Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL)

Final Report

Conversion of City Corporate Plan to Business Plan for Tiruchirapalli City Corporation

June 2007

ICRA Management Consulting Services Limited

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List of abbreviations

BOT	Build –Operate –Transfer
CAGR	Cumulative Annual Growth Rate
CIP	Capital Investment Program
CCP	City Corporate Plan
FOP	Financial and Operating Plan
GLR	Ground Level Reservoir
IMaCS	ICRA Management Consulting Services
LPCD	Litres per capita per day
MSW	Municipal Solid Waste
NRCP	National River Conservation Program
OHT	Over Head Tanks
PPP	Public Private Partnerships
STP	Sewerage Treatment Plant
SWM	Solid Waste Management
TCC	Trichy City Corporation
TNUDF	Tamil Nadu Urban Development Fund
TNUDP	Tamil Nadu Urban Development Program
TNUIFSL	Tamil Nadu Urban Infrastructure Financial Services Limited
UGD	Under Ground Drainage

Executive Summary

The Tamil Nadu Urban Infrastructure Financial Services (TNUIFSL) mandated ICRA Management Consulting Services (IMaCS) for conversion of City Corporate Plan (CCP) of Tiruchirapalli City Corporation into a Business Plan. The CCP for Tiruchirapalli (Trichy) was prepared in 2002, under the Tamil Nadu Urban Development Project - II (TNUDP-II) to develop vision, strategies and tasks to be carried out by TCC. Subsequently, TCC has prepared a Vision Plan, identifying various projects that it plans to undertake during 2004-09. The objective of this study is to enable effective implementation of projects envisaged in its CCP and Vision Plan through preparation of this report on conversion of the City Corporate Plan to a Business Plan.

City profile and growth potential

Trichy is the 2nd largest city in Tamil Nadu in terms of land area and ranks 4th in population. Trichy could evolve into a **high growth urban agglomeration** in view of the following factors:

Constitution	**Corporation**
Area	**146.90 sq.km**
Wards	**60**
Zones	**4**
Population (2001)	**7,52,066**
Decadal growth	**11.45%**
Proj. Population (2021)	**928,722**
% of slum population	**21.54%**

Geographical significance

- Trichy is located along the Cauvery river delta and is the district headquarters.
- Trichy is an important transit centre and is well connected by road and rail.
- Trichy is an important heritage centre with Srirangam being a nodal point for religious tourism

Favourable social and demographic profile

- Trichy's population is projected to grow to 8,42,332 by 2011 and to 9,28,772 by 2021.
- Trichy scores well on social indicators including literacy, sex ratio and educational infrastructure.

Economic profile

- Trichy has an intrinsic industrial base. Apart from BHEL's plant, a number of cotton textile mills, steel structural workshops and other ancillary industries located here.
- Trichy is an important trade and services centre as reflected in the 88% of its workforce being employed in the secondary and tertiary sectors.
- Trichy has potential to emerge as an important tier-II town for IT / BPO investments.

Municipal Services - Status assessment, gaps and actions being taken

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

Exhibit 1 - Status of Municipal services

Sl. no	Parameter / Indicator	Value	Issues and Gaps
A. Water Supply			
1	Total Water Supply (MLD)	88	• **Source / Supply -** With a capacity to extract 155 MLD, Trichy appears adequately placed in terms of supply • **Distribution bottlenecks and uncovered areas** - Variation in duration and quantity across zones. Nearly 30% of the roads are yet to have a distribution system in place which would also require additional storage. • **Scope for adding water connections** - Existing water connections account for only 50 % of the assessed properties. 35 % population has access through PFs.
2	Water Connections - nos.	~ 68,500	
3	Public Fountains - nos.	~ 3476	
4	Daily Per Capita Supply (LPCD)	105	
5	Storage Capacity / Daily Supply (%)	46%	
6	Pipe length / Road Length (%)	64%	
7	Water connections / properties (%)	52 %	
Actions being taken: • TWAD has prepared an estimate for water supply in uncovered areas at an outlay of **Rs. 99 crore**. • TCC expects this project to be commenced during the current financial year.			
B. Sanitation			
8	UGD network (Yes/No/Partial)	Partial	• **UGD -** Significant uncovered areas even after implementation of ongoing scheme. • **Public Conveniences -** Nearly 287 public conveniences and 66 Integrated Sanitary complexes are in operation. Maintenance and upkeep are critical. About 150 PCs are maintained by Self-Help Groups. • **Storm Drains** - Need for a comprehensive restoration of canals and drains in view of the region being flood prone. Storm drains cover only 70% of road network and are poorly integrated. Need significant renovation even in areas covered by Storm drains.
9	Existing UGD connections	16,000	
10	New UGD scheme connections	50,000	
11	Length of UGD network (km)	318.7	
12	Length of Storm drains (km)	603	
13	Number of PC seats	4249	
14	UGD - % of road length	~ 33%	
15	Storm Drains - % of road length	~ 64%	
Actions being taken: • The ongoing UGD scheme (Phase I) being implemented under NRCP is expected to be completed during FY 2008. • Implementation of Phase II UGD scheme to cater to uncovered areas estimated to cost **Rs. 160 crore.** • Proposal for restoration and desilting of canals and storm drains at an outlay of **Rs. 330 crore** under consideration.			
C. Roads and Street Lights			
16	Total Length of Roads	941	• Nearly 65% of road length of TCC is surfaced. • Roads need significant improvement in view of damage on floods in 2005 and ongoing UGD scheme. • Street light spacing is in line with municipal norms. • CCP observes that nearly 460 bus services, generating nearly 4000 trips per day serve about 60000 passengers daily and highlighted the need for upgradation of bus stand infrastructure. • Locations for 3 ROBs identified in the CCP.
17	Total number of Street Lights	28188	
18	BT + CC roads / Road length (%)	65 %	
19	Road length per Street Light (m)	30	
Actions being taken: • Nearly 186 km of road upgradation has been undertaken under Special Roads Scheme.			

D. Solid Waste Management			
20	Total Waste Generation (MT)	382 MT	• **Compost Yard** - TCC would require additional land to meet the norm of 1 acre per 10000 population for its ultimate population requirements. • **Collection** - There is scope for improving collection efficiency. 100% door-to-door collection and source segregation needs to be implemented on priority • **Equipment** - While TCC has procured a Compactor and bins recently, it needs to upgrade its equipment in line with the initiatives outlined in its SWM Action Plan.
21	Collection - % of waste generated	92%	
22	Compost yard area -available	47.96	
23	Compost yard - required (Acres)	92.50	
24	No. of Vehicles for SWM	57	
25	Rated Tonnage of vehicles (MT)	240	
26	Compressed Carrying capacity	36%	
27	Compost Yard - Gap - Acres	44.54	

Actions being taken:

- Rs. 829 lakh Solid Waste Management Action Plan under implementation
- Rs. 42 lakh equipment Compactor and Compactor bins procured during 2006. Plan envisages an additional Rs. 308 lakh outlay on equipment
- Development of compost Yard planned at an outlay of Rs. 100 lakh.
- TCC is exploring acquisition of additional land for creation of a comprehensive compost yard in Panjapur area.

Other Ongoing / recent Initiatives:

- Upgradation of existing bus stand is being undertaken. Railway lands adjacent to existing bus stand acquired.
- A new modern bus stand complex is being planned at Devadanam.
- Upgradation of 2 slaughter houses is being considered.
- TCC is developing a zonal office at Sengulam for the Golden Rock zone
- A tourism proposal has been sent for providing amenities in Srirangam zone at an outlay of Rs. 12.83 crore.
- Provision of Shelters and amenities in 70 slums envisaged under IHSDP at an outlay of Rs. 29.31 crore

Analysis of financial performance

Exhibit 2 provides a summary of the financials of TCC. TCC's financial position has improved from an overall deficit of Rs. 1836 lakh in FY 2001 to an overall surplus of Rs. 4008 lakh in FY 2005. This has been primarily achieved through:

- A **20% CAGR in revenue** along with expenditure control has led to growth (CAGR-56%) in operating surplus during FY 2001-2005.
  - ❖ Tax income has grown at a CAGR of 6 %, aided by a 27% growth in professional tax. Property tax revenue has grown at a modest 3%.
  - ❖ User charges have grown by a healthy 13 %, aided by increased in collection of water charges and other fee income including lease and rents. The share of user charges/fees has increased from 17% of revenue to 21% of revenue over the last five years.
  - ❖ Grants / Contributions from state have doubled in the last five years. They contribute to nearly a quarter of revenues of TCC.
- **Expenditure has remained flat**, shown a declining trend till FY 2003 and marginally growing over the next two years. Salaries have marginally declined due to reduction in staff, while operating expenditure has grown at 10% primarily due to increase in electricity charges

- **Loans and interest burden** - Outstanding loans of TCC stood at **Rs. 42.18 crore** as of FY ending 2005. There has been a sharp reduction in debt burden. Interest expenditure is down from nearly 10% of revenue in FY 2001 (Rs. 557 lakh) to 4% of revenue in FY 2005.

Exhibit 2 - Financial analysis

Particulars	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	CAGR 2001-05
	Figures in Rs. Lakh					%
Taxes	**1,674**	**1,765**	**1,824**	**1,881**	**2,132**	**6%**
Property Tax	1,511	1,597	1,639	1,667	1,706	**3%**
Prof. Tax	162	168	185	215	426	**27%**
User Charges / Fees	**877**	**1,265**	**1,300**	**977**	**1,418**	**13%**
Water Charges	537	915	938	611	894	**14%**
Sewerage Charges	4	7	9	6	6	**9%**
Service Charges / Fees	335	344	353	360	518	**12%**
Other Income	**865**	**773**	**1,146**	**920**	**706**	**-5%**
Grants / Contributions	**831**	**429**	**1,315**	**1,458**	**1,689**	**19%**
Assigned Revenue	**913**	**439**	**2,005**	**1,310**	**822**	**-3%**
TOTAL INCOME (excl. PPI)	**5,159**	**4,671**	**7,591**	**6,546**	**6,767**	**7%**
Prior Period Income (PPI)	65	73	69	2,337	3,978	**180%**
TOTAL INCOME (incl.PPI)	**5,224**	**4,744**	**7,660**	**8,883**	**10,744**	**20%**
Salaries	2,725	2,339	2,314	2,311	2,427	-3%
Repairs & Maintenance	929	1,070	1,279	1,273	1,352	10%
Program Expenditure	3	23	1	3	3	3%
Admin	435	320	137	151	584	8%
Prior Period Expenditure	66	88	7	190	73	2%
OPERATING EXPENDITURE	**4,158**	**3,841**	**3,738**	**3,929**	**4,439**	**2%**
OPERATING SURPLUS	**1,067**	**903**	**3,922**	**4,954**	**6,305**	**56%**
Depreciation	2345.87	2027.46	1788.59	1829.16	1829.16	-6%
Finance Charges	557.14	543.84	300.64	423.15	468.4	-4%
TOTAL EXPENDITURE	**7,061**	**6,412**	**5,827**	**6,181**	**6,736**	**-1%**
SURPLUS (After Dep and Int.)	**(1,836)**	**(1,668)**	**1,833**	**2,702**	**4,008**	

Capital Investment Plan

The CIP has been prepared based on

- Review of projects recommended in the City Corporate Plan prepared earlier
- 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 TCC officials and review with TNUIFSL and CMA

Exhibit 3 provides a summary of the CIP for TCC.

Exhibit 3 Capital Investment Plan along with phasing - Short Term (2006-10 and 2011-15)

Segment	Outlay	Phasing	
		2006-10	2011-15
Water Supply	10,500	7,875	2,625
Sewerage and Sanitation	62,700	37,200	25,500
Solid Waste Management	6,00	500	100
Roads	19,350	8,675	10,675
Street Lights	5,00	250	250
Bus Stand and remunerative projects	11,150	5,150	6,000
Social Infrastructure	12,660	5,497	7,163
Tourism	3,000	1,333	1,667
Others	2,000	1,000	1,000
TOTAL	**122,460**	**67,480**	**54,980**

Priority Projects

Priority projects identified by TCC are listed below:

1. Comprehensive augmentation of water supply network in uncovered areas.
2. Proposed development of new bus stand at Devadanam.
3. Energy conservation projects including a) Installation of energy conservation devices on the street light network (timers, solar lights etc) and b) Upgradation of pumping devices on the water supply network
4. Improvement of roads in view of the ongoing UGD scheme (expected to be completed during FY 2007).
5. Remunerative projects on a BOT basis (Slaughter house, Market upgradation and shifting of Gandhi market and commercial complexes)

GoTN should consider providing technical assistance for preparation of Detailed Project Reports for the following projects.

1. Underground drainage scheme for uncovered areas
2. Proposed new bus stand at Devadanam.
3. Land development opportunities including proposed commercial complexes

Reform Agenda

The report provides the details of reform agenda. TCC'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.

ULB level

TCC could potentially increase its own income to Rs. 6500 lakh through focused interventions in the following areas:

1. **Property tax**: – through revision in ARV, widening assessee base and closer scrutiny.
2. **Professional tax** – sustaining a growth in assessments of 12% in the assessments through widening tax base among traders and self-employed professionals
3. **User charges** - TCC could potentially generate nearly Rs. 220 lakh by adding another 25,000 water connections and 30,000 sewerage connections even with conservative user charges by FY 2010.
4. **PPP / remunerative projects** - TCC 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. Considering that TCC has identified development of bus stand infrastructure and other remunerative projects at an outlay of nearly Rs. 100 crore, it could potentially realise 2.5% of this outlay or nearly Rs. 250 lakh as annual revenue. This potential has not been taken into account while arriving at the borrowing / investment capacity of TCC.
5. **Energy costs** - A savings of 10-15% reduction in energy costs appears imminently achievable and could translate to annual savings of nearly Rs. 100 lakh on the energy cost base for the year FY 2005. A comprehensive energy audit is required.
6. **Collection Efficiencies** - While current collection efficiency in taxes have improved, arrears collection efficiency is an area of concern. Further collection efficiency in user charges require considerable improvement.
7. **NGOs / Corporate participation -** Intensify focus on attracting NGOs/advertising revenue for city beautification projects.

Actions from GoTN and GoTN agencies

1. Initiate action to complete ongoing updation of land use and master plan for Trichy Corporation on priority to guide future growth of the town in an orderly manner.
2. Revise ARV for property taxes, pending since 1998 at the earliest.
3. Develop model concessions / formats for 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
4. Incentivise energy conservation and implementation of SWM guidelines through specific grants
5. GoTN should continue its thrust on e-governance, accounting systems and capacity building/training. Specific actions on this have been identified in the report.
6. The State Highways department should support the town in implementing the flyovers and ROBs as identified as part of the CCP.

