

Tamil Nadu Urban Infrastructure Financial Services Limited

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

Final Report

December 2008



ICRA Management Consulting Services Limited

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List of abbreviations

TWAD	Tamil Nadu Water Supply and Drainage Board
CIP	Capital Investment Plan
FOP	Financial and Operating Plan
GLR	Ground Level Reservoir
IMaCS	ICRA Management Consulting Services Limited
IT / BPO	Information Technology / Business Process Outsourcing
Krish-M	Krishnagiri Municipality
LPCD	Litres per Capita per Day
MLD	Million Litres per Day
OHT	Over Head Tank
PC	Public Conveniences
SME	Small and Medium Enterprises
SMP	Second Master Plan
SWM	Solid Waste Management
SPV	Special Purpose Vehicle
TNHB	Tamil Nadu Housing Board
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 preparation of City Corporate Plan cum Business Plan (CCP-BP) of Krishnagiri Municipality (Krish-M). This exercise intends to enable Krish-M to develop a holistic, structured and consultative approach to fine-tune and define its development priorities going forward.

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

City profile and growth potential

Krishnagiri is a first grade town which is functioning as a district head quarters. Krishnagiri municipality covers an area of **9.78 sq.km** and had a population of **64587** in 2001 with average household size as 4.78 and density of 135 persons per hectare. Municipality has been constituted in 1965 and has been upgraded to first grade municipality in 1984. Krishnagiri is a town with historical significance - the town was ruled by several prominent South Indian dynasties. It is the sole centre to support commercial activities of the contiguous region and therefore can leverage this position to enlarge its basket of commercial activities and drive economic development.

A brief **SWOT** analysis of the town is presented below:

Strengths <ul style="list-style-type: none">• District Headquarters• Commercial / trading hub for surrounding areas• Second largest mango pulp cluster in the country is in the district	Weakness <ul style="list-style-type: none">• Limited industrial activity and employment generation potential• Region among the backward areas in the state• Lack of direct railway connectivity. Nearest broad gauge station is Hosur.
Opportunities <ul style="list-style-type: none">• Location on the Salem – Bangalore corridor along with good connectivity could spur investments in industry• Has potential to build on its strengths in mango/pulp exports to emerge as an important horticulture processing centre• Extension of town limits could facilitate orderly growth and improvement in municipal finances in the long term.	Threats <ul style="list-style-type: none">• Outward migration of skilled workforce• Continued constraints on ability and willingness to pay for urban services.

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

1. Build on the strengths in mango production and processing by incentivising investments in terminal markets, cold storage and export processing facilities

Press reports indicate that Krishnagiri is the second largest mango pulp-producing cluster in the country after Chittoor with more than *90% of the mango pulp production* in the country being from these two clusters. Setting up a Agriculture Export Processing Zone has been a long pending demand from the region. Though more than 40 pulp producers are present in the region, press reports indicate that very few of them have Hazard Analysis and Critical Control Point Certification (HACCP).



Further lack of shared testing facilities mean that many of them have to rely on facilities in Bangalore.

Establishment of a cold supply chain and phytosanitation facilities would have a huge potential for development of direct exports of fresh fruits. Krishnagiri town serves as an aggregation centre for mangoes. The mango markets are located at Dharmaraja Koil Street, Car stand Street, South Mada Street, Ambedkar Nagar main road, and at Salem road. The town has a weekly and a daily market to serve the commercial needs for trading of agricultural produce. Opportunities for development of adequate market infrastructure and cold storage facilities should be explored and implemented.

2. Build on the recent initiative to set up a Special Economic Zone in Krishnagiri district to spur industrial growth and employment opportunities in the region

Krishnagiri is among the backward districts in the country and nearly 84% of population in Krishnagiri district lives in rural areas. There is a need for creating industrial development for improving employment prospects in the region. Proximity to Bangalore and improved road connectivity to Bangalore has led to heightened interest in industrial development in the region as evidenced by the recent signing of MOU between GMR Group and GoTN for setting up a Special Economic Zone in the district. Initiatives like could spur the need for the residential and urban space and could lead to positive and economic growth opportunities for Krishnagiri town. In order to further leverage this, investments in social infrastructure, particularly schools and health care from both private and public sector should be encouraged.

3. Review master plan and explore scope for extending town limits

Krishnagiri town faces structural limitations for growth given that large parts of the town is already developed. This is also reflected in the decline in the population and relatively high population density in the central areas of town. During consultations with public stakeholders and council, there has been a strong demand for extension of the town's limits to facilitate orderly development. The land-use pattern in Krishnagiri also needs to be reviewed and updated in conjunction with the land-use of adjoining areas. This exercise is critical to enable an integrated approach to planning for the urban agglomeration growing in and around Krishnagiri and to facilitate an orderly growth of the same.

Municipal Services - Status assessment, gaps and actions being taken

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

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

Sl. No	Name of the Indicator	Value	Issues and Gaps
Water Supply:			
TWAD board currently preparing Hogenakkal water supply scheme to supply water in all wards in Krishnagiri town.			
1	Daily Per Capita Supply (LPCD)- 2007	60.4	<ul style="list-style-type: none">Current supply on a per capita basis is significantly below municipal normsNeed for significant augmentation of water supply at source, storage and distribution.
2	Storage Capacity / Daily Supply (%)	70%	
3	Distribution Network / Road Length (%) - (only municipal roads)	89.8%	
4	Water connections / Assessed properties (%)	39%	
Sanitation:			
The DPR for the proposed UGD system covering all the wards is under preparation by TWAD Board.			
6	Presence of UGD network (Yes / No)	No	<ul style="list-style-type: none">Coverage of UG network inadequateStorm water drainage coverage needs to be increasedPublic convenience network needs augmentation in view of the present inadequate coverage.
7	UG connections / assessed properties (%)	0.	
8	Household per Public convenience (nos.)	90	
9	Storm Drain Length / road network (%)	73%	
Roads and Street Lights:			
Proposal Rs. 68.70 lakh for road network improvements under UIDSSMT will be executed after the implementation of water supply and UGD schemes.			
10	BT roads / Total (%)	63.43%	<ul style="list-style-type: none">Municipal roads would require comprehensive upgradation following water supply and UGD implementation.
11	Road length per Street Light (m)	33 m	
Solid Waste Management:			
The solid waste management action plan involved an outlay of Rs. 109.96 lakh is under implementation. Collection activity in 11 wards privatized.			

11	Waste generation per capita (gms)	414	<ul style="list-style-type: none"> Composting, Source segregation and Door-to-door collection needs implementation in a phased manner. Awareness among citizens for less usage of plastics. Scope for greater private participation covering end-to-end given the size and scope of the SWM service requirement.
12	Collection efficiency (% of waste generated)	100%	
14	Compost yard area (Acres per 10,000 population)	74%	
15	Average vehicle trips	4	
16	Source Segregation and Composting (Yes/No)	partial	

Analysis of financial performance

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

Exhibit 2 Income and Expenditure summary

INCOME – Rs in lakhs	2002-03	2003-04	2004-05	2005-06	CAGR %
OWN INCOME	228	222	267	267	5%
Property tax	134	130	140	131	-1%
Profession tax	11	12	11	15	11%
Water & Sewerage Charges	29	25	53	48	18%
Other Service Charges & Fees	6	9	7	22	57%
Other Income	48	46	56	52	3%
ASSIGNED REVENUE	55	96	35	66	7%
DEVOLUTION FUND	154	127	160	56	-29%
PRIOR PERIOD INCOME	20	6	77	4	-44%
TOTAL	458	452	539	398	-5%
EXPENDITURE – Rs in lakhs	2002-03	2003-04	2004-05	2005-06	CAGR %
Salaries	159	168	143	179	4%
Operating Expenses	82	127	92	86	1%
Programme Expenses	1	1	1	1	-20%
Administrative Expenses	19	10	11	86	65%
Finance Expenses	34	36	0	20	-16%
Depreciation	78	82	102	16	-41%
Prior Period Expenses	2	2	0	6	49%
TOTAL	298	345	247	378	8%
SURPLUS - (Excl.Depr)	160	107	291	20	-50%
Operational Ratio (Total Exp/Total Income) (All figures in Percentage)					Avg.
Incl Depreciation	85%	95%	76%	98%	89%
Excl. Depreciation	68%	77%	53%	94%	73%
Debt servicing (Rs in lakhs)					
Loan repayments - Interest	37.01	25.64	38	19.56	120.21
Loan repayments - Principal	12.28	8.27	7.28	7.59	35.43
Debt servicing Vs Income	11%	8%	8%	7%	8.40%

Source: Krish-M and IMacs analysis

As seen from the table Income has grown at CAGR of 8.5% up from FY 03 to FY05, but has dipped in FY06. The ULB has therefore slipped from a positive cash surplus scenario to a deficit in FY 06. However, it should be noted that the financials for 2005-06 are un-audited figures and are subject to change. Some of the discrepancies observed are listed below:

- There seems to be some discrepancy in devolution income, which has fallen steeply from Rs. 160 lakh in FY 05 to Rs. 55 lakh in FY 06.
- Revenue from water charges has actually been shown to fall from Rs. 53 lakh in FY 05 to Rs. 11 lakh in FY 06, which seems unlikely. We have therefore taken the current demand of Rs. 41 lakh from the DCB statement for water charges as a representative revenue figure for our analysis.
- Further employee expenses have shown a very erratic trend dipping from Rs. 168 lakh to Rs. 46 lakh in FY 05 and again increasing to Rs.179 lakh in FY 06. We have sought clarifications on these aspects from the municipality.
- Contribution to Employee PF has increased in FY 06 to Rs. 85 lakh from Rs. 65000 in FY 05 and other administrative expenses has increased from Rs. 1.26 lakh to Rs. 65 lakh during this period. (Other expenses is very high).
- There has been no expenditure shown under Finance charges and Depreciation during FY 05.

Capital Investment Plan, priority projects and technical assistance requirements

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

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

Exhibit 3 Capital Investment Plan summary (Rs in lakhs)

	2008	2009	2010	2011	2012	TOTAL
Water Supply	187	1,617	1,617	1,617	1,617	6,657
Sanitation	25	811	915	894	-	2,645
Solid Waste Management	-	631	-	-	-	631
Roads and Transportation	-	-	127	127	113	367
Other assets	63	-	40	70	30	203
Urban services for poor	0	526	526	526	526	2,105
TOTAL	275	3,586	3,226	3,235	2,286	12,608

List of projects

List of projects identified for implementation by Krish-M are listed in Exhibit 4 below.

Exhibit 4 List of projects: FY 2008-12

Sl. No	Sector	Project	Cost	Status
			Rs. Lakh	
1	Water Supply	Hogenakkal water supply project-Krishnagiri component	6470	Proposed. DPR being prepared by TWAD
		Water Treatment Plant of 7.30 MLD	165	Project Planning stage

Sl. No	Sector	Project	Cost	Status
			Rs. Lakh	
		Distribution Line Replacement	14	Project Planning stage
		Mini Power pump at 15 places	9	Project Planning stage
			6657	
2	Sanitation	Extension of UGD scheme in uncovered areas	2434	Proposed. DPR being prepared by TWAD
		22km of storm water drain construction including roads	165	Proposal to be considered post UGD completion
		Construction of Public Conveniences	25	Project Planning stage
		Public conveniences	21	Additional Outlay Phasing
			2645	
3	Transportation	Up gradation of non-BT roads tot BT roads	22	Proposal to be considered post UGD completion
		New road formation	49	Proposal envisaged as per normative gaps
		Resurfacing of roads after UGD implementation-22 km	264	Proposal envisaged as per normative gaps
		Bus shelter up gradation	3	Proposal envisaged as per normative gaps
		Street light	29	Additional Outlay Phasing
			367	
4	SWM	Land acquisition 5.34 acres identified	534	Proposed
		Compost yard development	54	Proposed
		Primary collection	16	Additional Outlay Phasing
		Secondary collection	28	Additional Outlay Phasing
			631	
5	Others	Health	80	Proposed
		Schools	40	Proposed
		Slaughter House	23	Proposed
		Gasifier crematorium	40	Proposed
		Parks	20	Proposed
			203	
6	UIDSSMT	Additional Outlay required for service level goals	2105	Additional Outlay required for service level goals
	Total		12608	

Technical assistance requirements

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

1. Comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
2. Digitization of layout records and town planning information

3. Roadmap for 135 LPCD water and 24x7 supply
4. Comprehensive solid waste management plan with priority to the compost yard development.

Projects by other departments / agencies

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

1. **TWAD** - Implementation of Hogenakkal Water Supply Scheme
2. **GOTN** – Review of master plan and land-use and roadmap for extension of city limits.
3. **Department of Industries, GoTN** – Evaluate scope for setting up an Agri Export Processing Zone in Krishnagiri.
4. **Department of Highways, GoTN / NHAI** – Explore the need and scope for setting up a master ring road around Krishnagiri including any extended areas.
5. **Railways** – Explore and expedite rail connectivity between Jolarpet and Krishnagiri.
6. **Tamil Nadu Pollution Control Board (TNPCB)** – Develop and implement necessary pollution control measures to prevent water, land and air pollution that may otherwise arise otherwise due to the expected growth of industrialisation of the region.

Reform Agenda

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

State level - 10 point agenda

1. Implement recommendations of the Third State Finance Commission, particularly those relating to the revenue buoyancy including property tax reform and devolution income from GoTN.
2. Ensure stability of tenure of key officials. Except for extraordinary circumstances, there should be a minimum tenure of at least 2 years for all the key positions including Commissioner, Municipal Engineer, Manager, Town Planning Inspector, Sanitary and public health head and Accountant. Further, guidelines need to be clarified and enforced for formal charge handover to ensure continuity, when there is a transfer of officials.
3. Conduct a zero-base assessment of skill gaps and manpower needs of ULBs to ascertain the appropriate manpower plan in terms of skill sets and experience/seniority. This is particularly relevant given the recent developments, specifically in urban planning and GIS, municipal accounting and systems, e-governance and modern practices in infrastructure service delivery including potential for Public-Private Partnerships.
4. Address critical operational areas through focused training and capacity building interventions, particularly in the areas of a) Engineering and project development, b) Accounting and Finance and c) Use of CAD/GIS applications in Town Planning and Engineering functions.
5. CMA, GoTN should continue with its ongoing technical assistance to ULBs to improve their accounting systems and computerisation. Setting up of the Debt Monitoring Cell to reconcile and disseminate information on debt status of the ULBs is also a positive step in this direction.

6. CMA, GoTN should insist and make ULBs complete accounts closing and audit within 3 months of completion of financial year. TNUDF could consider a grading system to categorise ULBs on the basis of quality of accounting and reporting practices.
7. Develop / enforce technical standards with specific applicability to municipal projects construction and execution particularly in the areas of a) integrated road asset creation and management, b) Flood management and guidelines for storm water drain construction and c) Building on ongoing initiatives in Solid Waste Management with greater focus on scientific waste processing and disposal mechanisms.
8. CMA, GoTN along with TNUIFSL should develop a framework for PPP covering specific policies and guidelines and model concessions for PPP in urban services including Water supply, Sanitation, Solid waste management, Street light maintenance and remunerative projects.
9. ULBs should be required to establish the practices of an independent systems audit to be conducted annually. This would enable ULBs to build in robust processes for disaster recovery and security of the IT architecture of the ULB.
10. Facilitate creation of a formal institutional mechanism to manage functional overlaps among nodal agencies/state level agencies and the ULB at the city level.

ULB level

Krish-M could potentially double its own income to **Rs.1380 /- lakh** by FY ending 2012 through focused interventions in the following areas. Specific actions for revenue enhancement and improvement in collection efficiency are outlined in the report.

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

FOP, borrowing capacity and investment capacity

The borrowing capacity of Krishnagiri works out to Rs. **4742 lakh**. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment capacity works out to Rs. **9484 lakh**, which translates to about 56% of the total investment requirement (including slum rehabilitation). If we exclude slum rehabilitation and urban services for poor projects which are largely grant funded, the borrowing capacity translates to **74%** of the total investment requirement.

Hence Krish- M is constrained in meeting its capital investment requirements and would require additional grant funding to meet its capital investment needs in full.

Exhibit 5 provides a summary of the results of the FOP, prepared for a 20-year horizon.

Exhibit 5 Financial and Operating Plan – summary

Estd. Revenues – FY 2008 (Rs. Lakh)	734
Estd. Revenues – FY 2016 (Rs. Lakh)	2,069
Estd. Revenues - FY 2027 (Rs. Lakh)	4,132
Revenue CAGR % - FY 2008-17	11.9%
Revenue CAGR % - FY 2008-27	9.5%
Average TE (excluding depreciation)/TR (%)	20%
Average DS/TR (%)	37%
Average DSCR	1.11
Borrowing Capacity	4742
Investment Requirement	16,960
Investment Capacity (at 50% loan)	9,484
IC/IR (including Urban Service for Poor)	56%
IC/IR (without USP investment)	74%

1. Introduction

1.1 Background to the study

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

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

1.2 Objectives, Scope of Work and study modules¹

1.2.1 Objectives of the study

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

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

¹ Compiled from the Terms of Reference document prepared by TNUIFSL

1.2.2 Scope of work

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

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

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

1.2.3 Study outputs and modules

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

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

1.3 Approach and Methodology

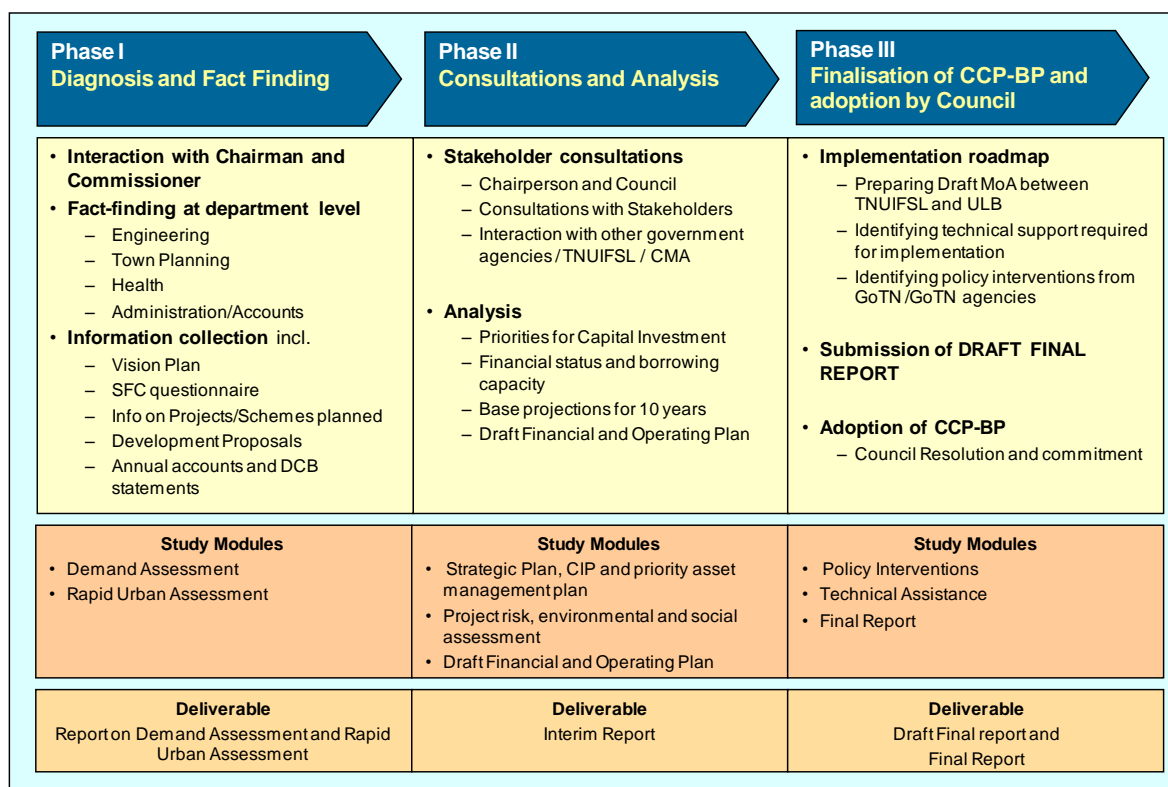
We conducted this study in three phases. Exhibit 1.1 provides a snapshot of the approach and methodology along the study modules and the deliverable(s) covered in each phase.

1.3.1 Phase I – Diagnosis and Fact-finding

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

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

Exhibit 1.1 IMaCS' approach and methodology



Our methodology for this phase covered the following:

- a) Primary research
 - We had interactions with the Commissioner and officials in various departments of Krishnagiri municipality. The objectives of these interactions were to get a first-hand view of the perspectives of these officials with respect to the overall status of the town and the issues in delivery of urban services.
- b) City Visits
 - Our team made several reconnaissance visits to different parts of the town to understand the spatial characteristics of the town and to get hang of the 'visible' issues facing municipal management in the town.
 - During these visits, IMaCS' team also had informal dipstick interactions with the local populace to capture select perceptions on the town and its municipal administration.
- c) Collection of information on aspects relating to the town and municipality
 - We spent substantial time during this phase in perusing various documents and information available with Krish-M and in follow-up discussions with ULB officials on the information gathered. In preparing this report, we have relied on the information provided by the ULB.

