1

PROJECT OVERVIEW

1.1 ASSIGNMENT BACKGROUND

The World Bank has been a partner in urban reform program of Government of Tamil Nadu (GoTN) with engagement through Tamil Nadu Urban Development Project (TNUDP) - TNUDP-I, TNUDP-II and TNUDP-III (in progress). Towards taking forward the urban reform agenda, the GoTN is now implementing the TNUDP-III with focus on furthering the reforms initiated under TNUDP-II.

The Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), as a financial intermediary, intends to assist the Commissionerate of Town Panchayats (CTP) in strengthening and improving the financial position of its Town Panchayats for effective capital investment management and urban service delivery. These towns possess a good potential for implementation of such financial reforms for which it is essential to formulate a City Corporate Cum Business Plan. The CTP has started the process of capacity building in Town Panchayats through this process to enhance the vision of the ULBs in growth of their towns.

1.1.1 CITY CORPORATE PLAN

A City Corporate Plan (CCP) is the ULB's corporate strategy that presents both a vision of a desired future perspective for the city and the ULB's organization, and mission statements on how the ULB, together with other stakeholders, intends to work towards achieving their long-term vision in the next ten years. A CCP translates mission into actions and actions into outcomes. When a CCP is developed in close consultation with, and endorsed by all relevant local stakeholders, a ULB and others who commit themselves to action can be held accountable for their mission statements, actions and expected outcomes. The CCP will make economic development and improved quality of life the long-term objective for all of the actions defined in the plan. The full set of proposed regulations, tax policies, infrastructure and other local government program expenditures will be framed with long-term economic development and improved quality of life, especially for the poor, firmly in mind.

City Corporate Plan

A City Corporate Plan (CCP) helps a city take stock of its opportunities and endowments, gauge its place in relation to its hopes for the future, and to link these objectives to choices for improving its competitive position, for instance in producing tradable, identifying critical investments, mobilizing private sector partnerships, and to reduce poverty. A CCP is visualized as a document that would provide a perspective and a vision for the future development of a city. It should present the current status of city's development; set out the directions of change; identify the thrust areas; and suggest alternative routes, strategies and interventions for bringing

about the change. It should establish a logical and consistent framework for evaluation of investment decisions. A CCP will specifically comprise of the following:

- Situation analysis, with regard to the context i.e., demographic and economic trends, city governance, service provision & delivery including systems & structures, financial status of the city government and agencies concerned with service provision including an analysis of their creditworthiness; and effectiveness and efficiency of the institutional frameworks;
- Perspective and a vision for the city;
- Strategy identifying key strategic issues, risks and opportunities facing the city, with focus on reform and reform priorities; and
- City Investment Plan, referring to order of investment needed to implement the perspective and alternative financing strategies.

A CCP clearly defines how a ULB will a) serve its customers (businesses and citizens), e.g. how it intends to guarantee basic level of urban services to all citizens, make urban planning responsive to emerging needs, become responsive to the needs of, and improve its services, to local businesses; b) run its business, e.g. how it intends to manage public finance in a modern and transparent way, execute urban planning and governance in line with an established framework, become more responsive, cost and time efficient through integrating technology in their governance and service delivery processes; and c) manage its resources, e.g. how it intends to increase revenues and expand its tax base to allow for self-sustaining urban service delivery, improve its creditworthiness, but also how it intends to recruit and retain a skilled workforce.

Context of a City Corporate Plan

Past efforts to produce this kind of broad, integrated approach have been fraught with coordination problems and multiple implementation agencies, which have lead to confusion and wasted resources. Moreover, past planning, like city master plans, have been excessively technical and unresponsive to citizen input and demand. The CCP is different from master planning as cities are now more open to outside influences in a globalized economy, and more able to act on opportunities for growth. At the same time, decentralization is giving cities more scope for action, and democratization is opening the planning and political process to much greater participation and accountability. A CCP is geared to respond to these new circumstances.

1.1.2 OBJECTIVES OF THE ASSIGNMENT

The aim of the assignment was to prepare consensus-based city corporate plan for a period of 10 years (2007-2017 with 5 yearly updates and if desired, the annual plans) indicating policies, programmes, strategies and funding mechanisms to meet the development requirements. The corporate plan was formed as shared vision for the city involving various stakeholders with a long-term development perspective. The coverage of the CCP should focus on the following:

- What does the analysis of town's profile show? Where are the opportunities and where are the key constraints?
- Given the opportunities and constraints, where does the town wishes to move in a medium-term perspective? While the vision is forward-looking, it is also a

realistic vision, achievable with a given time frame.

- What strategic options are available to achieve the vision? What are the costs and benefits of alternative strategic options? Which of the strategies will help the town achieve the vision at least cost or maximum impact?
- What would be the aggregate investment needed to implement the vision? What are the options for mobilizing resources for implementing the City Corporate Plan (CCP)?
- What reforms other than those embodied in the JNNURM, UIDSSMT & IHSDP are necessary for effectively implementing the City Corporate Plan (CCP)?

The specific objective of this exercise is to visualize the town in the next 10 years and to–

- Define the growth directions and service up-gradations in relation to the activity mix / growth;
- Look at the demand for the projects specified by the ULBs, and come out with gap in services with respect to the vision;
- Broadly outline the infrastructure needs;
- Define specific rehabilitation and capital improvement needs with regard to priority city infrastructure in both slums and other areas;
- Define revenue enhancement and revenue management improvements required to sustain the rehabilitation proposed;
- Reforms required in local administration and service delivery;
- Management changes required at the local level to improve O&M of assets, and
- Measures to address common growth and infrastructure issues.

1.1.3 SCOPE OF WORK OF THE ASSIGNMENT

The general scope of work for the assignment covers following three key stages:

- **City Assessment & Optional Strategy Formulation Stage:** This stage of the assignment will focus on fact finding and analysis with regards key development elements of the city and will be based on secondary data and extensive consultation with relevant stakeholders at the disaggregate level. Following are the components:
  - Demography, Economic Development & Growth Assessment;
  - Institutional Arrangements;
  - Infrastructure - Housing and Urban Basic Services ;
  - Physical and Environmental Aspects; and
  - Financial Assessment covering a detailed financial assessment of key stakeholder agencies and a preliminary Financial Operating Plan and Project Cash Flows

- **Stakeholder Consultation:** A City-level Stakeholder Consultation Workshop to discuss the “State of the City Report” covering elements of growth and economic development; institutional framework for service delivery; current service levels, gaps and future requirements in terms of services and investments; and key financial issues; optional strategy elements for service delivery enhancement and financial sustainability. This stage would articulate stakeholders’ expectations and formulate city’s development vision, prioritize city development issues, strategy / action consensus and choice of strategy options

- **Finalization of City Corporate Plan:** This stage would finalize and recommend strategies to achieve the city’s development vision, in consultation with the concerned stakeholder agencies. The strategies will be supported with specific projects and action points as relevant, phased over a 10-year horizon, with

specific annual action plans for the first five years, indicating stakeholder roles and responsibilities.