FOP, borrowing capacity and investment capacity

Exhibit 5 provides a summary of the results of the FOP, which has been prepared for a 10-year horizon. The borrowing capacity has been computed as the minimum of NPV of operating surplus, 30% of revenues during the projection period and works out to Rs. 202 crore.

Exhibit 5 – FOP,Borrwoing capacity and Investment Capacity

FOP summary	
Revenues – FY 2010 (Rs.Crore)	101
Revenue CAGR % - FY 2006-15	7.7%
Avg. Op. Surplus (Rs. Crore)	4,424
Avg. TE /TR (%)	77 %
Avg. DS /TR (%)	25 %
Borrowing Capacity (Rs. crore) computed as NPV of	
Operating surplus projections	320
30% of Revenue projections	202
Summary of Investment and Borrowing Capacity	
Borrowing Capacity (BC) – Rs. Crore	**202**
Investment Capacity (IC) - BC/0.4	**505**
Investment Requirement (IR)	**1224**
Sustainable investment capacity % - IC/ IR	**42%**

At an aggregate level, assuming loans to be equivalent to 40% of investment, sustainable investment capacity works out to Rs. 505 crore, which is only 42% of the total investment requirement. Exhibit 6 provides a suggested financing mix to meet the shortfall and implement the CIP in full.

Exhibit 6 - Financing structure for implementing CIP

Segment	Outlay	Phasing		Suggested Financing %		
		2006-10	2011-15	Loan	Grant	Own/Pvt
Water Supply	10,500	7,875	2,625	30%	60%	10%
Sewerage and Sanitation	62,700	37,200	25,500	15%	75%	10%
Solid Waste Management	600	500	100	30%	50%	20%
Roads	19,350	8,675	10,675	30%	50%	20%
Street Lights	500	250	250	0%	50%	50%
Remunerative Infrastructure	11,150	5,150	6,000	20%	20%	60%
Social Infrastructure	12,660	5,497	7,163	0%	90%	10%
Tourism	3,000	1,333	1,667	0%	90%	10%
Others	2,000	1,000	1,000	0%	90%	10%
TOTAL	**122,460**	**67,480**	**54,980**			

While loans and own funds should be used to finance remunerative projects, TCC should leverage and utilize Grants from schemes like UIDSSMT and IHSDP to undertake non remunerative projects relating to slum development, canal desilting etc. Further, TCC could also consider involvement of private sector in implementing remunerative projects including bus-stands, markets and slaughter houses etc.

Details of Capital Investment Plan

Area	Project	Outlay (Rs. Lakh)	Status	Remarks
Water Supply	Integrated Water Supply Project	10500	Yet to commence	• Feasibility study by TWAD under review for Coverage of uncovered areas and comprehensive system to address existing bottlenecks.
Sewerage and Sanitation	UGD Scheme - Phase I	11700	Ongoing	• Would cover 70% of population. To be completed in 2007.
	UGD Scheme - Phase II	16000	Yet to commence	• For comprehensive coverage of all areas including areas not covered under Phase I
	Major Canals desilting and Storm Drain improvement program	35000	Yet to commence	• Submitted as part of Integrated Disaster Mgmt. Plan post 2005 floods Awaiting approval from Govt. of India
Solid Waste Management	Vehicles & Equipment	500	Ongoing	• Rs.829 lakh financing has been tied up • To be implemented over next 2-3 years
	Compost yard & Green Belt	100	Yet to commence	• Planned in view of likely increase in solid waste per capita from 461 gms to 490 gms by 2012.
Roads	Upgradation of city roads	15000	Ongoing / New	• Projects identified under Vision Plan at an outlay of Rs. 5500 lakh • 186 km under Special Roads Scheme • Past trend indicate Rs. 800 lakh annually
	Construction of ROBs	3500	Yet to commence	• New link road, ROBs near Marris theatre, Anna Nagar, Devadhanam and Konakarai. These have been taken as recommended in CCP, based on earlier discussions.
	Construction of Culverts	850	Ongoing	• 500 culverts @ Rs. 1.7 lakh per culvert. Would be primarily require d in the newly added layouts.
Street Lights	Improving Lighting facilities	500	Ongoing	• Mainly for added areas. Would be done from TCC's General Fund

Area	Project	Outlay (Rs. Lakh)	Status	Remarks
Bus Stand / Markets	a) New bus stand b) Expansion of existing bus stand c) Parking for buses - Srirangam	6000	Existing bus stand expansion started. Other projects yet to commence	• Significant upgradation of bus stand infrastructure needed in view of the city's growth and tourism potential. Koyambedu bus stand (37 acres cost Rs. 103 crore including land cost). Assuming Rs. 50 crore for proposed new bus stand at Trichy
	Zonal office - Sengulam	50	Yet to commence	• Zonal office building for Golden Rock zone.
	Commercial complex - Yanakulam Commercial complex - Sengulam	1000 1000	Yet to commence	• 2.5. acres of land identified for the project. • The estimate prepared by the Consultant is being revised
	Markets	3000	Yet to commence	• Shifting of parts of existing Gandhi market • Creation of an Integrated market complex
	Slaughter House	100	Yet to commence	• Proposed to be undertaken on BOT.
Social Infrastructure	Noon meal centers	300	Yet to commence	• Renovation of ~ 300 centers
	Slum Improvement	10000	Ongoing	• 209 approved slums under TCC • Outlay Rs. 50 lakh annually in the past
	Health	250	Ongoing	• Improvement of dispensaries
	Education	910	Ongoing	• Approx Rs. 15 lakh per year for 10 years for 59 schools
	Parks and Playgrounds	1200	Ongoing	• 30 parks and 8 playgrounds under TCC. • Six parks under private maintenance
Tourism	Tourism amenities and developments	3000	Ongoing / New	• Tourism development proposal for Srirangam alone for Rs. 12.83 crore.
Others	Dobhikhana, city beautification, burial grounds etc.	2000	Ongoing	• Projects identified and in various stages of implementation
	TOTAL	**122460**		

1. Introduction

1.1 Background to the study

Tiruchirapalli City Corporation (TCC) consists of erstwhile Tiruchirapalli (or Trichy), Srirangam and Golden Rock Municipalities, 5 town Panchayats and 6 village Panchayats. TCC was upgraded from Selection Grade Municipality to Corporation in the year 1994. TCC currently has an area of 146.90 sq.km under its jurisdiction.

Under the Tamil Nadu Urban Development Project - II (TNUDP-II), a City Corporate Plan (CCP) was prepared for TCC in 2002. The objective of the CCP was to outline a vision for development of the city and to identify strategies and tasks to be carried out by TCC. Subsequently, TCC has also developed a 5-year Vision Plan (2004-09), identifying various projects that it plans to undertake during this period. In order to enable effective implementation of projects envisaged in its CCP and Vision Plan, The Tamil Nadu Urban Infrastructure Financial Services (TNUIFSL) mandated ICRA Management Consulting Services (IMaCS) for conversion of City Corporate Plan (CCP) into a Business Plan (BP).

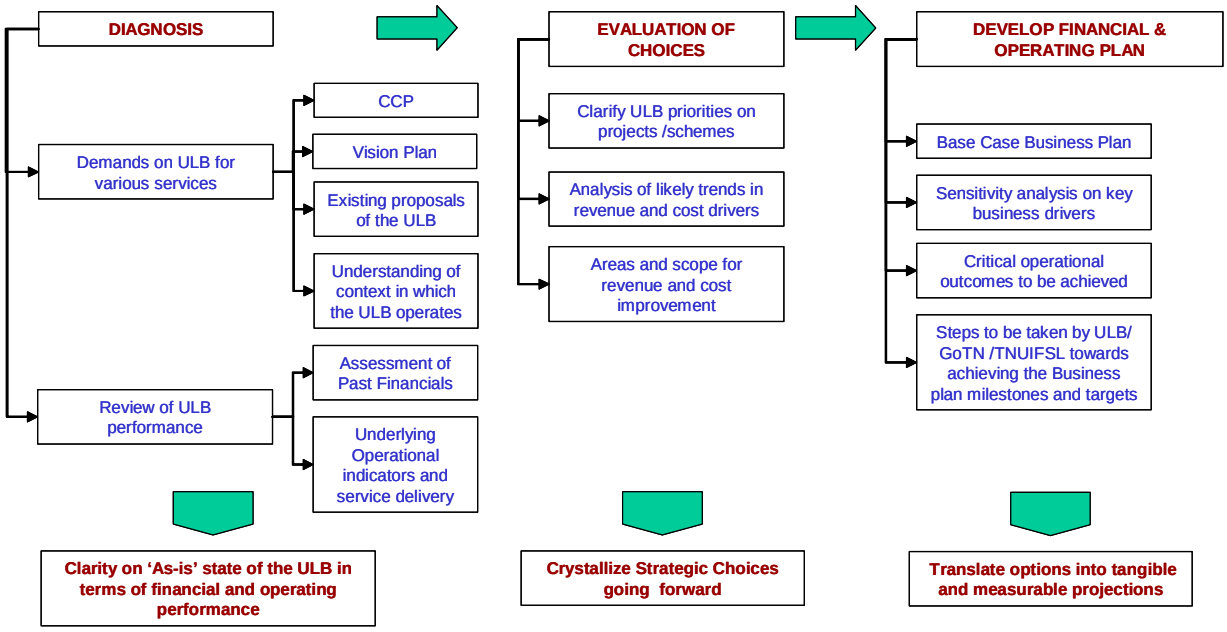
1.2 Scope of work

The scope of work for the study covered a) assessment of the financial and operating aspects of TCC, b) Review issues relating to revenue realisation and cost management and identification of improvement (revenue enhancement and cost reduction) measures and c) Development of a Financial and Operating Plan (FOP), taking into account potential revenue enhancement and cost reduction measures.

1.3 IMaCS approach to the study

Exhibit 1.1 gives a snapshot of IMaCS' approach to the study. IMaCS's approach to the study involved four steps as detailed below:

Exhibit 1.1 IMaCS approach to the study



1.3.1 Step I – Diagnostic review

The diagnostic review involved an assessment of the current status of TCC, its activities and financial performance, review of the City Corporate Plan (CCP) and discussions with TNUIFSL and TCC. We had the opportunity to interact with the Commissioner, the Assistant Commissioner along with their team and had extensive interactions with the Mayor and select ward members during our field visits.

We collected relevant information on the performance (operational and financial) from TCC. Our review was focused on the following areas:

- Financial position
- Operational performance
- Demands on urban services in the town/municipality

The diagnostic review was directed towards achieving a clear understanding of the operating and financial performance of TCC.

1.3.2 Step II – Evaluation of options for financial improvement and projects

Based on the diagnostic review, we crystallised the options for TCC covering a) analysis of areas for revenue enhancement and cost management and b) Felt needs in terms of projects and estimate of capital outlay.

1.3.3 Step III –Projection of financial statements and estimation of investment and borrowing capacity

We have projected financial statements for TCC under two scenarios namely, a) base case and b) with potential improvements. Under both scenarios, the optimum borrowing capacity and sustainable investment capacity have been computed.

1.3.4 Step IV - Consultations and Finalisation

The Draft Final Report for the study was presented to the office of CMA, officials of Trichy Corporation and TNUIFSL in April 2006.

Subsequently, the report was presented to the newly elected Corporation Council were undertaken in March 2007 to factor the views and aspirations of the Council in the report. Public consultations were also held during March 2006 to elicit and factor views of a wider set of stakeholders. The stakeholder meeting was well attended with participation from architects, city NGOs and other consumer welfare associations. This was followed by a review of the report at TNUIFSL by officials of TNUIFSL, CMA and Trichy Corporation.

1.4 Structure of the report

This document presents our Final Report on the study and incorporates the suggestions received from consultations with the Council, Stakeholder meeting and review by TNUIFSL/CMA.

- **Section 1** Introduction
- **Section 2** Trichy - a brief profile
- **Section 3** Review of operating performance
- **Section 4** Analysis of financial performance
- **Section 5** Reform agenda
- **Section 6** Financial and Operating Plan

2. Trichy - a brief profile

2.1 Location and connectivity

The twin cities of Trichy and Srirangam are located on the banks of the river Cauvery at a distance of 315 km from Chennai. The river Cauvery flows through Trichy and Srirangam areas, which form the boundary for both the urban areas. Trichy and Srirangam urban areas including their environs, form part of a vast plain of fertile alluvial soil with a gentle and gradual slope from the West to the East. This area is characterised by isolated masses of crystalline rocks i.e. the great Rockfort of Trichy and the Golden rock. The Cauvery River and its distributaries provide the basis for sustained paddy cultivation and add to the scenic beauty of the region. Trichy is an important transit centre and is well connected by road and rail.

- Trichy is an **important railway junction** and is the divisional head quarters of Southern Railway. Trichy is well connected with major centres including Chennai, Madurai, Tirunelveli, Salem and Coimbatore through a Broad Gauge railway network. Apart from this, Trichy is also on a metre gauge network connecting Chennai, Vellore and Rameswaram.
- The National Highway NH-45 and several other State Highways connect Trichy to towns like Tanjore, Pudukkottai and Karur. Major District Roads connecting Thuraiyur, Ariyalur and Kumbakonam pass through Trichy. Exhibit 2.1 provides a snapshot of the inter-city roads that connect other towns/cities to Trichy. There are nearly 95.20 Km of roads passing through Trichy that are maintained by the Highways and Rural Works department. The important inter-city road links passing through Trichy include the following:
  - ❖ Chennai - Tiruchirappalli - Dindigul (NH 45)
  - ❖ Nagapattinam -Gudalur - Mysore road (SH 8)
  - ❖ Trichy - Namakkal road (SH 6)
  - ❖ Trichy - Chidambaram road (MDR)
  - ❖ Trichy - Pudukkottai road (MDR)
  - ❖ Trichy - Madurai road (MDR)

Exhibit 2.1 Details of Major Roads Passing through Tiruchirappalli City

Sl.No.	Description	No. of Roads	Length in Km.	%
1.	National Highways Roads	5	32.40	34.03
2.	State High ways Roads	7	17.50	17.38
3.	Major District Road	1	3.00	3.15
4.	Other District Roads	4	42.30	45.44
	Total	**34**	**95.20**	**100.00**

Source: City Corporate Plan, Discussion with TCC officials.