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

1.3.2 Phase II - Consultations and Analysis

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

- a) **Consultations with the Council and public stakeholders** - The focus of these consultations was to understand issues in urban services and to discuss options and drive a consensus on the future vision and strategy for the town. We also deliberated on the ongoing and proposed projects in order to understand and factor the council's priorities. Refer Annexure II for minutes of the discussions
- b) **Analysis and finalisation of Capital Investment Plan** – Based on the findings of the rapid urban assessment and consultations with Council and stakeholders, we arrived at the Capital Investment Requirements for the town for the next 20 years. (i.e., 2008-2027).

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

1.3.3 Phase III – Finalization of report

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

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

1.4 Organization of this report

This document presents our Final Report of the study and is structured along the sections given below. Prior to finalisation, the Draft Final Report was submitted and reviewed by TNUIFSL, CMA and Krish-M. The report with the incorporated changes was presented to the municipal council, which passed a **Council Resolution²**, approving the report in its meeting on **28.07.2008**

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

² Copy enclosed with Executive Summary of report

2. Town profile and city demographics

2.1 City profile

2.1.1 District overview & Historical Significance

Krishnagiri town functions as the district headquarters. Krishnagiri is a town with historical significance - the town was ruled by several prominent South Indian dynasties. Archeological surveys reveal the prehistoric existence of mankind in this place during the Paleolithic, Neolithic and Mesolithic Ages. The region was popularly known as “Nigarili Chola Mandlam” and 'Vidhugadhazhagi Nallur' during the Chola dynasty. According to historical sources during “Nulamba” rule, people, as Nulambadi knew the region'.

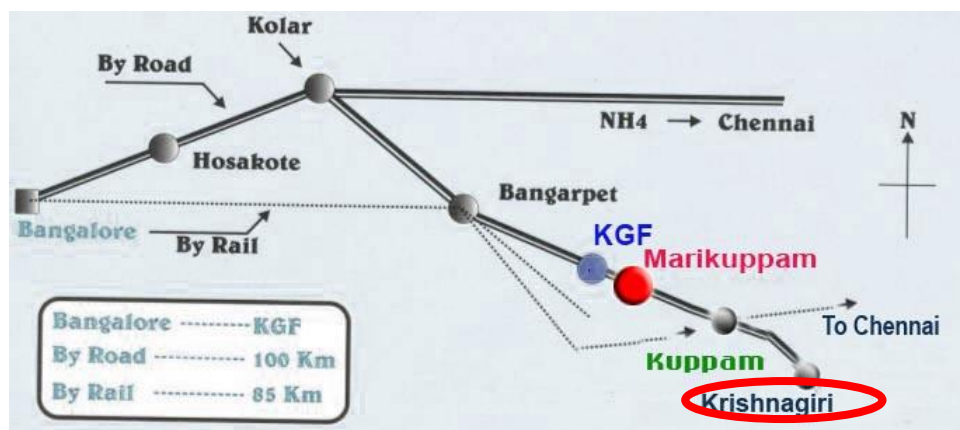
Adhiyaman once ruled Krishnagiri and hence the place is also known as 'Adhiyaman Nadu'. This region was ruled by Pallavas, Gangas, Nulambas, Cholas, Hoysalas, Vijaya Nagar Emperors, Bijapur Sultans, Wudayars of Mysore and Nayaks of Madurai. The fort at Syed Padasha Mountain is note worthy. Haider Ali and Tipu Sultan built this picturesque fort. During the mutiny the forts and reservoirs were dismantled. The growth of Krishnagiri town has been restricted due to mountain fort and tank on the western side.

2.1.2 Location and Connectivity

The district is surrounded by Andhra Pradesh on the north, Palcode, and Uthangaraj Taluks of Dharampuri District at the south; Tiruppattur taluk of Vellore district at the east and Denkanikotta taluk of Krishnagiri district at the west.

It is located at a distance of 110 Km from Northwest of Salem along NH-7 and at a distance of 32 km from Palacode - the nearest railway station. The town is well connected by bus route with adjoining towns; viz: Dharampuri, Bangalore, Tiruppattur, Mettur and Salem. Exhibit 2.1 & Exhibit 2.3 provides the location of Krishnagiri town within Krishnagiri district along with a map of Krishnagiri town.

Exhibit 2.1 Krishnagiri Route Map



2.2 Krishnagiri municipality - administrative status

Krishnagiri is a first grade municipal town with effect from 17.04.1984. Formerly it was a town panchayat and was constituted into a municipality with effect from 1.04.1965. It has an extent of 11.50 sqkm comprising of three revenue villages namely Krishnagiri, Boganpalli (Part) and Kattiganapalli (Part)

The Municipal Council, comprising of **33** ward members, is headed by Chairperson. The executive wing is headed by Commissioner, who is assisted by a team of officials including Municipal engineer, Sanitary Officer and Manager. The current Municipal Council took charge in 2006.

2.3 Population

2.3.1 Decadal trends

Population in Krishnagiri town has not registered a steady decline during last four decades although it increased in absolute terms throughout the period. As per the last census 2001 population was 64,587 with floating population of approximately 10,000 daily. Decreasing population growth rate in last four decades can be attributed to general migration in search of employment and lesser opportunities for meaningful employment to residents of the town.

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

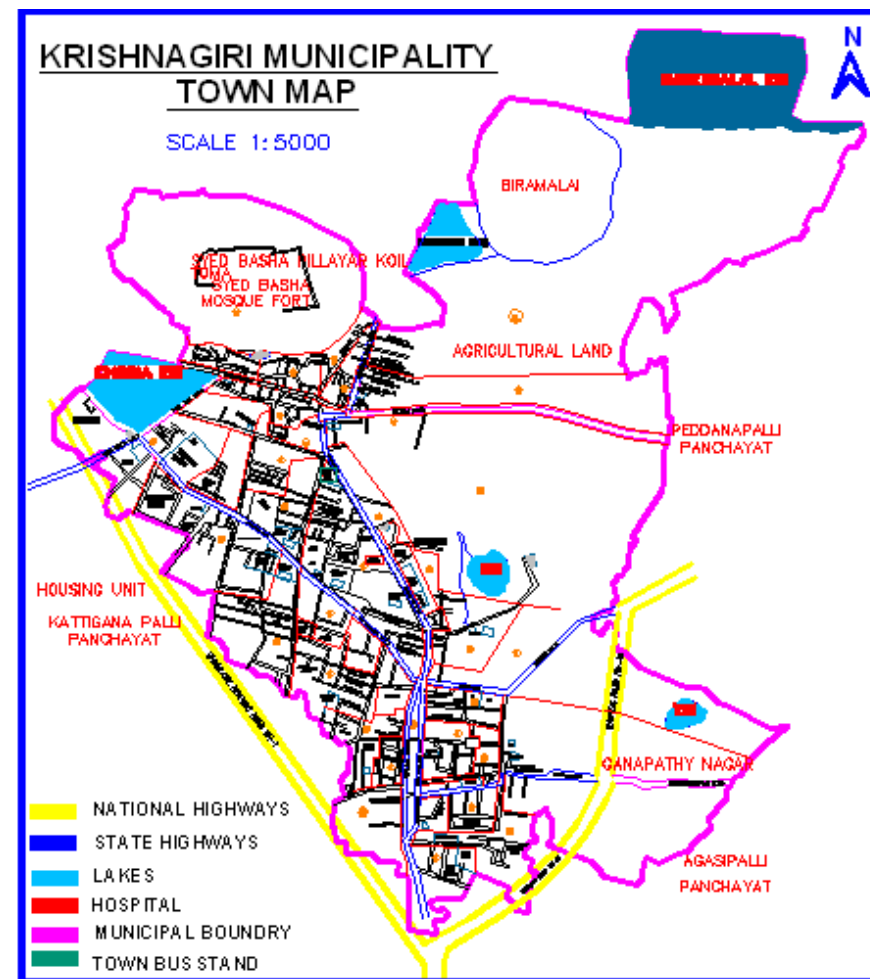
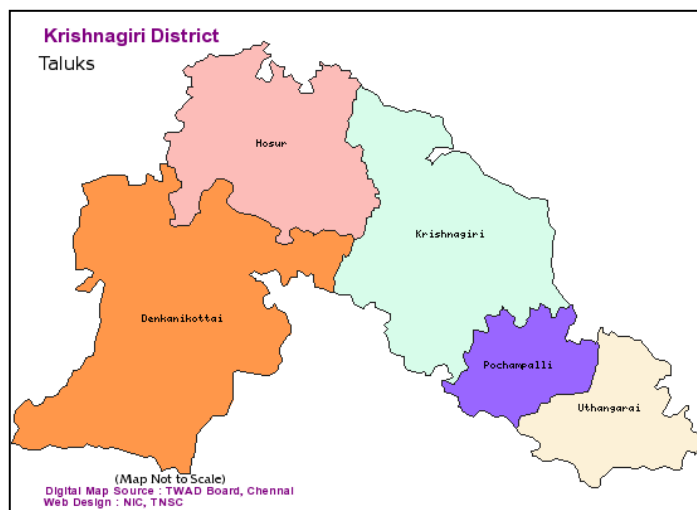
Exhibit 2.2 Population growth trend

Year	Population	Growth Rate (%)	
		Annual	Decadal
1961	23827		
1971	35383	4.0%	48.5%
1981	48335	3.2%	36.6%
1991	60315	2.2%	24.8%
2001	64587	0.7%	7.1%

Source: Census 2001, www.tnulbs.tn.gov.in

From our interactions with town planning officials, residential density is not uniform through out the town. Density is high in the centre and decreases in the peripheral areas. High density ranges from 100 - 150 persons per hectare (PPH) in the central part of the town and 30 - 60 persons per hectare (PPH) in the peripheral areas with low density. According to a recent survey, there are 21 slums with total population of approx. 26503 in around 4479 houses. Slum population constitutes about 41% of the present town population.

Exhibit 2.3 Location & Town Map of Krishnagiri



2.3.2 Ward wise population

Population is largely concentrated in central parts of the town.

Exhibit 2.4 provides the ward wise population of the town as per Census 2001.

Exhibit 2.4 Ward wise Details

Ward no	Households	Total population	Males	Females	Sex ratio
1	339	1,719	903	816	904
2	295	1,549	771	778	1,009
3	352	1,876	912	964	1,057
4	323	1,544	787	757	962
5	273	1,421	704	717	1,018
6	277	1,361	702	659	939
7	379	1,849	937	912	973
8	400	1,885	917	968	1,056
9	316	1,693	835	858	1,028
10	486	2,377	1,219	1,158	950
11	336	1,519	733	786	1,072
12	423	1,981	988	993	1,005
13	369	1,694	847	847	1,000
14	371	1,652	803	849	1,057
15	471	2,089	1,078	1,011	938
16	449	2,170	1,093	1,077	985
17	370	1,835	904	931	1,030
18	254	1,353	730	623	853
19	307	1,388	694	694	1,000
20	152	643	329	314	954
21	637	3,119	1,534	1,585	1,033
22	504	2,470	1,253	1,217	971
23	432	1,892	934	958	1,026
24	312	1,532	799	733	917
25	509	2,353	1,203	1,150	956
26	486	2,629	1,379	1,250	906
27	462	2,072	1,051	1,021	971
28	612	3,012	1,573	1,439	915
29	320	1,451	721	730	1,012
30	372	1,673	795	878	1,104
31	587	2,507	1,249	1,258	1,007
32	504	2,301	1,124	1,177	1,047
33	818	3,978	1,991	1,987	998
TOTAL	13,497	64,587	32,492	32,095	988

2.3.3 Literacy Rate and sex ratio

Exhibit 2.5 provides details of the sex ratio along with details of Literates for Krishnagiri Town, and Urban areas in Tamil Nadu. Krishnagiri's literacy rates and sex ratio is marginally better than the state urban averages.

Exhibit 2.5 Literacy and sex ratio

Particular	Male	Female	Total	Region	Sex Ratio
Literacy % - Krishnagiri town	87.6	74.7	81.20	Krishnagiri Town	988
Literacy % - State - Urban	88.97	75.99	82.53	TN state-urban	982

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

As per 2001 census, the literacy rate was 81% and was marginally less than the state's urban average. The sex ratio for Krishnagiri at 989 is slightly higher than the state average of 982 (as per Census 2001). It can be observed from historical census data of the town that the sex ratio has been following a downward parabolic path. It decreased to 968 (1981) before increasing to 989 (2001). This can be partly also attributed to migration of male population from the town in the past decade that has increased the number of females per thousand males.

2.4 Population projections

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

- Arithmetical Increase Method
- Geometric Increase Method
- Incremental Increase Method

Exhibit 2.6 provides the summary of the population projects made for the town.

Exhibit 2.6 Population Projections

	Arithmetic	Geometrical	Incremental	Average
2001	64,587	64,587	64,587	64,587
2011	74,777	79,847	72,349	75,658
2016	79,872	88,781	75,320	81,324
2021	84,967	98,713	77,683	87,121
2026	90,062	109,757	79,440	93,086

Source: iMaCS analysis, Krish-M

The population of Krishnagiri town could potentially go up in the next two decades from 0.81 lakh to 0.95 lakh by 2026. Krish-M should need to take into account these population projections and trends for planning, execution and implementation of infrastructure projects in order to ensure adequate provision of urban services.

3. Economic profile and Land use

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

3.1 Planning efforts in Krishnagiri

3.1.1 Krishnagiri Local Planning Area

The Town and Country Planning (T&CP) Act 1971 (Tamil Nadu Act, 35 of 1972) provides for the preparation and sanction of Master Plan. It also envisages the Local Planning Areas and Authorities for the preparation of Master Plan. Krishnagiri Municipal Area has been declared as Krishnagiri Local Planning Area under section 10 (4) of the T&CP Act in G.O.Ms.No.1249 RD & LA Dt 16.5.74.and the Local Planning Authorities have been constituted under section 11(1) of the Act in G.O.Ms.No.650 RD & LA Dt8.4.1975.

Krishnagiri Local Planning Area comprises of the Krishnagiri Municipal Area notified under section 10 of Town and Country Planning (T&CP) Act 1971 by Government of Tamil Nadu. Accordingly the Local Planning Authority (LPA) has been constituted under section 11 (1) of T&CP Act 1971 by the government.

3.1.2 Krishnagiri Master Plan 2000 (2001-2011)

The Krishnagiri Master plan was prepared and approved by the government in the year 1991 under section 28 of T&CP Act 1971 and the same is in operation now. The act provides review of master plan once in five years under clause (b) of sub section 2 of section 32 of the T&CP Act 1971; accordingly the government directed Krishnagiri Local Planning Authority (LPA) to revise the master plan. The approved 1991 master plan was based on the surveys conducted during 1987 and also based on the 1981 census, hence fresh surveys were undertaken and the reports were updated with 1991 census by the LPA.

3.1.3 Land-use and development as per Master Plan 2000

The present administrative area of Krishnagiri town extends over an area of 1150 hectares. However, in the master plan 2000, it is mentioned that the municipal area is 9.78 sq km and the land use pattern in the master plan has been given accordingly. The total developed area of the town is 347 hectares out of the town area of 9.78 sq km.

3.1.4 Existing Land-use as per Master Plan 2000

The land distribution pattern demonstrates that Krishnagiri predominantly serves as nodal centre for trading activities. Almost 75.50% of the developed land is under residential / administrative buildings, reiterating its role. There are various centres offering employment to sizable work force in the town. Industrial use occupies an area of 22 ha, which accounts for 6.34% of the developed area. The

existing land use pattern for Krishnagiri, as per the 2000 master plan (latest revised plan), is given below in Exhibit 3.1.

Exhibit 3.1 Existing Land Use Distribution (2000)

Use	Extent In Ha	% to Developed area	% to Total area
Residential	262	75.50	26.78
Commercial	30	8.65	3.07
Industrial	22	6.34	2.25
Educational	12	6.05	2.15
Public & Semi public	21	3.46	1.23
Total Developed Area	347	100.00	
Agriculture	371		37.93
Hillocks	133		13.60
Water Bodies	127		12.99
Total area	978		100.00

Source: Krishnagiri Master Plan 2000

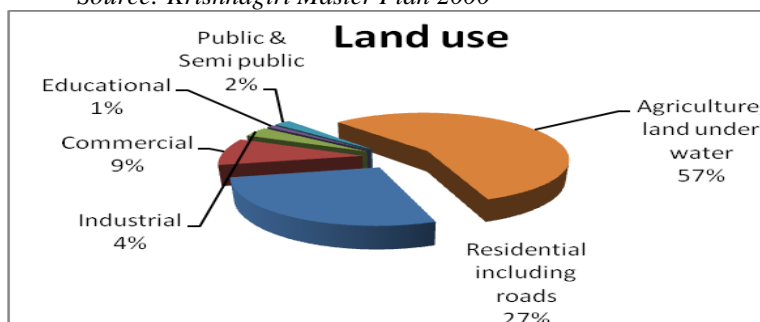
3.1.5 Proposed land requirement as per Master Plan (2001-2011)

There are 12 Detailed Development Plans proposed in Master Plan 2000, which will cover nearly 70.78 % of the total areas of the town. The proposed land requirement for Krishnagiri, in 2011 as per the 2000 master plan (latest revised plan), is given below in Exhibit 3.2.

Exhibit 3.2 Proposed Land Use requirement (2011)

Use	Extent In Ha	% to Total area
Residential including roads	268	27.4
Commercial	92	9.41
Industrial	34	3.48
Educational	10	1.02
Public & Semi public	21	2.15
Agriculture, land under water	553	56.54
Total Developed Area	347	100.00

Source: Krishnagiri Master Plan 2000



Residential Use including roads and transportation

For assessing the spatial requirements of the land for the designed population of 1 lakh in 2011 of Krishnagiri local planning area, the criteria adopted is that 40% of the urbanisable area will be for residential use and the remaining 60% for the other use. It is proposed in master plan to bring the additional requirement of 287 Ha for residential use from other usage and from surrounding villages.

Commercial and Industrial Use

The commercial use which includes markets, wholesale mandis, retail shops, cinema theatres occupies 30 Ha and is concentrated in the heart of the town. Around 9.41% of the land has been proposed for commercial use. At present the industrial estate is not functioning well. It is proposed to allot about 3.5 % of land i.e. 34 Ha of land for industrial use in Krishnagiri local planning area.

Parks and Play Fields

As per the master plan the land required for parks and playgrounds as per the norm of 0.4 Ha for 1000 population for the anticipated population of 1 lakh in 2011 will be 40 Ha.

3.2 Economic status

The town is a multifunctional town with both retail and wholesale business units. Krishnagiri serves as the district headquarters and an important commercial centre.

3.2.1 Primary Sector - Agriculture and Mining

Krishnagiri does not have any commercially exploitable mineral resources; however the adjacent places do have a good amount of high quality Granite mineral, which are in demand in western countries as well. The soils of the town are generally mixed or black loam, black sand, red sand, red ferruginous, or gravel in nature. The black loam is considered most fertile. It absorbs moisture from atmosphere and retains it. Considerable stretches of good loams and black clays are equal to loam in productivity. The main crops in and around the town are Paddy, Maize, Raggi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers. The town serves as the marketing hub for trading of agricultural produce from neighboring villages.

Krishnagiri is famous for mangoes and the transactions do take place in the market during May to July, after procuring from surrounding areas. The mango markets are located at Dharmaraja Koil Street, Car stand Street, South Mada Street, Ambedkar Nagar main road, and at Salem road. The town has a weekly and a daily market to serve the commercial needs for trading of agricultural produce.

Exhibit 3.3 Different crop cultivation in Krishnagiri District

Category	Produce
Cereals	Paddy, Cholan, Varagu, Ragi, Maize, Cumbu
Pulses	Red gram, Cow pea, Horse gram, Black gram, Green gram
Oil seeds	Ground nut, Coconut, Soya bean

3.2.2 Secondary Sector – Manufacturing Base

There is no significant industrial activity in the town, which is also reflected in the land allocated for industrial usage (1.48% of the developed area of the total town), in the town's approved master plan. The town has moderate penetration of industrial activities and this is reflected in allocation of 22 hectares of land for this purpose. This allocated area comes out to be 6.34 percent of the total developed area of the town. A number of Rice mill, Oil mill, Automobile repair shops, Sawmills are within the coverage of the town. Along the Chennai road about 60 Automobile workshops can be spotted. The concentration of sawmills can be witnessed along Netaji Road, Gandhi Road, Salem Road, Traveler's Bungalow road, Narasinmasamy koil street, and Tiruvannamalai road. In addition, a number of sawmills are also located along Gandhi road. Along the Bangalore road, there is one SIDCO industrial estate with 46 units. There is one industrial estate functioning in the town, which, as per local sources, is not functioning properly.

