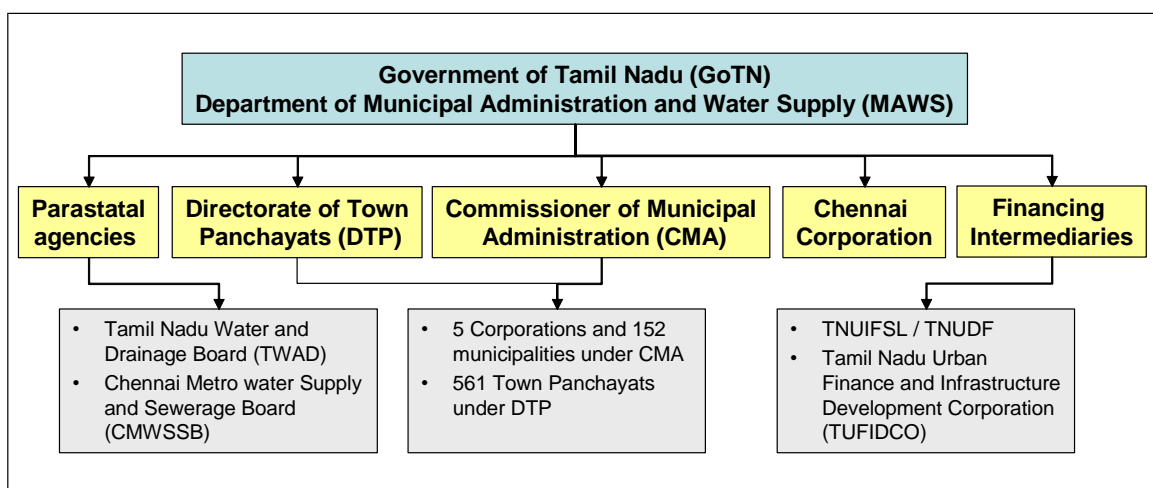
5. Urban governance and management

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

At present, there are 6 Corporations, 152 municipalities and about 561 Town Panchayats (smaller ULBs) that comprise the urban sector in Tamil Nadu. 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 Kathivakkam municipality

Kathivakkam 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 24 elected councillors, 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 commissioner.

Contract Committee

The three member contract committee is responsible for approval of all contracts costing up to Rs.5000. Works above Rs.5000 are 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 councillors.

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) Revenue and 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. 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.
- e) 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.
- f) 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
			Permanent	Consolidated Pay	NMRs	
A	General Administration					
1	Commissioner	1	1			-
2	Manager	1	1			-
3	Junior Assistant	9	9			-
4	Typist	2	2			-
5	Record clerk	1	1			-
6	Office Assistant	5	5			-
7	Asst. Programmer	1	1			-
8	Data Entry Operator	1	1			-
B	Accounts Department					
1	Accountant	1	1			-
C	Revenue Section					
1	Revenue Inspectors	1	1			-
2	Bill Collectors	5	5			-
D	Engineering Wing					
1	Municipal Engineer (E.E.)	1	1			-
2	Assistant Engineer	1	1			-
3	Work Inspector	1	1			-
E	Street Lighting					
1	Wireman	2	2			-
2	Helper	2	2			-
F	Water Supply					
1	Electrician	1	1			-
2	Fitters	2	2			-
3	Water Supply Helper	5	5			-
4	Driver	3	3			-
G	Public Health					
1	Sanitary Officer	1	1			-
2	Sanitary Inspector	2	2			-
3	Supervisor	5	5			-
4	Conservancy staff	110	110			-
5	Drivers	5	5			-
6	Watchman	1	1			-
H	MEDICAL					
1	Medical Officer	3	3			-
2	Staff nurse	2	2			-
3	Mat. Assistant	2	2			-
4	Mat. Ayah	2	2			-
5	Computer cum clerk	1	1			-
6	M.P.H. worker	4	4			-
7	Female attendant	3	3			-
8	Watchman	1	1			-

		No. of posts sanctioned	Staff in position			Posts vacant
			Permanent	Consolidated Pay	NMRs	
I	Town Planning					-
1	Town Planning Inspector	1	1			-
2	Chainman	1	1			-
J	Parks & Gardens					-
1	Watchman	3	3			-
2	Gang mazdoor	3	3			-
K	Other Staff					-
1	Community Organiser (NM)	9	9			-
2	Community Ayah(NM)	9	9			-
3	Cook	9	9			-
		223	223	0	0	0

Source : KaM

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:

- Master Plan. The Department of Town and Country Planning (DTCP) 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.
- 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.
- Environmental Protection. The Tamil Nadu Pollution Control Board (TNPCB) is responsible for environmental protection and enforcement of rulings related to the same, passed by competent authorities.
- Slum Up gradation. The Tamil Nadu Slum Clearance Board (TNSCB) develops improvement schemes for notified/regularized slum settlements in the city/town. Infrastructure provision is financed partly through loans from the Housing and Development Corporation (HUDCO) and partly through grants from GoTN and GoI.

5.5 Reforms undertaken by Kathivakkam 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 Kathivakkam municipality has also been following the system for the last 4-5 years.

5.5.2 E-Governance

E-Governance of Kathivakkam 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 centre at the municipal premises. Through the e-governance program, Kathivakkam 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 Kathivakkam 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:

- 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 KaM, 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 Kathivakkam Municipality.

6.1 Income and Expenditure summary of Kathivakkam Municipality

Exhibit 6.1 provides a summary of the income and expenditure of Kathivakkam Municipality. This summary has been prepared based on information provided by Kathivakkam Municipality. We have received accounts up to FY 2005 and unaudited accounts for FY 2006.

Exhibit 6.1 Income and Expenditure of Kathivakkam Municipality

	2002-03	2003-04	2004-05	2005-06	CAGR%
INCOME					
	Rs. In lacks				
OWN INCOME	284	317	308	337	6%
Property tax	151	158	159	158	2%
Profession tax	86	97	111	136	16%
Other Service Charges & Fees	7	7	9	8	6%
Other Income	40	54	30	34	-6%
ASSIGNED REVENUE	13	13	7	1	-62%
DEVOLUTION FUND	43	63	60	-	-100%
GRANTS & CONTRIBUTIONS	30	18	13	-	-82%
PRIOR PERIOD INCOME	0	0	1	-	-100%
TOTAL	370	411	390	338	-3%
EXPENDITURE					
	Rs. In lacks				
Salaries	151	165	169	144	-2%
Operating Expenses	69	72	74	133	24%
Administrative Expenses	12	12	10	15	7%
Finance Expenses	45	14	25	41	-3%
Depreciation	94	82	97	83	-4%
TOTAL	277	264	278	333	6%
SURPLUS (Excl. Depreciation)	92	147	112	5	-63%
RATIOS					
TE/TR - incl Depreciation	100%	84%	96%	123%	101%
TE/ TR - excl. Depreciation	75%	64%	71%	99%	77%
Debt servicing –(Rupees in Lakh)	2002-03	2003-04	2004-05	2005-06	
Interest payments	-	0.28	3.36	-	3.35
Principal payments	-	4.92	5.13	5.13	15.18
DS/TR	-	1%	2%	2%	1%

As seen from the table Income has shown a fluctuating trend and an overall decline from FY 03 levels during FY 2003-06 leading to substantial decline in cash surplus during this period. However, it should be noted that the financials for 2005-06 are unaudited figures and are subject to change. Some of the discrepancies observed are listed below:

- No Devolution fund income is shown in 2006.

- O&M expenditure has almost doubled in 2006 from 2005 levels, while finance expenses show an fluctuating trend.

Annexure IV provides detailed financial statements and DCB statements of Kathivakkam municipality for FY 2002-2006. Each of the revenue and expenditure streams are analysed in detail in the following sections.

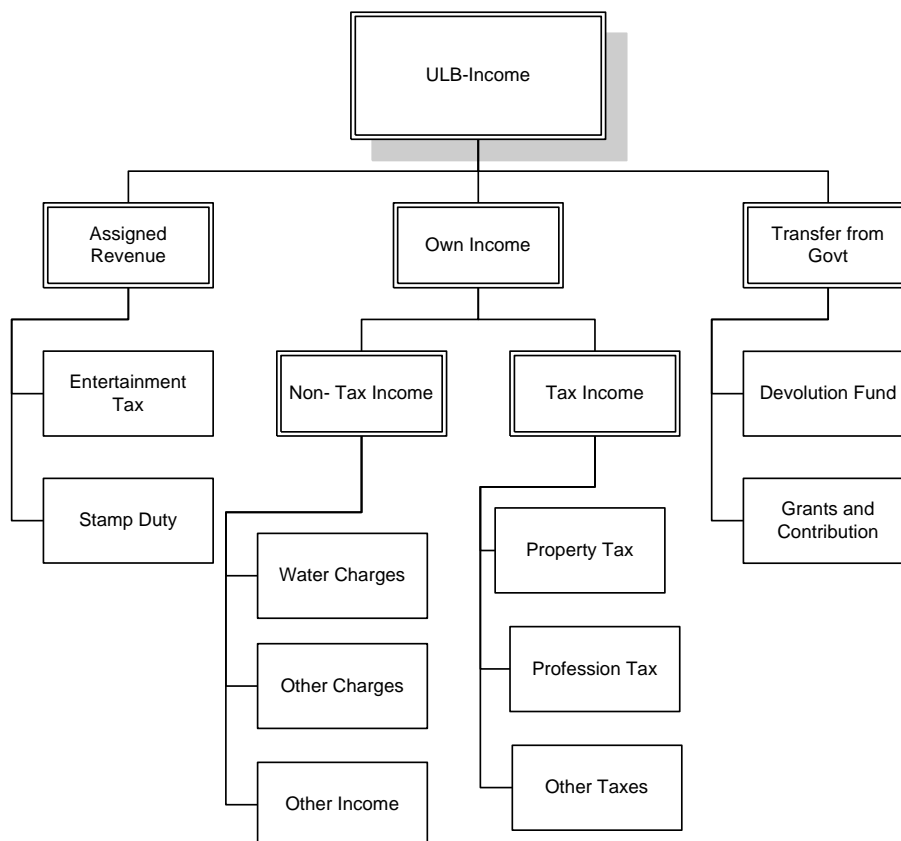
6.2 Revenue streams of ULB in Tamil Nadu

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.