- Trichy has **domestic airport** is located along the Pudukottai Road at a distance of 6 km away from the railway junction.

2.2 Administrative jurisdiction of TCC

TCC consists of erstwhile Trichy, Srirangam and Golden Rock municipalities, 5 town panchayats and 6 village panchayats, spread over 146.90 sq. km.

Map 2 shows the zones and wards of TCC. TCC comprises 60 wards and these wards are grouped under 4 zones namely Srirangam (Zone I), Ariyamangalam (Zone 2), Golden Rock (Zone 3) and Abhishekpuram (Zone 4). The governing body of the Corporation has elected Council members headed by a Mayor for a period of 5 years. Each ward is represented by an area councillor.

2.3 Social and demographic characteristics

Trichy is the 2nd largest city in Tamil Nadu in terms of land area and ranks 4th in population.

The population of Trichy was 746,137 in 2001, implying a growth of 11.45% over the population of 669,452 in 1991. Exhibit 2.2 (below) shows that the population growth has slowed down during the last decade. While industrialisation spurred the rapid growth in population in the 60s and 70s, the growth rate has declined from 20.99% during 1971-81 to 15.67% during 1981-91.

Exhibit 2.2 Population trend

Year	Population		Growth rate in %	
	Population	Variation	Decadal	Annual
1951	323693	-	-	-
1961	374284	50591	15.63	1.56
1971	478363	104079	27.81	2.78
1981	578767	100404	20.99	2.10
1991	669452	90685	15.67	1.57
2001	746062	76685	11.45	1.15

Source: Census of India

Map 3 shows the population density in various zones of the Corporation. The CCP points out the need for strengthening infrastructure in Ariyamangalam in view of the high population density and suggests that the K. Abishekapuram zone exhibits potential for accommodating additional population. Trichy has a very high literacy rate of more than 83 %. Exhibit 2.3 gives details of literate and illiterate population.

Exhibit 2.3 Literacy rate

	Male	Female	Total
Literates	317,369	299,429	616,798
Illiterates	56,172	73,092	129,264
Total	**373,541**	**372,521**	**746,062**
Literacy rate %	**85%**	**80%**	**83%**

Source: Census of India

Trichy is well known for its educational facilities and higher education institutions. Refer Exhibit 2.4.

Exhibit 2.4 Educational facilities in Tiruchirappalli City Corporation

Category	Maintained by								Total		Students per School	
	State Govt.		Corporation		Govt. Aided		Private					
	No	Boys	No	Boys	No	Boys	No	Boys	No	Boys	Actual	Norm*
Primary School	24	3509	20	3165	50	8955	30	6236	124	21865	361	500
Middle School	13	4390	14	4153	39	12278	-	-	66	20821	689	750
High School	2	807	1	200	10	1822	7	4614	20	7443	754	1000
Hr. Sec. School	4	4099	-	-	26	27100	27	6127	57	37326	1245	1500
Colleges	-		-		-		-		10		-	
Technical	-		-		-		-		1		-	
Training School	-		-		-		-		3		-	

Source: Tiruchirappalli City Corporation

2.4 Master Plan and land-use

Trichy City Corporation consists of erstwhile Trichy, Srirangam and Golden Rock municipalities, 5 Town panchayats and 6 village panchayats. The Local Planning Area (LPA) covers nearly 146.90 sq.km out of which Trichy, Srirangam and Golden Rock occupy 46% of the total area. The detailed land use for the erstwhile municipal areas was conducted in the 1980s. Considering the large scale development and the formation of the Trichy Corporation, it is imperative to prepare a comprehensive Master Plan for the city, taking into account the trends in development, scope for growth in new areas added to the Corporation limits and constraints faced by the town. Summary of Land use pattern prevailing during the time of the earlier master plan, as presented in the City Corporate Plan is summarised below in Exhibit 2.5

Exhibit 2.5 Land use in erstwhile municipal areas of Trichy Corporation

Type	Trichy		Srirangam		Golden Rock	
	Area (Ha)	% of total	Area (Ha)	% of total	Area (Ha)	% of total
Residential	775.4	36%	166.6	13%	253.7	12%
Commercial	87.0	4%	6.7	1%	5.3	0%
Industrial	45.3	2%	19.1	1%	158.7	8%
Public and Semi Public	470.7	22%	40.0	3%	211.1	10%
Transport	190.2	9%	41.7	3%	105.1	5%
Sub Total	**1568.6**	**73%**	**274.1**	21%	**733.8**	**35%**
Agriculture						
Wet	319.7	15%	1036.9	79%	432.9	21%
Dry	147.8	7%			773.2	37%
Water Bodies	121.4	6%			164.8	8%
Sub Total	**588.9**	**27%**	**1036.9**	**79%**	**1371.0**	**65%**
Total	**2157.5**	**100%**	**1311.0**	**100%**	**2104.8**	**100%**

Source: TCC City Corporate Plan

The pattern of residential development is similar to other towns in Tamil Nadu., i.e., higher densities in the older areas and lower densities in the newer planned areas. The areas around the Fort, Puthur, Woriyur, Tennur and Bheema nagar are the old residential areas. Thillainagar, Ramalinaganagar, Sengulam, Kajamalai and Ponmalai are some of the newly developed colonies. In Srirangam,

residential developments are seen around the temples of Srirangam namely Ranganathar temple and Thiruvanaikavil temple. Residential growth in other parts namely Golden Rock, Piratiyur, Abhishekapuram and Sathanur, Puthur are in areas contiguous to Trichy.

2.5 Economic Development

2.5.1 Industrial base

The establishment of railway workshop and BHEL paved the way for initial industrialisation in Trichy and led to creation of several ancillary industries in and around Trichy. Flour mills and distilleries are the other major industries. Industrial activities also are prominent in Thuvakudi, Thiruverambur and Mathur areas, located outside the city area.

2.5.2 Tourism Potential

Tiruchirapalli is an important heritage and tourism centres in Tamil Nadu.

Map 4 shows the Heritage zones and landmarks in the city. Heritage Zone-1 comprises of Srirangam island and places of interest between Kollidam and Cauvery river including the following

- **Natural Heritage Areas** - Srirangam is spread over an area of 11 square miles, engulfed by River Cauvery in the south and its tributary river Coleroon in the north. The island is very fertile and covered with mango groves, banana gardens, coconut palms and Paddy fields.
- **Srirangam Temple** - The existing temple dedicated to Lord Renganatha is a masterpiece of South Indian Architecture. Originally built by Raja Dharmavarman, the temple was latter expanded by Cholas, Pandiyas and Vijayanagara rulers.
- **Thiruvanaikavil** - Thiruvanaikavil is located very close to Srirangam temple and portrays the similar architectural style.

Heritage Zone-2 comprises of area in and around the CBD and includes the following heritage areas:

- **Rock Fort -** located at a distance of about 0.5 km from the river Cauvery. The fort houses the Thayumanaswamy Temple and the Utchi Pillaiyar temple.
- **Theppakulam -** near the foot of the rock is Teppakulam, a large masonry tank with small mandapams located around the tank area.
- **The Nawab Palace -** Part of this palace is now used as a Town Hall and as Public Offices
- **The Nathershah Mosque** - The Nadir Shah Mosque, also known as Hazrath Nathervali Durgha, located near the Fort Railway Station.

Trichy is also strategically located in close proximity of the famous nine Navagraha temples. Since Trichy has a good road and rail system, it acts as a transit junction for pilgrimages. The CCP points out that there is good opportunity for exploiting tourist potential and substantially increasing the economic growth of the town.

2.5.3 Trade and services

Trichy is an important regional centre for various commercial activities. The major commercial activities are concentrated in the inner city area i.e. around the Main Guard Gate Area and Gandhi Market Area. Gandhi Market is located in the inner city area and number of other commercial activities is associated with this activity. Rockfort Market is an another major commercial area consist of Big bazaar Street, Chinnakadai Street, Jaffer Shaw Street, Singara Thoppu, and adjoining areas, which sell the specialised items like artificial diamonds and silverware. Due to this, all varieties of commercial activities are concentrated in one place i.e. the inner city area, this includes the following:

- **Whole sale and Retail Activities** - NSB Road, Chinnakadai Street, Periyakadai Streets, Singarathoppu street, Gandhi Market area, Anai Kattu Medu street and Stone Cutters street.
- **Godowns -** Rettai Mall Street, Big Bazaar Street and Chinna kadai Street.

2.6 Summary of growth prospects

Given its favourable social and demographic profile, educational facilities, industrial base and tourism potential, Trichy is well placed to emerge as a leading economic hub in the state. The important growth drivers are summarised below:

2.6.1 Trade and commercial activities

Trichy, being one of the major nodal points in Tamil Nadu already acts as a regional hub for distribution of a variety of products. The CCP already highlights that the existing markets within the city areas are highly congested and have become traffic bottlenecks in view of the heavy truck movement (an estimated 1500 trucks move into this market every day) and unregulated parking. Shifting these market facilities to the periphery in a regulated manner (with planned facilities - parking, wider roads, larger shops etc) would facilitate decongestion. Removing bottlenecks to trade would also provide opportunity for expanding the trade and commercial potential of Trichy through improvement in efficiencies (lesser transit time and wastage, faster evacuation of trucks etc)

2.6.2 Tourism

Trichy is a key heritage centre with a significant tourism potential. More than 20 lakh people are estimated to visit Srirangam temple every year. There are two categories of heritage zones identified in Trichy. Apart from the heritage centres in the immediate vicinity (comprising Srirangam, Rockfort area and Thiruvanaikavil), Trichy is a major transit point for a wider heritage tourism circuit, covering other towns nearby including Samayapuram, Thanjavur and Kumbakonam. Leveraging this potential would require a focused development of tourism facilities including bus stands, hotels, roads and public conveniences.

2.6.3 IT / ITES

Trichy is well placed to attract investments from Information Technology (IT) and Business Process Outsourcing (BPO) sectors. There is already a trend towards several IT majors looking increasingly at tier-II towns for expansion of their facilities. Several towns such as Coimbatore and Vizag are aggressively positioning themselves in this regard. With its strong educational infrastructure and an intrinsic industrial base, Trichy appears well placed to attract investments from these sectors in the medium to long term. Consultations with stakeholders confirm this analysis. During our stakeholder consultations, representatives of the Confederation of Indian Industry (CII) mentioned that Trichy has significant potential as an Tier II IT-ITES destination and agreed with the interventions recommended by us in our Draft Final report including the following:

a) A focused promotion strategy (backed by the state government) to attract 'anchor clients'
b) Identification of land parcels and a focused land-use management strategy.
c) Improving transportation infrastructure including air connectivity and corridor development.

Press reports[1] indicate plans for an IT park at Navalpattu on the outskirts of the city. The corporation has submitted a proposal to the government to declare the park as a special economic zone for IT and IT-enabled services. Elcot plans to construct a built-up area of about one million square feet. Navalpattu, situated on the Trichy-Pudukkottai highway, was chosen for the project considering its proximity to the Trichy International Airport. Elcot is looking at the possibility of acquiring more land near the site for future expansion.

2.7 Importance of master plan and land-use management

While Trichy appears to have growth potential in view of its intrinsic strengths, the CCP points that a comprehensive Land Development Master Plan is critical to realise this potential

The CCP points that incorporation of Golden Rock, Sri Rangam, Ariyamangalam and village panchayats into the Corporation has created availability of land for development. However, there is a need to plan for infrastructure and other facilities to ensure regulated development of these areas. It is in this context that a new development Master Plan for development and land-use is critical. Any major urban development also needs to factor the fragile agricultural environment in the delta region in the city's vicinity. Key strategies for economic development suggested from the CCP include:

- Promoting Information Technology and BPO investments
- Directing balanced growth by developing the peripheral areas and decongesting the inner city area
- Encouraging participatory approach through consultation with citizens and welfare organisations.
- Guiding industrial and commercial development along Panjapur and areas upto Samayapuram
- Decentralisation of whole sale activities in and around Gandhi Market.

[1] *Source: The Hindu Jan 25 2007. 135 acres transferred to ELCOT for IT park in Tiruchi.*

3. Review of operating performance

This section presents a review of the status of infrastructure services provided by TCC.

3.1 Water Supply

Map 5 presents the status of water supply in Trichy City Corporation.

3.1.1 Supply sources

River Cauvery is the major source of water supply for Trichy. Protected water supply scheme was introduced in 1895 with head works located on the bank of river Cauvery at Kambarasanpettai, 3 km from the city. The existing pumping machinery has capacity to extract a maximum of 155.9 MLD daily. The details relating to sources of water supply are given in Exhibit 3.1.

Exhibit 3.1 Water supply sources

Source	Cauvery River
Location of Head works	Kambarasanpettai
Distance from the City	3 km
Year of Installation of water works	1895
Year of water works improvements	Between 1982 and 85
Transmission Type	Pumping
Average water table (M)	5.00
Transmission Type	Pumping
Total no. of Deep Bore wells	12 (10" dia.)
Average water table (M)	5.00
Hours of Pumping / Day	20

Source: CCP

As per information available from Trichy City Corporation, the Corporation supplied nearly 85-88 million litres per day (85 MLD) in 2005, corresponding to a per capita supply of 105 Litres per capita per day (LPCD). This is marginally less than the norm of 110 LPCD. Given that its population is expected to cross 9.3 million by 2021, Trichy would require nearly to 105 MLD of water. The maximum extraction capacity of the existing schemes is about 155 MLB and hence Trichy appears to be adequately placed in terms of source of supply, provided the transmission and distribution bottlenecks are addressed.

3.1.2 Storage and distribution

Water is pumped and transmitted to the Over Head Tanks (OHTs) / Ground Level Reservoirs (GLRs), located at various places in the city. Water is then distributed within various areas through localised distribution networks without treatment from the respective OHTs. There are 58 OHTs and 27 GLRs in Trichy, which is complemented by a distribution system consisting of pumping and conveying mains (144.74 Km.) and distribution network of 540 Km. Exhibit 3.2 provides the details of reservoirs and storage capacity available within TCC as of 2005.