3.2.3 Tertiary Sector - Services

Krishnagiri serves as an important commercial centre for the surrounding villages. Agriculture being the main activity in the surrounding region, commercial activities is mainly linked to sale of inputs for crop production and its produce. Krishnagiri serves as a central market for seeds, fertilizers and other required by farmers for agricultural production. It also serves as the market for trading harvested agricultural produce. One daily and one weekly market support these activities.

Besides agricultural trading activities, the town also serves as a commercial centre to meet provision needs of the population from the surrounding region / villages. Retail activities include provision stores, and shops for household goods, clothing, etc. The town also serves as the nodal point to surrounding villages for professional services like medical facilities, banks and education.

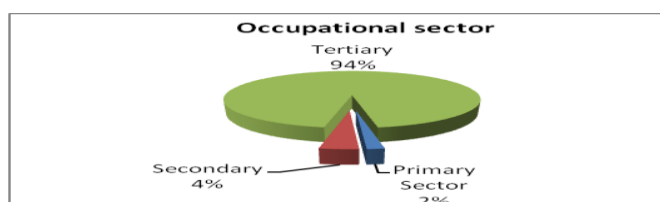
3.3 Occupational pattern

As per census data of year 2001 on occupational pattern of the town's population, the primary sector employs only 1.8% of the total workers population in the town. This implies low level of agricultural activity inside the town limits.

Household industries employ about 4% of the total worker population. This again shows the low level of industrial activity inside the town. Services and trading sector is the single largest employer, employing 94.2% of the total population in the town. This reinforces the fact that services drive the economy of the town. Exhibit 3.4 gives occupational pattern in Krishnagiri Town

Exhibit 3.4 Occupational distribution in Krishnagiri town (2001)

Sector	Employment	Percentage (%)
Primary Sector	379	1.8%
Secondary	840	4.0%
Tertiary	19905	94.2%
Total	21124	100%
Source: Census of India		



3.4 Recent developments

Though Krishnagiri district offers advantage in terms of proximity to Bangalore, connectivity to NH 7 (Chennai - Bangalore highway) and a good rail network linking it to Bangalore, Coimbatore and Salem, it has not had large scale investments and this has been a key reason for the lack of growth in the town. However, a number of initiatives have been taken to promote Krishnagiri and the entire region for fostering industrial and commercial development.

Recently, GMR Infrastructure Limited has entered into an agreement with Tamil Nadu Industrial Development Corporation (TIDCO) to set up a 3300 acre multi-product **SEZ** in Krishnagiri. GIL expects an initial investment of Rs 2,300 crore in basic infrastructure which would eventually lead to investments of over Rs 11,000 crore in industrial and social infrastructure and generate over three lakh jobs. A special purpose vehicle (SPV) in partnership with TIDCO is being set up to implement the project. Companies in electronics, engineering, IT, ITES, biotechnology and nanotechnology are expected to take up space in the SEZ. The project is expected to go on stream in 2009 and be fully occupied in five years. TIDCO has earlier carried out a market survey and preliminary feasibility study for the project. The SEZ, which has received Government of India's in principle approval, has a potential to generate exports of over Rs 16,000 crore a year. A few sites have been identified though the exact location of the SEZ is yet to be finalized.

Apart from this, there has also been an initiative in Krishnagiri district to set up rural call center for employing educated unemployed youth for providing employment in the growing BPO sector. Called FOSTERA (Fostering technologies in rural areas), this initiative envisages training of youth from naxal prone villages in typing, English grammar, communication skills, data conversion and XML tagging and collaborating with IT companies to provide employment and extending the presence and benefits of the country's growing BPO sector in rural areas. Initiatives such as mentioned above could contribute significantly to boosting the economic prospects of the region and would contribute to the growth potential of Krishnagiri town.

4. Rapid urban assessment - services, issues and gaps

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

4.1 Water Supply – existing status

4.1.1 Current requirement

Krish-M's requirement in 2006 is estimated at about 8.71MLD (Town's population of 64,587 @ 135 lpcd).

4.1.2 Sources of supply and Transmission

Water is supplied to the town through two schemes (1) Old scheme (1975) and (2) New scheme. The head works is situated on the right bank of the river, pumped to reservoir and then distributed to the town through 38.65 km of Thenpennaiyar in the village called Sundeypuppam at a distance of 11 km. The water from river is collected in five wells distribution system.

The river Thenpennaiyar is polluted by the sewerage effluents overflowing from the lake Varathur and Belandur near Bangalore city. About 30 % of the drinking water (Greenish colour) source in the two districts had fluoride content, 26 % nitrate, 24 % iron and 18 % hardness which could lead to **dental, skeletal fluorosis, blue body syndrome, throat infection and skin irritation in that order.** **Presently there is no treatment of the water supplied to the city.** In order to improve the quality of water drawn from the river, a treatment plant is being proposed at estimated cost of Rs. 151.73 lakh by the TWAD board..

Exhibit 4.1 provides details of the sources of water and the total daily supply.

Exhibit 4.1 Water Supply - Storage infrastructure

Sr. No.	Details of water supply schemes	Unit	Capacity
1	Quantity Supplied	MLD	4.3
2	Distance of the Source from Town	Km	11
3	Capacity of the Treatment Plant	MLD	Nil
4	Per capita supply- 2006	Lpcd	61.3

4.1.3 Storage

Water is pumped through headworks located at Sundeypuppam (11 Km) and transmitted to the Over Head Tanks (OHTs) / Ground Level Service Reservoirs (GLSRs), located at various places in the

town. *Exhibit 4.2* gives details of the storage infrastructure available within Krish-M in terms of OHTs and GLSRs. There are a total of 4 OHTs with a capacity of 29.95 lakh litres.

Exhibit 4.2 Water Supply - Storage infrastructure

Sr. No.	Area	OHT /GLR	Capacity (Lakh litres)
1	Old Pettai	OHT	10.0
2	Santher Pettai	OHT	8.0
3	London Pettai	OHT	6.25
4	Taluka Office	OHT	5.70
	Total		29.95
Operationally Available Storage (Lakh litres)			29.95
Required (50% of requirement) (Lakh litres)			21.5
Surplus/(Gap) in Storage (Lakh litres)			+ 8.45

Source: As provided by Krish-M. Discussions, iMaCS analysis

4.1.4 Distribution Network and House Service Connections

The distribution line length in Krish-M is about 38.65 km. Seen in the context of the total road length of Krish-M, which extends over 56.43 km (including roads managed by State highways). Therefore the distribution network covers 68% of road network and if we consider only the roads managed by municipality the coverage is about 89.8%.

4.2 House Service Connections

Krish-M municipality manages about 6720 House Service Connections within its limits. The number of HSCs is 39% of total assessed properties. There are 54 public fountains in the town. Water is supplied for 2 hours every alternate day. *Exhibit 4.3* provides the details of House Service Connections, user charge, connection charges and the HSCs given during 2002 to 2007 in Krish-M.

Exhibit 4.3 House service connections

Connection type	Connection Deposit amount Rs.	User charge Rs. per month
Domestic	3000	80
Non-Domestic	12000	300
Industrial	8000	160
Total no. of HSCs (as of Nov 2007)		7058
Assessed properties		19375
% of Properties		36.0%
Year		HSCs
2002-03		4479
2003-04		729
2004-05		439
2005-06		499
2006-07		496
Total		6642

Source: As provided by Krish-M. Discussions, iMaCS analysis

4.3 Proposed Hogenakkal Water Supply Project

The water supply requirement of the Dharmapuri and Krishnagiri districts is expected to be addressed the proposed Hogenakkal project. The beneficiaries of this project will be Dharmapuri, Krishnagiri and Hosur municipality, Seventeen town Panchayats from Dharmapuri district and six thousand and fifty five villages. The estimated installation cost of the project is Rs. **1334** crore and the estimated maintenance cost is Rs. 51.65 crore. The project is funded by JBIC and implementing agency will be TWAD board.

. Exhibit 4.4 provides a summary of the proposed Hogenakkal water supply scheme.

Exhibit 4.4 Beneficiary list and Distribution length proposed in Hogenakkal project

Beneficiary List			
District	Municipalities	Town Panchayats nos.	Unions
1. Dharmapuri	a) Dharmapuri	10	8
Population coverage 2001	64444	128473	1103348
Population for Base year 2006	73000	134898	1158516
Population forecast for 2036	138000	175370	1506072
2. Krishnagiri	b) Krishnagiri town c) Hosur town	7	10
Population coverage 2001	149338	89163	129246
Population for Base year 2006	163000	93622	1357084
Population forecast for 2036	336000	121708	1764209

Source: As provided by Hogenakkal project office, TWAD board

The water from the surface flow of river Cauvery at the Hogenakkal 1276 lakh litres of water would be pumped to a height of 913 metres to Head works is located at 6.22 km from source. From treatment plant it will travel a distance of 5.3 km to reach Pennagaram and Madam; from here gravity would carry the water to most of the habitations to 3 municipalities (Krishnagiri, Dharmapuri, and Hosur), 17 town panchayats and 6,755 villages in 18 blocks.

Exhibit 4.5 gives other details of the proposed scheme.

Exhibit 4.5 Other details of proposed Hogenakkal water supply project

SN	Particulars	Details
1	Proposed Per capita raw water supply	90 lpcd for 70% of pop (HIG)
		40 lpcd for 70% of pop (LIG)
2	Headwork	Intake well in river Cauvery at Hogenakkal
3	Pumping	18 hrs- 1,18,148 LPM
4	Raw water main	1000mm dia and 6.2 Km length
5	Treatment plant at 6.21 Km from Head works	127.6 MLD

Source: As provided by Hogenakkal project office, TWAD board

4.3.1 Issues and gaps

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

Exhibit 4.6 Water Supply – Gap analysis

Indicator	Unit	Norm	Existing	Gap
Per Capita Water Supply	LPCD	135	61	(74)
Storage and Distribution				
Storage - % of Current Demand	%	50%	70 %	20%
Distribution Network - % of Road Network	%	80%	68%	(12%)
Connections / Properties	%	70%	~38%	32%
Demand - Supply Gap				
Water Demand - Current	MLD		~ 8.7	
Water Demand – 2026 (at 120 LPCD)	MLD		~ 13	
Water Supply – Current	MLD		~ 4.3	
Demand Supply Gap – Current	MLD			~ (4.4)
Demand Supply Gap – 2026	MLD			~ (8)

Source: Inputs from Krish-M and IMaCS analysis

a. Lack of adequate access

Krish-M has 33 wards and had a population of 64,587 during Census 2001, which is increased to 70122 in 2006. Given municipal norm of 135 LPCD, demand for water supply in Krish-M has increased from **5.81 MLD in 2001 to 8.71 MLD in 2006**. As against this, the total water supplied within Krish-M is only about **4.3 MLD** implying that Krish-M is meeting about 45-50% of its 2006 requirements. The population in Krish-M could reach close to 1 lakh by 2026. Even at 120 LPCD norm of World Health Organisation (WHO), this would imply that Krish-M water demand would go up to **13 MLD** by 2026, which is 2.2 times the demand as of 2001. To the extent this can be solved by the proposal to supply water at 90 lpcd under Hogenakkal water supply project to Krishnagiri town for the estimated population of 138000 in year 2036.

b. Excess Phosphate content in ground water and sewerage effluents polluting the source causing water quality to deteriorate

The source of water to Krish-M, river Thenpennaiyar is polluted by the sewerage effluents overflowing from the lake Varathur and Belandur near Bangalore city due to which the water contains excess Ammonia and Phosphate making it greenish in color. Presently there is no treatment of the water supplied to the town. These demands for setting up of a treatment plant on priority basis. This is also expected to be solved to an extent on implementation of the proposed Hogenakkal project.

c. Mode of supply

There are some parts of the town where water is supplied through the Lorries for about 3 hrs in the morning and 3 hrs in the evening totalling to 1.0 lakh litres per day. During summer season the quantity of water supplied through Lorries increases. Water Supply by Lorries is not a sustainable solution and it may lead to other problems including traffic congestion and accidents.

d. Frequency of supply

Water is supplied for 2 hrs every alternate day in Krishnagiri town. This exposes the entire population to the hazards of unhygienic conditions, mosquito breeding near storage places and also the substantial amount of water is thrown away every alternate day for refilling of fresh water.

4.4 Sewerage and Sanitation

4.4.1 Underground Drainage (UGD)

Current status

There is no dedicated UGD system for carrying sewage and storm water separately in the town. The roadside drains are used for carrying both the sullage and rainwater. The main mode of individual disposal in the town is through septic tanks, Low Cost Sanitation units and through public conveniences.

Exhibit 4.7 Details of public conveniences

Sr. No.	Particulars	Number
1	Septic tank (ST)	11413
2	Low cost sanitation units (LCS)	974
Total		12387
Total households (No.)		14885
% of total HH covered through ST & LCS		83%

Source: Inputs from Krish-M and IMaCS analysis

Proposed UGD System

Due to the percolation of sewage water into ground many households are shifting from LCS to septic tank units. In order to overcome the problems, municipality has proposed to provide the sewerage system and a plan was prepared by TWAD board at an estimated cost of Rs 24.69 crore. The committee is reviewing the possibility new technology to be adopted for setting up of sewage treatment plant (STP) which will reduce the land requirement for STP unit to 1-1.5 acre. According to the municipality the decision regarding it will be taken soon. *Exhibit 4.8* gives details of the proposed UGD scheme for Krish-M.

Exhibit 4.8 Details of proposed UGD system

Particulars	Details	
Implementing Agency	TWAD	
Estimated Cost-	Rs. 24.34 crore	
Status	DPR preparation under progress	
No. of wards covered	All (33 wards)	
Length of sewer network	44.96 Km	
House Connections-nos.	12000	
Sewage Treatment Plant (STP) Details		
Estimated cost of STP	Rs. 2.27 crore	
Capacity- proposed	9.0 MLD	
Required Capacity	9.0 MLD	
Area- acre	Location	Area
	1. Devasamudram Village (SF no. 7/1)	0.93 acre
	2. Agasipalli village (SF no. 405)	0.5 acre
	Total	1.43 acre
Type of Plant	Cyclic activated sludge process (yet to be finalised)	
Effluent Discharge	For indirect irrigation purpose	
Other specification	Raw sewage	Treated
Biological Oxygen Demand (BOD)	410 mg/lit	20 mg/lit
Suspended Solids (SS)	600 mg/lit	30 mg/lit

Source: Krish-M

4.4.2 Public conveniences (PC)

There are 4 toilets constructed under Integrated Sanitation Program (ISP) and 4 units constructed under VAMBAY scheme. Out of these 8 toilet complexes are maintained by the Self Help Groups (SHGs) and they recover the maintenance cost through the per month usage charge of Rs. 30 per family. *Exhibit 4.9* provides details of PCs in Krish-M.

Exhibit 4.9 Details of public conveniences

Sr. No.	Scheme	No. of Units			Total
		Gents	Ladies	Children	
1	VAMBAY	4	4	2	10
2	ISP	5	5	4	14
Total		9	9	6	24

Source: Inputs from Krish-M and IMaCS analysis

4.4.3 Storm water drains

Storm water drains carry the wastewater in addition to storm water generated during rains. With a total length of 31.55 km, the drains cover the 73 % of road network (excluding SH and NH) of the town. Even in roads covered by drain network, there are inadequacies relating to poor design, lack of connection to main channels, clogging and waste accumulation. The water stagnation in these drains is seen in most of the wards largely due to the plastic waste thrown in the drains leading to blockages and unhygienic conditions.

Exhibit 4.10 provides the details of coverage of storm water drains.

Exhibit 4.10 Storm water drain network

Type	Length (km)	% of total road network
Total Drain length	31.55	73%
Uncovered Road Length	11.45	27%
Total road length	43	100%
Gap (length of drains on both side of road)	22.9 km	

Source: Inputs from Krish-M and IMaCS analysis

It is proposed to construct 22 km length of storm water drain at an estimated cost of Rs. 165 lakh under UIDSSMT scheme.

4.4.4 Issues and gaps

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

Absence of UGD system – All the wards are to be covered with UGD system. Though Krish-M has some coverage through septic tanks, the disposal of sewage through either open drainage or septic tanks is leading to the pollution of ground water and surface water. An integrated UG system covering the entire town is critical, given the expected growth of the town.

Uncovered Population – While the absence of UGD itself exposes the entire town population to the hazards of unsanitary conditions, nearly 20% of the town's population remains uncovered by safe sanitary disposal systems.

Need for greater coverage and better maintenance of Public conveniences – Absence of UGD itself exposes the entire town to the hazards of unsanitary conditions, **nearly 35% of the town's population in slums** is covered through public conveniences. There is need to strengthen the network of public convenience throughout the town.

Poor coverage, overflows and blockages of Storm water drains - With the growth in population of the town, the poor coverage of road networks by storm water drains without adequate linkages to main channels requires immediate attention. The drains also face the overflow and blockage problems due to the plastic waste thrown in the drains.

4.5 Solid Waste Management (SWM)

Exhibit 4.11 summarizes the status of SWM in Krishnagiri municipality.

4.5.1 Waste Generation and collection

Krishnagiri town generates around 29.5 MT of waste every day. It is estimatedⁱ that nearly 67% of the waste generated in the town is organic waste, while about 33% is inorganic waste. Solid Waste Management in 10 wards was managed by the private contractor and for remaining 23 wards SWM was managed by municipality. But, municipality has terminated the existing contract with the private party and invited fresh applications for privatization of the 11 wards.

4.5.2 Primary and secondary collection

The Primary collection system available with the municipality until now was comprised of open masonry bins that would be soon replaced by the newly purchased plastic bins 99 in number. The waste is collected by the municipal staff and thereafter disposed in the disposal yard. Waste is transported in open vehicles. The vehicular fleet available with the municipality for disposal of solid waste includes pushcarts, tractor-trailers, trucks and tippers. *Exhibit 4.11* provides the details SWM system in Krishnagiri municipality. The vehicles are generally aged and some are in good condition, therefore reducing efficiency in collection of solid wastes.

Exhibit 4.11 Solid Waste Management - Current status

Generation		
Daily Waste Generation	MT	29.5
Daily Waste Collection	MT	29.5
Waste generation per capita	Gm	414
Collection efficiency	%	100%
Dumping Yard		
Syed Basha,Kuppam Road	5.26 acres	
Distance from town centre	3 km	
Collection / Transfer		
Wards with door to door collection	All Wards	
Privatisation of collection	10 wards	
Number of Workers	131	
Primary Collection		
Door-to-Door collection	33 wards	
Pushcarts in use	30	
Lorries	1	
Autos	10	
Collection Bins	120	
Secondary Collection		
Tipper	2	

Source : Krish-M

4.5.3 Dumping / Compost yard infrastructure

The existing dumping yard at Syed Basha back side, Kuppam road is envisaged to be partially converted to a compost yard at an outlay of Rs 53.40 lakh. The estimated cost includes provision for infrastructure facilities like electricity, water supply, road and drains,

The Solid Waste Management Action Plan prepared by Krish-M indicates that actual requirement of land for composting is 6.74 acres. The existing land available with Krish-M is 5.26 acre. Krish-M intends to acquire an additional land for composting of about 5 acres.

4.6 Solid waste management action plan – Outlay

The solid waste management action plan involved an outlay of Rs. 109.96 lakh. *Exhibit 4.12* provides the break up of this outlay.

Exhibit 4.12 Solid waste management action plan – outlay

Activity	Rs. Lakh
Primary collection	26.50
Secondary Collection	28.00
Source segregation	1.96
Compost yard with infrastructure	53.50
TOTAL	109.96

4.6.1 Issues and Gaps

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

- 1. Need for composting** – Presently the ultimate disposal of waste is by dumping and there is proposal for compost yard. There is need to accelerate the process to start use of compost yard, which will solve the problem of biodegradable waste to the large extent.
- 2. Scope for private participation** – While Krish-M has privatized garbage collection in select wards, there appears to be potential for comprehensive end-to-end management of solid waste through a public private partnership covering collection, transfer and scientific disposal.
- 3. IEC campaigns necessary for minimizing usage of plastic bags-** There is need for increasing awareness on usage of plastic bags since the plastic waste is the main source of choking the drains and solid waste as well. Krish-M should progressively move towards source level segregation of waste for more efficient disposal and conversion. It may need to intensify promotion campaigns in this regard.

4.7 Transportation, Bus stands and street lights

4.7.1 Municipal roads

The total road length maintained by municipality is 43 km which is 15% of the total developed area in Krishnagiri town as per master plan report. The 98% of the total road length are surfaced. The total length does not include the length of unauthorized layouts, which have developed in the outer areas of the town. There is 13 Km of roads maintained by the other departments. Detail of roads inside the town is shown in *Exhibit 4.13* below.