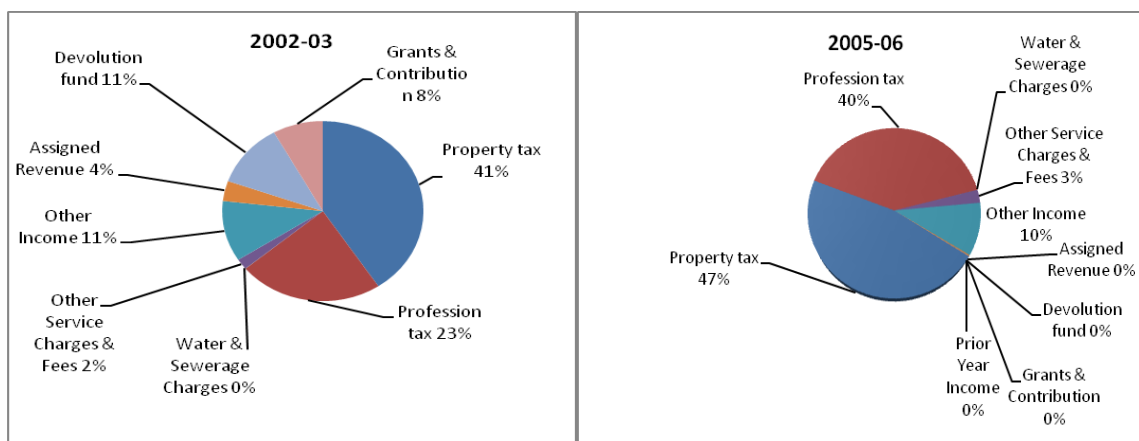
Exhibit 6.2 Revenue streams - ULBs in Tamil Nadu



6.3 Revenues

Exhibit 6.3 provides details of revenue of Kathivakkam Municipality along various heads between FY03 and FY06. These are based on information provided by Kathivakkam Municipality

Exhibit 6.3 Analysis of Revenues of Kathivakkam Municipality



6.3.1 Tax Income

Tax income has grown at a CAGR of marginally above 7% during FY03 to FY05 aided by a 14% growth in Professional tax. Property Tax has grown at less than 3% during this period. As a result, while share of property tax in overall revenue has almost constant at around 32%, share of professional tax in revenue has increased from 23% to 28%. Revenue from taxes form more than half of the municipality's income, which is a healthy indicator.

6.3.2 Property Tax

Property tax alone accounted for almost a third of income of Kathivakkam Municipality over the period under consideration. 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	31%	70%	46%	5034	3215	NA	NA
2003-04	8%	71%	36%	5154	3114	2%	-1%
2004-05	3%	65%	30%	5269	3346	2%	10%
2005-06	3%	68%	28%	5394	3272	2%	0%
2006-07	4%	65%	25%	5478	3229	2%	0%

Source : KaM

- a) **Stagnant share of property tax** - Property tax increased marginally in absolute terms, whereas its proportion in total income was almost stagnant at 32% over last three years.
- b) **Demand per assessment** - Though there has been an overall increase of around 2% in the number of assessments, the average demand per property assessed has shown a negligible growth of marginally above 0.1%. During FY03 to FY07, the average demand per property assessed has increased from Rs. 3215 per property to Rs 3229 per property. Last revision of property tax was undertaken in October 1998⁶. Quinquennial Revision due in 2003 has not been undertaken yet.
- c) **Low and declining collection efficiencies** - Collection efficiency is a cause for concern. While collection efficiency in current demand has declined from 70% to 65%, the low recovery of arrears needs attention. In FY05 and FY06, arrears collection efficiency dipped to only 3%. Overall collection efficiency declined steadily from 46% to 25%, over the period under consideration
- d) **Aging of arrears** - 22% of the arrears are outstanding for more than five years. Kathivakkam 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 87% of the total assessments, but only 13% of the total property tax demand. The municipality must take steps to increase property tax from this category. Exhibit 6.5 below gives the detailed break-up of assesses for property tax.

Exhibit 6.5 Property Tax - breakup of assessees (2005)

Category of Property	Number of Assessments	%	Annual Tax Demand (Rs. lakh)	%
Residential	4548	87.6	23.12	13.1
Commercial	180	3.5	1.57	0.9
Industrial	410	7.9	147.94	83.9
State Government Properties	4	0.1	0.21	0.1
Public Sector Undertakings	20	0.4	3.44	2.0
Exempted properties	31	0.6	0.00	0.0
Total	5193	100.0	176.28	100.0

6.3.3 Professional tax

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

⁶ As per SFC details

Exhibit 6.6 Professional Tax - revenue drivers⁷

Year	Collection Efficiency			Assesses		Growth rate of Assesses	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	Tax demand/assessee		
2002-03	29%	99%	96%	245	35155	NA	NA
2003-04	35%	97%	95%	251	40319	2%	17%
2004-05	32%	100%	97%	256	43047	2%	9%
2005-06	41%	97%	95%	262	42061	2%	0%
2006-07	11%	96%	92%	265	45902	1%	10%

- a) Share of professional tax in total income has increased from 23% to 28% of total income
- b) Demand per assessment has increased from more than Rs 35,000 in FY03 to slightly greater than Rs 45,900 in FY07. In Kathivakkam, number of assessee are not individuals. The municipality has three big industries – Ashok Leyland, Ennore Foundries, and EID Parry – which are counted as one assessee each. Thus the tax per assessee reflects the total profession tax paid by an enterprise and not by an individual.
- c) Collection efficiency was 92% in FY07, aided by 96% current collection efficiency. Though both the collection efficiencies are at a high level, they have declined from their initial levels. Current collection efficiency was 100% in FY05. Arrears collection efficiency requires an immediate attention of the municipality. It is only 11% in FY07. An ageing analysis reveals that nearly 23% of arrears are more than 5 years old.
- d) Composition of professional tax assessments - Exhibit 6.7 below shows the composition of assessments. None of the private companies have filed returns and hence Kathivakkam Municipality should take steps to widen its tax base through a closer scrutiny of private companies.

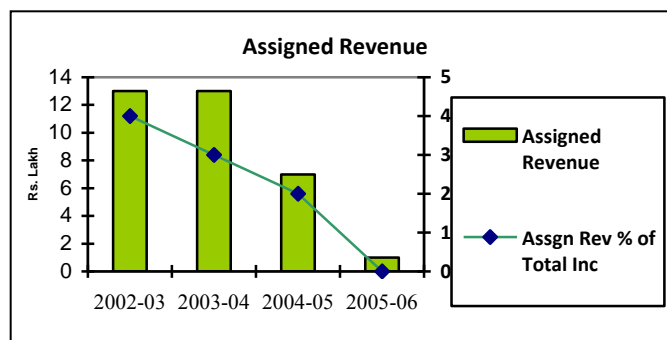
Exhibit 6.7 Professional Tax – assessee break up

Category	Number of Assessments	%	Annual Tax demand (Rs in Lakh)	%
State/Central/Quasi Govt. Employees	463	4.65	2.28	2.54
Traders	121	1.21	0.78	0.87
Private employers/ Companies	9375	94.14	86.66	96.59
Total	9959	100.00	89.72	100.00

⁷ As per SFC details

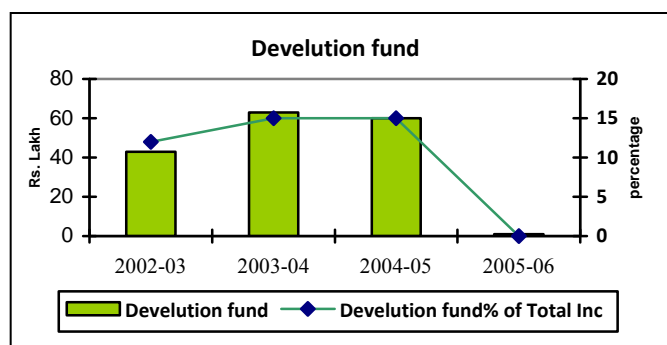
6.3.4 Assigned Revenue

Assigned Revenue (which includes transfers of stamp duty and entertainment tax) declined from Rs 13.4 lakh in FY 2003 to Rs 1 lakh in FY 2006. Share of assigned revenue in total income declined from 4% of revenue in FY03 to 2% of revenue in FY05.