Exhibit 3.2 Zone wise analysis

	Srirangam	Ariyaman-galam	Golden Rock	K.Abishe-kapuram	Total
Access					
Total Water Supply (MLD)	21.06	18.12	21.0	26.6	**86.78**
Net Supply after leakage/loss (MLD)	15.17	13.05	15.9	19.2	**63.32**
Per capita Supply (LPCD)	83	79	83	92	**85**
House hold connections - % of properties	47%	37%	46%	53.2	**~ 50 %**
Storage					
Storage capacity - OHT and GLR (MLD)	12.46	8.1	8.2	12.2	**40.96**
Daily Supply (MLD)	22.53	19.38	21.00	25.09	**88.00**
Implied OHT filling shifts	2	2	3	2	**2**

Source: CCP

As of March 2005, Trichy had nearly 67,185 household connections (54,450 metered and 12,735 un metered), 1346 commercial connections, 34 industrial connections and 2760 public fountains. Daily supply in covered areas correspond to about 100-110 LPCD.

Individual service connections cover only about 50 % of the total population through organised water supply system. Large parts of the city are uncovered by distribution networks. The distribution main extends only to about 600 km of the 940 km of roads within TCCs, indicating coverage of distribution network of about 64%. Public fountains cover about 35 % of the population, while bore wells with hand pump cover another 5 % of the population. Nearly 10% of the population are either having their own sources or uncovered by the existing water supply distribution system.

3.1.3 Key issues

Trichy has a relatively high level of access to protected water supply given its proximity to sources of water and presence of a water supply scheme over a long period. However, it needs to address its storage bottlenecks in covered areas and link up uncovered areas with protected water supply.

Some of the key issues with respect to water supply are highlighted below:

- **Storage bottlenecks in covered areas -** Public consultations indicate that there is still a variation in the duration and quantity of water supply among various zones, even in areas covered with protected water supply. The CCP points out those areas far from OHTs get erratic and irregular supply.
- **Scope for adding water connections -** Existing water connections account for only about 50 % of total assessed properties in the City. The CCP has pointed out non-availability of distribution lines in the added areas i.e. Ariyamangalam and K. Abishekapuram zones as a key reason. Acces to public fountains to a large section of population (nearly 35 %) also leads to water loss and revenue loss to the Corporation

- **Leakages -** TCC estimates that the leakage are about 25-30% and believes that this can be brought down to less than 10%.

3.1.4 Plans

Plans of TCC with respect to water supply are briefly detailed below

- **Metered supply and charges** – In spite of installing water meters (54,450 out the 67185 household connections have meters installed), TCC has been levying water charges on a flat basis. TCC is considering implementation of consumption-based charges to minimise wastage and incentivise for water conservation.
- **Augmentation of water supply in uncovered areas -** Tamil Nadu Water and Drainage Board (TWAD) has recently completed an assessment of the distribution network in an area of 103 sq.km covering the erstwhile 5 village panchayats, 5 town panchayats and 1 town municipality that were brought under TCC along with an assessment of the existing areas. This assessment comprehensively identified the sources and distribution requirements and is currently under review for finalisation of project implementation. TCC expects this project to involve an outlay of Rs. 99 crore and expects to initiate the same during 2007.

3.2 Sanitation

3.2.1 Under Ground Drainage (UGD)

Trichy has an old underground drainage system which covers the erstwhile Trichy Municipal area, which was designed for a population of 425,000. The system comprises a main pumping station, 15 sub-pumping stations and a network of 147.30 km of underground sewer lines and a network of 19.58 km of pumping lines. The system caters to only16000 household service connections

TCC is undertaking a comprehensive UGD System expected to be ready during 2006-07

In order to improve access, TCC is currently implementing a comprehensive Under Ground Drainage (UGD) System in the city area covering Trichy, Srirangam and Golden Rock area at an outlay of Rs. 116 crore. The project is being funded through a combination of public deposits and grants under National River Conservation Program (NRCP) program of the Government of India and is expected to provide about 50,000 connections. TCC is contemplating O&M for the pumping station and Sewerage Treatment Plant (STP) through private sector participation. Exhibit 3.3 provides the financial mix of the ongoing UGD scheme.

Exhibit 3.3 Trichy's ongoing UGD scheme - Financial mix

Sl.no	Details	Rs. In lakh
1	Central Government grant	6805.75
2	State Government grant	1944.50
3	Public deposits	486.12
4	Local Body contribution	2430.63
		11667.00

In addition, the CCP identified a detailed project covering the uncovered areas. The CCP estimate for this project of Rs. 85 crore currently stands revised at Rs. 160 crore.

3.2.2 Storm water drains

The existing storm water drains in the city are linked with local drainage channels that carry the storm water from the respective catchment areas to the major system. In turn, the major system is connected with the Cauvery Coleroon, Koraiyar and Ariyar rivers and acts as major carrier of storm water from different areas of the city. Apart from this irrigation channels namely Malattur channel, new Kattalai high level channel and Uyyakondan channel along with their distributaries act as major irrigation cum drainage network system. Exhibit 3.4 provides the status of the storm water drain network as of 31.03.2005.

Exhibit 3.4 Storm water drain network

Details	Length in km
RR masonry	106.68
Brick masonry	395.32
RR / Brick masonry	55.81
CC wall	3.60
CC wall / Brick or RR Masonry	16.36
Both side RCC wall	0.31
RCC wall/ Brick or RR masonry	4.53
Earthen drain	20.90
Total	**603.51**

The CCP observes inadequacies in design and lack of integration of drains to main channels.

Drains are provided in approximately 70 % of the total road length within TCC limits. TCC initiated minor works on storm water drains at an estimated outlay of Rs. 13 crore in the last two years, following floods in 2005

3.2.3 Flood management and canal restoration

TCC has also submitted an integrated Disaster Management program covering major works on storm water drains in the city involving an estimated outlay of Rs. 260 crore at the time of preparation of this project. TCC estimates the cost of this project to be Rs. 350 crore at current prices.

Map 6 provides details of the flood prone areas in Trichy city. The major flood prone areas as identified in the City Corporate Plan are listed below:

- West chintamani
- Nawab Thottam, Thiruthantoni, Annamalai Nagar
- Alwar Thoppu, QuaideMillath Nagar and Anakondan
- Kumaran Nagar, Ramalinga nagar, Allithurai road, area behind Aruna talkies near Puthur highroad

- Valluvar nagar, NAthershaw pallivasal, Old goods shed road, Madurai road, Rahmanyapuram and Vamandam
- Bheema nagar
- Cauvery road, Deveadampalla stree and Sankaran Pillai street
- Malligaipuram, Dhramanandhapuram, Duraisamypuram
- Kamaraj Nagar
- Subramaniyapuram
- Ponneripuram, Mullai nagar, Ponmalaipatti
- Thiruvanaikavil
- East Boulevard Road, Bharatiyar Street, Mariamman koil street, Sathiyamoorthy nagar, Anna Nagar and Daranallur Street.
- Palakkarai subway area
- Vannarpettai, Anna nagar, Nehruji nagar and Maris avenue.

3.2.4 Public conveniences

Exhibit 3.5 provides the details of public conveniences provided by TCC.

Exhibit 3.5 Details of Public Conveniences provided by TCC

Details	Units	Seats
Public Toilets	266	2799
Pay and Use Toilets	21	239
Total	**287**	**3038**
Integrated Sanitary Complexes		
Units	**Bathrooms**	**Seats**
66	388	1211

Source: Trichy City Corporation

A project to implement 51 PCs in 22 wards was recommended as part of the CCP. TCC has subsequently undertaken a comprehensive upgradation of public conveniences under Namakku Namme' scheme at an outlay of Rs. 403 lakh. Nearly 150 toilets within TCC are maintained by Self-Help Groups.

3.3 Solid Waste Management

3.3.1 Generation and Collection

Trichy generates nearly 380 MT of solid waste per day, while collection is estimated about 350 MT per day (implying nearly 90% collection). The city is divided into 25 divisions for the purpose of Solid Waste Management. Exhibit 3.6 gives the current status of solid waste generation and management system of TCC.

Exhibit 3.6 Solid Waste Management - current status

Generation / day	382 MT
Collection / day	350 MT
Collection Efficiency	92%
Primary Collection points	38
Transfer Stations	11
Compost Yard with computerized weight bridge	1
Onsite Manure preparation	4 Locations
No. of Corporation Vehicles used	60
Door-step Collection in	29 Wards

Of the total waste generated approximately 85% is household waste and 15% is commercial waste. The solid waste is collected by pushcarts and dumped in dustbins and collection points. From here they are moved to transfer stations and then to compost yards. Heavy vehicles are involved in transporting waste from collection points and transfer stations to the compost yards. The transfer stations are provided with loading and unloading facilities.

3.3.2 Equipment

The list of equipment available with Trichy corporation for Solid Waste Management is given below:

- Lorry / Tipper - 28
- Dumper Placer - 10
- Tractor - 2
- Mini Lorry - 8
- Auto pick up pan - 11
- Container - 215
- Push carts -760
- Compactor - 1
- Bins - 60

The CCP observed that the carrying capacity of the vehicles for secondary collection was only 36% of the total waste generated. It estimated that a cumulative 160 trips in a day was required. Further it also observed that 33% of the vehicles were more than 10 years old and needed replacement.

3.3.3 Disposal and Compost yard

TCC has transfer stations at Srirangam and Annanagar and compost yard at Ariyamangalam. The compost yard area is about 47.6 acres and is adequate to meet the long term needs of the town.

3.3.4 Plans

TCC's vision plan has identified deficiencies in terms of dumping yards and transportation infrastructure. It is also keen to launch a city-wide awareness program on 'segregation at source'. TCC is in the process of implementing Municipal Solid Waste (MSW) Handling rules, 2000 and has

also initiated steps to involve private sector participation / Self-Help Groups in garbage collection and management. TCC is also contemplating setting up a waste-energy project to generate electricity from waste. TCC intends to undertake this project (estimated to cost Rs. 35 crore) on a Build Operate Transfer (BOT) basis.

Following Supreme Court directions, TCC had prepared a Solid Waste Management Plant at an outlay of Rs. 8.29 crore in FY 2001, which is under implementation. TCC had spent Rs. 42 lakh during FY 2006 for procurement of compactor and bins. An additional outlay of Rs. 308 lakh has been allocated for procurement of additional equipment (tipper, Loader, dumper placer, pushcarts, buckets and other material handling equipment), which is expected to be completed during FY 2008.

TCC also plans to develop its compost yard at a proposed outlay of Rs. 1 crore. It has also budgeted Rs. 4 crore for procurement of equipment in line with the initiatives outlined as part of its Solid Waste Management Plan. TCC is exploring acquisition of additional land for creation of a comprehensive compost yard in Panjapur area.

3.4 Roads

Exhibit 3.7 provides details of the road network under the jurisdiction of TCC.

Exhibit 3.7 Road network

Type	Length in km
Corporation Roads	
BT. Roads	495.60
Cement Concrete pavement	55.71
Cut stone slab	96.31
W.B.M roads	22.57
Earthen roads	175.96
Total	**846.15**
Highway roads	
National Highways	32.40
State Highways	17.50
Major District Roads	3.00
Other District Roads	42.30
Total	**95.20**
Total Length of Road	**941.35**

TCC maintains a road network of nearly 846 km of which surfaced roads (both B.T. and CC) constitute 65 %. In addition, nearly 95 km of highway roads traverses the TCC area. TCC maintains bus route roads of 43 Km, which are surfaced with Semi Dense Bituminous Coat (SDBC) and need proper maintenance due to heavy vehicle movement.

The CCP observes that the K. Abishekapuram and Ariyamangalam zones added with the City Corporation require proper BT surface facility to have good circulation pattern and points the need for pedestrian foot paths on bus route roads.

It is important to focus on this sector in view of the erosion in the quality of roads as a result of the recent floods and the ongoing UGD scheme. Trichy's vision plan envisages an outlay of Rs. 5500 lakh on upgrading and improving its road network over a period of 5 years starting 2004. Development of 186 km of road network under the Special Roads Scheme of the Government of Tamil Nadu involving an outlay of Rs. 2500 lakh is being initiated. TCC has also identified 3 Road Over Bridges (ROBs) and about 500 culverts to be developed during the next 5 years.

3.5 Street lights

The CCP highlights that Trichy has fairly good coverage of the city roads with street lights. Exhibit 1 provides details of provision of street lights by TCC. Nearly 80 % of the lights are tube lights and 20 % are sodium vapour lamps. Average spacing between the lights is in line with the municpal norm of 30m. Tube lights are provided in interior streets, while sodium vapour lamps are provided at the major roads and junctions. Exhibit 3.8 provides the details.

Exhibit 3.8 Existing Street Lighting Facilities – Tiruchirappalli City Corporation

	Total	
	No	%
Sodium Vapor Lamps	5664	20.1%
Mercury Vapor Lamps	42	0.1%
Tube lights	22324	79.2%
Ordinary bulbs	58	0.2%
Focus Lights	58	0.2%
Halogen bulbs	4	0.0%
High Mast lamps	38	0.1%
Total	**28188**	**100.0%**

3.6 Bus stands

Trichy has a central Class A category bus stand, functioning in the city from 1995. The bus stand as 28 bus bays. Nearly 462 bus services (220 Govt. and 242 private) operate in and around Trichy generating nearly 4000 trips per day and serving about 60000 passengers per day. This bus stand complex also accommodates a number of shops to provide immediate services for commuters.

Another bus stand is located near Teppakulam (Chindhamani). This bus stand generates 1300 trips during a day and serves more than 20,000 people per day. This bus stand does not provide any facilities, except space for alighting and boarding. During the peak hours more than 100 buses line up here leading to congestion and haphazard movement.

The CCP observes that Trichy does not have an integrated bus stand to accommodate city services and other route bus services to serve the heavy inflow of buses and has mooted creation of a new bus stand complex in the outskirts of the city.

TCC has the following plans to develop its bus station infrastructure:

- Development of a satellite bus stand in an area of 56 acres. The same could potentially be done through a public private partnership. We recommend technical assistance to TCC for preparing a Detailed Feasibility study for the same.
- Creation of organized parking facility for buses operated in the Srirangam area. The proposal is to have bus bays on the ground floor, Yatri niwas in the first floor and dormitory in the second floor.
- Expansion and upgradation of the existing Chatram bus stand by acquiring around 2.75 acres of land (belonging to the Ministry of Railways) behind the existing bus stand. TCC has already acquired the area adjoining the bus stand and is in the process of re-designing this bus stand.