The scope of work specifically covers but not limited to the following:

1. Assess the demand for the projects listed out by these Municipalities and analyze demand for the next 10 years
2. Financial assessment of the ULBs- an assessment of local finances (past 5 years) in terms of sources and uses of funds, base and basis of levy, revision history and impacts, State assignments and transfers- base and basis of transfer and its predictability; uses of funds outstanding liabilities (loans, power dues, pension etc) and, a review of revenue and service management arrangements. Levels of service, coverage and quality of municipal services in both poor and non-poor localities. Staffing and management arrangements in delivery of services
3. Outline issues in revenue realizations, quality of existing assets in relation to service levels and coverage, and institutional constraints. Develop quick indicators of performance, based on –

    - Current coverage and additional population in the medium term (10 years) and unit costs, indicate city level investment requirement for upgradation of city wide infrastructure.
    - To improve service coverage and asset quality:
        - prepare a comprehensive Asset Management Plan and use fiscal notes and policy analysis to assist in making informed investment choices to achieve sector/ city goals
        - define priority assets and indicative costs of rehabilitation
        - conduct fiscal impact analysis of investments: life- cycle O&M costs, revenues from project, and costs/ impacts on finances and of not doing the project
        - explore funding options for rehabilitation of facilities
4. Prepare a financial and operating plan (FOP). The FOP is a medium term framework of the ULBs, and shall present the following–
    A. Additional data to be collected
        - Break up of energy cost on UG, WS etc.
        - Salary for all the departments including staff and payments to private operators
        - Finding out the benchmark cost i.e. at ideal condition what will be the cost of the identified investments, a table indicating the investment plan for next 5 years with identified source of finance.

    B. Areas of reduction in expenditure
        - Energy audit resulting in savings in energy.
        - Leak detection resulting either in connections or in the tariff (or) maintaining the same supply and achieving a reduction in energy cost.
        - Privatizing the MSW collection and identifying a BoT operator for elim9inating, composting etc, items of revenue can be identified.
        - Laying of Cement concrete road / Fly ash and savings on maintenance cost resulting in increasing operating surplus.
        - Water recycling / reuse
        - Rejuvenation of tanks and reduction of cost / liters of water produced
        - Privatization & option for revenue rising.

C. Options for increasing the revenues through non-traditional methods
   - Land development for raising revenue (not the traditional commercial complexes)
   - Suggestion for improvement of revenues

5. Prepare a draft Memorandum of Association between ULB and TNUIFSL. The MoA will outline the base line (based on the Situation Analysis) and the Performance Benchmarks to be monitored, apart from other financial and loan covenants. The targets will be based on service development targets and outputs of the financial and operating plan.
6. Initiate consultations with council and local stakeholders on the priorities; redefine priorities (rerun FOP if required) and work with the Council to resolve on adoption of the City's FOP and CCP actions.
7. Finalize Action Plan for the City, with a resolution from the council on the priorities and commitment to implement revenue and management improvement measures.

1.2 OUTLINE APPROACH AND METHODOLOGY

The whole approach for this assignment was, both a process and a product and the focus was to identify ways of creating the conditions for improved service delivery with appropriate and suitable management action plan for the service provision and delivery including operation and maintenance of existing services on a sustainable manner. The approach adopted for the study involves the following four broad phases.

1. Framing the Process provided the essential assessment of the readiness of the ULB to take forward and helped in identifying stakeholders and come to consensus on CCBP preparation process. This phase of the assignment also drew out initial conclusions to the chief concerns of the various stakeholders. This phase also provided the basic inputs for preparing the draft template of the CCBP addressing key issues on the ULB, governance, service provision & delivery and finances;
2. CCBP Preparatory Phase includes preparation of CCBP for the select ULB based on the template and integrates the findings of the phase with a more in-depth participative analysis of the situation. This helped in identifying the structure and trends in the local economy, the dimensions of poverty in the city, gaps in infrastructure, the constraints and obstacles to progress-institutional, financial, environmental and social by collation and analysis of previous study findings, and particular primary research. This phase also focused on to finalize the consensus on the strategic options derived using the CCBP;
3. Strategic Consensus Phase focused on preparing the CCBP and building capacity among the officials of the ULBs to prepare CCBPs for their administrative jurisdictions and deriving strategic options. This phase also provided inputs for refining the outputs of the CCBP along with identified sources of assistance. This phase also addressed how the local and other national international partners can help the ULB to achieve its goals;
4. Initiating Implementation Phase involved both onsite and back-office support to the ULBs for preparing the CCBP and advised these ULBs to generate all necessary strategic outputs and make use of such outputs in implementation.

1.3 TASKS INVOLVED

The aim of the assignment was to prepare consensus-based city corporate plan indicating policies, programmes, strategies and funding mechanisms to meet the development requirements. The corporate plan was formed as shared vision for the city involving various stakeholders with a long-term development perspective. The assignment is split into a number of following defined tasks:

- Project Commissioning, Start-up and Mobilization
- Framing the Process for Developing the CCBP
- Rapid Assessment Report
- Analytical Framework for Preparing CCBP for the ULBs
- Development Options and Suggestions
- Implementation, Monitoring, Evaluation and Review Arrangements
- Report on CCBP for the ULBs
- Project Costing and Determination of Funding Sources

1.3.1 DELIVERABLES COMPLETED

- Rapid Urban Assessment (RUA) Report, including demand assessment of Identified Projects and Strategies towards preparation of the CCBP for Katpadi Town Panchayat was submitted. The report comprised of a review of town's economic development, physical planning and growth management issues, physical and social infrastructure status and municipal fiscal status.
- The aforementioned deliverable was reviewed by the Technical Review Committee comprising the officials of TNUIFSL, Commissionerate of Town Panchayats (CTP) and Executive and Elected Representatives from the study town and approved for proceeding to the subsequent stages of the assignment.
- In continuation, the study team formulated a vision statement through stakeholder's consultations, strategies to achieve the vision, Capital Investment Plan (CIP) and the same were submitted as part of the revised deliverable schedule in the form of "Strategic Plan" and "Interim Report".
- The aforementioned deliverables were also reviewed by the Technical Review Committee and approved for preparation of the "Draft Final Report".
- Draft Final Report was prepared covering all the project tasks and consultation with CTP and Stakeholders were also performed for finalizing the priorities and investment sizing and funding options.
- The Draft Final Report was reviewed by the above mentioned Technical Review Committee and accorded the approval for submission of Final CCBP Report with Draft MoA and Council Resolution.

2

PROFILE OF KATPADI

2.1 REGIONAL SETTING

Katpadi, also spelled as Kattupadi is a suburb of Vellore, the district headquarters of Vellore district. It is about 5km from Vellore town. Many years ago, Katpadi was thought of as a village. But, in the past 20 years the growth of Institutional organizations and improvement of the railway linkages in the district has virtually made

Katpadi a Town Panchayat in the suburbs of Vellore. The town is about 140 km west of Chennai, a Tamil Nadu state capital and 205 km east of Bangalore, a Karnataka State capital on National Highway 46. The town forms the northern most point of the Vellore District, and the border for Andhra Pradesh State.

Katpadi bounded by Mettukullan and Karikeni Village Panchayat in the north. Kankeyanallur Village Panchayat forms a boundary on the eastern side. In the south and west it is bounded by Gandhi Nagar Town Panchayat and Dhararpadavedu Third Grade Municipality respectively. Katpadi is well known for its Railway Junction and Vellore Institute of Technology (VIT). Also this 15,000 populated town is close to major urban centres in the northern of state like Vellore, Gudiyattam, Ranipettai, Walajapettai, Arani, Kancheepuram and Ambur. All these towns are located at a radius of 100 km.

2.2 LOCATION AND LINKAGES

The town is by-passed by two major state highways, Arcot-Villupuram State Highway (SH4) and Cuddalore–Chitoor State Highway (SH9). The town is connected with Vellore, from where it is connected to all parts of the state.