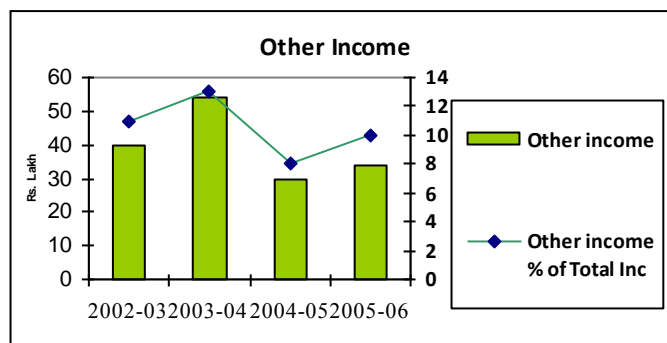
6.3.5 Devolution Fund

Devolution fund increased marginally from slightly more than Rs 43 lakh in FY 2003 to nearly Rs 60 lakh in FY 2005. Share of this fund in total revenue of the municipality has increased from 12% to 15% in respective years.



6.3.6 Other Income

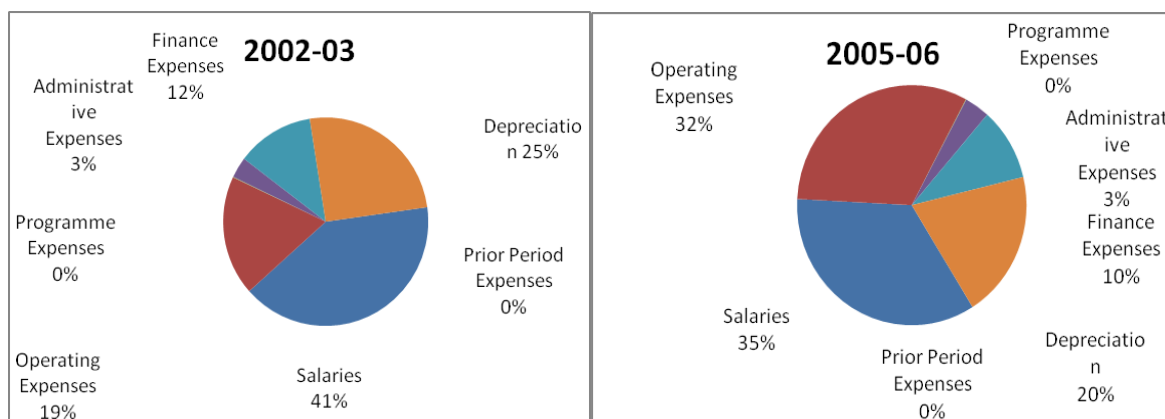
Other Income, which includes sale and hire charges, has declined from Rs 40 lakh in FY03 to slightly below Rs 34 lakh in FY06. Its share in total income of the municipality declined from 11% in FY03 to around 10% in FY06.



6.4 Analysis of Costs

Exhibit 6.8 provides details of costs of Kathivakkam Municipality along various heads between FY 2003 and FY 2005. Though total expenditure increased marginally from more than Rs 371 lakh in FY 2003 to Rs 375 lakh in FY 2005, it shown a downward trend in FY 2004 when it declined to Rs 346 lakh. Decline in this year is primarily due to decline in finance charges of the municipality. Operating expenditure has shown a steady upward trend over the period.

Exhibit 6.8 Costs (as a % of income) – FY 2003 and FY 2005

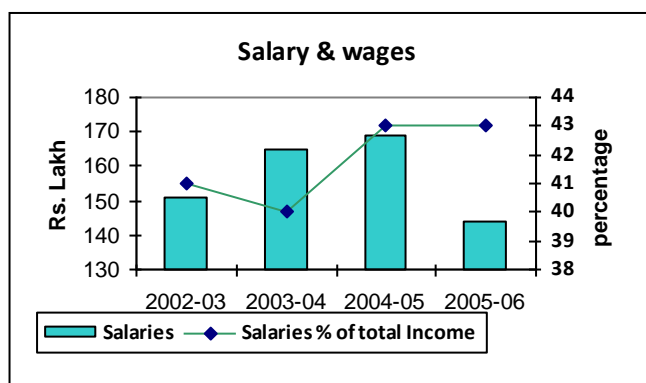


6.4.1 Salary and wages

While salary and wages accounted for more than 40% of total expenditure incurred by the municipality, it increased from Rs 151 lakh in FY2003 to Rs 169 lakh in FY 2005. This has been due to the lack of addition in staff over the last few years and a number of posts remaining vacant. As on March 2005, the number of employees in the municipality was 135.

6.4.2 Salary and wages

While salary and wages accounted for more than 40% of total expenditure incurred by the municipality, it increased from Rs 151 lakh in FY2003 to Rs 144 lakh in FY 2006. This has been due to the lack of addition in staff over the last few years and a number of posts remaining vacant.



6.4.3 Operations and Maintenance

Repairs and maintenance form almost a fifth of the total expenditure incurred by the municipality. In absolute terms, repairs and maintenance expenditure has increased steadily over the last three years, growing from Rs 69 lakh in FY 2003 to Rs 133 lakh in FY 2006. Its share in total expenditure has increased marginally by 1% from 19% to 39% in FY 2003 and FY 2006, respectively. Exhibit 6.9 provides details of sector wise composition. Expenditure on road form a major proportion of total repairs and maintenance expenditure incurred by the municipality. Expenditure under this head is almost constant at around 35% over past three years. Repairs and maintenance expenditure on water and sewerage is also another important component. But it has shown a downward trend over the period under consideration. Overall repairs and maintenance has grown at a CAGR of more than 3.5% over the period.

Exhibit 6.9 Repair and maintenance expenditure - Sector wise break up (Rs in Lakh)

Item	FY2002	%	FY2003	%	FY2004	%	FY2005	%
Roads	24	35%	26	36%	26	35%	21	16%
Water & Sewerage	20	29%	20	28%	14	19%	20	15%
Street Lights	10	15%	5	7%	10	14%	14	10%
Others	15	22%	21	29%	24	32%	79	59%
Total	69	100%	72	100%	74	100%	133	100%

6.4.4 Power costs

Exhibit 6.10 gives the details of power costs out of the total repair and maintenance expenditure relating to Water & Sewerage and Street lights.

Exhibit 6.10 Power costs - Water & Sewerage and Street Lights (Rs in Lakh)

Item	FY2003	%	FY2004	%	FY2005	%	FY2006	%
Water	20	100%	20	100%	14	100%	20	100%
Power	2	10%	2	10%	2	14%	2	9%
Non Power	18	90%	18	90%	12	86%	18	91%
Street Lights	10	100%	5	100%	10	100%	14	100%
Power	1	14%	2	42%	3	33%	7	48%
Non Power	9	86%	3	58%	7	67%	7	52%
Total	30		25		24		33	

6.5 Trends in Capital Expenditure

Exhibit 6.11 gives details of capital expenditure by Kathivakkam Municipality over the last five years and estimated capital outlay to address the felt needs of Kathivakkam Municipality over the next ten years.

Exhibit 6.11 Capital Expenditure (Rs in Lakh) - Last five years

Sector	Actuals				
	2000-01	2001-02	2002-03	2003-04	2004-05
Roads	27.68	15.68	15.57	23.29	22.85
Storm water drains	11.20	28.11	22.37	81.33	32.48
Water supply	0.00	15.49	22.32	10.00	15.58
Sanitation/SWM	4.00	3.50	40.00	0.00	28.00
Street Lights	0.50	0.00	0.00	3.25	0.00
Education	10.50	1.24	14.82	24.19	32.45
Total	53.88	64.02	115.08	142.06	131.36

6.6 Loans and Finance charges

At the end of year 2006, the only loan outstanding was from TUFIDCO. The municipality borrowed Rs 54 lakh in FY 2001 at a rate of interest of 9.5% per annum to be paid in six years to TUFIDCO. The loan was taken for special road works. Only interest payments on this loan were made at end of year 2005.

Exhibit 6.12 Outstanding loans (2006)

S No	Lending Agency	O/s Amount	Year of drawal	Interest Rate %	Repayment period	Purpose / Scheme	Moratorium
1	TUFIDCO	54.05	2003	9.5%	13	Special road works	5
	TOTAL	54.05					

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

This section articulates a strategic plan for urban development in Kathivakkam 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

7.1.1 Initiate livelihood development and actions to make the town slum-free

Kathivakkam has a significant slum population with 12 out of the 24 wards showing slum population. Slum population as per records of the municipality was 18580, nearly 57% of the population recorded during Census 2001. Many of these slums are hamlets comprising fishermen and families.