3.7 Market

Trichy Corporation maintains the large Gandhi market. Details of this market (as provided by TCC) are given below:

- **Shops**
  - ❖ Permanent structures - 895
  - ❖ Ground Stalls - 1020
- **Land area :** - 8.14 acres
- **Rental Demand** - Rs. 2.7 crore for FY 2008

The CCP observed the need for shifting the wholesale market to the periphery of the town and recommended re-development of the market with focus on retail, in order to reduce the congestion around the market. Further, the average rental per month per shop (not considering the ground stalls) works out to just over Rs. 2500 per month, which appears extremely small given the commercial importance of Gandhi market.

TCC has already identified development of an integrated market in the place of Gandhi market at its existing Compost yard at Ariyamangalam, spread over 48 acres. Such a development would enable TCC to not only de-congest the place, but by developing a high quality retail space, it would be able to fetch higher realisation from its land asset. Discussions with local stakeholders indicate that revenues from re-developing the Gandhi market could be multiple times that current rental demand.

However, this would need to done in a phased manner. Ideally, TCC should conduct an initial feasibility study of the proposed move and establish the tangible benefits of such development to the Corporation, general public and vendors who currently operate out of Gandhi market. Such a study should involve extensive consultations with the vendors in Gandhi market and other stakeholders, not only to explain the benefits to them, but to factor their views in the re-development process.

The market also holds potential for being structured as a public private partnership. Implementing the proposed development through a Build-Operate-Transfer basis could potentially enable TCC to ensure service levels, minimise upfront investment required (land can be provided as TCC's portion of equity) and potential upside in terms of revenues. Selection of the developer should be done through a transparent and competitive bidding process. Such an approach enables TCC to hand-over the

administrative aspects of managing tenants etc. At the same time, TCC could structure the contract to have regulatory and supervisory control over the project.

3.8 Capital Investment Plan and phasing

We have compiled the felt needs of the city under various service areas, based on

- Review of projects recommended in the City Corporate Plan prepared earlier under TNUDP - II
- Status and progress on projects identified as part of the Vision Plan (2004-09) prepared by TCC
- Consultations with stakeholders and
- Discussion with TCC officials

Exhibit 3.9 provides project components of the Capital Investment Plan over the next ten years for various services and the estimated outlay for implementing these projects. Nearly Rs. 1260 crore of investment is required over the next ten years to address these felt needs.

Exhibit 3.9 TCC - CIP (2006-15)

Area	Project	Outlay (Rs. Lakh)	Status	Remarks
Water Supply	Integrated Water Supply Project	10500	Yet to commence	• Feasibility study by TWAD under review for Coverage of uncovered areas and comprehensive system to address existing bottlenecks.
Sewerage and Sanitation	UGD Scheme - Phase I	11700	Ongoing	• Would cover 70% of population.
	UGD Scheme - Phase II	16000	Yet to commence	• For comprehensive coverage of all areas including areas not covered under Phase I
	Major Canals desilting and Storm Drain improvement program	35000	Yet to commence	• Submitted as part of Integrated Disaster Mgmt. Plan post 2005 floods Awaiting approval from Govt. of India
Solid Waste Management	Vehicles & Equipment	500	Ongoing	• Rs.829 lakh financing has been tied up • To be implemented over next 2-3 years
	Compost yard & Green Belt	100	Yet to commence	• Planned in view of likely increase in solid waste per capita from 461 gms to 490 gms by 2012.
Roads	Upgradation of city roads	15000	Ongoing / New	• Projects identified under Vision Plan at an outlay of Rs. 5500 lakh • 186 km under Special Roads Scheme • Past trend indicate Rs. 800 lakh annually
	Construction of ROBs	3500	Yet to commence	• New link road, ROBs near Marris theatre, Anna Nagar, Devadhanam and Konakarai. These have been taken as recommended in CCP, based on earlier discussions.
	Construction of Culverts	850	Ongoing	• 500 culverts @ Rs. 1.7 lakh per culvert. Would be primarily require d in the newly added layouts.

Area	Project	Outlay (Rs. Lakh)	Status	Remarks
Street Lights	Improving Lighting facilities	500	Ongoing	• Mainly for added areas. Would be done from TCC's General Fund.
Bus Stand / Markets	a) New bus stand b) Expansion of existing bus stand c) Parking for buses - Srirangam	6000	Existing bus stand expansion started. Other projects yet to commence	• Significant upgradation of bus stand infrastructure needed in view of the city's growth and tourism potential. Koyambedu bus stand (37 acres cost Rs. 103 crore including land cost). Assuming Rs. 50 crore for proposed new bus stand at Trichy
	Zonal office - Sengulam	50	Yet to commence	• Zonal office building for Golden Rock zone.
	Commercial complex - Yanakulam	1000	Yet to commence	• 2.5. acres of land identified for the project.
	Commercial complex - Sengulam	1000	Yet to commence	• Estimate prepared being revised
	Markets	3000	Yet to commence	• Shifting of parts of existing Gandhi market • Creation of an Integrated market complex
	Slaughter House	100	Yet to commence	• Proposed to be undertaken on BOT.
Social Infrastructure	Noon meal centers	300	Yet to commence	• Renovation of ~ 300 centers
	Slum Improvement	10000	Ongoing	• 209 approved slums under TCC • Outlay Rs. 50 lakh annually in the past
	Health	250	Ongoing	• Improvement of dispensaries
	Education	910	Ongoing	• Approx Rs. 15 lakh per year for 10 years for 59 schools
	Parks and Playgrounds	1200	Ongoing	• 30 parks and 8 playgrounds under TCC. • Six parks under private maintenance
Tourism	Tourism amenities and developments	3000	Ongoing / New	• Tourism development proposal for Srirangam alone for Rs. 12.83 crore.
Others	Dobhikhana, city beautification, burial grounds etc.	2000	Ongoing	• Projects identified and in various stages of implementation
	TOTAL	**122460**		

3.8.1 Phasing of Capital Investment Plan

The prioritisation and phasing of the CIP during 2006-15 is given below:

Exhibit 3.10 TCC - Phasing of CIP (2006-15)

Segment	Outlay	Phasing	
		2006-10	2011-15
Water Supply	10,500	7,875	2,625
Sewerage and Sanitation	62,700	37,200	25,500
Solid Waste Management	6,00	500	100
Roads	19,350	8,675	10,675
Street Lights	5,00	250	250
Bus Stands / Remunerative projects	11,150	5,150	6,000
Social Infrastructure	12,660	5,497	7,163
Tourism	3,000	1,333	1,667
Others	2,000	1,000	1,000
TOTAL	**122,460**	**67,480**	**54,980**

3.8.2 Recent developments

Press reports and information from ELCOT's website indicate plans for an IT park at Navalpattu on the outskirts of the city. The corporation has submitted a proposal to the government to declare the park as a special economic zone for IT and IT-enabled services. Elcot plans to construct a built-up area of about one million square feet. Navalpattu, situated on the Trichy-Pudukkottai highway, was chosen for the project considering its proximity to the Trichy International Airport. Elcot is looking at the possibility of acquiring more land near the site for future expansion. With the completion of the ongoing expansion and modernisation of the airport and the upgradation of Trichy-Pudukkottai highway, the park is expected to spur new investments in the corridor.

This development will have additional implications for infrastructure development. As seen from past experience, as in the case of IT Corridor in Chennai, creations of such IT hubs could potentially lead to large scale development and require a detailed planning of urban infrastructure and could spike investments in urban services and transportation infrastructure. TCC would need to work with other nodal agencies in the state like Highways department, TNRDCL etc to evaluate in detail the urban service requirements near the proposed IT park and the airport. We recommend that this be done on priority along with a review of Trichy's master plan to guide and support future growth through planned infrastructure creation along this corridor.

4. Analysis of financial performance

This section provides a summary analysis of the financial performance of TCC.

4.1 Income and Expenditure summary of TCC

Exhibit 4.1 provides a summary of the income and expenditure of TCC. This summary has been prepared based on information provided by TCC[2].

Exhibit 4.1 Income and Expenditure of TCC - Last five years

Year	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	CAGR % - 5yrs
INCOME						
Taxes	**1,674**	**1,765**	**1,824**	**1,881**	**2,132**	**6%**
Property Tax	1,511	1,597	1,639	1,667	1,706	**3%**
Prof. Tax	162	168	185	215	426	**27%**
User Charges / Fees	**877**	**1,265**	**1,300**	**977**	**1,418**	**13%**
Water Charges	537	915	938	611	894	**14%**
Sewerage Charges	4	7	9	6	6	**9%**
Service Charges / Fees	335	344	353	360	518	**12%**
Other Income	**865**	**773**	**1,146**	**920**	**706**	**-5%**
GRANTS /CONTRIBUTIONS	**831**	**429**	**1,315**	**1,458**	**1,689**	**19%**
ASSIGNED REVENUE	**913**	**439**	**2,005**	**1,310**	**822**	**-3%**
TOTAL	**5,159**	**4,671**	**7,591**	**6,546**	**6,767**	**7%**
Prior Period Income (PPI)	65	73	69	2,337	3,978	**180%**
TOTAL INCOME (incl.PPI)	**5,224**	**4,744**	**7,660**	**8,883**	**10,744**	**20%**
EXPENDITURE						
Salaries	2,725	2,339	2,314	2,311	2,427	-3%
Repairs & Maintenance	929	1,070	1,279	1,273	1,352	10%
Program Expenditure	3	23	1	3	3	3%
Admin	435	320	137	151	584	8%
Prior Period Expenditure	66	88	7	190	73	2%
TOTAL OP. EXPENDITURE	**4,158**	**3,841**	**3,738**	**3,929**	**4,439**	**2%**
OP. SURPLUS	**1,067**	**903**	**3,922**	**4,954**	**6,305**	**56%**
Depreciation	2345.87	2027.46	1788.59	1829.16	1829.16	-6%
Finance Charges	557.14	543.84	300.64	423.15	468.4	-4%
TOTAL EXPENDITURE	**7,061**	**6,412**	**5,827**	**6,181**	**6,736**	**-1%**
SURPLUS (After Dep and Interest)	**(1,836)**	**(1,668)**	**1,833**	**2,702**	**4,008**	

[2] *We have received the audited accounts from TCC for FY 2001 to FY 2003, un-audited accounts for FY 2004 and the income and expenditure statement for FY 2005.*

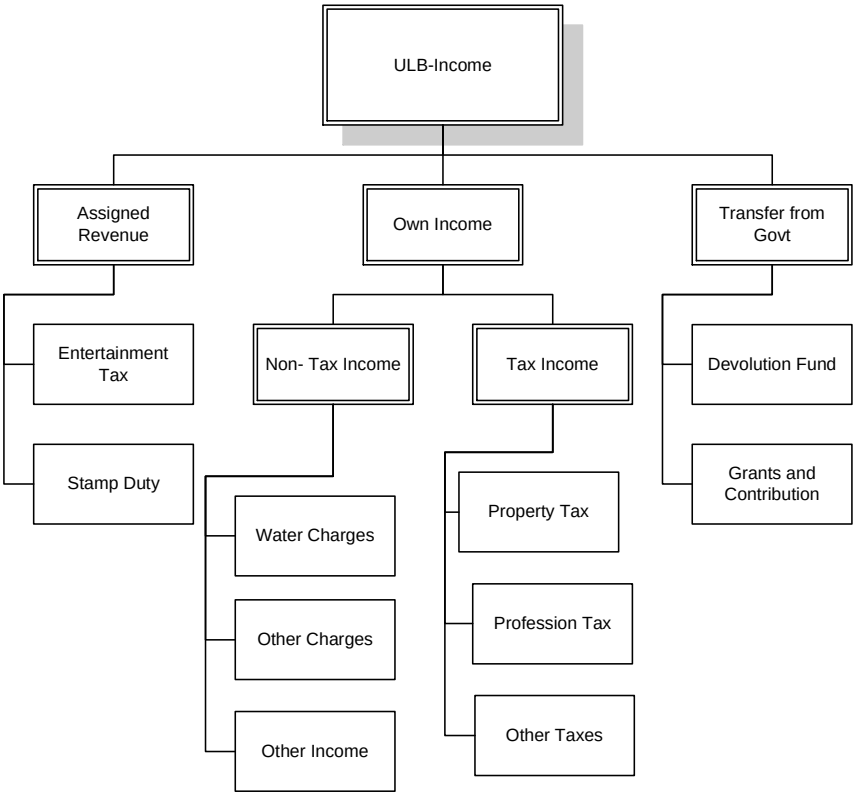
4.2 Revenue streams of ULB in Tamil Nadu

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 4.2 provides a detailed classification of the revenue streams.

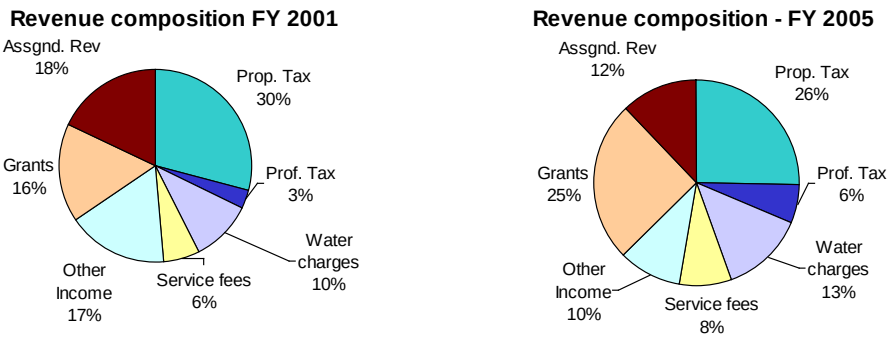
Exhibit 4.2 Revenue streams - ULBs in Tamil Nadu



4.3 Revenues

Exhibit 4.3 provides details of revenue of TCC along various heads between FY 2001 and FY 2005. These are based on information provided by TCC (Audited accounts till FY 2003, Un-audited accounts for FY 2004 and abstract of financial statement of FY 2005)

Exhibit 4.3 Analysis of Revenues of TCC



CAGR - FY 2001-05

Property tax	:	3%
Professional tax	:	27%
Water charges	:	14%
Service fees	:	12%
Other income	:	- 5%
Grants	:	19%
Assigned Revenue	:	- 3%

(In the absence of break up of prior-period income, this analysis is carried on the basis of income other than prior-period income. Prior period income has spiked in the last two years and accounted for 40% of total income in FY 2005)

4.3.1 Tax Income

Tax income has grown at a CAGR of 6 % over the last five years aided by a 27% growth in Professional tax. Property Tax has grown at a more modest 3 % during this period. As a result, while share of property tax in overall revenue has declined from 29% to 25% of income, share of professional tax in revenue has doubled from 3 % to 6 %.