The major connectivity of the town is through the rail network. The town is located on the Chennai to Bangalore railway line. Katpadi Railway Junction is one of the famous junction in Southern Railway. The number of commuters has increased tremendously mainly

Table 2.1 Salient Features of Katpadi Town

Town	**KATPADI**
District	Vellore
Area	35.00 sq. km.
Geographic Location	12°98'N 79°13'E Elevation : 224 m above MSL
Census population	14,925 (year 2001)
Connectivity	**Road:** Frequent bus services connect the town with Vellore and other urban centres in the northern part of state. **Rail:** Important railway junction of Southern Railway.
Climate	Tropical - Max. 37.1°C Min. 26.4°C; Winter- Max. 31.3°C Min. 20.6°C; Annual Precipitation: 835 mm.

due to Christian Medical College & Hospital and Vellore Institute of Technology.

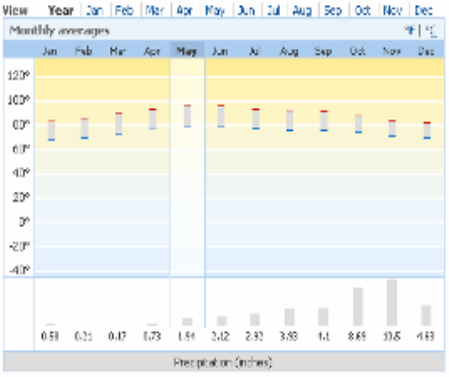
Source : www.googlemaps.co.in

2.3 PHYSICAL CHARACTERISTICS

2.3.1 GEOGRAPHY

The town forms the northern boundary of Vellore district and is much closer to Andhra Pradesh. Katpadi falls in the coordinates of 12.98° N 79.13° E. It has an average elevation of 224 meters (734 feet). The town has a fairly flat terrain, with a gentle slope towards the southern direction.

2.3.2 CLIMATE



Precipitation (inches)

Monthly averages			
January	Avg Low: 69°	Avg Hi: 85°	Avg Precip: 0.59 in
February	Avg Low: 71°	Avg Hi: 88°	Avg Precip: 0.21 in
March	Avg Low: 75°	Avg Hi: 93°	Avg Precip: 0.17 in
April	Avg Low: 79°	Avg Hi: 96°	Avg Precip: 0.73 in
May	Avg Low: 82°	Avg Hi: 100°	Avg Precip: 1.94 in
June	Avg Low: 82°	Avg Hi: 99°	Avg Precip: 2.12 in
July	Avg Low: 80°	Avg Hi: 96°	Avg Precip: 2.92 in
August	Avg Low: 78°	Avg Hi: 95°	Avg Precip: 3.93 in
September	Avg Low: 78°	Avg Hi: 94°	Avg Precip: 4.1 in
October	Avg Low: 76°	Avg Hi: 90°	Avg Precip: 8.69 in
November	Avg Low: 73°	Avg Hi: 86°	Avg Precip: 10.5 in
December	Avg Low: 71°	Avg Hi: 84°	Avg Precip: 4.63 in

The variation of temperature through out the year exhibits hot and dry climate with high temperature and low degree of humidity. The region experiences four main seasons:

Temperature ranges from 20°C in the winter months of December-February to 43°C in the summer months of April-June. The temperature in November will be between 28-32°C.

2.4 AREA AND POPULATION

As per 2001 census, Population of Town Panchayat is about 14,925. The ward wise population details of the town is given in the below table. The town constitutes of 15

wards. Males constitute about 52% of the population and females 48%. In Katpadi, 9% of the population is under 6 years of age.

Table 2.2: Ward wise Population in Katpadi Town Panchayat

Ward	Total Households	Total Population	Male Population	Female Population	Gender Ratio
1	225	1278	747	531	711
2	159	737	390	347	890
3	191	996	483	513	1062
4	357	1704	810	894	1104
5	294	1320	657	663	1009
6	270	1240	613	627	1023
7	188	793	364	429	1179
8	126	635	307	328	1068
9	183	832	404	428	1059
10	282	1335	661	674	1020
11	161	847	436	411	943
12	161	722	362	360	994
13	243	1145	591	554	937
14	176	776	375	401	1069
15	106	552	262	290	1107
Total	**3122**	**14912**	**7462**	**7450**	**15175**

Source: Census of India 2001

Table 2.3: Population and growth Trend in Katpadi Town Panchayat

YEAR	POPULATION		GROWTH RATE IN %	
	TOTAL POPULATION	VARIATION	DECADAL	ANNUAL
1951	3987	--	--	--
1961	5470	1,483	37.20%	3.7
1971	6750	1,280	23.40%	2.3
1981	9425	2,675	39.63%	3.9
1991	11412	1,987	21.08%	2.1
2001	14912	3,500	30.67%	3.0

Source: Census of India 1951,61,71,81 and 91

2.4.1 GENDER RATIO

Katpadi Town Panchayat area has an average gender ratio of 1011 females per 1000 males. The maximum ratio, among the total 15 wards is in ward no seven (7), were it is about 1179 females per 1000 males.

Table 2.4. Gender Ratio: Katpadi Town Panchayat

Year	Total Population	Male	Female	Females per Thousand Males
1991	11412	5592	5420	1031
2001	14912	7462	7450	998

Source: Census of India 1991 and 2001

2.4.2 LITERACY RATE

Katpadi has an average literacy rate of 74%, much higher than the national average of 59.5%. Male literacy rate is 82%, and Female literacy rate is 65%.

Table 2.5. Literacy rate: Katpadi Town Panchayat

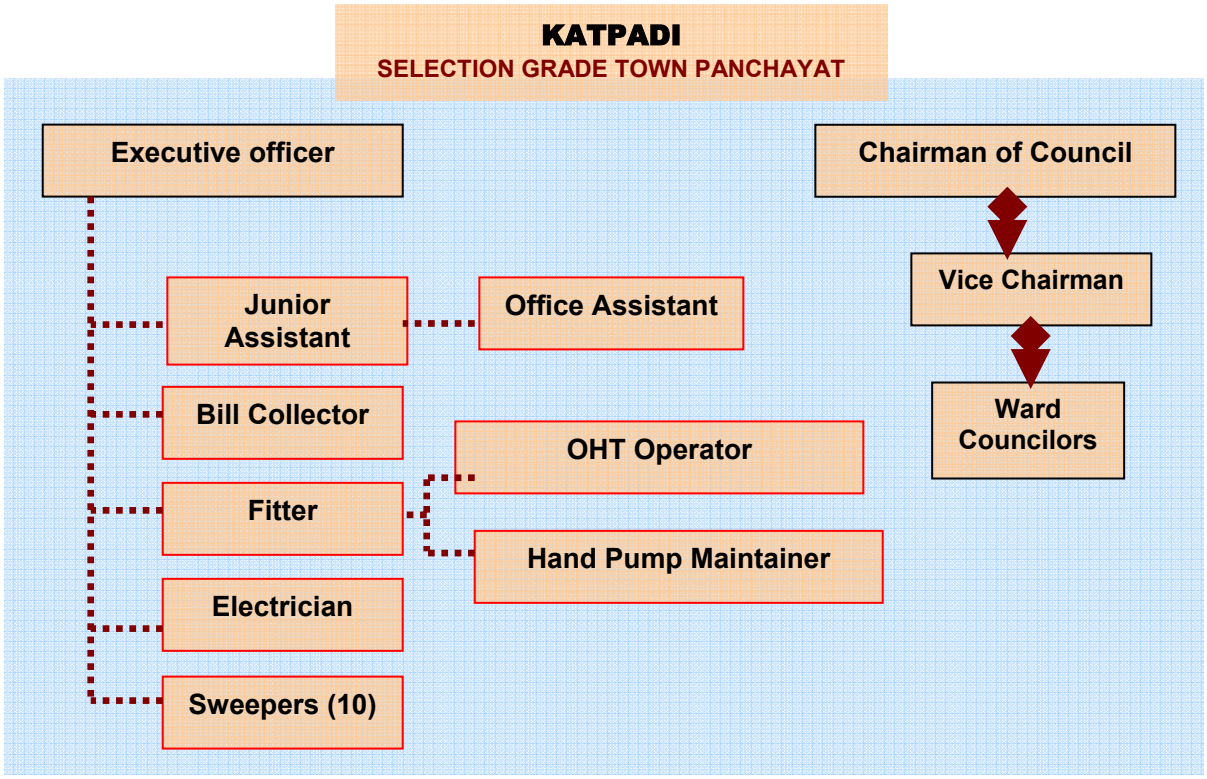
Year		Male	Female	Total
1991	Population	11412	5992	5420
	Literate	6948	4344	2604
	% of Literate	60.88	62.52	37.47
2001	Population	14912	7462	7450
	Literate	10557	5882	4675
	% of Literate	70.79	55.71	44.28

Source: Census of India 1991 and 2001.