There is therefore a need to look beyond conventional slum rehabilitation towards greater focus on improving employment prospects and increasing incomes of the fishing hamlets. This would require significant government intervention beyond the Urban Local Body. In particular, given that fishing appears to be the dominant occupation in the town, GoTN should explore specific interventions for creating fishing and market infrastructure to improve productivity and incomes of the fishing cluster.

7.1.2 Address gaps in urban infrastructure on priority

Even though the gaps in water supply and sanitation (no house service connections) are significant, the ULB is constrained by the seeming resistance among local community for user charges and other levies. Therefore it may be difficult for the ULB to structure projects with user charges and public deposits. Further, there is a need for addressing the flooding problems with the town being water locked on 3 sides. In particular, there is a need for preventing flooding from the Buckingham canal side and need for reinforcements including groynes on the sea side to prevent further land erosion.

7.2 SWOT analysis

A brief SWOT analysis of the town is presented below:

Strengths <ul style="list-style-type: none"> • Presence of an industrial base • Rail connectivity to rest of Chennai • Nearness to both the major ports of Chennai and Ennore 	Weakness <ul style="list-style-type: none"> • Significant gaps in infrastructure and unplanned residential developments • Significant / visible slum population • Geographic limitations in terms of being water locked and cut-off from the rest of the region
Opportunities <ul style="list-style-type: none"> • Use the property tax base from industries to invest in basic infrastructure • Moot developments in the factory lands that is currently under lock-out 	Threats <ul style="list-style-type: none"> • Overall development in the region has been slow • Gaps in infrastructure and continued outward migration of high income groups / professionals • Persistent threat of and flood related events

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 20 years starting 2007-08 up to 2026-27). The geographical coverage of the plan includes the area under the jurisdiction Kathivakkam municipality as of March 2007.

7.3.1 Population projections underlying the strategic plan

Exhibit 7.1 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 - Kathivakkam town

	Unit	Baseline	Projected		
		2007	2012	2017	2027
Population	nos	36321	39,524	43,104	50,933
Households (Estd.)	nos	7977	8,831	9,631	11,381
Assessed Properties	nos	5193	6,623	7,224	8,535
Road length	Km	35	35	39	48

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 4.5 is assumed (in line with Census 2001), while properties are assumed to be 20% of population by 2012, 21% by 2017 and 22% by 2027. This translates to a 2.5% growth in properties as against a 1.7% growth in population.

7.4 Water Supply

7.4.1 Service Goals and Reform targets

Exhibit 7.2 provides the service goal/outcomes and reform targets for 2008-12. As observed, KaM is reasonably well placed to meet its short term targets with the ongoing CMWSSB scheme in terms of supply, storage and frequency of supply.

On the reform agenda, KaM has to move towards provision of house service connections as is being envisaged and rationalize water fountains in order to minimize wastage and enhance revenue potential through user charges. As can be seen the number of water fountains appear to be significantly high.

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	52	135	135	135
Storage capacity / Total demand	%	14%	30%	30%	30%
Distribution network / Road length	%	84%	80%	80%	80%
Frequency of supply	hours/day	2	2	2	24X7
Reform targets					
Current collection efficiency	%		75%	90%	90%
House Service Connections / Assessed Properties	%		40%	50%	60%
Population per water fountain	nos.	67	100	125	125
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes
User charges - % of O&M plus debt servicing	%	n.a	30%	50%	100%

7.4.2 Baseline status and gaps – short term & long term

Exhibit 7.3 provides the baseline status on water supply and the requirements and gaps in the short, medium and long term. As seen in the table, Kathivakkam appears adequately placed in terms of water supply and storage, but requires interventions to address distribution network gaps.

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

	Unit	Baseline	Required / Target			Incremental addition		
			2012	2017	2027	2012	2017	2027
Gross Water Supply	MLD	Ongoing project	5.34	5.82	6.88	-	0.48	1.06
Storage Capacity	ML	2	1.07	1.16	1.38	-	-	-
Distribution network	Km	30.16	28	31	35	-	3.33	3.33
HSCs	Nos.	0	3533	4816	6828	3533	1283	2013
Public fountains	Nos.	531	395	345	407	-	-	-

With the ongoing water supply scheme, KaM could potentially address its water supply infrastructure requirements in terms of supply, storage and distribution network. As against the overall network of about 31 km of roads in KaM, around 30 km is covered. Also given the potential for future development and addition of another 8 km of new road formation, these would also need to be covered in the medium to long term. House service connections could potentially reach more than 6500 connections during the next two decades and the distribution network needs to be equipped to address this requirement. Given the high slum population we have been conservative in setting house service connection targets for this town. However, the town should endeavour to surpass this estimates.

7.4.3 Interventions - Immediate priorities

a) **Implementation of comprehensive protected water supply in all wards (DPR currently under preparation) at an estimated outlay of Rs. 622 lakh. The description of this project and the components are described below.**

- Construction of one GLR (of 11 LL)
- Construction of 2 nos of OHT (of 5 LL each) and strengthening/providing 34 km of distribution line. This project is presently under implementation and is expected to be completed by March 2008.
- Through this project, KaM intends to provide House service connections to supply 135 LPCD.

CMWSSB is presently undertaking a comprehensive water supply scheme for KaM with the objective of providing 135 LPCD of water at an estimated outlay of Rs. 6.22 crore. The proposed HSC deposit and tariff charges are provided in Exhibit 7.4

Exhibit 7.4 Proposed User charges and connection deposit

Area in sq.ft	Deposit (Rs)	Tariff (Rs)	Deposit (Rs)	Tariff (Rs)
	Domestic	Domestic	Commercial	Commercial
< 500	3000	50	6000	80
500 to 1200	4000	60	8000	90
1200 to 2400	5000	70	10000	400
>2400	6000	90	12000	450
Special	7000	100	100000	1000

Source : KaM

b) **Tsunami Emergency Assistance Project (TEAP) – Asian Development Bank.** The project envisages providing, laying and testing conveying main from Kathivakkam High Road to GLS at Nettukuppam. The estimated project cost is around Rs.30 Lakh and the project has presently achieved 50% completion.

7.4.4 Interventions - Medium / Long term needs

The proposed water supply scheme and the capital investment estimates shown above are expected to address ultimate population requirements for in supply augmentation. KaM 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 6 km) considering the scope for new roads/layout formation. KaM 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 KaM is yet to even meet access targets, we have provided for investments in metering only during 2018-27.

7.4.5 Investment summary – water supply

The total outlay and phasing of investments for water supply is given in Exhibit 7.5 below.

Exhibit 7.5 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
Ongoing / Proposed									
Conveying main to GLR at Nettukuppam	30					30			30
Comprehensive Water supply scheme		249	249	124		622			622
Others –Normative estimates									-
Pumping and Distribution network	-	-	-	-	-	-	10	10	20
Metering	-	-	-	-	-	-		137	137
TOTAL	30	249	249	124	-	652	10	147	809

7.5 Sanitation

7.5.1 Service Goals and Reform targets

Exhibit 7.6 provides the service goal/outcomes and reform targets for 2008-12 in sanitation.

Exhibit 7.6 Sanitation - Service Goals and Reform Targets

	Unit	Baseline	Target			
		2007	2012	2017	2027	
SERVICE GOALS						
UGD Network						
Availability		No	Yes	Yes	Yes	
Design capacity		-	120	120	120	
Sewer network - % of road length		-	80%	80%	80%	
Storm Water Drains						
Drain length / Road length		34%	80%	100%	100%	
Public Conveniences						
Slum population per PC seat		105	200	200	200	
REFORM TARGETS						
Sanitation coverage - % of population		33%	100%	100%	100%	
Current collection efficiency		NA	70%	90%	90%	
Connections / Assessed Properties		NA	30%	40%	50%	

7.5.2 Baseline status and gaps – short term & long term

Exhibit 7.7 provides the baseline status on sanitation and the requirements and gaps in the short, medium and long term.

Exhibit 7.7 Sanitation- Baseline status and gaps (short term and long term)

Rs. Lakh

	Unit	Baseline + Ongoing	Required		
			2012	2017	2027
Treatment capacity	MLD	UGD being implemented	4.74	5.17	6
Sewer Length	Km		28	31	38
Storm Water Drains	Km	12	28	39	48
Public convenience seats	Nos.	166	87	87	87
Household connections	Nos.	n.a	2,649	3,853	5,690

As can be seen from Exhibit 7.7 there are significant gaps in sanitation particularly in storm drain coverage, which form the immediate priority apart from the proposed UGD scheme.

7.5.3 Interventions / immediate priorities

- a) **UGD project** - A DPR for UGD scheme for Kathivakkam is under design stage at CMWSSB and the project is expected to be commenced at an outlay of Rs. 12 Crore. This outlay is based on initial estimates provided by CMWSSB to KaM and exact details of the scope of the DPR are not available. Normative gaps that need to be addressed are highlighted below.
- **Treatment capacity** of at least 4.17 MLD (by 2012) and 6 MLD (by 2027)
 - **Sewer Length** - 28 km (by 2012) and another 10 km (by 2017)
 - **House service connections** – There are currently no UGD connections in Kathivakkam. We have estimated increase to 2650 connections in 5 years and to about 5700 connections over the next two decades
- b) **Phased implementation of pucca Storm water drainage – Rs. 320 lakh**
- Coverage of all parts of the town in a phased manner to cover the normative gap of 16 km at Rs. 20 lakh
- c) **Restoration of water bodies – Rs. 50 lakh**
- Restoration and desilting of Tamaraikulam and creation of a jogging track and other recreation amenities.