Property Tax

Property tax alone accounted for a quarter of the income of TCC in FY 2005 and is an important contributor of revenues to TCC. Following are the key issues / observations with respect to property tax. Exhibit 4.4 provides a summary.

Exhibit 4.4 Property tax - analysis of key revenue drivers

Year	Collection Efficiency			Properties		
	Arrears	Current	Total	Numbers	Tax/property	Growth %
2000-01	11%	59%	32%	114867	1424	NA
2001-02	14%	67%	35%	119478	1402	4%
2002-03	14%	68%	35%	122192	1418	2%
2003-04	15%	67%	35%	126242	1434	3%
2004-05	10%	75%	28%	130457	1386	3%

a) **Decline in share of property tax -** Even though the property tax has increased in absolute terms, its share in total income has declined from 29% to 25 % over the last five years.

b) **Stagnant demand per assessment -** Though there has been a 4.4% increase in the number of assessments, the average demand per property assessed has shown a chequered trend. During FY 2001 to FY 2005, the average demand per property assessed has been almost stagnant at around Rs. 1400 per property. **The quinquennial revision of Annual Rental Value (ARV) due in 2003 has not been undertaken as of date.**

c) **Low collection efficiencies -** Collection efficiency is a cause for concern. While collection efficiency in current demand has grown from 59% to 75% and is a positive trend, the low recovery of arrears needs attention. In FY 2005, arrears collection efficiency dipped to 10%.

d) **Aging of arrears -** 50% of the arrears are outstanding for more than five years, with 29% of the overall arrears outstanding for more than 10 years. TCC 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 86% of the total assessments, but only 59% of the total property tax demand. The corporation must take steps to increase property tax from this category. Exhibit 4.5 below gives the detailed break-up of assesses for property tax.

Exhibit 4.5 Property Tax - breakup of assessees

Category of Property	Number of Assessments	%	Annual Tax Demand (Rs. lakh)	%
Residential	105404	86.51%	1000.66	59%
Commercial	15433	12.67%	531.84	31%
Industrial	498	0.41%	27.97	2%
State Government Properties	337	0.28%	140.63	8%
Public Sector Undertakings	7	0.01%	-	0%
Charitable & Religious Institutions	87	0.07%		0%
Educational Institutions	75	0.06%		0%
Total	121841	100.00%	1701.1	100%

Professional tax

Exhibit 4.6 provides an analysis of key drivers for professional tax revenue.

Exhibit 4.6 Professional Tax - revenue drivers

	Collection Efficiency			Assesses		
Year	Arrears	Current	Total	Nos	Demand/ Assessee	Total
2000-01	19%	91%	60%	14266	1130	NA
2001-02	16%	90%	58%	15107	1103	6%
2002-03	34%	91%	67%	17237	1071	14%
2003-04	22%	91%	61%	20685	988	20%
2004-05	63%	91%	78%	27592	1154	33%

a) **Share of professional tax in total income** has doubled from 3% of income to 6% of income
b) **Demand per assessment** has been around Rs. 1100 except for a dip in FY 2004.
c) **Collection efficiency** was nearly 80% in FY 2005, aided by a significant improvement in arrears collection. While current collections are high at around 90%, there is still a scope for improvement. An ageing analysis reveals that 50% of arrears are more than 5 years old.
d) **Composition of professional tax assessments** - Exhibit 4.7 below shows the composition of assessments. Only about 16% of the traders file returns and hence TCC should take steps to widen its tax base through a closer scrutiny of traders.

Exhibit 4.7 Professional Tax – assessee break up

Category	Number of Assessments	%	Return filed	Assessment Gap	Annual Tax demand	%
State/Central/Quasi Govt. Employees	7892	26%	7892	0%	218.48	65%
Traders	17269	56%	2800	84%	100.84	30%
Self-employed professionals	3324	11%	3324	0%	3.33	1%
Private employers/ Companies	1805	6%	1805	0%	11.78	4%
Private employees	595	2%	595	0%	1.50	0%
Total	**30885**	**100%**	**16416**	**47%**	**335.94**	**100%**

4.3.2 User Charges / Fees

User charges have also grown by a healthy 13 %, aided by increased in collection of water charges and other fee income including lease and rents. As a result the share of user charges/fees have increased from 17% of revenue to 21% of revenue over the last five years.

Water charges

Exhibit 4.8 provides an analysis of key drivers for water charges.

Exhibit 4.8 Water charges - revenue drivers

Year	Collection Efficiency			Connections		
	Arrears	Current	Total	Numbers	Charges/ connection	Growth rate
2000-01	21%	68%	50%	60401	656	NA
2001-02	33%	73%	56%	62093	700	3%
2002-03	25%	69%	51%	63963	761	3%
2003-04	24%	63%	43%	68798	698	8%
2004-05	31%	75%	55%	68029	962	-1%

a) **No. of connections -** There has been an increase in the number of connections from 60,400 in FY 2001 to more than 68,000 connections in FY 2005. Water connections account for only about 56% of properties assessed, indicating significant scope for increasing the number of connections. The low penetration is also due to the availability of water fountains in several areas (covering nearly 35% of population) which lead to loss of revenue for TCC.

b) **Water tariff / connection** has increased from about Rs. 700 per year per connection to Rs. 962 per connection in FY 2005 as a result of increase in water tariffs.

c) While 80% of the water connections are metered**, water billing is being done on a flat (monthly) basis**. Refer exhibit 4.9 for details of type of connections and water charges. TCC is considering collections on the basis of meter readings.

d) **Collection efficiency** - Current collection efficiencies have ranged from a low of 63% (FY 2004) to a high of 75% (FY 2005) and have not shown a linear trend. Arrears collection efficiency has been very low and has ranged between 21% and 33%. The overall collection efficiency of 55% is quite low and needs significant improvement.

Exhibit 4.9 Water charges - category wise connections and tariff

Connections	Metered	Un-metered	Total	%	Billing system
Domestic	52,380	12,735	65,115	98%	Flat rate
Commercial	1,291	-	1,291	2%	Meter reading
Industrial	30	-	30	0%	Meter reading
Total	53,701	12,735	66,436	100%	

Connection Type	Flat rate	Per KL
Domestic	Minimum Rs85/-PM	Rs.8/-
Commercial	Minimum Rs250/-PM	Rs25/-
Industrial	Minimum Rs250/-PM	Rs25/-

4.3.3 Assigned Revenue

Assigned Revenue (which includes transfers of stamp duty and entertainment tax) have actually dipped in FY 2005, after spiking in FY 2003. Assigned revenue has declined from 18% of revenue in FY 2001 to 12% of revenue in FY 2005.

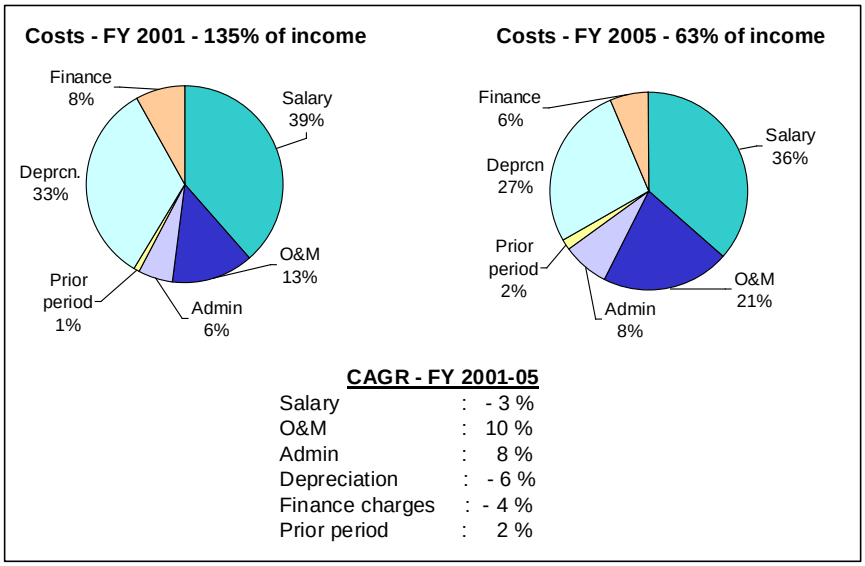
4.3.4 Grants/Contributions

Grants / Contributions from state have one of the biggest revenue drivers and have doubled in the last five years. They now contribute to nearly a quarter of revenues of TCC.

4.4 Analysis of Costs

Exhibit 4.10 provides details of costs of TCC along various heads between FY 2001 and FY 2005. Total expenditure has shown a declining trend till FY 2003, before increasing over the next two years. In FY 2003, expenditure in almost all the categories have declined, except repair and maintenance. Admin expenditure spiked from Rs. 151 lakh to Rs. 584 lakh in 2005.

Exhibit 4.10 Costs (as a % of income – FY 2001 and FY 2005



4.4.1 Salary and wages

While salary and wages account for the highest expenditure (more than 35% of total expenditure), it has shown a consistent declining trend over this period (except FY 2005, when there was a marginal increase). This has been due to the lack of addition in staff over the last few years and a number of posts remaining vacant. As of March 2005, the number of employees in the year 2004-05 is 3,218.

4.4.2 Operations and Maintenance

Repairs and maintenance form the other major component of total expenditure. In absolute terms, repairs and maintenance expenditure has increased steadily over the last five years, growing from 13% to 20% of total expenditure during this period. Exhibit 4.11 provides details of sector wise composition. Though Water and sewerage account for a major proportion of operating expenses, there has been a downward trend in expenditure between FY 2002 to FY 2005. Expenditure on streetlights has grown at a CAGR of 18% to become the largest head under repairs and maintenance, which expenditure on roads has increased at a CAGR of 14%.

Exhibit 4.11 Repair and maintenance expenditure - Sector wise break up

Item	FY 2001	%	FY 2002	%	FY 2003	%	FY 2004	%	FY 2005	%
Roads	133.19	14%	162.73	15%	151.90	12%	202.59	16%	228.18	17%
Water & Sewerage	464.85	50%	555.81	52%	540.63	42%	524.30	41%	539.80	40%
Street Lights	286.34	31%	263.91	25%	529.02	41%	526.89	41%	550.94	41%
Others	44.57	5%	87.51	8%	57.00	4%	19.51	2%	32.84	2%
Total	928.95	100%	1069.96	100%	1278.55	100%	1273.29	100%	1351.76	100%

Power costs

Exhibit 4.12 gives the details of power costs out of the total repair and maintenance expenditure relating to Water & Sewerage and Street lights. Power costs have grown at a CAGR of 13%, driven primarily by a steep increase in power costs for street lights.

Exhibit 4.12 Power costs - Water & Sewerage and Street Lights

Power costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	CAGR
Water & Sewerage (WS)	370.71	373.65	463.8	435.14	420.59	3%
% of total W&S	80%	67%	86%	83%	78%	
Street lights	203.93	210.28	485.4	506.7	503.86	**25%**
% of total Street light	71%	80%	92%	96%	91%	
Total	**574.64**	**583.93**	**949.2**	**941.84**	**924.45**	**13%**

Power costs account for nearly 80% of repair & maintenance costs of water and sewerage and more than 90% of the costs of operating street lights.

Power costs have gone up from 62% of O& M expenditure in FY 2001 to nearly 68 % of O&M expenditure in FY 2005.

4.5 Trends in Capital Expenditure

Exhibit 4.13 gives details of capital expenditure by TCC over the last five years and estimated capital outlay to address the felt needs of TCC over the next ten years.

Exhibit 4.13 Capital Expenditure - Last five years

Rs. In Lakh

	Actuals				
	2000-01	**2001-02**	**2002-03**	**2003-04**	**2004-05**
Roads	640.25	295.16	625.15	411.45	468.47
Bridges and Culverts					
Storm water drains	234.32	67.62	144.11	313.11	213.85
Water supply	67.07	313.62	471.44	589.63	622.81
Street lights	7.24	38.89	54.57	0.00	13.22
Remunerative enterprises	58.90	65.60	13.40	14.40	7.55
Education	139.37	6.00	13.00	193.10	14.15
Sewerage and sanitation	95.80	309.71	36.76	183.48	3356.62
Others					
Total	**1242.95**	**1096.60**	**1358.43**	**1705.17**	**4696.67**

About 40% of the capital expenditure in the last five years has been incurred in the ongoing Under Ground Sewerage project. Roads and Water Supply are other sectors that account for a significant portion of the capital expenditure with 24% and 20 % respectively.

4.6 Loans and Finance charges

Exhibit 4.14 gives the details of outstanding loans of TCC at the end of last five years.

Exhibit 4.14 Loan Statement

	Loan	Rupees in Lakh				
		2000-01	**2001-02**	**2002-03**	**2003-04**	**2004-05**
1	Consolidated Govt. Loan	2764.77	2744.38	2527.66	2421.2	2282.17
2	Basic Amenities 1998-99	250.00	250.00	250.00	250.00	250.00
3	Basic Amenities 1999-00	250.00	250.00	250.00	250.00	250.00
4	Special Road Works	625.00	625.00	625.00	625.00	625.00
5	Water Supply Improvement Scheme	303.30	303.30	303.30	303.30	303.30
6	Water Supply Improvement Scheme	-	-	-	183.31	183.31
7	Water Supply Improvement Scheme	-	-	-	18.19	18.19
8	Take Over Finance	-	-	-	340.10	306.46
	Total	**4193.07**	**4172.68**	**3955.96**	**4391.1**	**4218.43**

To summarise, TCC's financial position has improved significantly, from an overall deficit of Rs. 1835 lakh in FY 2001 to an overall surplus of Rs. 4000 lakh in FY 2005. This has been primarily achieved through

a) **A significant growth in revenue** (CAGR-20%) together with expenditure control leading to a **steep increase in operating surplus** (CAGR of 56%) during FY 2001-2005

b) **A significant reduction in debt burden**. Interest expenditure is down from a high nearly **10% of revenue** in FY 2001 (Rs. 557 lakh) to **4% of revenue** over the last three years.

4.7 Water Fund accounts

Exhibit 4.14 provides the water and drainage account Income and Expenditure details for the last few years.