Exhibit 4.13 Road network

Type	Length in km
Municipal Roads	
Cement Concrete	14.46
Bitumen Top roads	27.63
WBM roads	0.898
Earthen roads	0.058
Total	43.046
% of roads surfaced (BT + CC)	98%
Roads maintained by other agencies	
National Highways	1.00
State Highways	6.80
Major District Roads (MDR)	5.64
Total	13.44
Total Length of Road	56.486

Source: Krish-M

Basically, nestled between the two bye-pass roads interconnected at the northern end by the old, now abandoned Madras- Bangalore road, at present called Nethaji road, the town of Krishnagiri presents a pleasant location. The major road network of the town consists of Salem road, Old sub-jail road, Madurai road, Bangalore road, Gandhi road, Netaji road, Royappa mudali road, Dharmaraja link road and Kuppun salai road.

4.7.2 Bus terminus

There is one C grade bus stand (as per state government standards) with CC Pavement, Toilets, Cycle Stand, Shopping Complex and Lodging facilities. The Govt of Tamil Nadu has allotted 6.10 acre of land to the Krish-M for the use of Bus stand for the period of 30 years on lease basis. The lease amount will be fixed once in 3 years based on the market value. The estimated cost is Rs. 678 lakh and the construction has been completed and recently inaugurated by CM

Exhibit 4.14 Details of New Bus stand at Chinna Eri

Details of facilities	No./details
1. Total no. of bus bays	50 (3.3 m width)
2. Total no. of shops	16 (3.2x3.2 m)
a) Inside bus stand	16
b) Shopping Complex at eastern side	21
3. Toilets	4 no.
4. Driver's rest room-no.	1 (6.3x3.3m)
5. Other facilities- 1 no. each	a. Disabled person's room, b. reservation counter room, c. passenger waiting room, d. service room, cloak room, e. ladies waiting room, f. gents waiting room, g. security room, i. communication room

Source: Krish-M

In the Eastern side of site Vehicles parking area has been provided in ground floor and shopping complex at first floor with landscaping in the centre portion of the bus stand. Presently, there is 6-bus shelter throughout the town for town buses and one more town bus stand is ready for use located at Old Pettai Gandhi road. The estimated cost of it is Rs. 50.00 lakh and additional project like construction of 24 no. of shops and CC pavement has been taken up in the bus stand and completed.

4.7.3 Street Lights

The town has a total of 1739 streetlights of which 76% is high power tube lights as shown in Exhibit 4.15. The town has 24 streetlights per kilometer of road length with a spacing of 33 meter between lampposts, which is slightly above the prevailing norm of 30.0 m spacing between streetlights being adopted in the state. Exhibit 4.15 provides details of provision of street lights.

Exhibit 4.15 Street Lighting

Type	All Wards	
	Nos	%
Tube lights	1427	76.3
Sodium Vapor Lamps	207	11.9
Mercury Vapor Lamps	201	11.6
High Mast lamps	4	0.2
Total	1839	100.0
Average distance between street lights	33.0 m	
Spacing between streetlights as per norm	30.0 m	

Source: Krish-M

4.7.4 Issues and gaps

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

- 1) **Problems of traffic congestion and inadequate parking facilities** - Increase in the number of vehicles and inadequate road networks are the major causes for traffic congestion. Inadequate traffic management measures and inadequate parking facilities are major problems of the town. The ongoing and planned transportation infrastructure improvements need to be implemented on priority.
- 2) **Encroachments along the roads** - Presence of informal activities along the road margins illegal encroachments of pedestrian areas and footpaths are the other causes for traffic congestion in the town. There is considerable commercial activity on the main centre roads. Many shops along these roads have encroached the road / footpath which creates congestion in the centre of the town.
- 3) **Need for planning restoration post water supply and UGD scheme** - With the plans to create water supply and an UGD scheme in the city, the entire road network in the town would need to be restored. So it may be appropriate to take up any large scale upgradation of the road network keeping this in consideration.
- 4) **Street lights in uncovered areas** – The spacing between the streetlights is 40m which is more than the norm of 30m. The gap can be reduced by provision of more number of streetlights and covering the area which are presently uncovered.

4.8 Urban Services for poor

4.8.1 Slum Details

There are 26503 people residing in total of 4479 houses in 21 slums in the town. Slums are improved under various central / state government slum upgradation programs; still there is scope for further upgradation. It is proposed to provide additional amenities and infrastructure in some of the slums through IHSDP program in year 2008.

As there is insufficient provision of physical amenities like water supply, storm water drains, community baths, sewers, community latrines, street lights leading to health hazards. There is also lack of community based facilities like primary education, primary health, and recreational activities.

With the overall population of Krishnagiri estimated at 70122 in 2006, the slum population is estimated to have gone up to nearly 45% of the population in Krishnagiri. Provision of urban services for the poor and slum rehabilitation should be a critical component of Krish-M's plans.

4.9 Markets and other assets

4.9.1 Markets

Krishnagiri is having a Daily market and Weekly market which function on weekly basis with good turnover. People from nearby villages come to purchase or sell their commodities like Vegetables, Groceries, Banana, Pumpkin, Leather, Fish, Dry fish, Live stocks such as Cow, Goat, Chilly, Mat, Pots etc., in this whole sale market.

But the market lacks in basic infrastructure facilities like adequate parking areas, proper traffic movements, sufficient road width and pavements which ultimately leads to the problems like traffic congestion and public inconvenience. There is need for a compound wall in the outer boundary of the market

4.9.2 Crematoria and burial grounds

There are 5 large municipal burial / cremation grounds in the town of which two are in large extent. The burial ground lacks in basic infrastructure such as fencing, access roads, lighting facilities etc. There is proposal for Gasifier based crematorium at an estimated cost of Rs. 45 lakh with 50 % funding from state govt.

4.9.3 Slaughter house

Presently Krish-M has one slaughter house and development of a modern Slaughter house at an outlay of Rs. 23 lakh is envisaged (comprising of Rs. 10 lakh grant from GoTN).

4.10 Social infrastructure

4.10.1 Schools

Krishnagiri serves as a hub for education for surrounding region and thus there are number of institutions both private and public in the town catering to the needs at all levels. Besides 48 noon meal centers, there are 11 municipal schools. In total, they occupy 12 hectares, which is 3.46% of total developed area of the town. The educational infrastructure available in the town is presented in the *Exhibit 4.16* below.

Exhibit 4.16 Educational Institutions

Type	Nos.
Municipal Schools	16
Private schools	28
Total	44
Noon Meal Centres	21

Source: Krish-M

4.10.2 Hospitals and medical facilities

Healthcare services are amongst the most vital services provided by the municipal bodies. Krishnagiri is served by one maternity centre and 6 private clinics.

4.10.3 Recreational facilities

There are a total of 2 parks in the town. In the open spaces, avenue plantation is low and the survival rates of trees decreases during summers due to lack of water. There are six cinema theaters in the town with a total seating capacity of 1800. The municipality has also provided one reading room in the town.

4.11 Service level indicators and demand assessment summary

Exhibit 4.17 below captures the status of core urban services of Krishnagiri Municipality in terms of key indicators and summarises key issues and gaps in these areas. The table summarizes the baseline situation in some critical performance indicators from the analysis presented above and highlights the critical gaps in the core urban services namely, Water Supply, Sanitation, Roads, Street lighting and Solid waste Management. In the next phase of the study, these gaps would be analysed in greater detail to arrive the vision for urban services in Krishnagiri and to estimate the capital investments required to address these gaps. Based on consultations, we would then define the Capital Investment priorities for the town.

Exhibit 4.17 Core urban services - Ongoing initiatives, Baseline indicators and gaps

Sl. No	Name of the Indicator	Value	Issues and Gaps
Water Supply:			
TWAD board currently preparing Hogenakkal water supply scheme to supply water in all wards in Krishnagiri town.			
1	Daily Per Capita Supply (LPCD)-2007	60.4	<ul style="list-style-type: none">Current supply on a per capita basis is significantly below municipal normsNeed for significant augmentation of water supply at source, storage and distribution.
2	Storage Capacity / Daily Supply (%)	70%	
3	Distribution Network / Road Length (%)-(only municipal roads)	89.8%	
4	Water connections / Assessed properties (%)	39%	
Sanitation:			
The DPR for the proposed UGD system covering all the wards is under preparation by TWAD Board.			
6	Presence of UGD network (Yes / No)	No	<ul style="list-style-type: none">Coverage of UG network inadequateStorm water drainage coverage needs to be increasedPublic convenience network needs augmentation in view of the present inadequate coverage.
7	UG connections / assessed properties (%)	0.	
8	Household per Public convenience (nos.)	90	
9	Storm Drain Length / road network (%)	73%	
Roads and Street Lights:			
Proposal Rs. 68.70 lakh for road network improvements under UIDSSMT will be executed after the implementation of water supply and UGD schemes.			
10	BT roads / Total (%)	63.43%	<ul style="list-style-type: none">Municipal roads would require comprehensive upgradation following water supply and UGD implementation.
11	Road length per Street Light (m)	33 m	
Solid Waste Management:			
The solid waste management action plan involved an outlay of Rs. 109.96 lakh is under implementation. Collection activity in 11 wards privatized.			
11	Waste generation per capita (gms)	414	<ul style="list-style-type: none">Composing, Source segregation and Door-to-door collection needs implementation in a phased manner.Awareness among citizens for less usage of plastics.Scope for greater private participation covering end-to-end given the size and scope of the SWM service requirement.
12	Collection efficiency (% of waste generated)	100%	
14	Compost yard area (Acres per 10,000 population)	74%	
15	Average vehicle trips	4	
16	Source Segregation and Composting (Yes/No)	partial	

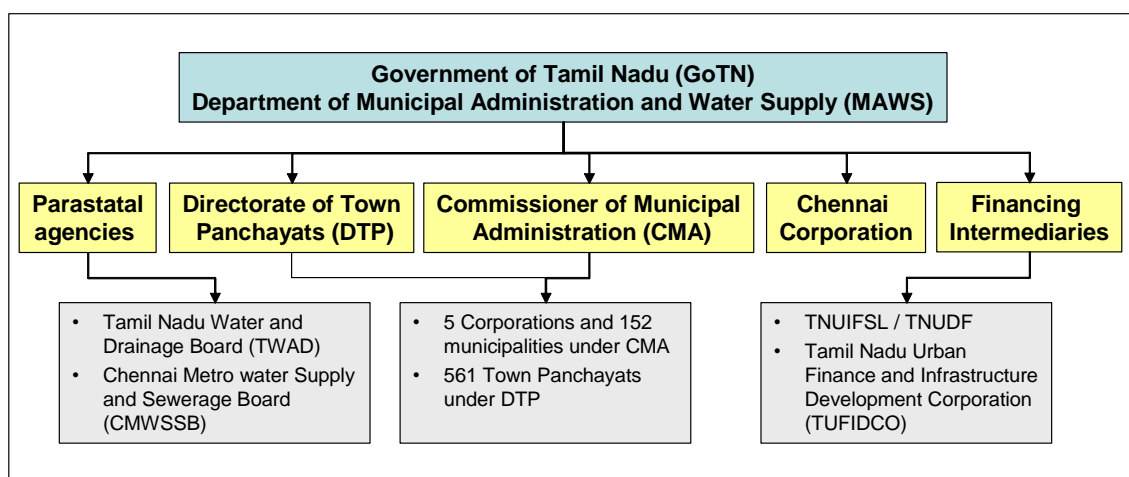
5. Urban governance and management

5.1 Policy oversight and institutional framework – State level

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

The Urban sector in Tamil Nadu comes under the oversight of the Department of Municipal Administration and Water Supply, Government of Tamil Nadu (MAWS). The institutional structure for the urban sector is presented in *Exhibit 5.1* below:

Exhibit 5.1 Urban sector - Institutional framework - State Level



Source : Policy Notes, MAWS. Government of Tamil Nadu, iMaCS analysis

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

5.1.1 Municipal Administration

The institutional framework for municipal administration is described below:

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

5.1.2 Parastatal agencies

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

5.1.3 Financial Intermediaries

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

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

5.2 Governance structure of Krishnagiri municipality

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

5.2.1 Political wing

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

Appointment Committee

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

Contract Committee

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

Tax Appeal Committee

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

5.2.2 Administrative Wing

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

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

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

5.2.3 Departments of municipality

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

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

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

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

5.3 Manpower position

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

Exhibit 5.2 Manpower status (as of October 2007)

Name of the Post	No. of posts sanctioned	Staff in position			
		Perma- nent	Consoli- dated Pay	NMRs	Post Vacant
General					
Commissioner	1	1			-
Manager	1	-			1
Accountant	1	1			-
Assistant	1	-			1
Junior Assistant	9	9			-
Office Assistant	4	4			-
Watchman	1	1			
Record Clerk	1	1			-
Typist	1	1			
Assistant Programmer	1	1			-
Revenue					
Revenue Inspector	1	1			-
Revenue Assistant	7	7			-
Gang mazdoor					
Gang Mazdoor	4	4			-
Engineering					
Municipal Engineer	1	1			-
Junior Engineer	1	1			-
Draught's man	1	1			-
Office Assistant	1	1			
Street Lighting					
Wireman	2	2			-
Helper	2	2			-
Water Supply					
Assistant Engineer	1	1			-
Turn cock	1	1			-
Tiller Driver	2	2			-

Name of the Post	No. of posts sanctioned	Staff in position			
		Perma- nent	Consoli- dated Pay	NMRs	Post Vacant
Electrician	2	2			
Tank watchman	1	1			
Fitter Grade-2	1				1
<u>Town Planning</u>					
Town Planning Officer	1	1			-
Town Planning Inspector	1	1			-
Chainman	2	2			-
<u>Public Health</u>					
Sanitary Officer	1	1			-
Sanitary Inspector	3	2			1
Sanitary Supervisors	6	6			-
Driver	3	3			-
Cleaner	1	1			-
Sanitary Workers	143	135			8
<u>Antifilaria</u>					
Sanitary Inspector	1	-			1
Field Assistant	2	2			-
<u>Maternity</u>					
Maternity Asst	2	2			-
Maternity Ayah	2	2			-
<u>SJSRY</u>					
Community Organisers	3	3			-
Total	221	208			13

Source: Krish- M

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

5.4 Role of other agencies

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

- Water Supply & Sewerage**. The Tamil Nadu Water Supply and Drainage Board (TWAD) is responsible for creation of water and sewerage infrastructure in the state. However, Krishnagiri Municipality is responsible for the provision and delivery of services within the City.
- Master Plan**. The Department of Town and Country Planning (DTCP) prepares the Master Plan and Comprehensive Development Plan (CDP) for the city/town, and the mandate of implementing the Master Plan lies with the ULB.

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

5.5 Reforms undertaken by Krishnagiri municipality

5.5.1 Accrual accounting

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

5.5.2 E-Governance

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

5.5.3 Citizen's Charter

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

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

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

6. Analysis of financials

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

6.1 Income and Expenditure summary of Krishnagiri Municipality

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

Exhibit 6.1 Consolidated Income and Expenditure trend (Rs. in Lakhs)

INCOME	2002-03	2003-04	2004-05	2005-06	CAGR %
OWN INCOME	228	222	267	267	5%
Property tax	134	130	140	131	-1%
Profession tax	11	12	11	15	11%
Water & Sewerage Charges	29	25	53	48	18%
Other Service Charges & Fees	6	9	7	22	57%
Other Income	48	46	56	52	3%
ASSIGNED REVENUE	55	96	35	66	7%
DEVOLUTION FUND	154	127	160	56	-29%
GRANTS & CONTRIBUTIONS	0	0	0	5	#DIV/0!
PRIOR PERIOD INCOME	20	6	77	4	-44%
TOTAL	458	452	539	398	-5%
EXPENDITURE	2002-03	2003-04	2004-05	2005-06	CAGR %
Salaries	159	168	143	179	4%
Operating Expenses	82	127	92	86	1%
Programme Expenses	1	1	1	1	-20%
Administrative Expenses	19	10	11	86	65%
Finance Expenses	34	36	0	20	-16%
Depreciation	78	82	102	16	-41%
Prior Period Expenses	2	2	0	6	49%
TOTAL	298	345	247	378	8%
SURPLUS - (Excl.Depr)	160	107	291	20	-50%
Operational Ratio (Total Exp/Total Income) (All figures in Percentage)					Avg
Incl Depreciation	85%	95%	76%	98%	89%
Excl. Depreciation	68%	77%	53%	94%	73%
Debt servicing (Rs in lakhs)					
Loan repayments - Interest	37.01	25.64	38	19.56	120.21
Loan repayments - Principal	12.28	8.27	7.28	7.59	35.43
Debt servicing Vs Income	11%	8%	8%	7%	8.40%

Source: Krish-M, iMaCS analysis

As seen from the table Income has grown at CAGR of 8.5% up from FY 03 to FY05, but has dipped in FY06. The ULB has therefore slipped from a positive cash surplus scenario to a deficit in FY 06. However, it should be noted that the financials for 2005-06 are un-audited figures and are subject to change. Some of the discrepancies observed are listed below:

- There seems to be some discrepancy in devolution income, which has fallen steeply from Rs. 160 lakh in FY 05 to Rs. 55 lakh in FY 06.

- Revenue from water charges has actually been shown to fall from Rs. 53 lakh in FY 05 to Rs. 11 lakh in FY 06, which seems unlikely. We have therefore taken the current demand of Rs. 41 lakh from the DCB statement for water charges as a representative revenue figure for our analysis
- Further employee expenses have shown a very erratic trend dipping from Rs. 168 lakh to Rs. 46 lakh in FY 05 and again increasing to Rs.179 lakh in FY 06. We have sought clarifications on these aspects from the municipality.
- Contribution to Employee PF has increased in FY 06 to Rs. 85 lakh from Rs. 65000 in FY 05 and other administrative expenses has increased from Rs. 1.26 lakh to Rs. 65 lakh during this period. There has been no expenditure recorded under Finance charges and Depreciation during FY 05.

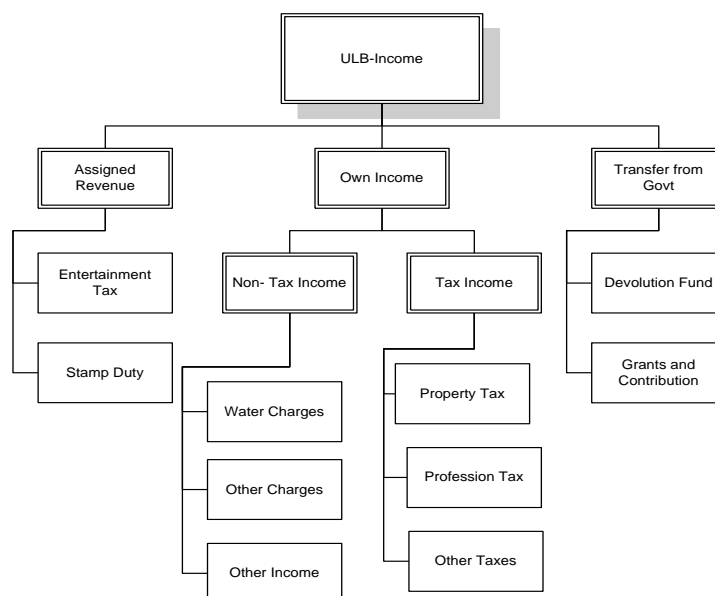
6.2 Revenue streams of ULB in Tamil Nadu

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

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

Exhibit 6.2 provides a detailed classification of the revenue streams.

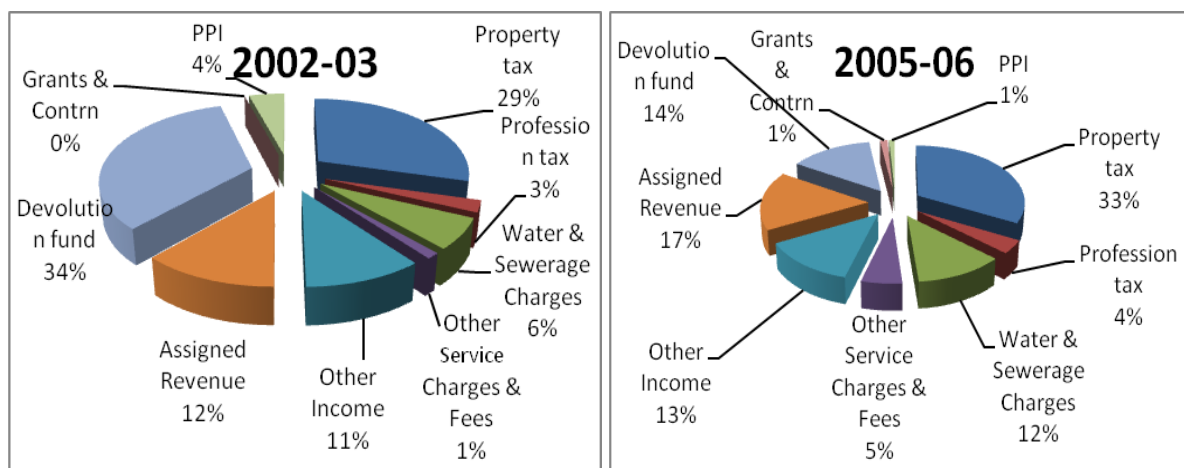
Exhibit 6.2 Revenue streams - ULBs in Tamil Nadu



6.3 Revenues

Exhibit 6.3 provides the composition of revenue of Krishnagiri Municipality along various heads between FY 2003 and FY 2006. These are based on information provided by Krishnagiri Municipality. As seen, water charges have doubled as a proportion of total income. While other income streams have largely maintained their contribution to total income, assigned revenue has fallen down sharply during this period from 24% of income to 10% of income.