7.5.4 Interventions - Medium / Long term priorities

The proposed investments in UGD and storm water drains recommended in 7.5.3 will take care of the sanitation requirements in the medium to long term as well. However, additional investments will be required given increase in road length due to new formations / layouts in terms of 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 7.7 above.

7.5.5 Project components and Capital Investment

Exhibit 7.8 provides a summary of the project components, capital outlay and phasing for sanitation in Kathivakkam town.

Exhibit 7.8 Sanitation - Capital Investment outlay and phasing

Rs. lakh

CAPEX PLAN AND PHASING	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Ongoing / Proposed									
UGD project	400	400	400			1,200			1,200
Others - Normative estimates									
Sewer laying						-	20	20	40
Storm water drain construction	65	65	65	65	65	323	224	83	630
Restoration of water bodies				25	25	50			50
TOTAL	465	465	465	90	90	1,573	244	103	1,920

7.6 Solid Waste Management

7.6.1 Service goals and reform targets

Exhibit 7.9 provides the service goal/outcomes and reform targets based on the proposed strategy for the horizon period.

Exhibit 7.9 Solid Waste Management - Service Goals and Reform Targets

	Unit	Baseline	Target		
		2007	2012	2017	2027
Collection efficiency	%	100%	90%	90%	100%
Door-to-door collection	%	100%	100%	100%	100%
Source Segregation	%	30%	60%	80%	100%
Scientific disposal	%	0	50%	100%	100%
Conservancy fee	Yes / no		yes	yes	yes

7.6.2 Baseline status and gaps – short term & long term

Exhibit 7.10 provides the baseline status in solid waste management and the requirements and gaps in the short, medium and long term. As can be seen, KaM has a marginal gap in terms of land available for disposal vis-à-vis municipal norm of 1 acre per 10000 population (2020).

Exhibit 7.10 Solid Waste Management - Baseline status and gaps (short term and long term)

	Unit	Baseline + Ongoing	Required			Incremental gap		
			2012	2017	2027	2012	2017	2027
Waste generation per capita	gms	606	600	650	650			
Waste Generated	MT	22	24	28	33			
Primary collection								
Number of trips	Nos.	6.11	4	4	4			
Vehicle capacity	MT	3.60	0.15	0.15	0.15			
Tricycle equivalents – new	Nos.	24	40	47	55	16	7	8
Tricycle equivalents – replacement	Nos.			40	47		40	47
Secondary collection / Transfer								
Number of trips	Nos.	1.47	2.00	2.00	2.00			
Vehicle capacity	MT	15.00	11.86	14.01	16.55	-	2.15	2.54
Replacement of vehicles	MT			11.86	14.01		11.86	14.01
Disposal								
Land	Acres	2.00	3.95	4.31	5.09	1.95	0.36	0.78
Compost yard development	Acres	0.80	1.58	1.72	2.04	0.78	0.14	0.31
Land fill development	Acres	1.20	2.37	2.59	3.06	1.17	0.21	0.47

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, given the assumptions relating to waste generation per capita and the no. of trips.

7.6.3 Interventions required - short term

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

- a) **Land Acquisition and Compost yard development.** The construction of a compost yard exclusively for KaM has been planned to be carried out at an estimated cost of Rs.49.53 lakh. Five acres of land in Manali village has been identified and allocated for this compost yard. Compost yard development is under progress.
 - Acquisition of 5 acres land in Manali village
 - Development of a processing and compost yard - **Rs. 49.5 lakh**
- b) **Equipment procurement – Rs. 4 lakh.** Most of the equipment available with KaM are in good condition. KaM has also recently procured push carts / tricycles for primary collection.
 - Requirements have been arrived at on the basis of normative gaps shown in Exhibit 7.11. About 16 MT equivalent equipment for primary collection at Rs. 4 lakh.

7.6.4 Interventions required - Medium / Long term

In addition to the compost facility, we have assumed apportioned development of a sanitary land fill facility. Capital investments for equipment requirements (new and replacement) have been arrived at on the basis of normative gaps show in Exhibit 7.10.

7.6.5 Project components and Capital Investment

Exhibit 7.11 provides a summary of the project components, capital outlay and phasing for Solid Waste Management in Kathivakkam town.

Exhibit 7.11 Solid Waste Management - Capital Investment outlay and phasing

Rs. Lakh

CAPEX PLAN AND PHASING	2008	2009	2008-12	2013-17	2018-27	TOTAL
Ongoing/Proposed						
Development of Compost yard	50		50			50
Others - normative estimates						
Primary collection		4	4	12	14	29
Secondary collection				56	66	122
Development cost - Landfill site				61	-	61
SANITATION	50	4	53	129	80	262

7.7 Roads, Transportation and Streetlights

7.7.1 Service goals and reform targets

Exhibit 7.12 provides the service goal/outcomes and reform targets for the horizon period.

Exhibit 7.12 Transportation and street lighting - Service Goals and Reform Targets

	Unit	Baseline	Target		
		2007	2012	2017	2027
Roads and Transportation					
Municipal roads as % of Total Area	%	12%	12%	13%	15%
Surfaced roads to Total roads	%	100%	100%	100%	100%
Pedestrian walkways to Total road length	%	Negligible	20%	40%	50%
Street Lights					
Distance between streetlights	Metres		30	30	30
Proportion of high power lamps	%		30%	35%	40%
Proportion of lights with energy saving devices	%		30%	35%	40%

7.7.2 Baseline status and gaps

With the proposed sewerage scheme, even the existing surfaced roads would need to be restored and re-surfaced. A substantial number of roads covering erstwhile unapproved layouts also need to be covered with surfaced roads and street lighting. Exhibit 7.13 provides the baseline status and interventions in transportation and street lighting in the short term and long term.

Exhibit 7.13 Transportation- Baseline status and gaps

	Unit	Gaps (physical requirements)			
		Total	up to 2012	2013-17	2018-27
TRANSPORTATION					
Municipal road network					
Upgrading non-surfaced roads to BT roads	Km	-			
Re-surfacing of roads after UGD scheme	Km	24.13	24.13		
New road formation / Surfacing	Km	13	-	4	8
Re-laying all roads between 2018-27	Km	34			34
Road facilities					
Bus shelters up gradation	Nos	10	10		
Pedestrian walkways	km	46.59	7	16	24
STREET LIGHTS					
Total no. of lights	nos	417	-	139	278
High power lamps	nos	284	-	107	177
Tube lights	nos	132	0.38	32	101
Lights with Energy savers	nos	284	-	107	177

7.7.3 Interventions required – short term

Investment / Project components

- Road up gradation, surfacing and restoration** – KaM has nearly 35 km of roads of which only 70% are surfaced. Therefore there is a substantial gap with respect to access to surfaced roads. Further, with the proposed UGD scheme, even the existing surfaced roads would require re-surfacing and restoration.
- Road facilities** – The gaps in KaM with respect to specific road facilities are highlighted in Exhibit 7.13 above and need to be addressed to meet the service level targets outlined in Exhibit 7.12

- c) **Roads maintained by Highways Department and National Highways Authority of India –**
KaM has about 5 km of roads maintained by other agencies.

7.7.4 Capital outlay and phasing

Exhibit 7.14 provides the details of the capital outlay for transportation and street lighting requirements

Exhibit 7.14 Transportation and Street lighting - Capital Investment outlay and phasing

Rs. Lakh

		Cost per	Phasing (Outlay)			Total	
		Unit	up to 2012	2013-17	2018-27		
TRANSPORTATION							
Municipal road network							
Upgrading non-surfaced roads to BT roads		15.00	289.53	50	100	289.53	
Re-surfacing of roads after UGD scheme		12.00					
New road formation / Surfacing		20.00					
Re-laying all roads once between 2018-27		15.00			858	858.16	
Road facilities							
Bus shelters up gradation		5.00	0	0	0	71.49	
Pedestrian walkways		3.00	21.10	26.10	24.30		
Subways		50.00					
New bus stand		50.00					
SUB-TOTAL			311	76	982	1,369.20	
STREET LIGHTS							
High power lamps		0.12	-	-	-	-	
Tube lights		0.08	0.06	4.75	15.17	19.98	
Lights with Energy savers		0.05	-	11	18	28.39	
SUB-TOTAL			0.06	15.48	32.84	48.37	
TOTAL			311	92	1,015	1,418	
TOTAL OUTLAY	2010	2011	2012	2013-17	2018-27	TOTAL	
Transportation	104	104	104	76	926	1,313	
Street Lights	0	0	0	20	17	38	
TOTAL	104	104	104	96	944	1,351	

7.8 Urban services for the poor

A recent survey by KaM indicates that there are 12 slums in KaM as detailed in Exhibit 7.15. These twelve slums with a population of 17480 contribute to around 49.9% of the population of KaM.