Exhibit 4.14 Water and drainage income and Expenditure account

Code No.	Account Head	2001-02	2002-03	2003-04	2004-05	2005-06
	INCOME					
1002	Water Supply & Drainage Tax	1,261.9	682.5	729.0	746.4	793.8
1005	Excess Remittance - Property Tax & Others	3.7	-	0.2	0.0	0.0
1006	Profession Tax	0.1	0.2	0.3	0.3	-
1013	UGD Demand	31.5	-	-	36.8	24.5
1038	Rent of Building	0.0	0.0	0.0	0.0	0.0
1041	Road Cut Restoration Charges	1.0	0.8	2.3	0.1	10.5
1044	Other Fees	2.7	3.4	4.2	4.0	3.7
1045	Other Income	0.8	1.8	1.9	1.0	1.4
1055	Dishonored Cheque Charges	0.0	1.2	1.1	0.2	0.2
1065	Pension & Leave Salary Contribution	-	-	-	-	-
1066	Miscellaneous Recovered	0.2	0.2	0.4	0.1	0.0
1067	Interest from Investments	-	-	-	-	1.5
1068	Interest from Banks	0.8	4.3	5.6	11.9	2.9
1069	Project Overhead Appropriation Expenses	2.2	5.4	14.1	8.8	2.7
1070	Project Overhead Appropriation Interest	-	-	-	0.1	-
1081	Initial Amount for New Water Connection/UGD Deposit	393.6	118.8	98.1	992.5	289.0
1082	Income for Giving New Water Connection	35.9	36.3	42.5	28.3	40.9
1083	Metered/Tap Rate Charges	618.8	409.3	470.7	733.7	811.6
1084	Charges for Water Supply through Lorries	0.7	0.1	0.0	0.1	0.0
1085	Septic Tank Cleaning Charges	0.5	0.1	0.2	0.3	0.4
1086	Sewerage Connection Charges	6.0	8.5	5.4	5.5	5.6
1087	Specific Maintenance Grant - Water Supply	16.0	4.6	2.5	-	1.5
1088	Prior Year Income	596.2	-	853.9	-	-
	Total Income	**2,972.6**	**1,277.3**	**2,232.3**	**2,570.2**	**1,990.3**
	EXPENDITURE	-	-	-	-	-
2001-10	Pay and allowances	71.5	66.0	66.0	65.6	73.7
2012	Travel Allowance	0.0	-	-	-	-
2015	Telephone Charges	2.7	1.7	2.1	2.8	6.8
2016	Light Vehicle Maintenance	0.4	0.2	0.1	0.1	9.8
2017	Legal Expenses	0.0	-	-	-	-
2018	Stationery & Printing	0.1	68.3	0.4	0.3	0.1
2019	Advertisement Charges	0.3	0.2	1.0	-	-
2020	Other Expenses	0.3	0.4	7.1	0.3	0.4
2023	Revenue Items Written-off	3.9	-	-	-	-
2026	Computer Operational Expenses	-	-	-	-	0.0
2028	Bank Charges	0.0	0.0	0.0	0.0	0.0
2029	Interest on Loans/Ways & Means Advance/Overdraft	-	-	87.3	19.1	-
2034	Special PF-cum-Gratituty	-	-	0.1	-	-
2035	Group Insurance - Management Contribution	0.1	-	-	1.5	0.2
2038	Depreciation	-	-	-	177.1	212.2
2039	Contribution to Employee PF	-	-	-	-	4.7
2041	Prior Year Expenses	0.7	0.1	9.5	-	-
2047	Postage & Telegrams	-	0.0	-	-	-
2048	Electricity Consumption Charges for Office Buildings	1.0	-	-	-	1.5
2049	Office Building Maintenance	-	-	-	0.0	-
2050	Repairs & Maintenance of Office Tools & Plants	-	0.0	0.1	0.0	-
2070	Heavy Vehicle Maintenance	41.5	39.4	51.7	49.8	49.4
2077	Repairs & Maintenance Plant & Machinery	1.8	1.2	10.6	0.8	0.6
2081	Maintenance Charges for Railway Level Crossing	2.6	1.2	1.4	1.6	-
2086	Power Charges for Sewerage System	0.4	-	-	-	-
2087	Power Charges for Heads Water Works	310.2	463.8	435.1	420.6	432.8
2088	Power Charges for Streetlights	63.0	8.7	-	5.2	13.5
2089	Streetlight Maintenance	0.0	0.1	-	0.0	50.1
2090	Wages	59.3	58.6	63.3	72.2	68.4
2095	Survey Charges	-	-	0.1	-	-
2100	Sanitary/Conservancy Expenses	-	0.1	-	0.1	0.0
2108	Rent of Buildings	-	-	0.0	0.0	-
2110	Diet to Patient	-	-	-	0.7	-
2125	School, Water Supply & Sewerage Maintenance	68.5	49.1	46.6	46.9	53.7
2129	TWAD & Metro Water - Maintenance Charges	-	17.9	21.8	52.1	404.9
	Total Expenditure	**628.4**	**777.0**	**804.3**	**916.9**	**1,382.9**

5. Reform agenda

TCC's own revenue (including prior period income) has grown at a CAGR of 24% during the last five years, contributing significantly to the improvement in its financial position. This is particularly impressive considering that the property tax (which is the single largest revenue head for ULBs) revision due in FY 2003 has not been implemented yet.

TCC'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 asset management.

The following paragraphs outline select interventions for improvement of financial and operating performance

5.1 Revenue enhancement

5.1.1 Property Tax

Exhibit 5.1 highlights the key issues and recommended interventions with respect to property tax. While a substantial improvement in property tax is contingent upon implementation of ARV revision (due in 2003), there are other interventions that would enable effective property tax realisation.

Exhibit 5.1 Key issues and suggested measures

Issues	Recommended Interventions	Agency
Revision of Annual rental Value (ARV) has fallen due in 2003. The revision is yet to be implemented.	**1. GOTN should implement the SFC recommendation of revision of property tax every three years, linked to inflation. This is will ensure gradual and stable increase, rather than the existing quinquennial revision.**	GoTN
In 1998 when the ARV scheme for assessing property tax was introduced, the old assesses were allowed to pay taxes based on capital value with marginal increase, leading to distortions and non-uniform rates.	**2. All assesses should be taxed on the same basis through a uniform and transparent approach to property tax assessment. Existing anomalies need to be removed at the earliest.**	GoTN / TCC

Issues	Recommended Interventions	Agency
Survey of properties happens only when the ARV revision takes place. Apart from addition in properties without getting assessed, addition to area in existing properties or conversion of property from residential to commercial category also goes unnoticed leading to revenue loss to Corporation	**3. Initiate a one-time survey to prepare a comprehensive database of properties available with it with updated information on the area / type and property tax details** **4. Institutionalise a mechanism for conducting surprise checks on a sample basis in all the zones under the corporation on an ongoing basis and mandatory re-assessment of properties every five years.** **5. Streamline procedures for assessment/ approvals of new properties / expansion of existing properties to encourage self-disclosure of property development / modification** **6. Computerise and web-enable property tax assessment and billing processes** **7. Develop a GIS based system for effective data capture and monitoring**	TCC
On an absolute basis, property tax arrears have shown an increasing trend.	**8. Launch a focused drive on existing arrears** **9. Conduct one time settlement scheme for old arrears and incentivise payments through marginal rebates for arrears pending for more than 5 years.** **10. Work with GOTN to moot creation of a special tribunal for speedy disposal of properties under litigation** **11. Make provisions for the debtors and take steps for writing off bad debts**	GoTN/TCC
While Property tax is payable on a semi-annual basis, no interest /penal charges are levied on late payment.	**12. Implement Payment Due Date along with a 90 day grace period during which payments would involve a nominal interest payment.** **13. Payments beyond the grace period should include a steep penal charge to encourage payments on time.**	GoTN/TCC
Tax Dispute cases where the assessee approaches legal recourse without paying any tax.	**14. In case of disputed property tax, the assessee should first pay the tax under protest as in the case of excise or customs and then take the necessary legal recourse. The Act should be modified in such a way that no legal recourse should be available to the assessee without paying the tax under protest.**	GoTN / TCC
Blanket Exemptions to institutions reduce the property tax potential	**15. Exemptions from tax should be provided only to needy institutions. For example blanket exemption to educational institutions (including large self-funded**	GoTN / TCC

Issues	Recommended Interventions	Agency
	private residential schools) should be reviewed. 16. All exemptions lead to a revenue loss to the ULBs and should be compensated by GoTN.	

5.1.2 Professional Tax

The share of professional tax in TCC's revenue has doubled over the last five years and is becoming an important revenue stream. It is also a visible revenue stream and hence collection efficiency (especially on current demand) has been more than 90%.

17. **TCC should focus on widening its professional tax base** by bringing more traders and independent professionals within the ambit of professional tax**.** Specifically, TCC 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.
- **Commercial Taxes Department, GoTN** to get details of sales tax registrations (existing and new) within TCC.

5.1.3 User charges

TCC has been fairly successful in progressively increasing user charges especially in the areas of water charges, which has grown at a CAGR of 14% over the last five years. With the commissioning of the new UGD system and proposed augmentation of the water supply system, User charges would need increased monitoring and follow-up given their potential to contribute to TCC's revenue.

Specifically TCC should

18. **Increase penetration of connections for water supply.** Currently TCC has about 68,000 connections, which accounts for only 56% of the properties assessed. TCC should target achieving a total of 100,000 connections over the next five years.

19. **Providing water fountains only in areas with a predominantly low income population to minimise revenue loss to the corporation.**

20. **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 (as is being envisaged by TCC).** While the metering based system would a better system in principle (charges on the basis of usage) and in terms of incentivising water conservation, ULBs have faced resistance in implementation of metered tariffs. TCC is contemplating implementation of meter based tariffs through involvement of Self Help Groups as meter readers.

21. Consider implementing **user charges for door-to-door collection** of Solid Waste.

22. **Adopt measures to improve collection efficiency.** Overall collection efficiency at 55% needs to be improved. TCC should consider stiff penalties for non-payment of user charges. Specifically TCC should consider implementation of late payment fines and in case of extreme overdue situations, disconnecting supply.

5.2 Measures for cost management

5.2.1 Energy efficiency

TCC 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:

23. TCC should conduct a **comprehensive energy audit** to identify areas for reducing power consumption and related costs.

24. TCC should implement **automatic time based dimmers** on street light network and ensure that all **pumps / motors are energy efficient.**

25. TCC indicated that leakages in its water supply network are in the region of 25-30%, as against a targeted level of 5-10%, which adds to overall cost of service delivery. A focused study is needed to assess the level of leakages and to recommend measures to minimise the same.

26. GoTN should also consider a **specific grant / capital subsidy scheme to incentivise energy conservation initiatives** for not just TCC, but for all ULBs.

27. **CMA, GoTN and TNUDF should develop and implement minimum standards related to energy conservation including installation of energy efficient motors, right sized pumps etc.**

5.3 Other measures / interventions

5.3.1 Land Use management

28. TCC should moot development of a **comprehensive Land Use Master Plan** (as suggested in the CCP prepared earlier).

5.3.2 Public private partnerships (PPP)

We understand that TCC has already privatised door-to-door solid waste collection in select wards and is contemplating privatising operations and maintenance of the Sewerage Treatment Plant of its ongoing UGD scheme.

TCC should augment its own resources through PPPs developing remunerative projects. The practice of insisting on commitment through pre-construction deposits for remunerative projects is a good first step in this direction. However, 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.

29. TCC should develop its **proposed remunerative projects** namely, a) slaughter house, b) bus stand, c) commercial complex d) Marriage Halls and e) Integrated market complex through private participation.

30. TCC should actively encourage **corporate / NGO partnerships** for city beautification projects including bus stops, street lighting, parks

31. TCC should consider implementation of **pay-and-park zones** in congested high traffic areas in the city.

32. CMA, GoTN should develop a **framework for PPP** including specific policies and guidelines.

33. 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.

5.3.3 Accounting /Audit

While all ULBs in GoTN have implemented a double entry accounting system, most of the ULBs including TCC require significant improvement in their accounting practices. Several ULBs have redundant systems involving manual and computerised book keeping and errors often creep into MIS. Often, the MIS in the form of DCB statements and information provided in accounting statements are not reconciled.

34. CMA, GoTN should consider an **outlay for technical assistance** to ULBs to **improve their accounting systems and practices**.

35. Proper training should be given to the staff on the concepts of double entry book keeping.

36. The property tax system has been computerised but the software for accounting developed by TNUDF is not working in the field. TNUDF should take steps to complete the accounting software, which can be implemented and operated in the ULB's.

37. The government should come out with a order of phasing out manual books like the property tax DCB registers because the same data is being maintained both manually and also in computer database.

38. The LFA should also be given training in auditing through computer so that the manual books can be avoided in future.

39. If the FAS developed by TNUDF cannot be rectified then stop gap software like Tally can be introduced at the ULB level so that major portion of the accounting can be handled by the software.

40. The government should continue to provide for the payment of common accounts and computer assistant to work in the ULB which it was providing till date.

41. The government can look at a option of employing a local CA firm to give guidance and training to ULB staff on a regular basis. 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.

42. TNUDF could consider a grading system to categorise ULBs on the basis of accounting and reporting practices

6. Financial and Operating Plan

6.1 Financial and Operating Plan – time horizon and scenarios

The FOP has been prepared for a ten-year period i.e., FY 2006-2015 for 2 different scenarios as given below:

- **Scenario I -** Base projections
- **Scenario II –** Projections with 'potential improvements'

The basis and assumptions underlying income and expenditure projections for the FOP are detailed in section 6.2

6.2 Basis and assumptions

6.2.1 Revenues

Property tax

Property tax projections has been arrived at as a product of average tax per assessment and the number of properties assessed. Assumptions on these revenue drivers are given below:

- ***Scenario I –Base case***
  - ❖ Assessments growth – 4.5% per annum (in line with the CAGR over the last five years), with a cap on the number of assessments at 200,000 properties.
  - ❖ Average tax per property - Rs. 1386 per property assessed, in line with the average tax per property collected in FY 2005. A 5% revision in ARV in FY 2007 and FY 2012 are considered.
  - ❖ Arrears collection efficiency - 15 % for FY 2006 (maximum during FY 2001-05) in FY 2005 and assumed to increase by 2 % every year (17% in FY 2007 and so on)
  - ❖ Current collection efficiency - 75 % (maximum during FY 2001-05) in FY 2005 and assumed to increase by 2 % every year (77% in FY 2006 and so on)
- ***Scenario II – with improvements***
  - ❖ Assessments growth – 6 % per annum (in line with the CAGR over the last five years), with a cap on the number of assessments at 250,000 properties.
  - ❖ Average tax per property - Rs. 1386 per property assessed in FY 2006 with a one-time upward revision of 25% in FY 2007
  - ❖ Collection efficiency are kept at the same levels as Scenario I

Profession tax

Profession tax has been arrived at as a product of average tax per assessee and the number of assessments. Assumptions on these revenue drivers are given below:

- ***Scenario I –Base case***
  - ❖ Assessments growth – 8 % per annum (in line with the CAGR over the last five years), with a cap on the number of assessments at 70,000
  - ❖ Average tax per assessment - Rs. 833 per assessment, in line with the average in FY 2005. No revision has been assumed for the base case.
  - ❖ Arrears collection efficiency – 63 % for FY 2006 (maximum during FY 2001-05) in FY 2005 and assumed to increase by 2 % every year (65% in FY 2007 and so on)
  - ❖ Current collection efficiency – 91 % (maximum during FY 2001-05) in FY 2005 and assumed to increase by 1 % every year (92% in FY 2006 and so on)
- ***Scenario II – with improvements***
  - ❖ Assessments growth – 12 % per annum (in line with the CAGR over the last five years), with a cap on the number of assessments at 70,000
  - ❖ Average tax per assessment - Rs. 833 per assessment, in line with the average in FY 2005. No revision has been assumed for the base case.
  - ❖ Collection efficiency are kept at the same levels as Scenario I

Water Charges

Water charges have been arrived at as a product of average water charges per connection and the number of connections.