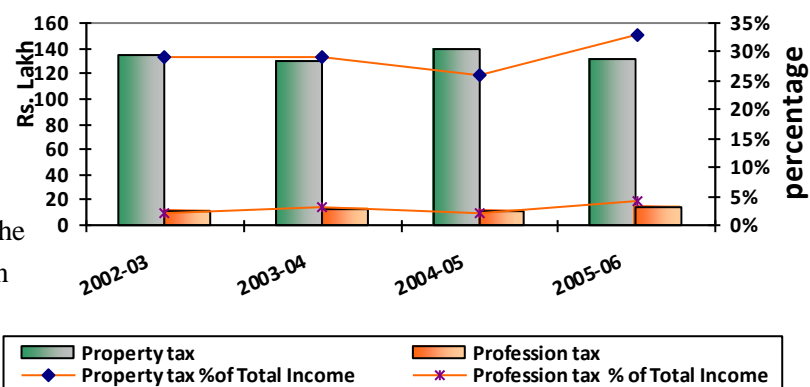
Exhibit 6.3 Analysis of Revenues



6.3.1 Tax Income

Tax income has grown at a CAGR of merely 0.24% over the last four years with profession tax growing at CAGR of 11%. Property Tax has shown negative trend of 1% during this period. While the share of property tax in total income has increased from 29% to 36% and the share of professional tax has increased to 2% in FY03 from 4% in FY06.

Property tax & Profession tax



6.3.2 Property Tax

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

Exhibit 6.4 Property tax - analysis of key revenue drivers

Year	Collection Efficiency			Properties		Growth Rate Of properties	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	Tax/property		
2002-03	27%	53%	39%	15644	920	NA	NA
2003-04	54%	65%	60%	16363	865	5%	-2%
2004-05	42%	60%	51%	17330	838	6%	3%
2005-06	49%	58%	54%	17826	824	3%	1%
2006-07	53%	68%	61%	19375	758	9%	0%

Source: Krish-M

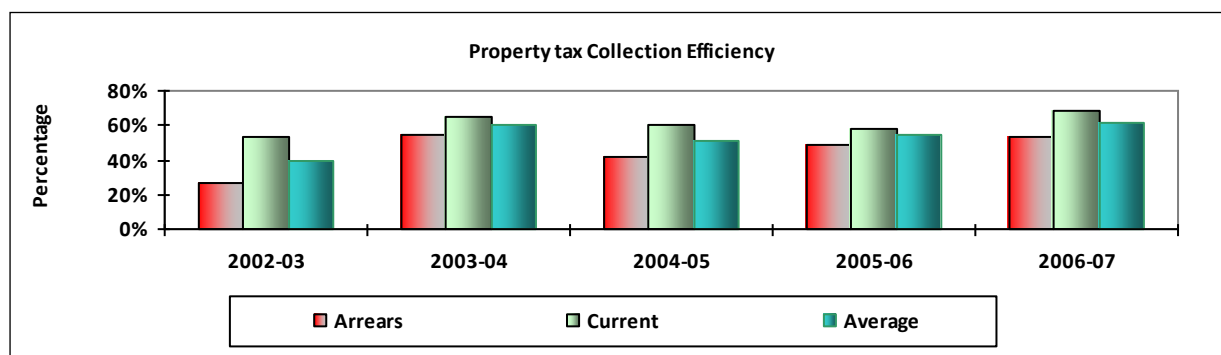


Exhibit 6.5 Property Tax - breakup of assessees (2007-08)

Category of Property	Number of Assessments	%	Annual Demand (In lakh)	%
Residential	10011	50%	69.11	46%
Commercial	8915	44%	62.05	42%
Industrial	1030	5%	7.9	5%
State Government Properties	146	1%	9.94	7%
Total	20102	100%	149	100%

- Increase in share of property tax** –Share of property tax in total income from 29% in FY03 to 36 % in FY06, in spite of almost stagnant revenue from property tax.
- Demand per assessment** - Demand per assessment has actually fallen sharply from Rs. 920 in FY 03 to Rs. 758 in FY 07 and has thus offset the increase in number of assessments leading to stagnant revenue over the last five years.
- Low collection efficiencies** - Collection efficiency is a cause for concern. While collection efficiency in current demand has grown from 65% to 68%, recovery of arrears has declined from 53% in FY 03 to 49 % in FY 06 and further marginally increased to 53 % in FY 07. Overall collection efficiency has shown improvement from 39% in FY 03, but needs to be significantly improved.

6.3.3 Professional tax

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

Exhibit 6.6 Professional Tax - revenue drivers

Year	Collection Efficiency			Assesses		Growth rate of Assesses	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	Tax demand/assessee		
2002-03	45%	90%	69%	0	NA	NA	NA
2003-04	11%	98%	68%	0	NA	NA	-3%
2004-05	100%	97%	98%	0	NA	NA	-1%
2005-06	35%	97%	69%	835	1545	NA	19%
2006-07	18%	86%	67%	862	1962	3%	31%

Source: Krish-M

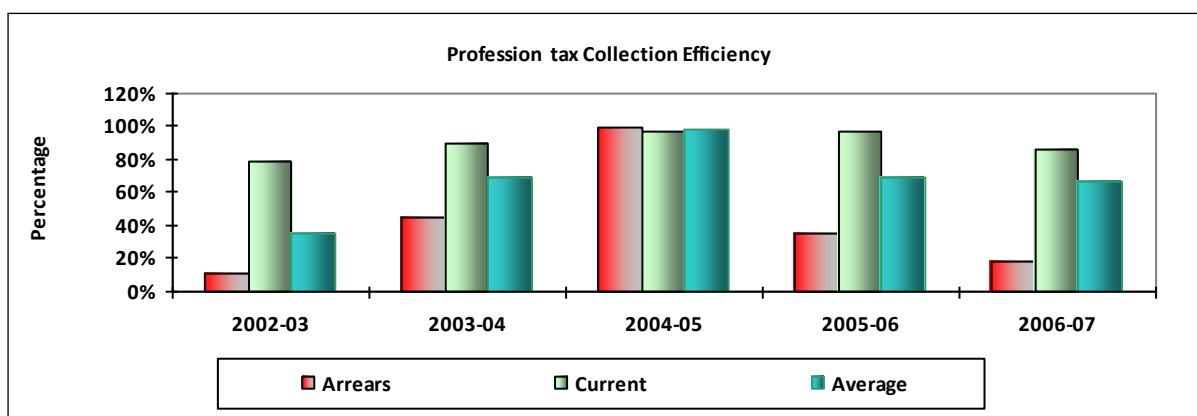


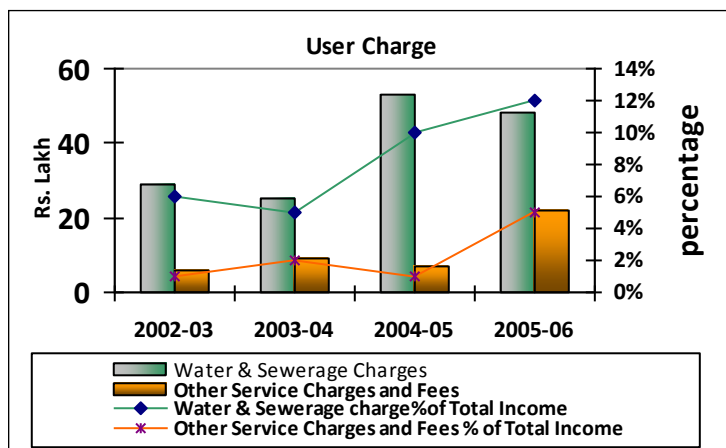
Exhibit 6.7 Professional Tax – assessee break up (2007-08)

Category	Number of Assessments	%	Annual Tax demand (Rs in Lakh)	%
State/Central/Quasi Govt. Employees	156	12%	15.03	77%
Traders	1157	88%	4.55	23%
Total	1313	100%	19.58	100%

- Share of professional tax in total income has increased marginally from 2% to 3% of total income
- No. of assessments has increased from 2748 in FY 2003 to 2988
- Collection efficiency was very low at ~25 % in FY 2007, due to poor arrear collection efficiency of 6%. Current collections are high at around 93%.

6.3.4 User Charges / Fees

Water charges have grown at a CAGR of 18% during FY 2003-06 to reach Rs. 48 lakh, while other service charges and fees has grown at a CAGR of 57%. This growth is largely attributable to the spike in FY 2006 on account of increase in lease charges for bus bays which increased from Rs. 95,000 to Rs. 17 lakh.



6.3.5 Water charges

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

Exhibit 6.8 Water charges - revenue drivers

Year	Collection Efficiency			Connections		Growth rate of Connections	Growth Rate of Current Demand
	Arrears	Current	Total	Numbers	water charges per assessee		
2002-03	57%	61%	59%	4479	553	NA	NA
2003-04	48%	75%	67%	5208	767	16%	61%
2004-05	45%	74%	65%	5647	672	8%	-5%
2005-06	52%	62%	59%	6146	663	9%	7%
2006-07	43%	56%	51%	6642	636	8%	4%

Source: Krish-M

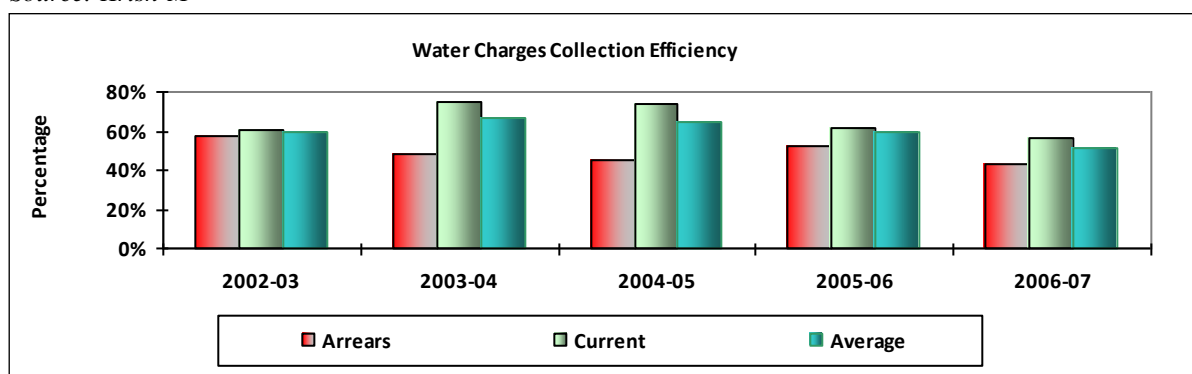


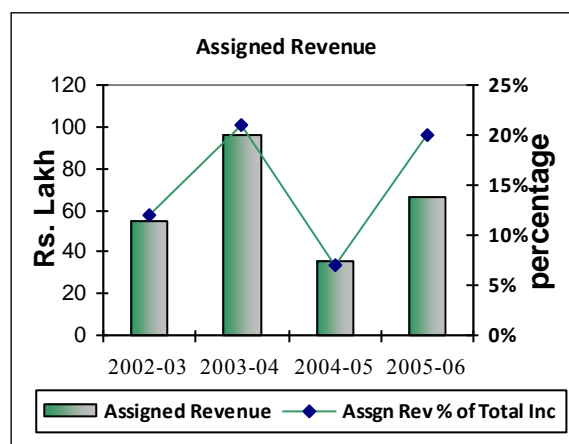
Exhibit 6.9 Water Connection – Break up (2007-08)

Category	Number of Connections	%	Annual Demand (Rs in Lakh)	%	Deposit Amount / connection	Monthly Charges/ connection
Residential	6697	96%	40.78	92%	3000	81
Commercial	187	3%	1.79	4%	6000	162
Industrial	92	1%	1.82	4%	8000	242
Total	6976	100%	44.39	100%		

- a) **No. of connections** - Connections have increased from 4479 in FY 2003 to 6642 in FY 2007
- b) **Water tariff / connection** has increase from Rs. 553 in FY 03 to Rs. 636 in FY 07.
- c) **Collection efficiency** - Current collection efficiencies have decreased from 75 % (FY 2004) to 56 % (FY 2007). Arrears collection efficiency has been less than 50% and it has declined from 48% (FY 04) to 43 % (FY 07). The overall collection efficiency of 67 % (FY 04) has now been 51% (FY 07), which is quite low and needs significant improvement.

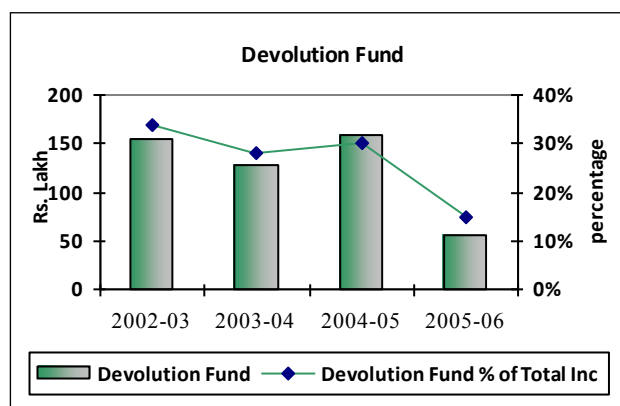
6.3.6 Assigned Revenue

Assigned Revenue (which includes transfers of stamp duty and entertainment tax) shows inconsistent trend over the four-year period with sudden increase to Rs.96 lakh (FY 04) from Rs.55 lakh (FY 03); then declined to nearly Rs 35.4 lakh in FY2005 and again increased to Rs. 66.4 lakh (FY 06). Share of assigned revenue in total income declined from 12% of revenue in FY 03 to 7% of revenue in FY 05 to again increase to 18% in FY 06.



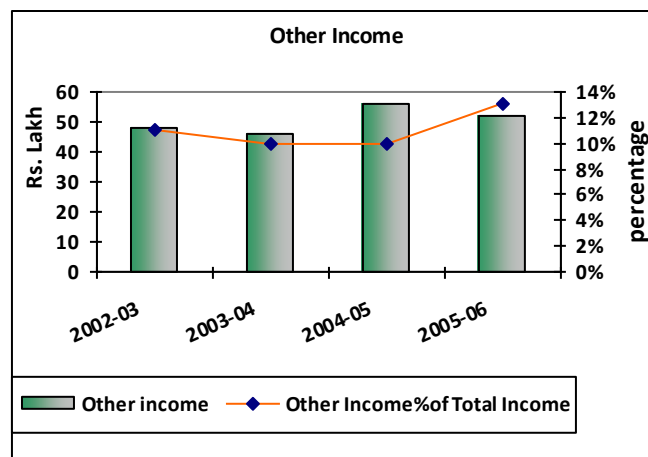
6.3.7 Devolution Fund

Devolution fund also shows inconsistent trend with revenue of Rs. 154.24 lakh (FY 03) decreasing to Rs.126.89 lakh (FY 04), which was further increased in FY 05 and to again decrease substantially to Rs. 55.56 lakh (FY 06). Share of this fund in total revenue of the municipality has declined from 34% to 15% in respective years.



6.3.8 Other Income

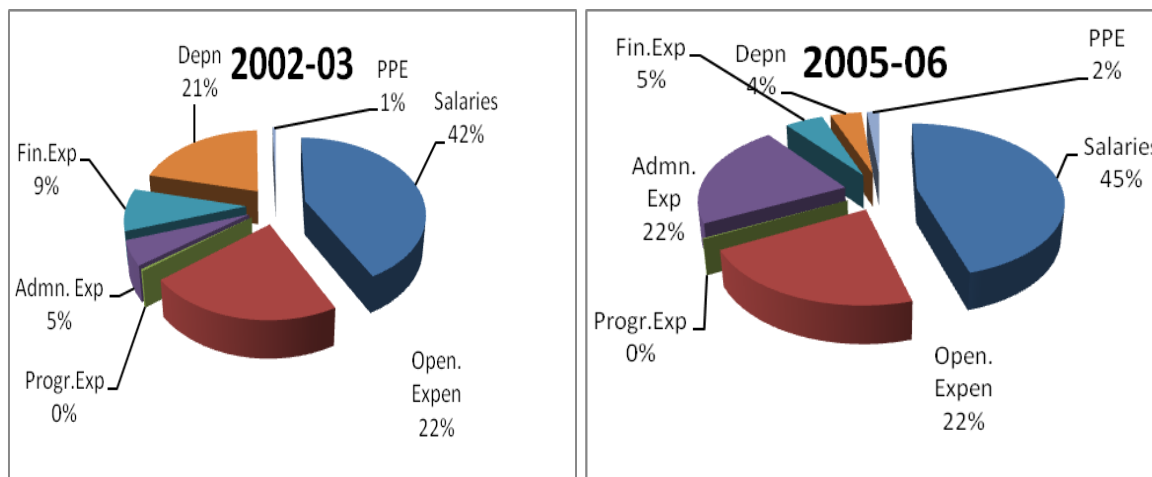
Other Income, which includes sale and hire charges, has increased from Rs 48.12 lakh in FY03 to slightly above Rs 55.68 lakh in FY2005. Its share in total income of the municipality has increased from 11 % in FY03 to 14 % in FY06.



6.4 Analysis of Costs

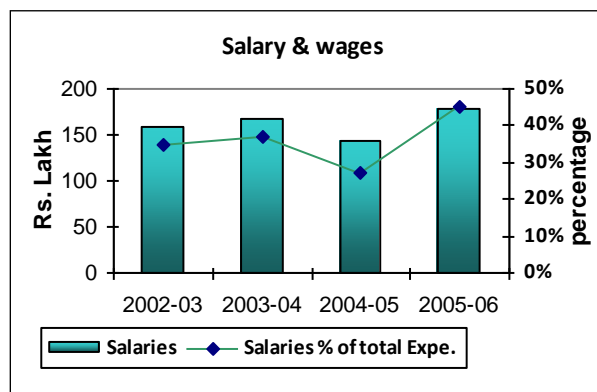
Exhibit 6.10 provides details of costs of Krishnagiri Municipality along various heads between FY2003 and FY2006. Total expenditure has shown an upward trend, except for a dip in FY2005. This decline in total expenditure in FY2005 is due to decline in salaries by more than half.

Exhibit 6.10 Expenditure – FY 2003 and FY 2006



6.4.1 Salary and wages

While salary and wages account for 24% in FY 06 of total expenditure incurred as compared to its share of 42% in FY 03. We have sought details of this expenditure given the erratic trend observed.



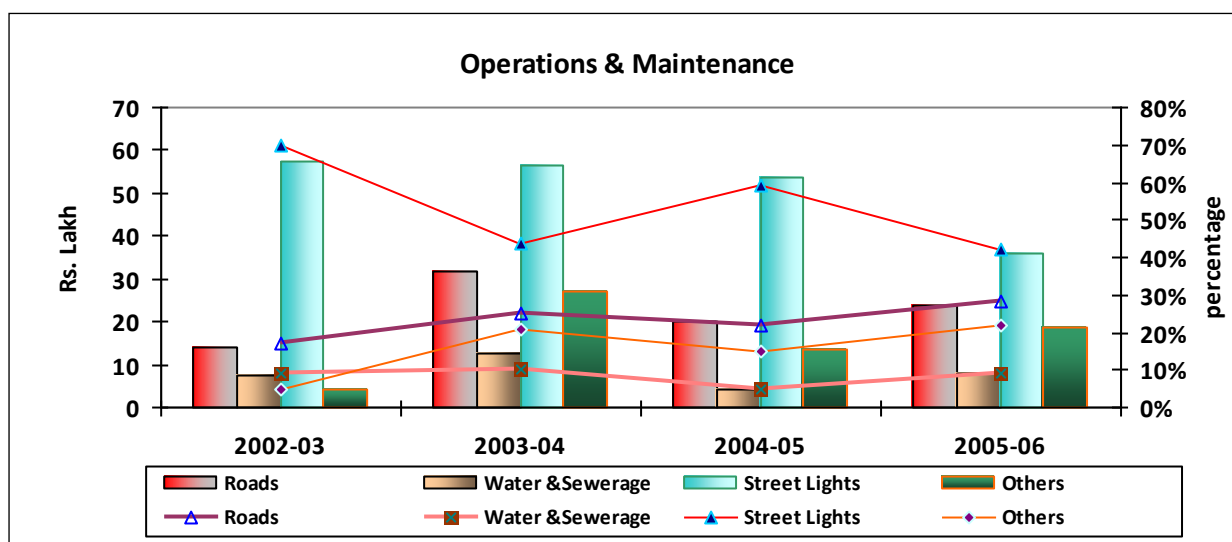
6.4.2 Operations and Maintenance

Repairs and maintenance form the other major component of total expenditure. In absolute terms, repairs and maintenance expenditure has increased steadily over the last four years, growing from Rs 375 lakh in FY2003 to Rs 575 lakh in FY2006. Its share in total expenditure has increased from 16% to 20% in FY2003 and FY2006, respectively.