Exhibit 7.15 Slum details

Sl. No.	Location	Ward	Population	Area (sq.km)
1	Thilagar nagar	7	614	0.09
2	Kattukuppam	8	1232	0.08
3	Gandhi nagar	9	939	0.07
4	Valluvar nagar	10	2116	0.09
5	Sathiyavani muthu nagar	15	3937	0.24
6	VOC Nagar	18	1388	0.16
7	Ennore Kuppam	19	832	0.08
8	Mugathuvara Kuppam	19	835	0.08

Sl. No.	Location	Ward	Population	Area (sq.km)
9	Nettukuppam	20	2002	0.16
10	Thazankuppam	22	2002	0.16
11	Periyakuppam	24	781	0.08
12	Chinnakuppam	24	792	0.04
			17480	

Source: DPR prepared for BSUP scheme

7.8.1 Service levels goals and outcomes

Exhibit 7.16 gives a snapshot of the service level goals and outcomes of KaM 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%

7.8.2 Proposed projects

KaM proposes to take up 12 slums (with a population of 17,480) for comprehensive infrastructure up gradation and provision of basic services including roads, drains, toilets and community hall under the program Basic Services for Urban Poor (BSUP) as mentioned in Exhibit 7.17. This project is envisaged to finance with 80% contribution from Government of India and 20% from GoTN.

Exhibit 7.17 BSUP project

Category	Estimated Project Cost (Rs. Lakh)
Roads/Pavements	45.5
Storm Water Drainage	38.5
Street Lighting	9.00

Source: KaM

The DPR has been prepared and sent through CMA to HUDCO and subsequently to Ministry of Urban Development.

7.8.3 Capital outlay and phasing

Exhibit 7.18 provides the summary of capital outlay and phasing of investments for provision of urban services for the poor.

Exhibit 7.18 Urban Services for the poor - Capital outlay and phasing

Rs. Lakh

ONGOING PROJECT	2008	2009	2010	2011	2012	2013-2017	2017-2027
IHSDP/BSUP	92						
NCRMP	182						
Tsunami – ADB	20						
Slum rehabilitation and development	77	371	371	371	371	928	928
Total	371	371	371	371	371	928	928

7.9 Social infrastructure and other urban amenities

Exhibit 7.19 provides the summary of interventions, capital outlay and phasing of investments for provision of other urban service amenities in KaM.

Exhibit 7.19 Social infrastructure and other urban amenities – Capital outlay and phasing

Segment	Outlay	Phasing						
		2008	2009	2010	2011	2012	2013-17	2018-27
Healthcare Rs. 10 lakh per centre every 5 years	160			20	20		40	80
Schools Rs. 2 lakh per school every year	320		40	40			80	160
Remunerative/Others								
Slaughter House	25	25						
Gasifier crematorium	32	32						
Burial Ground development	28	28						
TOTAL	564	108	40	60	20		120	240

Improvements to building assets of healthcare centres and government schools account for close to 80% of investments in other urban assets and social infrastructure. The ongoing projects relating to slaughter house and gasifier crematorium account for the remaining outlay.

7.10 Capital Investment Plan – summary

7.10.1 Priority projects

The critical priority projects to be implemented by KaM in the short term (2008-12) are summarized below in Exhibit 7.20

Exhibit 7.20 Priority projects - FY 2008-12

Sl. No	Sector	Project	Cost Rs. Lakh	Status
1	Water Supply	Comprehensive scheme for provision of house service connections	622	Under implementation by CMWSSB
2	Sanitation	Underground Drainage scheme	1200	Under implementation
3	Sanitation	Storm water Drains	323	Under implementation

Sl. No	Sector	Project	Cost Rs. Lakh	Status
4	Sanitation	Restoration of Tamarai Kulam	50	Proposed
5	Solid waste Management	Development of compost yard	50	Proposed
5	Roads	Up gradation of all roads after UGD implementation	310	Proposed
6	Slum rehab	Slum rehabilitation under BSUP	371	Ongoing under BSUP

7.10.2 CIP summary

Exhibit 7.21 provides a summary of sector wise phasing of investment needs of KaM.

Exhibit 7.21 Capital Investment Plan summary

Segment	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Water Supply	30	249	249	124	-	652	10	147	809
Sanitation	65	465	465	490	90	1,573	244	103	1,920
Solid Waste Management	50	4	-	-	-	53	129	80	262
Transportation & Street lighting	-	-	104	104	104	311	96	944	1,351
Urban Services for the poor	84	40	60	20	-	204	120	240	564
Others	426	426	426	426	426	2,128	1,064	1,064	4,256
TOTAL (BY ULB)	654	1,183	1,302	1,163	619	4,921	1,663	2,578	9,162

7.10.3 Technical assistance requirements

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

1. Development of a comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
2. Study on flooding patterns particularly in managing water logging.
3. Feasibility study for development of sea-side beautification / recreation amenities.

7.10.4 Interventions required from other agencies/departments of GoTN

Specific initiatives required departments and agencies of GoTN (other than KaM) are detailed below:

1. **State Highways/National highways** – Explore scope for a new road formation through the town towards Ennore parallel to the railway line along the creek. The need for this project was strongly expressed during our interactions with the municipal council.
2. **PWD** – a) Restoration and development of Tamarai Kulam and b) flood mitigation works along the Buckingham Canal
3. **Department of Education, GoTN** – In view of lack of adequate education facilities within Kathivakkam, transportation facilities for children from the slum areas to schools in nearby areas could be provided.

4. **TNPCB** – During our consultations with the Municipal Council, members expressed serious concerns about the pollution from industrial units within the town and wanted TNPCB to conduct a detailed review of the pollution levels of the industrial units in this regard.

7.10.5 Reform targets

Exhibits 7.22 and 7.23 summarize reform targets and asset management plan for KaM respectively.

Exhibit 7.22 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	52	135	135	135	
Storage capacity / Total demand	%	14%	30%	30%	30%	
Distribution network / Road length	%	84%	80%	80%	80%	
Frequency of supply	hours/day	2	2	2	24X7	
<u>Reform targets</u>						
Current collection efficiency	%	n.a	75%	90%	90%	
House Service Connections / Assessed Properties	%	n.a	40%	50%	60%	
Population per water fountain	nos.	67	100	125	125	
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes	
User charge - % of O&M plus debt servicing	%	n.a	30%	50%	100%	
SANITATION						
<u>Service Goals</u>						
<i>UGD Network</i>						
Availability	Yes/no	No	Yes	Yes	Yes	
Design treatment capacity per capita	lpcd	-	120	120	120	
Sewer network - % of road length	%	-	80%	80%	80%	
<i>Storm Water Drains</i>						
Drain length / Road length	%	34%	80%	100%	100%	
<i>Public Conveniences</i>						
Slum population per PC seat	Nos.	105	200	200	200	
<u>Reform targets</u>						
Sanitation coverage - % of population	%	33%	100%	100%	100%	
User charges - Current collection efficiency	%	NA	70%	90%	90%	
Household connections / Assessed Properties	%	NA	30%	40%	50%	
SOLID WASTE MANAGEMENT						
Collection efficiency	%	100%	90%	90%	100%	
Door-to-door collection	%	100%	100%	100%	100%	
Source Segregation	%	30%	60%	80%	100%	
Mode of disposal	%	0	50%	100%	100%	
Conservancy fee	Yes / no		yes	yes	yes	
TRANSPORTATION AND STREET LIGHTS						
Municipal roads as % of Total Area	%	12%	12%	13%	15%	
Surfaced roads to Total roads	%	100%	100%	100%	100%	
Street Lights - Distance between streetlights	M	29	30	30	30	
Street Lights - % of high power lamps	%	33%	30%	35%	40%	
Street Lights - % of lights with energy savers	%	n.a	30%	35%	40%	
URBAN SERVICES FOR POOR						

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
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%

7.11 Asset Management

This section details the asset management plan for various urban service areas and assets owned by KaM 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)

In the following paragraphs we analyse the information provided to us on land and building assets available with KaM 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 detailed in sections 7.11.1 to 7.11.5 below. Specific actions relating to asset management and reform steps in these areas are also summarized in Exhibit 7.24.