2.5 TOWN MANAGEMENT AND GOVERNANCE

Katpadi Town Panchayat was formed in 1.4.1962 and was upgraded as selection grade town Panchayat in the year 18.6.1992. The Selection grade Town Panchayat consists of 15 wards and a council member from each ward constitutes the council. The town Panchayat is constituted of 15 settlements, each of them representing a ward.

The organization structure of the Town Panchayat is represented in the following chart.



3

PROJECTION OF FUTURE POPULATION

3.1 BASIS AND METHODS

A critical factor in estimating the requirement of the urban infrastructure for future planning, project formulation, capital investment estimation and outlay is the projection of population. Projection of the future population for the Katpadi Town Panchayat is based on the following factors:

- Past census population and relevant details;
- Decadal growth and growth rates of the country, state (TN) and the ULB;
- Population density pattern and availability of land for the future development;
- Socio-economic characteristics and economic base along with employment generating potential;
- Development (Master) Plan for the region considering the contextual issues stated and growth pattern in terms of land use and land availability for growth including proposed plans and potential for significant change in land use (within project period/ design life);
- Positioning of the hinterland, linkages with core of region and connectivity, importance and contribution as an economic base for the region;
- Availability of resources to facilitate provision and delivery of services and facilities;
- Implications of the ongoing and proposed projects towards improving the provision and delivery of services;
- Other external and internal growth dynamics responsible for migration; and
- Other factors - tourism, natural disasters and related.

Population Projection Methods

Numerical Methods
- Arithmetic Increase
- Incremental Increase
- Geometric Increase

Graphical Methods
- Exponential Series
- Polynomial 2nd Order Series
- Power Series
- Logarithmic Series
- Linear Series

The impact of the above factors was considered while performing the projection. Population projection has been performed based on CPHEEO guidelines that are generally acceptable for urban planning and infrastructure development related projects. The base criteria adopted for the projection of future population are listed below:

- Year of Study - 2007
- Census Years – 2011 to 2061
- Design Stages - 2010 (Commissioning/Present Stage), 2025 (Intermediate Stage) and 2040 (Ultimate Stage)

As per CPHEEO guidelines and general construction practices, civil works/structures in the case of urban infrastructure projects such as water supply and sewerage are designed for a service life of 30 years and mechanical/electrical equipment for 15 years. Therefore, design stages essentially reflect the period/duration for which projection is required to design the replacements, renewals and reconstruction

activities. Projection of future population has been performed for the vision period exceeding 50 years (2007 - 2061).

3.2 METHODOLOGY AND EVALUATION OF PROJECTION METHODS

The methodology used to project growth of population for the Katpadi Town Panchayat is outlined below:

- A pilot projection was performed to evaluate the past trend of decadal growth, i.e. the population of 2001 was projected by utilizing available census data from 1961 to 1991. The projected value (by numerical and graphical methods) was then compared with the actual census population to identify the method that resulted in the minimum variation (nominal - +/- 10%);
- Projection of future population (2007 - 2061) was then performed by utilizing the method(s) that resulted in the minimum variation (< 10 percent). In cases where the variation was found to be significant (> 10 percent), the applicable methods were utilized for comparison;
- Results from the aforementioned methods were compared, average decadal growth rates estimated and submitted for review and approval by the Review Committee.

Details of the past and present census population as provided by the ULB and verified with the Department of Census are furnished in Table 10.1.

Table 3.1: Census Population (1961 - 2001) of Kaptadi Town Panchayat

Year	Area sq.km.	Population	Decadal Growth Rate (%)	Density pers./sq.km.
1951	31.61	3,987	--	126
1961	31.61	5,470	37.20%	173
1971	31.61	6,750	23.40%	214
1981	31.61	9,425	39.63%	298
1991	31.61	11,412	21.08%	361
2001	35.00	14,912	30.67%	426

Source: Analysis based on the Data provided by Katpadi Town Panchayat; 2007 & Census of India.

3.3 PROJECTION OF FUTURE POPULATION

Based on the aforementioned methodology and evaluation performed, population has been projected for the Katpadi Town Panchayat for the specified stages based on numerical and graphical methods.

Details of the comparison of population projection by the aforementioned methods for the Katpadi Town Panchayat and the evaluation of projection methods (pilot projection) is enclosed as Annexure – 1. A comparison of results of population projection for Katpadi Town Panchayat is shown below in Table 3.2.

Table 3.2: Population Projection for Katpadi Town Panchayat – Comparison

YEAR	CENSUS	ARITH	GEOM	INCR	Polynomial 2nd
1951	3,987				
1961	5,470				
1971	6,750				
1981	9,425				
1991	11,412				
2001	14,912				

2007		16,223	17,413	16,465	16,214
2010		16,879	18,817	17,310	17,446
2011		17,097	19,310	17,601	17,877
2021		19,282	25,004	20,795	22,820
2025		20,156	27,727	22,213	25,160
2031		21,467	32,377	24,493	29,129
2040		23,434	40,856	28,252	36,286
2041		23,652	41,926	28,695	37,182
2051		25,837	54,289	33,401	47,462
2057		27,148	63,395	36,467	54,948
2061		28,022	70,299	38,611	60,584

3.4 RECOMMENDED PROJECTED POPULATION

The projection of future population has been performed for the Katpadi Town Panchayat based on the pertinent factors, potential impacts, related aspects and the applicable methods.

It can be observed that the projection of future population by 'Polynomial 2nd Order Increase Method' provides for optimal projections for the purposes of planning for urban infrastructure projects. Thus, it is recommended that the lower projected value of 'Incremental Increase Method' can be taken as the design population for the respective project design stages and vision period. The purpose of recommended projection of population is explained below

Table 3.3: Recommended Projected Population

Year / Stage	Census Population	Recommended Projected Population
1951	3,987	
1961	5,470	
1971	6,750	
1981	9,425	
1991	11,412	
2001	14,912	
2007		16,214
2010		17,446
2011		17,877
2021		22,820
2025		25,160
2031		29,129
2040		36,286
2041		37,182
2051		47,462
2057		54,948
2061		60,584

3.5 PROJECTION FOR PROJECT FORMULATION/DETAILED DESIGN

The aforementioned projection has been performed only for the purpose of assessment of the demand versus the supply gap in urban infrastructure provision and delivery. It is recommended to conduct a detailed projection during the Detailed Project Report preparation stage by considering the below listed factors:

- Project-specific requirements and characteristics;
- Present and past population, area and density of each ward in the Corporation;
- Classification of wards as high, medium and low-density zones (relative grading) to assess the localized development and growth pattern of population;
- Potential for future development in each ward based on proximity to city/town center, its position/location in the District, established road network and access to related infrastructure and transport facilities; and
- Present land use pattern and possible significant change in land use over the project period (generally 30 years); and
- Growth rates published by the Department of Census, GoI, and are characteristic/specific to similar cities.