Under scenario I, the number of connections has been assumed to grow at 4.69 % per annum. Also the number of connections has been capped at the maximum level of 100,000 so that the FOP does not show infinite increase in the water charges. The average rate of water charges per connection has been worked as Rs.1041 per connection based on the data given by the ULB. The base collection efficiency for arrears is assumed at 33% (maximum achieved during FY 2001-2005) with an increase of 2% every year. For current demand, collection efficiency is assumed at 75 % (maximum achieved during FY 2001-2005) with an increase of 2% every year.

Under scenario II, connections are assumed to grow at 8% per annum. Average tariff per connection in FY 2006 is assumed at Rs. 1041 per connection, with a tariff increase of 5% every two years. The base collection efficiency for arrears is assumed at 33% (maximum achieved during FY 2001-2005) with an increase of 5% every year and capped at 60%. Collection efficiency are kept at the same levels as Scenario I

Other income

The assumptions made in case of other income is summarised in the table below:

Exhibit 6.1 Assumptions for other income

Item	Base Amount (in Lakh)	Growth (CAGR %)	Assumptions

Item	Base Amount (in Lakh)	Growth (CAGR %)	Assumptions
Sewerage Charges	Rs 5.82	8.8%	• 8.8% CAGR on base amount for FY 2005 • 15000 new connections assumed to be added by FY 2010 in Scenario I and 30,000 new connections in Scenario II. • Base tariff assumed at Rs. 20 per connection per month in Scenario I. In Scenario II, tariff increase of 5% every two years assumed.
Devolution Fund	Rs 1651.23	17.4%	CAGR of 5% in the base case and 10% in the optimistic scenario.
Service Charges & Fees	Rs 518.14	11.5%	CAGR of 5 % on the base amount for FY 2005. Devolution fund has been
Other income	Rs 705.91	-5 %	
Assigned Revenue	Rs 821.54	-2.6 %	
Grants & Contributions	Rs 116.08	193% (low base in FY 2001)	

6.2.2 Assumptions - Expenditure

The major assumption adopted for projection in revenue expenditure based on the past performance is as follows:

Exhibit 6.2 Expenditure

Item	Base Amount (in Lakh)	Growth (CAGR)	Assumptions
Salaries	Rs 2427.06	-3 %	CAGR of 3% with costs of FY 2005 as the base
Operating Expenses	Rs 1351.76	9.8%	Expenditure assumed as 2.5% of the gross block of fixed assets (in line with the average over the last five years). An inflation of 5% has also been considered
Programme expenses	Rs 3.03	2.8%	CAGR of 2 % with costs of FY 2005 as the base
Administrative Expenses	Rs 584.29	7.6%	CAGR of 5 % with costs of FY 2005 as the base
Depreciation	Rs.1829.16	NA	Expenditure assumed as 3.4 % of the gross block of fixed assets (in line with average over previous five years)
Finance expenses			Refer 6.2.3 below

6.2.3 Assumptions - Assets and liabilities

The major assumption adopted for projection of assets and liabilities is given below:

Loans

Most of the loans taken by the municipality are from TUFIDCO. All loans are long-term and the ULB has recently done loan swapping which will reduce the interest burden of the ULB. The ULB

has a loan outstanding of Rs.4115 lakh and the scheduling of these loans and interest has been taken into account in the FOP.

Exhibit 6.3: Loan Statement as on 30.09.2005

Rs. In Lakh

Lending Agency	Amount of Loan	Year of drawal	Interest Rate %	Loan period (years)	Total loan repaid			Outstanding loan amount
					Principal	Interest	Total	
TUFIDCO (Swapping of Loan)	3000.00	2005	8.00	8	0.00	34.19	34.19	3000.00
TUFIDCO (Special Road Works)	625.00	2003	10.50	13	0.00	145.05	145.05	625.00
Water Supply Improvement Loan	183.31	2003	10.50	15	0.00	31.00	31.00	183.31
Water Supply Improvement Loan	18.19	2003	10.50	15	0.00	2.63	2.63	18.19
Take Over Finance	354.87	2003	10.25	8	66.10	66.74	132.84	288.77
Total	**4181.37**				**66.10**	**279.61**	**345.7**	**4115.27**

New Loans

The requirement of new loans is related to capital expenditure (Capex) the ULB wants to execute. The loans has been taken as 50% of the total Capex while the grants is assumed at 40% and the own contribution by the ULB is pegged at 10% of the total Capex. The terms of the new loans is assumed as follows

Exhibit 6.4 New loans

Particulars	Assumptions
Rate of Interest on new loan	8% p.a.
Repayment Period of new loan	15 years (exclusive of moratorium)
Principal moratorium period	2 years

6.3 Estimation of borrowing 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 TCC as the minimum of

- NPV of 30% of revenue projections and
- NPV of Operating Surplus projections.

The overall financing mix has been assumed to include 50% loans, 40% Grants and 10% own funds in order to arrive at the overall investment capacity. Thus, we have computed the investment capacity as Borrowing capacity (arrived at as explained above) divided by 0.5.

6.4 Results of Financial projections

6.4.1 Income and expenditure projections

Exhibit 6.7 captures the Income and Expenditure projections for FY 2006-15 with potential improvements and sustainable borrowings

Exhibit 6.6 Income and Expenditure projections

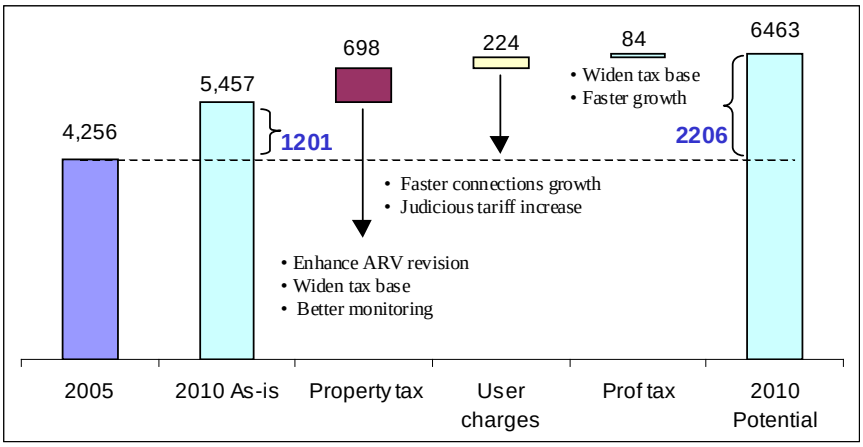
INCOME	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
OWN INCOME	4,433	4,766	5,666	6,115	6,463	6,866	7,183	7,562	7,893	8,298
Property tax	2,007	2,127	2,819	2,988	3,167	3,357	3,558	3,772	3,998	4,238
Profession tax	319	358	400	449	502	563	583	583	583	583
Water Charges	816	925	999	1,133	1,148	1,205	1,205	1,265	1,265	1,329
Sewerage Charges	6	7	31	58	84	101	114	133	148	154
Service Charges & Fees	544	571	600	630	661	694	729	766	804	844
Sale & Hire Charges	-	-	-	-	-	-	-	-	-	-
Other Income	741	778	817	858	901	946	993	1,043	1,095	1,150
ASSIGNED REVENUE	863	906	951	999	1,049	1,101	1,156	1,214	1,274	1,338
TRANSFERS	1,852	2,031	2,228	2,444	2,681	2,942	3,228	3,543	3,888	4,268
Devolution Fund	1,730	1,903	2,093	2,302	2,533	2,786	3,065	3,371	3,708	4,079
Grants & Contributions	122	128	134	141	148	156	163	172	180	189
TOTAL	**7,148**	**7,703**	**8,845**	**9,557**	**10,192**	**10,908**	**11,567**	**12,318**	**13,056**	**13,904**
EXPENDITURE (excl. /Depreciation)										
OPERATING EXPENSES	4,631	4,990	5,391	5,821	6,282	6,736	7,222	7,741	8,296	8,890
Salaries	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
Repairs & Maintenance	1,515	1,768	2,042	2,340	2,662	2,970	3,303	3,661	4,048	4,463
Programme Expenses	3	3	3	3	3	3	3	4	4	4
Administrative Expenses	614	644	693	746	803	865	931	1,002	1,079	1,161
FINANCE EXPENSES	605	823	1,024	1,206	1,371	1,467	1,550	1,620	1,691	1,840
TOTAL	**7,297**	**8,103**	**8,934**	**9,776**	**10,631**	**11,368**	**12,124**	**12,900**	**13,713**	**14,642**
Cash Surplus	**1,911**	**1,889**	**2,430**	**2,530**	**2,539**	**2,705**	**2,795**	**2,957**	**3,069**	**3,174**

6.5 Impact of potential improvements

TCC'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. Specific interventions with respect to revenue realisation and cost management are detailed in section 5 of the report. On an 'as-is' basis, TCC's own revenues (comprising taxes, user charges and other income) could grow from Rs. **4256 lakh** in FY 2005 to **Rs. 5409 lakh** by FY 2010, implying a absolute growth of **27 %**. We believe that TCC could potentially increase its own income to **Rs. 6360 lakh through focused interventions in the following areas**

- **Property tax** – through an enhanced revision in ARV, widening assessee base and closer scrutiny
- **Professional tax** – sustaining a growth in assessments of 12% in the assessments as against 8% assumed in the 'as-is' scenario through widening tax base among traders and self-employed professionals
- **User charges** - TCC could potentially generate nearly Rs. 220 lakh by adding another 25,000 water connections (increase of tariff by 5% every two years) and by achieving 30,000 sewerage connections (at a nominal fee of Rs. 20 per month per connection) by FY 2010.

Exhibit 6.7 - Potential for Revenue Improvement



TCC also needs to explore land development as a revenue enhancement mechanism and should focus on attracting private sector participation through appropriate BOT/ SPV structures. Considering that TCC has identified development of bus stand infrastructure and other remunerative projects at an outlay of nearly Rs. 7500 lakh, there is a significant revenue potential in addition to that indicated. Development of Gandhi market as indicated earlier along could add to nearly Rs. 300 lakh in incremental revenues for TCC.

TCC should aspire to increase its own revenues (other than state devolution and assigned revenues) to Rs. 6500 lakh – Rs. 7000 lakh within the next five years

While there is potential for expenditure control in certain areas (as in the case of energy costs and leakage in water supply), **the focus of cost management should be to shift expenditure from administration to better asset management and service levels.** While preparing the Financial and Operating Plan, we have not factored in any cost reduction and have assured that any savings generated from cost reduction would go into augmenting service levels and better asset management.

A comprehensive energy audit is required, given that TCC spends nearly Rs. 950 lakh on electricity charges. Plugging leakage in the water supply network and installation of timers and energy savers on the street light network are important interventions needed in the context of TCC's high power costs. A savings of 10-15% reduction in energy costs appears imminently achievable and **could translate to annual savings of nearly Rs. 100 lakh on the energy cost base for the year FY 2005.**

6.6 Summary of results

The borrowing capacity has been computed as the minimum of NPV of operating surplus, 30% of revenues during the projection period and works out to Rs. 202 crore.

Exhibit 6.8 – Summary of results of FOP

FOP summary	
Revenues – FY 2010 (Rs.Crore)	101
Revenue CAGR % - FY 2006-15	7.7%
Avg. Op. Surplus (Rs. Crore)	4,424
Avg. TE /TR (%)	77 %
Avg. DS /TR (%)	25 %
Borrowing Capacity (Rs. crore) computed as NPV of	
Operating surplus projections	320
30% of Revenue projections	202
Summary of Investment and Borrowing Capacity	
Borrowing Capacity (BC) – Rs. Crore	**202**
Investment Capacity (IC) - BC/0.4	**505**
Investment Requirement (IR)	**1224**
Sustainable investment capacity % - IC/ IR	**42%**

At an aggregate level, assuming loans to be equivalent to 40% of investment, sustainable investment capacity works out to Rs. 505 crore, which is only 42% of the total investment requirement. Exhibit 6.9 provides a suggested financing mix to meet the shortfall and implement the CIP in full.

Exhibit 6.9 – Suggested financing mix

Segment	Outlay	Phasing		Suggested Financing %		
		2006-10	2011-15	Loan	Grant	Own/Pvt
Water Supply	10,500	7,875	2,625	30%	60%	10%
Sewerage and Sanitation	62,700	37,200	25,500	15%	75%	10%
Solid Waste Management	600	500	100	30%	50%	20%
Roads	19,350	8,675	10,675	30%	50%	20%
Street Lights	500	250	250	0%	50%	50%
Remunerative Infrastructure	11,150	5,150	6,000	20%	20%	60%
Social Infrastructure	12,660	5,497	7,163	0%	90%	10%
Tourism	3,000	1,333	1,667	0%	90%	10%
Others	2,000	1,000	1,000	0%	90%	10%
TOTAL	**122,460**	**67,480**	**54,980**			

While loans and own funds should be used to finance remunerative projects, TCC should leverage and utilize Grants from schemes like UIDSSMT and IHSDP to undertake non remunerative projects relating to slum development, canal desilting etc. Further, TCC could also consider involvement of private sector in implementing remunerative projects including bus-stands, markets and slaughter houses etc.

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