Exhibit 6.11 provides details of sector wise composition. Though streetlights form the major proportion of operating expenses, there has been a downward trend in expenditure between FY 2003 to FY 2006. Expenditure on water and sewerage has increased marginally by 1% over past four years. Overall repairs and maintenance has grown at a CAGR of more than 15% over the period.

Exhibit 6.11 Repair and maintenance expenditure - Sector wise break up (Rs. lakh)

Item	FY2002	%	FY2003	%	FY2004	%	FY2005	%
Roads	13.79	17%	31.57	25%	20.17	22%	23.73	28%
Water & Sewerage	7.28	9%	12.60	10%	4.22	5%	7.85	9%
Street Lights	57.22	70%	56.41	44%	53.78	59%	35.88	42%
Others	3.97	5%	26.86	21%	13.76	15%	18.49	22%
Total	82.26	100%	127.45	100%	91.92	100%	85.96	100%



6.4.3 Power costs

Exhibit 6.12 gives the details of power costs out of the total repair and maintenance expenditure relating to Water & Sewerage and Street lights.

Exhibit 6.12 Power costs – Water, Sewerage and Street Lights (Rs in Lakh)

Item	FY2003	%	FY2004	%	FY2005	%	FY2006	%
Water	29	100%	37	100%	31	100%	17	100%
Power	24	85%	25	67%	26	86%	9	55%
Non Power	4.15	15%	12.15	33%	4.22	14%	7.85	45%
Item	FY2003	%	FY2004	%	FY2005	%	FY2006	%
Street Lights	36	100%	32	100%	27	100%	38	100%
Power	29	80%	28	88%	24	88%	34	89%
Non Power	7.09	20%	3.96	12%	3.34	12%	4.36	11%
Total	64	100%	69	100%	58	100%	55	100%

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

6.5 Loans and Finance charges

Exhibit 6.13 provides the loan statement of the ULB as of FY 06. As of March 2006, Krishnagiri had an outstanding loan of Rs. 69 lakh. (Details of Government loan has not been provided considering the recent proposal of GoTN to write off all loans)

Exhibit 6.13 Loan statement (as of FY 2006) (Rs. in Lakhs)

Lending Agency	Amount of Loan (Rs in Lakh)	Year of drawal	Interest Rate %	Repayment period (years)	Purpose / Scheme	Moratorium Years	Outstanding loan amount
TUFIDCO - IDSMT	43.75	2003	5%	15	Various work		15.22
TUFIDCO	75.00	2000	11%	13	Special roads	3	54.19
IUDP	8.00	2000	14%	20	Various work		0.50
TOTAL	566.66						69.91

Source: Krish-M

6.6 Analysis DCB – Based on 2007-08

6.6.1 Property tax

Exhibit 6.14 Property tax analysis per capita

Category of Property	No of Assts	%	Demand	%	ATPA*	Collection Effy
Residential	10011	50%	69.11	46%	690	67%
Commercial	8915	44%	62.05	42%	696	60%
Industrial	1030	5%	7.9	5%	767	78%
State Government Properties	146	1%	9.94	7%	6,808	82%
Charitable & Religious Institutions	-		-			
Other if any *	-		-			
Total	20,102	100%	149	100%	741	66%
Average for 5 years	17,307		144.88		837	61%
Increase Over Previous Year	235	1%	2.2	1%	%	
Litigation	50	0.2%	3	2%		
Growth in 5 years - Current		5%		0.50%		7%

Source: Krish-M and ImaCS analysis

Exhibit 6.14 provides a summary of the Current Collection Efficiency of Krishnagiri Municipality. This summary has been prepared based on information provided by Krishnagiri Municipality covering break up for category of property tax. Following are our observations:

- The municipality has seen a CAGR of 5% in assessments and 0.5% in demand respectively. Demand growth at a lesser rate than assessments growth. However, litigation accounts for 0.2% of assessments and 2% of properties which needs to be addressed on priority.

- Collection efficiency at 66% is a serious cause for concern. Also, the collection efficiency has not improved over the last 5 year period. The collection efficiency is low across residential, commercial and state government categories.
- Overall Average tax per Assessment shows (ATPA) for 2007-08 was **Rs.741 marginally lesser than the average Rs. 837 for last five years.** Residential ATPA was Rs.690 and Commercial ATPA was Rs.696. Industrial ATPA was Rs.767 and State government ATPA was Rs.6808.

6.6.2 Profession tax

Exhibit 6.15 Profession tax analysis per capita

Category of Professional	No of Assts	%	Demand	%	ATPA*	Collection Effy
State / Central / / Quasi/ Government Employees	156	12%	15.03	77%	9,635	100%
Traders	1157	88%	4.55	23%	393	61%
Industrial / Private Exmployees		0%		0%		
Other if any	-		-			
Total	1,313	100%	19.58	100%	1,491	91%
Average for 5 years	1,746		12.54		718	94%
Increase Over Previous Year	404	44%	0.39	2%		
Litigation						
Growth in 5 years - Current				11%		10%

Source: Krish-M and ImaCS analysis

Exhibit 6.15 provides a summary of the Current Collection Efficiency of Krishnagiri Municipality. This summary has been prepared based on information provided by Krishnagiri Municipality covering break up for category of professional tax. Following are our observations:

- The municipality has seen a CAGR of 11% in demand respectively. Demand is growing at a lower pace and that needs to be reviewed.
- Collection efficiency at 91% is healthy. But, the collection efficiency among traders is low.
- Average tax per Assessment is Rs. 1491 higher than the average Rs. 718 in the last 5 years. ATPA for State/Central government employees was Rs.9635, Traders was Rs.393 and industrial/ private employees was nil. The number of assessments is recorded at an organization level and not at the level of individual professionals paying taxes. This constrains us from making a meaningful comparison of ATPA across categories and across years. The municipality needs to make a change to reflect assessments at the level of individual paying professional tax.

6.6.3 Water Supply Charges

Exhibit 6.16 Water Supply Charges analysis per capita

Category of Water Supply	No of Assts	%	Demand	%	ATPA*	Collection Effy
Residential	6697	96%	40.78	92%	609	90%
Commercial	187	3%	1.79	4%	957	71%
Industrial	92	1%	1.82	4%	1,978	23%
Other if any *	-			0%		
Total	6,976	100%	44.39	100%	636	87%
Average for 5 years	5,624		37.13		660	66%
Increase Over Previous Year	60	1%	0.59	1%	%	
Litigation						
Growth in 5 years - Current		10%		14%		12%

Source: Krish-m and iMaCS analysis

- Current Collection Efficiency for Residential, Commercial, and Industrial shows **90%**, **71%** and **23%**. Overall current collection efficiency was around **87%** for 2007-08, but an average for the last five years shows the current collection efficiency is **66%**. The municipality needs to ensure that its improvement in collection efficiency in the previous year is sustained and improved upon.
- The municipality has seen a CAGR of 10% in assessments and 10% in demand respectively. Demand growth at a higher rate than assessments is a positive sign.
- However, only about connections account for only 62%.of property tax assessments which indicate medium penetration. The municipality needs to improve this from current levels.
- Average tax per Assessment shows (ATPA) for Residential connections was **Rs.609** Commercial - **Rs.957** and Industrial **Rs.1978**. Over all average tax per assessment shows **Rs.636** for the FY'2007-08 and is lower than the ATPA of **Rs.660** in the last five years.

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

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

7.1 Potential themes for economic development

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

7.1.1 Build on the strengths in mango production and processing by incentivising investments in terminal markets, cold storage and export processing facilities

Press reports indicate that Krishnagiri is the second largest mango pulp-producing cluster in the country after Chittoor with more than 90% of the mango pulp production in the country being from these two clusters. Setting up a Agriculture Export Processing Zone has been a long pending demand from the region. Though more than 40 pulp producers are present in the region, press reports indicate that very few of them have Hazard Analysis and Critical Control Point Certification (HACCP). Further lack of shared testing facilities means that many of them have to rely on facilities in Bangalore.

Establishment of a cold supply chain and phytosanitation facilities would have a huge potential for development of direct exports of fresh fruits. Krishnagiri town serves as an aggregation centre for mangoes. The mango markets are located at Dharmaraja Koil Street, Car stand Street, South Mada Street, Ambedkar Nagar main road, and at Salem road. The town has a weekly and a daily market to serve the commercial needs for trading of agricultural produce. Opportunities for development of adequate market infrastructure and cold storage facilities should be explored and implemented.

7.1.2 Build on the recent initiative to set up a Special Economic Zone in Krishnagiri district to spur industrial growth and employment opportunities in the region

Krishnagiri is among the backward districts in the country and nearly 84% of population in Krishnagiri district lives in rural areas. There is a need for creating industrial development for improving employment prospects in the region. Proximity to Bangalore and improved road connectivity to Bangalore has led to heightened interest in industrial development in the region as evidenced by the recent signing of MOU between GMR Group and GoTN for setting up a Special Economic Zone in the district. Initiatives like could spur the need for the residential and urban space and could lead to positive and economic growth opportunities for Krishnagiri town. In order to further leverage this, investments in social infrastructure, particularly schools and health care from both private and public sector should be encouraged.

7.1.3 Review master plan and explore scope for extending town limits

Krishnagiri town faces structural limitations for growth given that large parts of the town is already developed. This is also reflected in the decline in the population and relatively high population density in the central areas of town. During consultations with public stakeholders and council, there has been a strong demand for extension of the town's limits to facilitate orderly development. The land-use pattern in Krishnagiri also needs to be reviewed and updated in conjunction with the land-use of adjoining areas. This exercise is critical to enable an integrated approach to planning for the urban agglomeration growing in and around Krishnagiri and to facilitate an orderly growth of the same.

7.2 SWOT analysis

A brief SWOT analysis of the town is presented below:

Strengths <ul style="list-style-type: none"> • District Headquarters • Commercial / trading hub for surrounding areas • Second largest mango pulp cluster in the country is in the district 	Weakness <ul style="list-style-type: none"> • Limited industrial activity and employment generation potential • Region among the backward areas in the state • Lack of direct railway connectivity. Nearest broad gauge station is Hosur.
Opportunities <ul style="list-style-type: none"> • Location on the Salem – Bangalore corridor along with good connectivity could spur investments in industry • Has potential to build on its strengths in mango/pulp exports to emerge as an important horticulture processing centre • Extension of town limits could facilitate orderly growth and improvement in municipal finances in the long term. 	Threats <ul style="list-style-type: none"> • Outward migration of skilled workforce • Continued constraints on ability and willingness to pay for urban services.

7.3 Strategic plan – focus areas and time horizon

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

- Water Supply
- Sewerage and Sanitation
- Roads, Transportation and street lighting
- Solid Waste Management
- Urban services for the Poor
- Social infrastructure and other urban amenities

The strategic plan for urban service delivery involves identification of interventions to address the gaps in service delivery between the prevailing levels and the required levels of services in the short

term (covering a period of 5 years starting 2007-08 up to 2011-12) and long term (covering a period of 15 years starting 2012-13 up to 2026-27). The geographical coverage of the plan includes the area under the jurisdiction of Krishnagiri municipality as of March 2007.

7.4 Population projections underlying the strategic plan

Exhibit 7.1 provides the population projections that form the basis of arriving at the sector wise service delivery gaps, interventions required and capital investment estimates.

Exhibit 7.1 Population projections and related estimates - Krishnagiri town

	Unit	Baseline	Projected		
		2007	2012	2017	2027
Population	Nos	71229	76804	82536	94405
Households (Estd.)	Nos	14839	17,068	18,341	20,979
Assessed Properties	Nos	19375	19,969	21,459	24,545
Road length	Km	44	46	52	52

The population projections have been arrived at as an average of the population projected based on Arithmetical Increase Method, Geometric Increase Method and Incremental Increase Method. A household size of 4.9 is assumed (in line with Census 2001).

7.5 Water Supply

7.5.1 Service Goals and Reform targets

Exhibit 7.2 provides the service goal/outcomes and reform targets for 2008-12.

Exhibit 7.2 Water supply - Service Goals and Reform Targets

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
Service Goals					
Per capita supply at doorstep	LPCD	60	135	135	135
Storage capacity / Total demand	%	47%	50%	50%	50%
Distribution network / Road length	%	68%	80%	80%	100%
Frequency of supply	hours/day	2	4	8	24X7
Reform targets					
Current collection efficiency	%	56%	75%	90%	90%
House Service Connections / Assessed Properties	%	62%	70%	75%	80%
Population per water fountain	nos.	73	125	125	125
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes
User charge collection - % of O&M plus debt servicing	%	n.a	30%	50%	100%

As against the standards of 90 LPCD of water supply, Krishnagiri municipality is able to supply only 60 LPCD. However, as per WHO norm, provision of 135 lpcd supply should be the target of Krish-M with intentions to implement a comprehensive water supply project by 2017.

On the reform agenda, however, at 56% the current collection efficiency requires significant improvement. Connection efficiency (as measured by connections / assessed properties) also is low at 62% and indicates scope for improvement.

7.5.2 Baseline status and requirements – short term & long term

Exhibit 7.3 provides details of the water supply infrastructure and the requirements and gaps in the short, medium and long term after taking into account the interventions mentioned above.

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

INFRASTRUCTURE - Baseline and Gaps	Unit	Baseline	Required			Incremental addition		
		+ Ongoing	2012	2017	2027	2012	2017	2027
Gross Water Supply	MLD	4.30	10.37	11.14	12.74	6.07	0.77	1.60
Storage Capacity	ML	3.00	5.18	5.57	6.37	2.19	0.39	0.80
Distribution network length	km	38.65	36.80	41.40	51.75	-	2.75	10.35
HSCs	nos	11,936	13,978	16,094	16,783	2,042	2,116	689
Public fountains	nos	515	614	660	755	99	46	95

7.5.3 Interventions – immediate priorities

Ongoing initiatives

- Treatment plant** – Krish-M is implementing a treatment plant of 7.3 MLD capacity. Works are in progress and the project is expected to be completed shortly
- Replacement of distribution line** – Tenders have been received for works for replacement of parts of distribution network replacement and the subject has been placed before the council.

Hogenakkal water supply project

The Hogenakkal Water supply project for addressing water supply requirements of Dharmapuri and Krishnagiri district is expected to address requirements of Krishnagiri town as well. Regarding the project, the following details are available to us based on reports provided to us by TWAD and TNUIFSL. While we understand that the project is still under finalization and these numbers are subject to change, they provide the broad details to base the range of Capital investment requirements:

- Gross water supply** – The project is assumed to provide 128 MLD supply at intermediate stage and 160 MLD at ultimate stage. For Krishnagiri, the project envisages supply of 7.76 MLD at the ultimate stage. While our computation of overall demand works out to nearly 12.74 MLD by 2027 itself as per our estimates, based on a norm of 135 LPCD, we have not provided for any additional capital investment for the same.
- Connections** – The project envisages servicing 6786 connections.

- c. **Allocated cost** –Assuming cost of the project at Rs. 1334 crore, the apportioned cost on a pro-rata basis works out to Rs. 6470 lakh. Discussion with TWAD authorities indicate that the project would cover necessary additions to local infrastructure (including distribution network for uncovered areas and storage augmentation). However, any rehabilitation of existing distribution network is not being envisaged as part of this project.

7.5.4 Interventions - medium-long term

The Hogennakal water supply scheme would largely take care of the water supply requirements of Krish-M in the medium to long term as well. We have provided for additional investments for distribution network extension on the basis of normative gaps. Further, we believe that Krish-M should strive towards 24x7 water supply in the medium to long term. This would require comprehensive metering of all connections and implementing volume based user charges. Investments in metering have been provided based on expected connections in 2027 during 2018-27

Asset Management and Developmental activities

7.5.5 Investment summary - Water supply

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

Exhibit 7.4 Water Supply - Capital Investment outlay and phasing

CAPEX PLAN AND PHASING	Rs.in Lakhs								
	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	Total
ONGOING / PROPOSED PROJECTS									
Hogennakal Project-7.76 MLD	-	1,617	1,617	1,617	1,617	6,470	-	-	6,470
Water Treatment Plant of 7.3 MLD	165	-	-	-	-	165	-	-	165
Distribution line replacement	14	-	-	-	-	14	-	-	14
Mini Power Pump at 15 places	9	-	-	-	-	9	-	-	9
Others - normative estimates									-
Distribution line addition	-	-	-	-	-	-	14	52	66
Metering	-	-	-	-	-	-	-	252	252
TOTAL CAPEX - Water supply	187	1,617	1,617	1,617	1,617	6,657	14	303	6,974

7.6 Sanitation

7.6.1 Service Goals and Reform targets

Exhibit 7.5 provides the service goal/outcomes and reform targets for 2008-12.

Exhibit 7.5 Sanitation - Service Goals and Reform Targets

SERVICE LEVEL GOALS AND OUTCOMES	Unit	Baseline	Target		
		2007	2012	2017	2027
Service Goals					
UGD Network					
Availability	Yes/no	No	Yes	Yes	Yes
Design capacity per capita (for treatment and pumping)	lpcd	-	120	120	120
Sewer network - % of road length		-	80%	80%	80%
Storm Water Drains					
Drain length / Road length		67%	100%	130%	130%
Public Conveniences					
Population per PC seat		725	200	200	200
Reform targets					
Sanitation coverage - % of population		65%	100%	100%	100%
User charges - Current collection efficiency		NA	70%	90%	90%
Household connections / Assessed Properties	%	NA	40%	60%	70%

A DPR for upgrading and developing a comprehensive UGD scheme has been prepared by TWAD Board.

7.6.2 Baseline status and gaps

Exhibit 7.6 provides the baseline status on sanitation and the requirements and gaps in the short, medium and long term after taking into account the above projects

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

INFRASTRUCTURE - Baseline and Gaps	Unit	Baseline + Ongoing	Required			Gap		
			2012	2017	2027	2012	2017	2027
Treatment	MLD	Project in progress	9.22	9.90	11	-	-	-
Sewer Length	km		37	41	41	-	-	-
Household connections	nos		6,827	11,005	14,685	-	-	-
Storm Water Drains	km	60	46	67	67	-	7	-
Public convenience seats	nos	150	192	206	236	42	14	30

The proposed UGD project is likely to address the sewerage disposal needs of the town within the next 5 years.

7.6.3 Interventions - Immediate priorities

There are significant gaps in sanitation in the immediate term and the following actions are required within the next 5 years. Exhibit 7.7 presents the list of ongoing and proposed projects of Krish-M in the immediate term.

Exhibit 7.7 Sanitation – Ongoing/proposed projects

Rs.in Lakh

ONGOING / PLANNED INTERVENTIONS - Status and Outlay	Outlay	2008	2009	2010	2011	2012
UGD Scheme	2434		811.3	811.3	811.3	
Storm water drains - 22 Kms- UIDSSMT	165	-	-	82.5	82.5	
Construction of Public conveniences	25	25	-	-		
TOTAL	2624	25.0	811.3	893.8	893.83	0

The project priorities in the short term are listed below:

A. UGD scheme

- ❖ Krishnagiri municipality has proposed to provide the sewerage system in entire town and a plan was prepared by TWAD board at an estimated cost of Rs 22.34 crore. This includes provision of sewer network length of 45 km along with the STP of 9.0 MLD capacity to cater the 12000 house connections in all the 33 wards of the town.

B. Storm water drains

- ❖ Storm water drains of about 22 km are envisaged to be implemented under the UIDSSMT scheme post completion of UGD scheme.

C. Public conveniences

- ❖ Krish-M intends to build about 50 public convenience seats at an outlay of Rs. 25 lakh. We have provided for construction of another 42 seats at an outlay of Rs. 21 lakh based on normative gaps.

7.6.4 Interventions – Long term

The proposed investments in UGD will take care of bulk of the sanitation requirements in the medium to long term as well. However, additional investments will be required to take care of growing population and increase in road length due to new formations / layouts in extension of sewer length. The proposed UGD system will cover all the wards of Krish-M in terms of sanitation facilities and also the IHSDP proposal will take care of sanitation facilities in slums. This will reduce the required number of Public Conveniences up to 2012 by half. We have provided for investments in these areas on a normative basis, depending on the demand gaps emerging from Exhibit 2.6 above.