4

ASSESSMENT OF DEVELOPMENT NEEDS

4.1 ASSESSMENT OF NEEDS

The existing system / situation of developments in Katpadi are observed to be far from desirable and the town is in need of improvement across the identified mission areas and sectors. The need was not only revealed during the analyses, but was also brought out, by the stakeholders and beneficiaries during field visits, discussions and consultations conducted by the study team. Therefore, it is imperative to assess the potential for future development and evolve strategies to set the Town Panchayat on the road to well planned development.

The objective of the Strategic Plan for Katpadi is to develop a long term vision and short term strategic plan covering the priority sectors over the next five years. A City Corporate Cum Business Plan (CCBP) is the corporate strategy of the ULB that presents both a vision of a desired future perspective for the town and the ULB's organization, and mission statements on how the ULB, together with other stakeholders, intends to work towards achieving their long-term vision in the next five years. Thus, a CCBP preparation process is essentially a consultative process and therefore identification of stakeholders to be involved in the process is of crucial importance. The CCBP has been developed in partnership with various stakeholders and interest group dedicated to the town's well being. Areas considered for development in the future are given below:

- Physical Development
- Social Development
- Slum Improvement
- Economic Development
- Urban Governance
- Finance Improvement

Accordingly, an assessment on the problems, performance and potentials of the areas of development was carried out which served as the critical input for evolving the desired framework for the Strategic Plan. The sectors covered under this assessment and overviews of the sectors including the prevailing issues are illustrated in the following sections.

4.2 PHYSICAL DEVELOPMENT

The sectors covered under physical development are listed below:

- Land Use;
- Water Supply;
- Sewerage and Sanitation;
- Storm Water Drainage;
- Solid Waste Management;
- Traffic and Transportation;
- Street Lighting; and
- Other Amenities

4.2.1 LAND USE

Katpadi, unlike other settlements was mainly developed on the Railway transportation corridor. The town had been developed parallel to the railway corridor connecting Bangalore and Chennai. The town is formed of about 15 habitations and of them core area of developments is the village of Katpadi, which was the old town around which the other towns have sprung up.

The growth of the town is now concentrated around the Vellore Institute of Technology, which has become the main nodal point of developments in the town. The new layouts have sprung up in these areas defining the direction of growth in the town.

GROWTH AREAS AND DIRECTION

Katpadi is centrally located on the railway corridor connecting Chennai and Bangalore. The town abuts the Chennai Road, which runs for about 2 kms within the town area. By the virtue of the location of institutions and also the configuration of transportation corridors, growth is defined in the Town Panchayat area. Urban character of the town is more pronounced along the transportation corridors, while the others are clearly distinguished as rural areas in the town. The growth of the town is more pronounced in ward 6, 7, 8 which forms the old Katpadi town area.

DEVELOPMENTAL POTENTIALS & CONSTRAINTS

Growth Constraints: Railway corridor running in the middle of the town and bisecting the ULB area, affects the connectivity between its eastern and western parts. The western part of the ULB area has become a 'shadow region' of the eastern part where in the developments are much pronounced.

North and northwestern regions of the ULB area still have strong roots of rural character. But the decline of agricultural activities in the region has caused migration of people from the eastern part hindering the growth along those directions.

Growth potentials: Growth potentials of the town need to be pronounced at the regional level, for the town is the transportation hub for nearby towns in the region. The location of the town on the railways makes it easily accessible and supports the town's economic potential. The well established connectivity of the town also enables faster developments in the town and enhances the possibility of the town to be developed as a 'transit node' catering to services needed at the regional level.

4.2.2 WATER SUPPLY

The first protected water supply to the town was commenced during 1996 by the TWAD Board. This project started functioning from the year 2000.

Source: Under this scheme Katpadi – Tharapadavedu combined water supply scheme, 4 nos. of collection wells are constructed at the banks of Palar River. Source is located at a distance of 9 km from the town near Thantallam krishnapuram. Under this scheme Katpadi receives 40% of total water pumped out i.e. 3.25 lakh litres of water daily.

Water collected from collection wells are pumped through 12" dia. A.C. pipe with two booster stations, one at Thalaiarampattu and another near Mathi Nagar. Also two sumps each of 1 lakh litres capacity are constructed in order to transmit water from source to service reservoirs.

Service Reservoirs: At present there are 6 Over Head Tanks (OHTs) installed at strategic locations of the town with a total storage capacity of 5.5 lakh liters. The picture shown aside is the OHT located along Chennai Road. Apart from this, 12 nos. of 1000 litres capacity mini tanks are also installed. Table 3.1 presents the storage capacity of the existing service reservoirs in the distribution system.

Table No 4.1: Existing Storage Capacity

Type of Reservoirs	Quantity (Nos.)	Capacity (LL)	Ward Coverage
Chennai Road, Katpadi	1	2	8,7,5,6
Thiruvalluvar Nagar	1	1	3,4
Ashok Nagar	1	1	9,10,11
Pallikuppam	1	0.5	12,13
Naddu Mettur	1	0.5	1,2
Periya Puthur	1	0.5	14,15
Total (OHTs)	***6***	***5.5***	**--**

Source: Katpadi T.P; 2007

Distribution System: Katpadi town is provided with 1,446 service connections out of which only 12 are commercial connections. Distribution mains of 3" diameter PVC pipe are laid for 20km length. The wards covered by the system are given in Table 3.2. The other service reservoirs in the system are provided with 98 hand pumps at the points of distribution. ULB has also installed 118 public fountains to supplement supply of piped water to the public.

Ongoing Scheme: Independent Water Supply Scheme at an estimated cost of Rs.4.36 crores is in operation. Under this scheme 4 collection wells are proposed to be constructed at Thalaiyaranpattu Palar River Basin, by TWAD Board. This proposed scheme ensures a supply of 10 LL per day.

Table No.4.2: Water Supply Charges

Type of Connections	Deposit Charges	Tariff Charges
Residential	3500	55
Commercial	7000	100
Industrial	7000	100

Source: Katpadi T.P; 2007

Water Charges: All the connections in the town are unmetered. Flat charges are collected from the users. The tariff and deposit charges collected by the Town Panchayat are provided in the table 4.2.The following table 4.3 shows Key service indicators of the existing water supply system.

Table No. 4.3: Performance Indicators - Existing Water Supply System

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Daily per capita supply (2006/2007)	Litres	14	70
2.	Roads covered with distribution network	Percent	52.49	> 100
3.	Storage capacity with respect to supply	Percent	183	33
4.	Property tax assessments covered by service connections	Percent	NA	100
5	Proportion of non-domestic service connections	percent	NA	85
6	Slum population per public stand post	persons	1	> 5.00

Source: Katpadi T.P; 2007 and Analysis

KEY ISSUES

- Augmentation of the source; Currently the town receives only 40% of its requirement of water from the combined water supply scheme which warrants augmentation of source.

- Low Supply Levels: The ULB supplies 14 lpcd overall, which is very low compared to the normative standard of 70 lpcd. Water supply in the town is resorted to once in four days in normal season. During summer season the town may go dry for several days due to inadequate pumping from the source. The wards 1, 2, 13, 14 and 15, experience acute shortage of water supply.