7.11.1 Land and Building assets in KaM-M

Details of information on assets of KaM have been compiled and enclosed as Annexures as shown below:

- Annexure V – Land details as per Schedule I of asset register
- Annexure VI - Building details as per Schedule II of asset register
- Annexure VII – Ward wise details of road assets -

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

Exhibit 7.23 Summary of Land details

Sl.No	Particulars	No of sites	Area in SM
	Basic Amenities	-	-
1	Water Bodies		
2	Toilets		
	Social	3	25,643.47
1	Burial Ground	3	25643.47
2	Maternity centre / Hospital		
3	Bus stand		
4	Composite Yard		
5	Market	1	2,408.92
6	Noon Meal centre		
7	Parks & Playground	3	2631.17

Sl.No	Particulars	No of sites	Area in SM
8	Schools	6	15,383.61
9	Office Building		
10	Vacant Place	1	3942.28
11	Others	2	8561.79
	Total	16	58,571.24

Exhibit 7.24 Summary of Building Details

Particulars	No of sites	Total area	Plinth area
		Area in sm	
Basic Amenities	26	220	219.89
Water bodies	10	10	185.95
Toilets	16	210	33.94
Social	11	391.5	266.092
Burial ground	3	33	33
Reading room	2	18	65
Maternity centre	1	340.5	0
Bus shelters	1	0	15
Community Hall	4	0	153.092
Schools	29	1155.03	2797.11
Office Buildings	4	15	38.01
Remunerative Purpose	4	14935.46	1431.74
Compound wall	3	38.08	0
Noon Meal centre	6	96	150.8
Others	2	36	2476
Total	85	16887.07	7379.642

We observe that the asset register of KaM has not been updated. Several items in the asset register reflect status as of year 2000, when the asset register was initially created. We recommend the following actions in terms of managing the land and building assets of KaM


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. KaM 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. KaM 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) periodic increases in rates charged and b) improvement and better maintenance of the assets through periodic and planned maintenance as suggested above.

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

Exhibit 7.25 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	Create Baseline information on water supply assets / performance	KaM			
2	Accountability and process for periodic updation / dissemination	KaM			
3	IEC campaigns for water conservation and rainwater harvesting	KaM			
4	Leak detection plan / Losses assessment	KaM			
5	Implementation of usage based / graded tariffs	KaM			
6	Incentives / penalties to encourage timely payment of water charges	KaM/CMA			
7	GIS mapping of water supply assets/connections	KaM/CMA/CMWSSB			
8	Roadmap for 24x7 water supply	CMWSSB / KaM			
9	Metering at household level and usage based tariffs	CMWSSB / KaM			
10	Piloting 24x7 water supply	CMWSSB / KaM			
11	Implementation of 24x7 water supply	CMWSSB / KaM			
SANITATION					
1	Create Baseline information on sanitation assets / performance	KaM			
2	Accountability and process for periodic updation / dissemination	KaM			
3	IEC campaigns and public consultations on UGD benefits	KaM			
4	Mobilisation of public deposits	KaM			
5	Initiate and encourage Community participation for upkeep of sanitation assets	KaM			
6	Incentives / penalties to encourage timely payment of water charges	KaM/CMA			
7	Implementation of graded tariffs	KaM			
8	Study on flooding patterns and flood protections works on either side of town	KaM/CMA			
9	GIS mapping of sanitation assets/connections	KaM/CMA/CMWSSB			
SOLID WASTE MANAGEMENT					
1	IEC activities	KaM			
2	Review and updation of SWM action plan	KaM/CMA			
3	Door to Door Collection	KaM			
4	Source Segregation	KaM			
5	Identified transfer / collection points	KaM			

Sl.No	ASSET MANAGEMENT / DEVELOPMENTAL ACTIVITIES	Responsibility	Short Term	Medium term	Long Term
			2007-12	2013-17	2018-27
6	Synchronisation of primary/secondary collection	KaM			
7	Conservancy fee for primary collection	KaM			
8	Commercial exploitation of waste	KaM			
9	Increased mechanisation of handling waste	KaM			
10	Development of scientific landfill site	KaM/CMA			
TRANSPORTATION					
1	Baseline data on road assets	KaM			
2	Accountability and process for periodic updation / dissemination	KaM			
3	Policy on road digging and right of way	KaM/CMA			
4	Stakeholder coordination mechanism for synchronised road development	KaM			
5	Energy saving in street lights	KaM			

 Interventions requiring technical assistance/support in DPR preparation

7.11.2 Water supply

Short term

- a) Review and update asset register to reflect the latest status and establish process along with accountability for updating asset register on a periodic basis.
- 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.

7.11.3 Sanitation

Short term

- a) Create baseline information database on sanitation assets and performance of the municipality. 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.

Apart from the above initiatives that are to be taken up by the ULB, public consultations indicate the need for a comprehensive study of the flooding patterns in the town, which is a major cause for concern. The town falls between Bay of Bengal and the Buckingham canal and gets adversely affected during rainy season and floods.

There is a need for a detailed study on the flooding patterns in the town and possible solutions for minimizing and preventing water incursion into the town from both sides. This project however, would require interventions from the Public Works Department and State Highways department. During interaction with the council, it was suggested that groyne protection works along the sea side and retaining wall / desilting of the Buckingham canal needs to be taken up. The CMA should consider supporting the town with preparation of a Detailed Project Report in this regard.

Long term

- a) GIS mapping of sanitation assets
- b) Implementation of Graded tariffs

7.11.4 Solid waste management

Short term

- a) Conduct IEC activities to back other initiatives like door-to-door collection to facilitate effective segregation of waste at source.
- b) Review and updated the Solid Waste Management Action Plan and prepare a detailed feasibility report for comprehensive Solid Waste Management in the town
- c) Implement door-to-door collection and source segregation in all wards.
- d) Identify transfer points / collection points for every ward and streamline primary and secondary collection trips

Long term

- a) Progressively enable greater mechanisation of waste handling.
- b) Implement a nominal conservancy fee for primary collection.
- c) Focus on commercial exploitation opportunities for revenue enhancement by exploring scope for privatising compost yard management and other options including bio-gas and formal sale of scrap/recyclable material
- d) Shift from indiscriminate dumping of non-biodegradable waste to explore potential for development of a shared landfill site for safe disposal of non-biodegradable waste.

7.11.5 Roads

- a) 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
- b) Establish process and accountability for periodically updating this database with details of works done on these roads and disseminating information on the same on KaM's website.
- c) 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.
- d) 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.
- e) Provide ducts for cables and other utilities along all arterial and major roads to minimise road digging.
- f) 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 priority projects that need to be executed by KaM 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 Project profiles of select priority projects

8.1.1 Water supply

Sector	Water Supply
Project Description	Comprehensive water supply scheme for provision of 135 LPCD supply and house service connections
Project Status	Implementation stage
Need for the project	Though KaM has distribution network and is being serviced by bulk supply by CMWSSB, KaM does not have house service connections. This project aims to provide house service connections and achieve 135 LPCD of water supply
Project Components	Provision of transmission line and pumping for provision of 135 LPCD water supply and House service connections in Kathivakkam. Project is being implemented by CMWSSB and component wise break up of the project were not available with KaM at the time of preparation of this report.
Project Cost	~ Rs. 622 lakh.
Revenue impact	Direct incremental revenue impact as KaM intends to levy house connection deposits and user charges.
Financing mix	Being structured as a combination of grant, loan and own funds.
Remarks	KaM faces issues in revenue realisation as the town faces significant willingness to pay issues. Interactions with KaM officials indicate significant resistance in this regard and may need to be addressed through transparent public consultations.
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

8.1.2 Sanitation

Sector	Sanitation
Project Description	Implementation of Underground Drainage (UGD) Scheme
Project Status	Concept stage / DPR preparation / Sanctioning and appraisal / Implementation
Need for the project	KaM has no UGD scheme and there is significant pollution due to release of sullage water in open drains.
Technical assistance	The DPR for the project has already been prepared by CMWSSB
Project Cost	Rs. 1200 lakh
Project components	This outlay is based on initial estimates provided by CMWSSB to KaM and exact components and scope of DPR are not available. An assessment of normative gaps that need to be addressed are highlighted below. <ul style="list-style-type: none"> • Treatment capacity of MLD (by 2012) and MLD (by 2027) • Sewer network - Comprehensive provision of protected piped water

	<p>supply in all wards covering about 320 km of roads in the short term.</p> <ul style="list-style-type: none"> • Pumping stations and STP • House service connections – 30% of assessed properties (approximately 2649 by 2012 and 3853 by 2017)
Revenue impact	KaM intends to levy user charges for connections and mobilise public deposits to part finance the project
Financing mix	Loans, own funds, Grant and public deposits.
Remarks	UGD schemes require significant pre-construction development work including acquisition of land for pumping stations and STP. Further design considerations are critical. Several UGD schemes faces delay risk. Further given the resistance to user charges and deposits, KaM could face resistance for the proposed UGD scheme.
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	Storm water drains
Project Status	Concept stage / DPR preparation / Sanctioning and appraisal / Implementation
Need for the project	Storm water drain coverage in the town is only 34 % of the road length and hence there is a need for a comprehensive project to address the storm water drain requirements of the town.
Project components	Coverage of all parts of the town in a phased manner to cover the normative gap of 16 km.
Project Cost	Rs. 320 lakh
Revenue impact	Non-remunerative project.
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	Storm drains have often tended to fail due to poor maintenance. There is a need for a pre-construction DPR for comprehensive design and guidelines for ward level storm drains. This should be backed by a clear O&M strategy involving local community participation at the project implementation stage itself.
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	Sanitation
Project Description	Desilting and restoration of Tamarai kulam
Project Status	Concept stage
Need for the project	The lake in Kathivakkam town is in a poor state and is badly in need of restoration.
Project Components	<p>This project would involve</p> <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.

Project cost	Rs. 50 lakh
Revenue impact	Non-remunerative project
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.