7.6.5 Project components and Capital Investment

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

Exhibit 7.8 Sanitation - Capital Investment outlay and phasing

Rs.in lakh

CAPEX PLAN AND PHASING	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Ongoing/Proposed									
UGD Scheme- Rs. 24.34 crore	-	811	811	811	-	2,434			2,434
Storm water drains - 22 Kms	-	-	83	83	-	165			165
Public conveniences	25	-	-	-	-	25			25
Others - normative estimates						-			-
Sewer length							-		
Storm water drains				-	-	-	131	-	131
Public conveniences			21			21	7	15	43
TOTAL	25	811	915	894	-	2,645	138	15	2,798

7.7 Solid Waste Management

7.7.1 Service goals and reform targets

Exhibit 7.9 provides the service goal/outcomes and reform targets in SWM during 2008-27.

Exhibit 7.9 Solid Waste Management - Service Goals and Reform Targets

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

7.7.2 Baseline status and gaps – short term & long term

Exhibit 7.10 provides the baseline status in solid waste management and the requirements and gaps in the short, medium and long term. As can be seen, Krish-M has a surplus land available for disposal vis-à-vis municipal norm of 1 acre per 10000 populations (2027).

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

	Unit	Baseline	Required			Incremental gap		
			2012	2017	2027	2012	2017	2027
Estd. Waste Generation per capita		414	600	650	650			
Waste Generated	MT	29.5	46	54	61			
Primary collection								
Number of trips	Nos.	4.00	5	5	5			
Vehicle capacity (Tricycle equivalent)	MT	10.20	0.15	0.15	0.15			
Number of Tricycle equivalent	nos.	30	61	72	82	31	42	52
Replacement - Tricycle equivalents	nos.			61	47		61	47
Secondary collection / Transfer								
Number of trips	nos.	2.00	2.00	2.00	2.00			
Vehicle capacity	MT	15.00	23.04	26.82	30.68	8.04	3.78	3.86

	Unit	Baseline	Required			Incremental gap		
			2012	2017	2027	2012	2017	2027
Equipment - tonnage equivalent	MT			23.04	26.82		23.04	26.82
Disposal								
Land	acres	13.13			9.44			-
Compost yard	acres	5.25			3.78			
Processing yard	acres	7.88			5.66			

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

7.7.3 Interventions required – Short Term

A. Land acquisition

- ❖ Krish-M has proposed to acquire 5.34 acres land at an outlay of Rs. 534 lakh

B. Compost yard development

- ❖ Compost yard development and implementation of wind rows over 5.34 acres at an outlay of Rs. 53.4 lakh

C. Equipment – primary and secondary collection

- ❖ Capital estimate for equipment procurement has been provided for on the basis of normative gaps. The estimated outlay for 2008-12 is Rs. 15.7 lakh for primary collection and Rs. 28 lakh for secondary collection and transfer.

7.7.4 Interventions required – medium term

The following projects are proposed and required in the medium to long term. The outlay has been arrived at based on the normative gaps established in Exhibit 7.11 above.

- Equipment** - Purchase of equipments for primary and secondary collection at an outlay of Rs. 100.9 lakh and Rs. 201.3 lakh respectively.
- Sanitary Land fill** - Development of scientific landfill site and compost yard at an estimated outlay of Rs. 80 lakh.

7.7.5 Project components and Capital Investment

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

Exhibit 7.11 Solid Waste Management - Capital Investment outlay and phasing

Rs. lakh

CAPEX PLAN AND PHASING	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
ONGOING / PROPOSED PROJECTS								
Land acquisition 5.34 acres identified	534				534			534
Compost yard development	54				54			54
Others					-			-
Primary collection	16	-	-	-	16	51	49	117
Secondary collection	28	-	-	-	28	94	107	229
Development cost - Landfill site					-	-	-	-
TOTAL CAPEX - SWM	631	-	-	-	631	145	157	934

7.8 Roads, Transportation and Streetlights

7.8.1 Service goals and reform targets

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

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

SERVICE LEVEL GOALS AND OUTCOMES	Unit	Baseline	Target			
		2007	2012	2017	2027	
Municipal roads as % of Total Area	%	87%	8%	9%	9%	
Surfaced roads to Total roads	%	100%	100%	100%	100%	
Street Lights - Distance between streetlights	M	25	30	30	30	
Street Lights - Proportion of high power lamps	%	23%	30%	30%	30%	
Street Lights - Proportion of lights with energy saving devices	%	0	15%	20%	25%	

7.8.2 Baseline status and gaps

Exhibit 7.13 provides the baseline status and interventions in transportation and street lighting in the short term and long term.

Exhibit 7.13 Transportation- Interventions - Physical

Infrastructure	Unit	Phasing (outcome)		
		Up to 2012	2013-17	2018-27
Municipal road network				
Upgrading non-surfaced roads to BT roads	Km	46	52	52
Restoring roads after UGD completion	Km	1		
New road formation / Surfacing	Km	-	22	
Re-laying all roads once between 2018-27	Km	2	8	8
Road facilities				44
Bus shelters upgradation	Nos	5		
Bus terminus upgradation	Nos		1	
New Bus stand	Nos			1

Almost the entire road network is surfaced. However, there is a need for substantial investment in the road network even in the short term given the proposed underground sewerage projects in the town.

7.8.3 Interventions required – immediate term

Investment / Project components

The key investment components in roads and transportation in Krish-M are listed below:

- Road upgradation, surfacing and restoration** – Krish-M has nearly 44 km of roads and almost 100% roads are surfaced roads. About 22 km of roads would need to be restored after completion of the UGD phase –I and remaining to be upgraded in the next phase. Outlay for resurfacing is estimated at Rs. 261 lakh and upgradation would cost Rs. 22 lakh.
- Road facilities** – The gaps in Krish-M with respect to specific road facilities are highlighted in Exhibit 2.12 above and need to be addressed to meet the service level targets outlined in exhibit 7.11.
- Bus stand** – It is envisaged that the town will require bus stand in the near future, which is assumed to come up in 2018-27 at an estimated cost of Rs. 600 lakh.

7.8.4 Capital outlay and phasing

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

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

Rs in. lakh

Transportation	Phasing		
	upto 2012	2013-17	2018-27
Municipal road network			
Upgrading non-surfaced roads to BT	22	-	-
Re-surfacing of roads after UGD implementation	264	-	-
New road formation / Surfacing	49	164	164
Re-laying of roads once between 2018-27	-	-	697
Bus shelters upgradation	3		
TOTAL- Outlay- Service level Gaps	338	164	861

Street lights	upto 2012	2013-17	2018-27
High power lamps	6	7	-
Tube lights	-	-	-
Lights with Energy savers	23	26	26
Total- Outlay Streetlight	29	33	26

Rupees in lakhs

CAPEX PLAN AND PHASING	2010	2011	2012	2008-	2013-17	2018-27	Total
------------------------	------	------	------	-------	---------	---------	-------

				12			
Road	113	113	113	338	164	861	1,363
Streetlight	14	14	-	29	33	26	88
Total- Capex Transportation	127	127	113	367	197	887	1,450

7.9 Urban services for the poor

In Krishnagiri Municipality there are 21 notified slums with population of 26503 residing in 4479 households.

7.9.1 Service levels goals and outcomes

Exhibit 7.15 gives a snapshot of the service level goals and outcomes of Krish-M with respect to provision of urban services for the poor.

Exhibit 7.15 Urban Services for poor – Service level goals and outcomes

	Unit	Target		
		2012	2017	2027
Road Coverage for slum household	%	50%	100%	-
Sanitation coverage for slum households	%	50%	100%	-
Streetlights	%	50%	100%	-
Pucca houses for all slum households	%	50%	100%	-

It is proposed to 50% of the slum households in the first phase of comprehensive slum development plan by 2012 and in second phase the remaining slum households would be covered. The comprehensive slum development would be similar to the IHSDP scheme with beneficiary contribution in capital cost and participation in development activity.

7.9.2 Proposed projects

Krish-M has taken up a comprehensive proposal for upgradation of slums under IHSDP at an outlay of Rs. 3069 lakh covering 3274 households.

7.9.3 Capital outlay and phasing

Exhibit 7.16 provides the summary of capital outlay and phasing of investments for provision of urban services for the poor.

Exhibit 7.16 Urban Services for the poor –Capital outlay and phasing

CAPEX PLAN AND PHASING	Rupees in lakhs								
	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	Total
Ongoing/Proposed Projects	0	0	0	0	0		0	0	0
Additional Outlay	-	1064	1064	1064	1064	2105	2105	0	4210
Total	0	1064	1064	1064	1064	2105	2105	0	4210

7.10 Social infrastructure and other urban amenities

Exhibit 7.17 provides the summary of interventions, capital outlay and phasing of investments for provision of other urban service amenities in Krish-M.

Exhibit 7.17 Social infrastructure and other urban amenities – Capital outlay and phasing

Rupees in lakhs

Area	Phasing								Total
	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	
Health	-	-	40	40	-	80	80	80	240
Schools	-	-	-	20	20	40	40	80	160
Slaughter House	23	-	-	-	-	23	-	-	23
Gasifier crematorium	40	-	-	-	-	40	-	-	40
Market	-	-	-	-	-	-	50	-	50
Park	-	-	-	10	10	20	20	40	80
TOTAL	63	-	40	70	30	203	190	200	593

A. Markets and Shops

- ❖ Krish-M intends to develop one market with adequate facilities at an outlay of Rs. 50 lakh. However, they would take up this project only in the medium term during 2013-17

B. Improvement in Parks

- ❖ An outlay of Rs. 20 lakh every 5 years has been provided for the 2 parks maintained by the municipality.

C. Slaughter house and Gasifier crematorium

- ❖ The tender has been issued for Gasifier based crematorium to be built at an outlay of Rs. 40 lakh.
- ❖ Slaughter house modernisation has been proposed by Krish-M at an outlay of Rs. 23 lakh.

D. Schools

- ❖ While no concrete proposals are there for schools, we have assumed a capital outlay of Rs. 40 lakh every 5 years for school building improvements.

E. Health care

- ❖ An outlay of Rs. 240 lakh has been provided for improvement of health facilities managed by Krish-M.

7.11 Capital Investment Plan - Summary

7.11.1 List of projects

The critical priority projects to be implemented by Krish-M in the short term (2008-12) are summarized below in Exhibit 7.18.

Exhibit 7.18 Priority projects - FY 2008-12

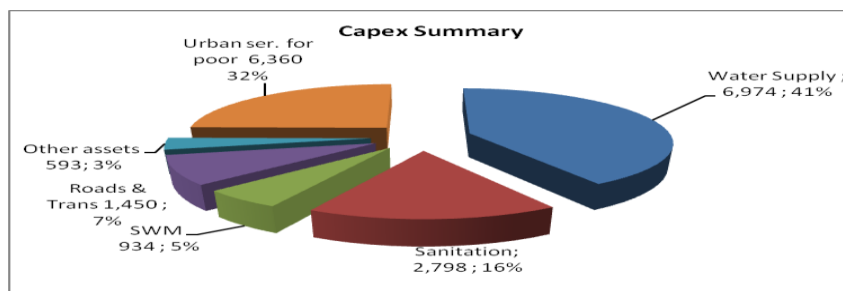
Sl. No	Sector	Project	Cost	Status
			Rs. Lakh	
1	Water Supply	Hogenakkal water supply project-Krishnagiri component	6470	Proposed. DPR being prepared by TWAD
		Water Treatment Plant of 7.30 MLD	165	Project Planning stage
		Distribution Line Replacement	14	Project Planning stage
		Mini Power pump at 15 places	9	Project Planning stage
			6657	
2	Sanitation	Extension of UGD scheme in uncovered areas	2434	Proposed. DPR being prepared by TWAD
		22km of storm water drain construction including roads	165	Proposal to be considered post UGD completion
		Construction of Public Conveniences	25	Project Planning stage
		Public conveniences	21	Additional Outlay Phasing
			2645	
3	Transportation	Up gradation of non-BT roads tot BT roads	22	Proposal to be considered post UGD completion
		New road formation	49	Proposal envisaged as per normative gaps
		Resurfacing of roads after UGD implementation-22 km	264	Proposal envisaged as per normative gaps
		Bus shelter up gradation	3	Proposal envisaged as per normative gaps
		Street light	29	Additional Outlay Phasing
			367	
4	SWM	Land acquisition 5.34 acres identified	534	Proposed
		Compost yard development	54	Proposed
		Primary collection	16	Additional Outlay Phasing
		Secondary collection	28	Additional Outlay Phasing
			631	
5	Others	Health	80	Proposed
		Schools	40	Proposed
		Slaughter House	23	Proposed
		Gasifier crematorium	40	Proposed
		Parks	20	Proposed
			203	
6	UIDSSMT	Additional Outlay required for service level goals	2105	Additional Outlay required for service level goals
	Total		12608	

7.11.2 CIP summary

Exhibit 7.19 provides a summary of sector wise phasing of investment needs of Krish-M.

Exhibit 7.19 Capital Investment Plan summary Rupees in Lakhs

	2008	2009	2010	2011	2012	TOTAL
Water Supply	187	1,617	1,617	1,617	1,617	6,657
Sanitation	25	811	915	894	-	2,645
Solid Waste Management	-	631	-	-	-	631
Roads and Transportation	-	-	127	127	113	367
Other assets	63	-	40	70	30	203
Urban services for poor	0	526	526	526	526	2,105
TOTAL	275	3,586	3,226	3,235	2,286	12,608



The specific points from consultations and the amount allocated with respect to these suggestions are summarised in table below.

Segment	Suggestions	Reflection in CIP
Water Supply Pilot project 24x 7 Upgradation Distribution	1. Hoganekal water supply project has to be quickly implemented 2. Need purified Water in all areas 3. Need Over head tanks in many palaces 4. Bore wells should be increased. 5. Improve quality of water , existing water is contaminated* water	Rs.6657 lakhs are allocated in CIP up to FY2008-12
Road and Transportation Roads (Upgradation and new) Bus terminus New Bus stand Street lights	1. More street lights are required as quite a few areas do not have adequate street lights 2. Bus shelters are a must in various areas of the town. 3. To be construct over bridges near Nimas rock on the way to Salem bye pass road and near four roads on the way to Thiruvannamalai bye pass road avoid the accidents 4. Roads have to be widened in Krishnagiri 5. Energy Management through efficient utilization of street lights required.	Rs. 367 lakhs are allocated in CIP up to FY2008-12
Sanitation Toilets UGD Storm water drainage	1. Need Under ground drainage system 2. The municipality is not getting land for Sewage Treatment Plant under UGD implementation. 3. UGD should be implemented on high emergency basis.	Rs. 2645 lakhs are allocated in CIP up to FY2008-12
SWM Primary Secondary Composite yard	1. Solid Waste Management in the town is very bad.	Rs. 631 lakhs are allocated in CIP up to FY2008-12
Others: Parks Schools Health cares Markets Sluaghter House Gasifier Cremetorium Municipal Office	1. Burial Ground upgradation is a high priority need. 2. Krishnagiri needs commercial complexes 3. Krishnagiri needs a gasified crematorium immediately 4. Sport related projects have to come up in the town – stadium/swinmming pool 5. A good public library is a need of the town 6. Municipal and Government schools in Krishnagiri should be modernized.	Rs.203 lakhs allocatted in CIP upto FY' 2008-2012

Segment	Suggestions	Reflection in CIP
	7. This land could be used for setting up parking lots (with a share to the trust or a lease rental), other remunerative projects. 8. The town needs a better equipped Government Hospital. Many facilities have been found to be inadequate. Even the Municipal health centres need doctors to be posted. 9. The additional land available at London Pettai (owned by PWD) (apart from what has been used to set up bus stand by the municipality) could be utilized for setting up tourism projects – boating facilities	

7.11.3 Technical assistance requirements

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

1. Comprehensive GIS for the town with updated information on all urban assets including roads, water supply, sanitation etc.
1. Support for digitization of layout records and town planning information
2. Roadmap for 135 LPCD water and 24x7 supply
3. DPR for solid waste management with focus on scientific disposal and mechanised handling of waste with private sector participation
4. Comprehensive solid waste management plan with priority to the compost yard development.

7.11.4 Interventions required from other agencies/departments of GoTN

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

1. **TWAD** - Implementation of Hogenakkal Water Supply Scheme
2. **DTCP** – Review of master plan and land-use and roadmap for extension of city limits.
3. **Department of Industries, GoTN** – Evaluate scope for setting up an Agri Export Processing Zone in Krishnagiri.
4. **Department of Highways, GoTN / NHAI** – Explore the need and scope for setting up a master ring road around Krishnagiri including any extended areas.
5. **Railways** – Explore and expedite rail connectivity between Jolarpet and Krishnagiri.
6. **Tamil Nadu Pollution Control Board (TNPCB)** – Develop and implement necessary pollution control measures to prevent water, land and air pollution that may otherwise arise otherwise due to the expected growth of industrialisation of the region.

7.11.5 Reform targets

Exhibits 7.20 and 7.23 summarize reform targets and asset management plan for Krish-M respectively.

Exhibit 7.20 Service level and reform targets – A summary

FACTOR	Unit	Baseline	Target		
		2007	2012	2017	2027
WATER SUPPLY					
Service Goals					
Per capita supply at doorstep	LPCD	60	135	135	135
Storage capacity / Total demand	%	47%	50%	50%	50%
Distribution network / Road length	%	68%	80%	80%	100%
Frequency of supply	hours/day	2	4	8	24X7
Reform targets					
Current collection efficiency	%	56%	75%	90%	90%
House Service Connections / Assessed Properties	%	62%	70%	75%	80%
Population per water fountain	nos.	73	125	125	125
Implementation of graded / metered tariff	Yes / No	No	Yes	Yes	Yes
User charge collection - % of O&M plus debt servicing	%	n.a	30%	50%	100%
SANITATION					
Service Goals					
UGD Network					
Availability	Yes/no	No	Yes	Yes	Yes
Design treatment capacity per capita	lpcd	-	120	120	120
Sewer network - % of road length	%	-	80%	80%	80%
Storm Water Drains					
Drain length / Road length	%	67%	80%	100%	100%
Public Conveniences					
Slum population per PC seat	Nos.	725	200	200	200
Reform targets					
Sanitation coverage - % of population	%	65%	100%	100%	100%
User charges - Current collection efficiency	%	NA	70%	90%	90%
Household connections / Assessed Properties	%	NA	50%	80%	100%
SOLID WASTE MANAGEMENT					
Collection efficiency	%	100%	90%	90%	100%
Door-to-door collection	%		100%	100%	100%
Source Segregation	%	30%	60%	80%	100%
Mode of disposal	%	0	50%	100%	100%
Conservancy fee	Yes / no	No	yes	yes	yes
TRANSPORTATION AND STREET LIGHTS					
Municipal roads as % of Total Area	%	8%	8%	9%	9%
Surfaced roads to Total roads	%	100%	100%	100%	100%
Street Lights - Distance between streetlights	M	25	30	30	30
Street Lights - Proportion of high power lamps	%	23%	30%	30%	30%
Street Lights - Proportion of lights with energy savers	%	8%	8%	9%	9%

7.12 Asset Management Plan

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

In the following paragraphs we analyse the information provided to us on land and building assets available with Krish-M and outline specific observations and suggestions on maintaining and updating these assets. The Asset Management Plan for core services areas namely Water Supply, Sanitation, Solid Waste Management and Transportation follows largely from the Capital Investment Plan outlined in the earlier paragraphs and is outlined below under sections 7.12.2 to 7.12.5 below. Specific actions relating to asset management and reform steps in these areas are also summarized in Exhibit 7.23.

7.12.1 Land and building assets of Krish- M

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

- Annexure VI – Land details as per Schedule I of asset register
- Annexure VII - Building details as per Schedule II of asset register

Exhibit 7.21 and 7.22 summarises the details of land and building assets in Krish- M as shown in schedule I and II of the asset register of the municipality.

Exhibit 7.21 Land assets summary

Particulars	No of Buildings	Area in sm
Basic amenities	5	2,439.30
Social Purpose	9	79,552.00
Remunerative Purpose	3	7,786.50
Schools		
Office Buildings	3	4,528.00
Vacant Place & Others	6	28,731.20
Total	26	123037

Exhibit 7.22 Building assets summary

Particulars	No of buildings	All in sm	
		Total area	Plinth area
Basic amenities	15	10673.58	369.53
Social Purpose	3	3832.65	199.19
Remunerative Purpose	5	12499.5	980.8
Schools & Noon Meal centre			
Office Buildings	19	24741	2980.49
Others	1	13.44	13.44
Total	43	51760.17	4543.45

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

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

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

7.12.2 Water supply

Immediate Interventions

- a) Review and update asset register to reflect the latest status and establish process along with accountability for updating asset register on a periodic basis.
- b) Provide a ward wise report on capital works undertaken online on a quarterly basis.
- c) Undertake an independent study to assess loss levels in transmission, storage points and distribution and develop a roadmap for providing 24x7 water supply.
- d) Conduct periodic IEC campaigns on water conservation and rainwater harvesting practices.
- e) Review losses and illegal connections and widen the base of house service connections.

Medium- Long term

Critical asset management and development activities in the medium to long term are listed below:

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

7.12.3 Sanitation

Underground drainage is being handled in Krish-M in all wards. TWAD will develop the UGD systems and hand over to Krish-M for the O&M purposes.