- Treatment Capacity: Existing Water Supply Scheme does not have any treatment facility but for chlorination since the source is sub-surface water. In view of increasing demand, alternate sources such as surface water along with treatment facilities and new schemes may have to be implemented;

- Inadequate Service Coverage: Only about 46% of the properties assessed for tax are provided with water supply through house service connections. In terms of absolute numbers, 1,388 properties have been provided with house service connections out of total 3,010 properties for which tax assessment has been made. Number of public fountains and hand pumps are provided in the town and due to limited supply of water, public are not willing to avail house service connections. While covering the extended areas of development or fringe areas, the quantity of water supply in the areas already covered under water supply scheme gets lesser and lesser.

- Inadequate Summer Storage: The pattern of rainfall is erratic in the region. There is no scope for storing rainwater for summer needs / recharging ground water, as most of the water bodies are encroached, silted or used as sewage outfalls.

- Refurbishment of the Existing System: The pumping main from head works along Madras Road is frequently affected with leakage problems. Rehabilitation works are being carried out based on complaints received. The system needs a comprehensive rehabilitation based on detailed assessment. All the service reservoirs were constructed at the time of commencement of the project which also requires rehabilitation.

- Need for Asset Management Action Plan: It is required to maintain an effective O&M Schedule for water supply assets for regular maintenance and energy optimization.

POTENTIAL FOR SYSTEM IMPROVEMENT

The prevailing situation of Water supply system in the town was analyzed from all perspectives to articulate and assess the future possible requirements for the town. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the frame work for establishing an improved, effectively planned, designed, operated and maintained system:

- Separate Water Supply System from Palar River Basin, which is at a distance of 9 kms from the town has been proposed by TWAD Board and this scheme is

expected to meet the water supply demand of the town.

- Distribution lines in the town cover about 52% of the existing road network and there is scope for increasing the coverage.
- Town has the capacity to expand its service connections as the consumers are willing to pay and avail service connections.
- The service has the potential to involve the private sector in the current format to bring in efficiency.

4.2.3 SEWERAGE AND SANITATION

Underground Sewerage System: Katpadi Town Panchayat is not provided with any under ground sewerage system. Sullage and Kitchen waste are collected through open drains and conveyed to open channels leading to Katpadi Eri, a major water body of the town. A few channels discharge the wastes in the low-lying areas within municipal limits. Households in Ward numbers 3, 8, 10 and 15 are not provided with any types of drains for sewage disposal. In these areas the sewage water is let into the streets causing unhealthy conditions and marring the beauty of the areas as well.

Sanitation Facilities: There are about 722 septic tank connections, in owners' premises in the town. There are 3 Women Public Convenience complexes in the town, constructed under the VAMBAY scheme. Each of these units provide for 7 seats and 4 bathrooms. All these public convenience complexes are maintained by self-help groups. They are located in the Katpadi Kulakarai Street, VJT Lane and Keil Mottur School Street.

ADEQUACY ANALYSIS

Table No. 4.4: Key Performance Indicators - Sewerage and Sanitation

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Assessment covered with septic tanks	percent	24	100
2.	Assessment covered with LCS	percent	NA	NA
3.	Assessment covered with safe disposal facility – Total	percent	24	100
4.	Slum population per seat of public convenience	persons	252	25

Source: ULB provided information (2007) and Analysis

KEY ISSUES

Discussions were held with the principal stakeholders of the Town Panchayat to assess the key issues surrounding the present sewerage system. Issues identified through discussions, field visits and service analysis are outlined below:

- The town is not provided with any underground sewerage scheme.
- Discharge of untreated sewage to Katpadi Eri via storm water drains and to other low-lying areas results in degradation of the environment, which is a critical issue for sustainability. These water bodies when sewage water flows in, pollutes ground water also
- About 24% of the households in Katpadi have septic tanks with soak pits. These septic tanks are cleaned infrequently and many times the collected sewage are being disposed off in open spaces and low-lying areas in an indiscriminate

manner

- Public Sanitation is inadequate and ill-maintained. There is a high dependency by slum population on public conveniences. The ratio of seat and population served (one seat for 250 persons) is too low and most of the slum dwellers resort to open defecation
- Public awareness on safe sanitation is very poor.

POTENTIALS FOR SYSTEM IMPROVEMENT

In order to appreciate and articulate the current situation and present future possibilities, the Sewerage and Sanitation sector was analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the roadmap for an improved, effectively planned, designed, operated and maintained system. Such an analysis point out the following points:

- The town has the potential to set up an under ground sewerage system owing to the rapid development.
- Low cost sanitation facilities need to be provided to older habitations by the ULB.

4.2.4 STORM WATER DRAINAGE

Drainage system: The terrain of the town is almost flat with a negligible slope towards the southern direction. In the middle of the town there exists an Eri called Katapai Eri with an extent of about 218 acres. This water body is dry during most parts of the year, except during rainy season.

Kutcha Drains	7.615
Total	7.615

Source: Katpadi T.P; 2007

Other than the Katpadi eri there are many small to very small water bodies with a total extent of 12.5 acres. These water bodies actually serve as the rain water collection points. But many of the storm drains (mostly earthen) bringing water to these water bodies are dumped with garbage or dilapidated. Also, drainage water from the nearby areas enters into these drains in many places. The net result is that many of such available natural water sources have turned into “Urban Sinks”.

Drains: There are no separate drains constructed for storm water collection. Most of the available drains in the town are only Kutcha drains and in many parts of the town the drains are mostly dry without any flow of water.

ADEQUACY ANALYSIS

Table No. 4.6.: Key Performance Indicators - Storm Water Drains

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Road length covered with SWD	percent	19.99	130
2.	Pucca Drains (Open & Closed)	percent	1.00	100
3.	Road length covered with Pucca drains	percent	1.00	130

Source: ULB provided information (2007) and Analysis

KEY ISSUES

Discussions were held with principal stakeholders of the Town to assess the key issues that surround the present storm water drainage system and its scope for improvement. The issues identified through discussions, field visits and service analysis are outlined below:

- No Pucca Drain Coverage: There are no pucca (regular constructed) drains, worth mentioning, in the town. Besides, most of the existing kutcha drains are also not well defined and are in damaged state.
- Silting and Solid Waste Accumulation: Silting and uncontrolled garbage dumping causes blockage and stagnation of rain water or waste water is a common scene in drains as well as the areas around these drains. Tanks around the town, which can act as flood moderators, have also got silted
- Underutilized Water Bodies: Areas under water bodies within the town limit are not maintained properly and not being put to any storing of water for use in summer. Presently, sewage also flows into many of these water bodies.
- Areas without Drains: Slum areas in Katpadi do not have even the kutcha type Storm water drains. The sewage and storm water get mixed up and stagnate in low lying areas affecting the environment.

POTENTIAL FOR SYSTEM IMPROVEMENT

In order to appreciate and articulate the current situation and present future possibilities, the Storm Water facility, presently available, was analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the roadmap for an improved, effectively planned, designed, operated and maintained system. The potentials identified are as follows:

- Natural sloping terrain, though very gentle, helps easy flow of storm water into the channels and water bodies.
- In Katpadi area, there is enough potential to store the storm water, most of which leads only to Katpadi Eri.
- Available natural gradients are enough for achieving self cleansing velocities for open drainage system.

4.2.5 SOLID WASTE MANAGEMENT

The collection, transportation, treatment and disposal of municipal solid waste are an obligatory function of the ULB. The municipal solid waste mainly comprises waste from households, markets, commercial establishments, hotels, hospitals and to some extent, small-scale industries. All the 18 wards are governed under one sanitary division

Waste Generated: The Town generates 2 tons of waste daily. The waste generated comprises of waste from Households, Markets, Commercial Establishments, Hotels, Hospitals and Industries. The town also has the VIT and the Railway Station which attracts large amount of population into the town.