8.1.3 Solid waste management

Sector	Solid waste management
Project Description	Compost yard development
Project Status	Proposed.
Need for the project	The construction of a compost yard exclusively for KaM has been planned to be carried out at an estimated cost of Rs.49.53 lakh. Five acres of land in Manali village has been identified and allocated for this compost yard. Compost yard development is under progress.
Project Components	This project would involve <ul style="list-style-type: none"> Acquisition of 5 acres land in Manali village Development of a processing and compost yard - Rs. 49.5 lakh
Project Cost	Rs. 50 lakh
Revenue impact	The project could enable earnings through sale of compost manufactured.
Financing mix	The project can be conceptualised and implemented on a BOT basis. Further given the small size of the project, KaM should consider jointly developing a compost facility along with other ULBs such as Manali or Tiruvottiyur.
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.

8.1.4 Transportation and roads

Sector	Roads
Project Description	Up gradation of road network post UGD implementation
Project Status	Concept stage
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"> Road up gradation and restoration after UGD implementation (24.13 km @ Rs. 290 lakh) Pedestrian walkways – 7 km @ Rs. 21 lakh
Project Cost	Rs. 310 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, signages 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

9. Reform agenda and Technical assistance

This section outlines the reform agenda for KaM 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.
4. Implementation of accrual accounting system in all Urban local bodies
5. Introduction of modified area based property tax system
6. Computerization of sub-registrar's offices
7. Repeal of the Land Ceiling Act, while a reformed Rent Control Act is being considered
8. Commitment to levy user charges and improvement in collections for water and sanitation services.
9. 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 ULBs⁸. 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 KaM** - 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:

⁸ 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 KaM 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/signages. 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 Kathivakkam) 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 Measures for improving financial performance

Overall income of KaM 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.

KaM'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, KaM 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. Conduct 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 is also a visible revenue stream. KaM should improve collection efficiency to more than 95% and should explore options for enhancing revenues by taking the following steps.

- 31. KaM should focus on widening its professional tax base by bringing more traders and independent professionals within the ambit of professional tax. Specifically, KaM should consider tapping into databases of potential professional tax assesses including**
- **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 KaM.
 - **Yellow pages and other local commercial directories** to identify and bring in more professionals within the ambit of professional tax.
- 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.**

<ul style="list-style-type: none"> • Banks (Commercial and Cooperative) • Government Staff • Doctors • Engineers • Surveyors • Contractors • Advocates • Architects • Chartered Accountants (Firms) • Income Tax Practitioners • Computer Hardware Shops • Computer Education Institutes • Medical Shops 	<ul style="list-style-type: none"> • Private Companies • Business Entities (other than companies) • Stock Broking concerns • Hospitals • Schools and other educational institutions • Cinema Theatres • Clubs • Chit Funds • Pawn Brokers • Laboratories • Internet Browsing Centres • Stockists and Distributors
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User charges

With the commissioning of the new UGD system and recent implementation of the Combined Water supply scheme, user charges would need increased monitoring and follow-up given their potential to contribute to KaM's revenue. Specifically KaM should

33. Initiate steps to **provide house service connections for water supply**. KaM does not have household connections. Recently it has initiated a project to provide House service connections, which could potentially bring in revenues.
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 be 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. KaM could also consider implementation of meter based tariffs through involvement of Self Help Groups as meter readers.
36. Adopt **measures to improve collection efficiency**. Overall collection efficiency at 35% needs to be improved. KAM should consider stiff penalties for non-payment of user charges. Specifically KAM 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.

37. In particular, KaM should 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 KaM has a couple of large industrial units, KaM could encourage them to adopt specific municipal assets and maintain them as part of Corporate Social Responsibility.
38. Further KaM 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.
39. Develop its proposed remunerative projects namely, a) re-development of markets, b) re-development of Tamaraikulam c) re-development of Travelers bungalow land through private participation.

9.3.2 Measures for cost management

Energy efficiency

KaM 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. KaM should conduct a comprehensive energy audit to identify areas for reducing power consumption and related costs.
41. KaM 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 network 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 - Kathivakkam town

	Unit	Baseline	Target		
		2007	2012	2017	2027
Population	Nos	36321	39524	43104	50933
Households	Nos	7977	8831	9631	11381
Slum Population	Nos	3640	3640	3640	3640
Slum Households	Nos	17480	17,480	17,480	17,480
Assessed Properties	Nos	5193	6623	7224	8535
Road length	Km	35	35	39	43

10.1.3 Revenues

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

Exhibit 10.2 Revenue related assumptions

Segment	Revenue driver	Basis / Assumptions
Property Tax	Baseline property tax / property (2006)	Rs. 3272 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. 42,061 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. 5000 and Rs. 9000 for household and commercial connections respectively and user charges assumed at Rs. 75 per month and Rs. 200 per month for residential and commercial connections respectively. Tariffs are 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. 5000 and Rs. 8000 for household and commercial connections respectively and user charges assumed at Rs. 100 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 Kathivakkam

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	5%
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	622	0	207	207	207	0	0	0
Water Supply - Net	187	30	41	41	-83	0	10	147
Sewerage & Sanitation - Project	1200	0	480	480	240	0	0	0
Sewerage & Sanitation - Net	720	65	-15	-15	250	90	244	103
SWM	262	50	4	0	0	0	129	80
Transportation and Street lighting	1351	0	0	104	104	104	96	944
Urban services for poor	564	84	40	60	20	0	120	240
Others	4256	426	426	426	426	426	1064	1064
TOTAL	9162	654	1183	1302	1163	619	1663	2578

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 Kathivakkam 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 Kathivakkam. 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 expected to be completed during a three year period from 2009-11.
- b) **Investment** assumed at Rs. 6.22 crore. This is based on the estimates provided to Kathivakkam 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 Kathivakkam. **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. 5000 initially escalated at 5 % and 2% annually respectively. **Commercial user charge realization and connection deposits** assumed at Rs. 200 per month and Rs. 9000 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 4782 by 2012 and to 9372 by 2027 for the whole of Kathivakkam.
- 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 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 1.64 and average DS/TR of 17%. TE/TR for the project works out to about 27.93 %. However, Kathivakkam 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.

10.3.2 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 Kathivakkam. 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. 12 crore. This is based on the estimates provided to Kathivakkam 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. 100 per month and Rs. 5000 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 5217 by 2012 and to 9372 by 2027. Of this 100% connections are assumed to accrue revenues to Kathivakkam.
- 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 2.29 and average DS/TR of 25%. TE/TR for the project works out to about 58.22%. However, Kathivakkam 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 Kathivakkam works out to Rs. **3812** lakh. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment

capacity works out to Rs. **7625 lakh**, which translates to about 83 % 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 **89%** of the total investment requirement. Hence Kathivakkam 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	622	50%	30%	20%	311	187	124
Water Supply - Balance	187	50%	40%	10%	93	75	19
Sewerage & Sanitation - Project	1200	50%	30%	20%	600	360	240
Sewerage & Sanitation - Net	720	50%	30%	20%	360	216	144
SWM	262	50%	30%	20%	131	79	52
Transportation and Street lighting	1351	50%	20%	30%	675	270	405
Urban services for poor	564	0%	80%	20%	-	451	113
Others	4256	0%	90%	10%	-	3,830	426
TOTAL	9162	24%	60%	17%	2,171	5,468	1,523

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	329	459	594	606	618	848	943	1,226	1,253	1,307	1,400	1,354
Property Tax	176	261	346	351	357	363	370	512	521	530	539	548
Profession Tax	110	153	202	205	209	212	216	286	291	296	301	306
Water Charges	-	-	-	-	-	110	121	163	164	178	229	180
Sewerage Charges	-	-	-	-	-	108	178	206	214	237	262	247
Service charges/fees	8	9	9	10	10	11	11	12	12	13	14	14
Other Income	34	36	38	39	41	43	46	48	50	53	55	58
Assigned Revenue	9	9	10	10	11	12	12	13	14	15	16	17
Devolution Fund	115	126	139	153	166	181	198	217	237	260	284	311
Total Income	453	594	743	769	795	1,040	1,153	1,456	1,504	1,581	1,700	1,682
Expenditure												
Salaries	144	159	175	192	211	232	256	281	309	340	374	412
Operations	133	140	165	166	197	265	276	271	287	306	327	351
Administrative	49	43	45	47	50	52	55	57	60	63	66	70
Finance	41	4	20	66	118	164	186	199	212	218	218	214
Total Expenditure	367	345	404	471	576	713	772	808	869	928	986	1,046
Surplus	86	250	339	298	219	327	381	648	635	653	714	635

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)	743
Estd. Revenues – FY 2017 (Rs. Lakh)	1,682
Estd. Revenues - FY 2027 (Rs. Lakh)	3,416
Revenue CAGR % - FY 2008-17	9.5%
Revenue CAGR % - FY 2008-27	8.4%
Average TE (excluding depreciation)/TR (%)	40%
Average DS/TR (%)	17%
Average DSCR	2.01
Borrowing Capacity	3812
Investment Requirement	9,162
Investment Capacity (at 50% loan)	7,625
IC/IR (including Urban Service for Poor)	83%
IC/IR (without USP investment)	89%

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