Immediate Interventions

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

Medium-Long Term

Krish-M should incorporate the sanitation asset details as part of a wider GIS implementation program. Further, tariffs can be structured on a slab rate structure with property tax assessments as the basis.

7.12.4 Solid Waste Management

Short term

- a) Krish-M should prepare a detailed project report for its solid waste management requirements along the entire value chain from generation to disposal to ascertain. This should also include an evaluation of disposal options and recommend a roadmap for safe disposal of waste including additional investments needed for composting if any and implementing other options for non-biodegradable waste such as engineered landfills
- b) Conduct IEC activities to back other initiatives like door-to-door collection to facilitate effective segregation of waste at source.
- c) Review and updated the Solid Waste Management Action Plan and prepare a detailed feasibility report for comprehensive Solid Waste Management in the town
- d) Implement door-to-door collection and source segregation in all wards.
- e) Identify transfer points / collection points for every ward and streamline primary and secondary collection trips


Medium & Long term

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

Exhibit 7.23 Asset Management Plan and timeline

Sl.No	ASSET MANAGEMENT / DEVELOPMENTAL ACTIVITIES	Responsibility	Short Term	Medium term	Long Term
			2007-12	2013-17	2018-27
WATER SUPPLY					
1	Create Baseline information on water supply assets / performance	Krish-M			
2	Accountability and process for periodic updation / dissemination	Krish-M			
3	IEC campaigns for water conservation and rainwater harvesting	Krish-M			
4	Leak detection plan / Losses assessment	Krish-M			
5	Implementation of usage based / graded tariffs	Krish-M			
6	Incentives / penalties to encourage timely payment of water charges	Krish-M/CMA			
7	GIS mapping of water supply assets/connections	Krish-M/CMA/TWAD			
8	Roadmap for 24x7 water supply	TWAD / Krish-M			
9	Metering at household level and usage based tariffs	TWAD / Krish-M			
10	Piloting 24x7 water supply	TWAD / Krish-M			
11	Implementation of 24x7 water supply	TWAD / Krish-M			
SANITATION					
1	Create Baseline information on sanitation assets / performance	Krish-M			
2	Accountability and process for periodic updation / dissemination	Krish-M			
3	IEC campaigns and public consultations on UGD benefits	Krish-M			
4	Mobilisation of public deposits	Krish-M			
5	Initiate and encourage Community participation for upkeep of sanitation assets	Krish-M			
6	Incentives / penalties to encourage timely payment of water charges	Krish-M/CMA			
7	Implementation of graded tariffs	Krish-M			
8	GIS mapping of sanitation assets/connections	Krish-M/CMA/TWAD			
SOLID WASTE MANAGEMENT					
1	IEC activities	Krish-M			
2	Review and updation of SWM action plan / Preparation of DPR	Krish-M/CMA			
3	Door to Door Collection	Krish-M			
4	Source Segregation	Krish-M			
5	Identified transfer / collection points	Krish-M			
6	Synchronisation of primary/secondary collection	Krish-M			

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

 Interventions requiring technical assistance/support in DPR preparation

7.12.5 Roads and Transportation

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

- a) Create a baseline database on road assets at a ward level covering street wise details of length of road, road assets (storm drains, culverts etc), surface and condition
- b) Establish process and accountability for periodically updating this database with details of works done on these roads and disseminating information on the same on Krish-M's website.
- c) Clarify policy on road digging and repair and communicate the same to all agencies. Take stern action on agencies digging without prior permission from the ULB.
- d) Create a coordination committee comprising 'right of way' users including telecom companies, Tamil Nadu Electricity Board, TV cable operators, Traffic police and ULB officials to plan development and maintenance of road assets in a synchronised manner.
- e) Provide ducts for cables and other utilities along all arterial and major roads to minimise road digging.
- f) Adopt energy saving measures including implementation of energy savers in all high power street lights.

8. Project profiles, analysis of risks and ESA considerations

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

8.1 Water supply

Project Description	Comprehensive water supply scheme for piped water supply in all wards
Project Status	DPR under preparation by TWAD.
Need for the project	Water supply is only 60 LPCD while less than 63% of assessed properties have house service connections, indicating the significant gaps in water supply service levels and coverage. Therefore this project needs to be addressed on priority
Project Components	<p>This outlay is based on initial estimates provided by TWAD to Krish- M and exact components and scope of DPR are not available. Assessments of normative gaps that need to be addressed are highlighted below.</p> <ul style="list-style-type: none"> • Supply augmentation, Transmission and primary storage for supply of at least 10.37 MLD (by 2012) and 12.74 MLD (by 2027) • Local storage and pumping - Additional 2.19 ML of storage capacity by 2012 and another 0.38 MLD by 2027. • Investments in pumping and distribution network - Comprehensive provision of protected piped water supply in all wards covering about 44 km of roads in the short term. • Rapid scale up in House service connections – which would potentially need to increase nearly 8-fold in the next 5 years to more than 15500 connections
Project Cost and basis	<p>Estimated at Rs. 6657 crore.</p> <p>Based on discussions with Krish- M, initial estimate provided by TWAD .It is likely to get escalated.</p>
Revenue impact	Direct incremental revenue impact as Krish- M intends to levy house connection deposits and user charges. However, it has still not been decided whether Krish- M or TWAD would be handling the maintenance of water supply
Financing mix	Would be structured as a combination of grant, loan and own funds based on a detailed appraisal of potential revenues and other possible credit enhancements including escrow of part of property tax receivables and user charges and creation of debt service reserve.
Risk factors and other remarks.	Given the large size and the complexity of the project, it is important to follow best practices in contracting out this project. Stringent quality considerations must be adopted in selecting contractors. The contract could be structured on a BOT format where the contractor is also responsible for maintaining the network, so that that the risk of non-performance is shared. Further incentives and penalties should be built into the contract to ensure timely completion of the project. To ensure scalability, TWAD should ideally make the design amenable for 24x7 supply in the future; even it does not envisage 24x7 supply in the short term.
ESA analysis and tentative rating	<p>E2 -Expected to have only moderate environmental issues. Mostly generic impacts in nature</p> <p>S3 - No social issues expected. Hence socially benign no social mitigation measures required, need to submit SSR</p>

8.2 Sanitation

Sector	Sanitation
Project Description	UGD scheme
Project Status	DPR already prepared by TWAD and under updation.
Need for the project	All 33 wards out of 52 have some Underground Drainage system in place. While the project to cover 19 wards has been delayed for a long time, TWAD has also prepared a DPR for the uncovered areas. Therefore there is significant gaps in sanitation that need to be rectified on priority.
Project Components	Comprehensive Underground Drainage scheme (Estd. Outlay – Rs. 24.34 crore) covering the following components <ul style="list-style-type: none"> Provision of UGD scheme 33 wards ~ Rs. 24.34 crore Provision of estimated 3500 household connections in 5 years and additional sewer network of approximately 44 km.
Project Cost and basis	Estimated at Rs. 24.34 crore. Based on estimate for 33 wards provided by TWAD, cost escalation sought by contractor for ongoing UGD scheme and discussions with officials of Krish- M.
Revenue impact	Direct incremental revenue impact as Krish- M intends to levy house connection deposits and user charges. However, it has still not been decided whether Krish- M or TWAD would be handling the maintenance
Financing mix	Could be structured as a combination of grant, loan and own funds.
Remarks	Given the large size and the complexity of the project, it is important to follow best practices in contracting out this project. Stringent quality considerations must be adopted in selecting contractors. The contract could be structured on a BOT format where the contractor is also responsible for maintaining the network, so that that the risk of non-performance is shared. Further incentives and penalties should be built into the contract to ensure timely completion of the project. Modern best practices including biogas based electricity generation should be incorporated in the project design.
ESA analysis and tentative rating	E1 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), S1 or S2 – is likely to have PAPs and hence need fairly detailed assessment.

Sector	Sanitation
Project Description	Implementation of pucca storm water drains and flood management measures.
Project Status	Proposed. A Detailed Project Report needs to be prepared covering a) identification of potential water catchment points (including restoration of water bodies), b) Identify arterial canal networks that need to be developed/strengthened based on a review of flooding and water flow patterns and c) Specify ward level guidelines for storm water drain construction in terms of linkages and gradient of local storm water drain construction initiatives.
Need for the project	Krish- M has a number of flood-prone and low-lying areas as identified
Project Components	This project would involve <ul style="list-style-type: none"> Construction of new Pucca concrete storm water drains along the road along with interlinking to water bodies in uncovered areas in an estimated length. Cost estimated arrived at based on a normative length of 164 km of

	<p>existing storm water drains.</p> <ul style="list-style-type: none"> Rehabilitation and desilting of existing storm water drains. Cost estimate arrived at based on an additional length of 164 km needed to meet 70% of road length.
Project Cost	Rs. 165 lakh
Revenue impact	The project is likely to be non-remunerative.
Financing mix	Given the size of the project and the non-remunerative of the project proposals, implementation of the project would require significant grant support.
Remarks	There is a need for a clear O&M strategy involving local community participation at the project implementation stage itself to ensure appropriate upkeep and maintenance of the asset. Further, the construction of storm water drains should be done in conjunction with road restoration/development to ensure appropriate alignment and flow patterns.
ESA analysis and tentative rating	E1 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), S1 or S2 – is likely to have PAPs and hence need fairly detailed assessment.

8.3 Solid waste management

Sector	Solid waste management
Project Description	Land acquisition and compost yard development
Project Status	Proposed.
Need for the Project	Krish- M has shortage of land for disposal and has decided to acquire of land in village for development of an integrated compost yard.
Project Components	<p>This project would involve</p> <ul style="list-style-type: none"> Acquisition of land at a cost of Rs. 534 lakh Development of compost yard at Rs. 54 lakh
Project Cost	Rs. 934 lakh
Revenue impact	The project could enable earnings through sale of compost manufactured.
Financing mix	The project should be implemented with private sector participation on a BOT basis. This will reduce the capital investment from Krish- M and at the same time enable Krish- M to insist and enforce service levels.
Remarks	The project could be clubbed with collection and transfer responsibility in select wards.
ESA analysis and tentative rating	E1 or E2 – Project could have major environmental impacts thus necessitating Environmental Assessment Reports (EAR), particularly if dumping of non-biodegradable waste is also being done in the location. S1 or S2 – may have PAPs and hence need fairly detailed assessment.

8.4 Transportation

Sector	Roads
Project Description	Upgradation of road network post UGD implementation
Project Status	Ongoing – to be implemented in a phased manner to cover all wards.
Need for the project	Since UGD scheme is expected to be implemented over the next few years, there is a need to restore the entire road network post implementation
Project components	<p>Details have already been outlined in section 7.8.3 under the following components</p> <ul style="list-style-type: none"> Conversion of Non-BT to BT surface (1.5 km @ Rs. 22 lakh) Road up gradation and restoration after UGD implementation (22 km @ Rs. 264 lakh)

	<ul style="list-style-type: none"> Road facilities at Rs. 1074lakh
Project Cost	Rs. 1360 lakh
Revenue impact	Non-remunerative project
Financing mix	Combination of loans (30%), grant (50%) and own funds
Remarks	The road network up gradation should comprehensively take into account storm water drain design and other road assets including pedestrian foot paths, signage and road medians as appropriate.
ESA analysis and tentative rating	<p>E2 -Expected to have only moderate environmental issues. Mostly generic impacts in nature</p> <p>S3 - No social issues expected. Hence socially benign no social mitigation measures required, need to submit SSR</p>

9. Reform agenda and Technical assistance

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

9.1 Urban sector reform in Tamil Nadu – an overview

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

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

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

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

16. Recording of vital statistics including registration of births and deaths
17. Provision of public amenities including street lighting, parking lots, bus stops and public conveniences
18. Regulation of slaughterhouses and tanneries.

While not mandatory, the provisions direct state governments to decide the powers and functions to be devolved to local bodies. Tamil Nadu has delegated functions 2 to 6 and 8 to 18 to ULBs³. Though Urban Planning as a function is vested with the Department of Town and county planning, both the political and administrative heads namely the Chairman and the commissioner are typically involved in the process of preparing master plans.

9.2 Reform agenda – interventions required at the state level

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

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

³ Source: *Local Governments Finances and Bond Markets*. ADB. 2003

- **Engineering and project development** – A number of new grant and loan schemes (both central and state) including the UIDSSMT are available for ULBs to tap into for meeting their asset creation requirements. However, there seems to be very little understanding of the scope and potential of using these schemes for implementing local level projects. GoTN and CMA should conduct periodic training and awareness programs for senior management personnel including Commissioners, Managers and Engineering staff. This would enable them work towards developing projects that can leverage such schemes. Agencies like TNUIFSL and TUFIDCO should also take the lead in organising such awareness programs.
 - **Accounting and Finance** – Though accrual accounting has been implemented in Krish- M and is under operation for more than 5 years. Computerised Financial and Administrative systems are in place or are in various stage of implementation/up gradation. There is a therefore a need for continued emphasis on training to bring the accounting and finance staff up to speed on these developments.
 - **Use of CAD/GIS applications in Town Planning/Engineering** – CMA and GoTN should initiate a state-wide program to train Town planning and engineering staff on CAD and GIS applications.
- 5. Build on GoTN's pioneering position in implementing accrual accounting by launching a drive improve the timeliness and quality of information dissemination** - While all ULBs in Tamil Nadu have implemented a double entry accounting system, there is scope for improvement in the quality of accounting in the areas of classification and recording, consolidation and dissemination of information. Several ULBs have redundant systems involving manual and computerised book keeping and errors often creep into MIS. Often, the DCB statements and accounting statements are not reconciled. The recent initiative of the setting up of the Debt Monitoring Cell at the CMA level is a positive step in getting the loan records at the ULB right. It still takes significantly long time for accounts to be closed and this need to be remedied. GoTN and CMA should continue its thrust in this area to ensure that the real advantages of accrual accounting is realised. In this regard, we recommend that
- CMA, GoTN should continue its focus **on technical assistance to ULBs to improve their accounting systems and practices**. Proper training should be given to the staff on the concepts of double entry book keeping. Apart from the municipal staff, the LFA should also be given training in auditing the new computerised systems being implemented. Currently there is a dual system in operation and this seems to be creating significant reconciliation issues.
 - CMA, GoTN should **insist and implement closing of accounts and audit of the same within a fixed time period** subsequent to the completion of financial year.
 - TNUDF could consider a **grading system to categorise ULBs** on the basis of quality of accounting and reporting practices.
- 6. Create technical standards with specific applicability to municipal projects construction and execution. These are particularly required in 2 areas:**
- **Integrated road asset creation and management** – The quality of road construction particularly in urban areas is inconsistent ranging from well-laid roads in select areas to

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

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

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

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

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

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

9.3 Suggestions for improving financial performance and collection efficiency

Overall income of Krish- M grew at a -0.5 % CAGR, driven largely by significant growth in Water and Other service charges income. Own income of the municipality grew at a moderate 5 %, while expenditure actually declined during the period at a CAGR of 8% due to a steep decline in Administrative expenses and finance expenditure. However, this presents only part of the picture. Current collection efficiencies in property tax and water user charges are abysmally low at an average 61% and 66% respectively.

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

9.3.1 Revenue enhancement

Property tax

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

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

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

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

Professional Tax

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

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

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

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

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

Public private partnerships (PPP)

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

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

9.3.2 Measures for cost management

Energy efficiency

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

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

10. Sustainable financial and operating plan

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

10.1.1 Time-horizon

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

10.1.2 Demographic projections

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

Exhibit 10.1 Population projections and related estimates

	Unit	Baseline	Projected		
		2007	2012	2017	2027
Population	nos	71229	76804	82536	94405
Households	nos	14839	17068	18341	20979
Slum population	nos	26503	28,418	30,538	34,930
Slum households	nos	4479	4,831	5,192	5,938
Assessed Properties	nos	19375	19969	21459	24545
Road length	km	44	46	52	52

10.1.3 Revenues

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

Exhibit 10.2 Revenue related assumptions

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

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

10.1.4 Expenditure

Exhibit 10.3 provides details of the assumptions for projecting expenditures for Krishnagiri

Exhibit 10.3 Expenditure related assumptions

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

10.1.5 Assets

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

Exhibit 10.4 Capital Investment Plan

Segment	2008	2009	2010	2011	2012	2008-12	2013-17	2018-27	TOTAL
Water Supply	187	1,617	1,617	1,617	1,617	6,657	14	303	6,974
Sanitation	25	811	915	894	-	2,645	138	15	2,798
Solid Waste Management	-	631	-	-	-	631	145	157	934
Transportation and street lights	-	-	127	127	113	367	197	887	1,450
Others	63	-	40	70	30	203	190	200	593
Urban Services for the poor	-	526	526	526	526	2,105	2,105	-	4,210
TOTAL	275	3,586	3,226	3,235	2,286	12,608	2,789	1,562	16,960

10.1.6 Liabilities

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

Exhibit 10.5 Loan related assumptions

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

10.2 Estimation of borrowing capacity and investment capacity

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

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

As part of the FoP, we have also prepared project specific cash flow projections for the proposed water supply and underground drainage projects, apart from consolidated financial projections.

10.3 Possible financing mix for achieving full investments

Based on these criteria, the borrowing capacity of Krishnagiri works out to Rs **4742** lakh. At an aggregate level, assuming loans to be equivalent to **50%** of investment, sustainable investment capacity works out to Rs. **9484 lakh**, which translates to about **56 %** of the total investment requirement (including slum rehabilitation).

If we exclude slum rehabilitation and urban services for poor projects which are largely grant funded, the borrowing capacity translates to **74%** of the total investment requirement. Hence Krish- M is well placed to constrained in meeting its full capital investment requirements.

Exhibit 10.6 provides a possible financing mix.

Exhibit 10.6 Possible financing mix

Segment	Outlay	Suggested Financing %		
		Loan	Grant/Private	Own
Water Supply – Project	5000	50%	30%	20%
Sewerage & Sanitation - Project	2434	50%	30%	20%
SWM	934	50%	30%	20%
Transportation and Street lighting	1450	50%	20%	30%
Urban services for poor	4210	0%	80%	20%
Others	593	0%	90%	10%
TOTAL	16960	36%	45%	19%

10.4 Financial and Operating Plan

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

Exhibit 10.7 FOP projections

FY ending	Actual	Estd.	Projections									
	2006	2007	2008	2009	2010	2011	2012	2012	2014	2015	2016	2017
INCOME												
Own income	233	261	325	335	344	675	839	1,043	1,068	1,148	1,302	1,190
Property Tax	147	129	183	186	189	192	195	289	294	298	302	306
Profession Tax	13	11	15	15	15	15	15	20	21	21	21	22
Water Charges	-	-	-	-	-	163	182	244	244	269	364	268
Sewerage Charges	-	-	-	-	-	159	293	327	340	382	427	396
Service charges/fees	22	23	24	25	26	28	29	31	32	34	35	37
Other Income	52	98	103	108	114	119	125	132	138	145	152	160
Assigned Revenue	63	67	71	75	80	85	90	95	101	107	113	120
Devolution Fund	229	250	275	302	329	359	393	430	470	514	563	616
Total Income	525	579	671	712	753	1,119	1,322	1,568	1,639	1,769	1,978	1,926
Expenditure												
Salaries	179	197	217	239	263	289	318	350	385	423	465	512
Operations	86	92	106	170	156	389	450	414	441	470	502	539
Administrative	127	21	22	23	24	25	26	28	29	30	32	33
Finance	20	5	12	129	243	366	456	497	540	564	575	574
Total Expenditure	428	339	390	708	937	1,423	1,672	1,728	1,851	1,962	2,067	2,167
Op. Surplus	113	264	314	152	67	50	71	279	244	282	403	268

10.4.1 Summary

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

Exhibit 10.8 FOP summary

Estd. Revenues – FY 2008 (Rs. Lakh)	734
Estd. Revenues – FY 2016 (Rs. Lakh)	2,069
Estd. Revenues - FY 2027 (Rs. Lakh)	4,132
Revenue CAGR % - FY 2008-17	11.9%
Revenue CAGR % - FY 2008-27	9.5%
Average TE (excluding depreciation)/TR (%)	20%
Average DS/TR (%)	37%
Average DSCR	1.11
Borrowing Capacity	4742
Investment Requirement	16,960
Investment Capacity (at 50% loan)	9,484
IC/IR (including Urban Service for Poor)	56%
IC/IR (without USP investment)	74%

Disclaimer: *The report is based on information collected by iMaCS from sources believed to be reliable. While all reasonable care has been taken to ensure that the information contained herein is not untrue or misleading, iMaCS is not responsible for any losses that the client may incur from the use of this report or its contents. The assessment is based on information that is currently available and is liable to change. The analysis that follows should not be construed to be a credit rating assigned by ICRA's Rating Division for any of the company's debt instruments. iMaCS is not a legal firm and our advice/recommendations should not be construed as legal advice on any issue.*

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ⁱ Source: Solid waste management Action Plan.