Collection System: There is no door to door collection of solid waste system prevailing in the town. The households tend to throw their waste on the streets and

the garbage and waste are dumped in the street corners, creating an unhygienic situation in the town. The ULB administration collects the waste from the local streets using power tillers.

Disposal method: The wastes collected form the town are dumped in various locations near by mainly in Kottaiamman Koil area near railway track, in Thiruvalluavar Nagar near Burial Ground Road and in Vasanthapuram area. The ULB has identified a land of 7 acres in extent for Compost yard near Palikuppam (ward 13).

Table No. 4.7: Key Performance Indicators - Solid Waste Management

Sl. No.	Service Indicator	Unit	Current Status	Norm/ Standard
1.	Estimated waste generation per capita per day	grams	123	300
2.	Waste collected as estimated by ULB (w.r.t. waste generation)	percent	25	100
3.	Waste collected as per the available capacity (w.r.t. waste generation)	percent	0	--
4.	Road length per conservancy staff	metres	4448	500

KEY ISSUES

Discussions were held with principal stakeholders in respect of solid waste management including the officials of the ULB to assess the key issues that surround the present solid waste management system and its scope for improvement. The issues identified through discussions, field visits and service analysis are outlined below:

- Absence of Collection Mechanism: There is no mechanism for collection of waste generated by households in residential areas of the town except where there are business establishments. Here also the collection is not in regular frequency.
- Inadequate Labour Force: The number of workers employed in the town is not sufficient both for cleaning of streets and handling the waste generated in the town as well.
- Absence of Dumping Yard: Currently the wastes collected are dumped along the road margins and street corners and ULB does not have any particular dumping yard.

POTENTIAL FOR SYSTEM IMPROVEMENT

In order to appreciate and articulate the current situation and present future possibilities, the existing Solid Waste Management system was analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the roadmap for an improved, effectively planned, designed, operated and maintained system. The potentials identified are:

- Land is identified and it can be procured for a techno-economically feasible system of solid waste treatment and disposal.
- Financial support is available from GoTN for ULB to introduce scientific methods of treatment and proper disposal of solid wastes.
- The town also has the potential to involve the private sector to increase efficiency in collection and disposal mechanisms.

4.2.6 ROADS, TRAFFIC AND TRANSPORTATION

Katpadi Town Panchayat has proper connectivity with the near by areas in the region. The State Highways and Major District Roads connect the town to the adjoining villages and towns. However there are no National highways running inside the town limits.

Town Panchayat Roads: Katpadi Town Panchayat maintains 42.49 km length of various types of roads. The length and type of the roads maintained by the Panchayat are listed in the table below. These roads are generally found to support the residential activities with in the town.

Table 4.8. Roads – List and Type of roads

S.No	Type of Road	Length in km
1.	B.T.Roads	16.34
2.	C.C. Roads	5.42
3.	WBM Roads	11.61
4.	Earthen and Other Roads	9.12
Total		**42.49**

Other Major Roads: The other roads which runs in the town accounts for a length of 2 km. These roads are maintained by the Highways Department of GoTN. The major Highways running through the town area are Chennai Road and Vallimalai Road.

Traffic and Transportation: The major traffic flow is found to be on Chennai Road which connects Vellore, the District Head Quarters.This road is the major spine of the town to which the other feeder roads of the town are connected. The peak hour traffic flow on the Vellore Main Road is found to be the maximum compared to other roads, because of the town's dependency on Velore Municpality for higher order facilites.

Bus Stands: The Town does not have a bus stand. However Katpadi Railway Junction is the major transportation node for the town.

ADEQUACY ANALYSIS

An analysis has been conducted examining the adequacy of road density with reference to the extent of town and following is the table indicating the results,

Table 4.9: Performance of Key Road related Service Indicators

Sl. No.	Service Indicator	Unit	Current Status
1.	Road Density	km/sq. km	3.26
2.	Per capita road length	meters	0.09
3.	Proportion of surfaced municipal roads	percent	45

Source: ULB provided information and Analysis

The density of roads in the town is observed to be only 3.26 km / sq. km. of the town area. Roads within individual residential colonies are in a bad condition. Footpaths and parking facilities were found to be lacking along the streets where the vehicular traffic is considerable.

KEY ISSUES

Discussions were held with principal stakeholders to assess the key issues that surround the present road, traffic and transportation system and its scope for improvement. The issues identified through discussions, field visits and service analysis are outlined below:

- Development of Bus Stand within the town: The town does not have a bus stand within its limits and depends on Vellore town for any such facility.
- Widening of Roads: The roads in the commercial core area, especially the Vellore Main Road require widening to overcome the traffic congestions within the town area.
- Provision of ROB's / Subways over the Railway tracks: Chennai –Bangalore Railway line bisects the town. The town needs to be provided with an appropriate ROB and or Subway to ensure better connectivity within so as to ensure balanced and uniform growth in all parts of the town.
- Inadequate Coverage: The per capita road length available is only 0.98 m as against the required standard norm of 1.75 m. inadequate coverage is particularly noticed in the newly developed layouts, and extension areas.
- Absence of Street Furniture / Signage: The major road junctions lack signals and signage. There are also no foot paths along the major roads. Improper road sweeping results in most of these roads being covered with top-soil, mud and granular particles which further reduces the driving safety.

POTENTIALS FOR SYSTEM IMPROVEMENT

In order to appreciate and articulate the current situation and present future possibilities, the Roads, Traffic and Transportation sector was analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepares the roadmap for an improved, effectively planned, designed, operated and maintained system and the potentials noted are as follows:

- Katpadi has good road connectivity with other urban centers such as Vellore, Chitoor, Ranipet etc.,
- Adequate Carriage way is available along the main roads, which permits widening of the roads to meet the increasing demand in the town.
- GoTN is committed to improve the roads and transportation for the town

4.2.7 STREET LIGHTING

Katpadi Town Panchayat is provided with 850 lighting fixtures placed at a distance of 38 m interval approximately. Almost all the lights are in working condition. The composition of street lights is given in the table 4.10.

Table No. 4.10: Existing Street lights

Type of Fixtures	Nos
Fluorescent (Tube Lights)	725
Sodium Vapor Lamps	125
Total	850

Source: Katpadi T.P; 2007

ADEQUACY ANALYSIS

Table No.4.11: Key Service Indicators

Sl. No.	Service Indicator	Unit	Current Status	Normative Standards
1.	Spacing between lamp posts	metres	38	30
2.	Proportion of fluorescent lamps (tube lights) w.r.t. total fixtures	percent	50	60
3.	Proportion of high power fixtures w.r.t. total fixtures	percent	50	40

Source: ULB provided information and Analysis

KEY ISSUES

After extensive consultations with the principal stakeholders, the key issues identified under this sector are:

- There is a need to shift the poles along the kerb-side of the road
- Lighting is inadequate due to spacing of street lights at 38 m as against the standard spacing of 30m.
- In addition, there is a need for providing new street lights especially in the newly formed extension areas and major road junctions.

POTENTIAL FOR IMPROVEMENT

In order to appreciate and articulate the current situation and present future possibilities, the Street Lighting facility was analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the roadmap for an improved, effectively planned, designed, operated and maintained system and the potentials are as follows:

- The town has the potential to involve private sector for operation and maintenance of street lighting.
- Town has also the potentials to utilize renewable energy sources to reduce energy cost.

4.3 SOCIAL DEVELOPMENT

EDUCATION: There are 6 Government owned Middle schools and 4 higher secondary schools in the town. Presently, there are about 1,809 students enrolled in the aforesaid schools.

HEALTH: In par with the discussions with the Local body, there is a PHC operated at Pallikuppam (Ward 13). Private operated health centres exist within the town meeting the requirements of the town residents.

BURIAL GROUNDS: Eleven burial grounds at the below listed locations are present within the town;

1) Katpadi
2) Thiruvalluavr Nagar
3) Vasnthapuram
4) Kankar Theru
5) Ashok Nagar
6) Barnishpuram
7) Palli kuppam
8) Periyaputhur
9) Periyaputhur- Arthanthaiyar Colony
10) Nadu mottur
11) Keil mottur

PARKS AND PLAY FIELDS: All the vacant lands of the developed layouts in the town are still as open places and are to be improved to provide better quality of life to the people.

MARKETS: The town does not have a weekly market or shandy

TELEVISION ROOMS: There are 8 television rooms in the town.

NOON MEAL CENTERS: There are 6 noon meal centers functioning in the town.

4.4 SLUM IMPROVEMENT

The ULB is the agency responsible for provision of services to urban poor settlements within the town limits.

Katpadi comprises of 6 pockets of Slums. The list of these pockets and their population details are furnished in the following table. The total slum population enumerated as per 2001 census is 6,186 persons. The slum population is constantly increasing, over the past few decades and the urban poor constitutes 38% of the total population of the town.

Table No: 4.12: Slum Population

Name of the Slum	Population
Kanachanalur Colony	876
Vasanthapuram	735
Periyapudhur Colony	1422
VTK Nagar	1335
Valimalai Road	822
Thiruvalluvar Nagar	996
Total	**6186**

In spite of ULB's strenuous effects, quality of life in these slums, as in many other slums in other parts of the country, is observed to be pathetic. Lack of protected water, stagnation of sewage, bad conditions of roads and ill- ventilated dwellings go to make such a low standard of living conditions in these slums.

4.4.1 SERVICE PROVISION IN SLUMS

Housing: The housing conditions in the slums are very poor. Most of the houses are less than 100 sq.ft. in area, ill ventilated and not properly built to the prevailing climatic conditions. Majority of the houses are in temporary and in Kutcha state, while a few are with pucca construction. Many of the houses are in dilapidated state and require immediate action to be taken by the ULB.

Infrastructure Services: Discussions with various officers of the local body coupled with site visits to the slums reveal that the existing infrastructure facilities in the slums are grossly inadequate as explained below:

Water Supply; In most of the slums water supply is provided through Pubic taps, Hand pumps and Power pumps. The water supply is provided only on alternate hours and also the hours of supply are variable, making the conditions of slum dwellers more pathetic.

Sanitation: Only 3 of the slums are provided with Public Convenience separately for male and female. These facilities are regularly used and properly maintained by the self help groups in the town.

Solid Waste Management: No primary waste collection is done in the slum areas.

Roads: The conditions of the roads in the slums are very bad. They are very narrow and also unable to handle the increasing volume of traffic daily. The length of the

roads in slums put together accounts for 10% of the total length of the roads within the town.

Strom Water Drains: There is no proper Strom water drain network in the Town and all the drains are earthen drains only. Similarly the drains in the slums are also earthen ones under bad state without proper maintenance.

Street lighting: The slums are provided with streetlights at a distance greater than the average distance in the town. A few slums do not have any lighting facilities.

4.4.2 KEY INDICATORS AND ISSUES

Table No.4.13: Performance Indicators for Slums

Sl. No.	Service Indicators	Unit	Current Situation	Benchmark/ Standards
1.	Proportion of slum population to total city population (2005/2006)	percent	23.75	< 10
2.	Household size in slums (per HH)	persons	5	--
3.	Distribution network reach (against road length in slums) in slums	percent	12.80	> 100
4.	Slum population per public stand post	persons	60	75
5.	Slum population per seat of public convenience/ ISP Complex	persons	-	60

Source: ULB provided information and Analysis

Following are some of the key issues pertaining to provision and delivery of services to urban poor:

- Slums are densely populated and not provided with adequate infrastructure
- Poor water supply and sanitation is a major concern. Slums are not provided with adequate number of public convenience seats and existing facilities are in dilapidated conditions. Hence, the slum population resorts to open defecation at a number of locations
- Slums are provided with inadequate waste collection bins, thus resulting in dumping of garbage on road-side and in the drains;
- Slums are made of houses with poor standards, requiring immediate attention for improvement.

4.4.3 POTENTIAL FOR DEVELOPMENT

In order to appreciate and articulate the current situation and present future possibilities, infrastructure facilities in the slums are analyzed from all perspectives. The objective of this analysis is to essentially demarcate potentials and drawbacks of the existing system, weigh the possibilities and prepare the roadmap for an improved, effectively planned, designed, operated and maintained system. Following are the potentials:

- Basic services like water supply, sanitation, drainage, solid waste management are extendable to many slums.
- There has been an active participation and involvement of slum dwellers and NGOs/CBOs in slum upgrading and urban poverty alleviation initiatives. This would provide a platform for coordinated efforts for undertaking such initiatives in future.
- There is a desire among slum dwellers to form community organizations.
- Good awareness level in slum areas.

4.5 ECONOMIC DEVELOPMENT

4.5.1. ECONOMIC BASE

Agriculture is the primary occupation of the people residing in the town. Paddy is the main crop cultivated in this region. The location of the town in the centre of the region makes the town a nodal centre for the agricultural activities in nearby areas and a growth point.

Katpadi has premier educational institutions in and around. "Vellore Institute of Technology" (VIT) is located within the town premises. The CMC medical college is located at a distance of about 10kms from the town. Thus the town acts as an educational node also, which has a greater impact on the economic activity of the town. The town does not have any Industries and the decline in agricultural activities of the region has changed the occupational pattern of the people in the town.

4.5.2. OCCUPATIONAL PATTERN

The total workers in the town as per 2001 census are 4,846. The workers constitute about 32.5 % of the total population. Of them, Male workers are about 3,705 and Female workers are 1,141.

Table 4.14: Occupation Pattern: Katpadi Town Panchayat-1991 & 2001

Year	Total Population	Total Workers		Primary Sector		Secondary Sector		Tertiary Sector	
		No. of Workers	% of Workers	No. of Workers	% of Workers	No of Workers	% of Workers	No. of Workers	% of Workers
1991	11,416	4015	35.16	1697	42.26	429	10.68	1900	47.32
2001	14,925	4846	32.46	929	19.17	249	5.18	3668	75.69

Source: Census of India 1991 and 2001

Of the total work force, 76% are engaged in tertiary sector. Work force engaged in primary sector is about 19% while the secondary sector accounts for a work force of 5%. Agriculture is in a declining trend due to the frequent failures in monsoon and associated drought conditions. Employment generation opportunities are also very less in the town since the town does not have any major industrial establishments.

4.5.3. LOCATIONAL ADVANTAGE

Katpadi town is about 140 kms west of Chennai, the capital of Tamil Nadu State and 205 km east of Bangalore, Karnataka State Capital on the National Highway 46. The town forms the northern most point of the Vellore District, abutting the border for Andhra Pradesh State. Katpadi Railway Junction is one of the important junctions of Southern Railway located on Chennai –Bangalore railway line. The town is by-passed by two major state highways, Arcot-Villupuram State Highway (SH4) and Cuddalore–Chitoor State Highway (SH9). The town is connected with Vellore, from where it is connected to all parts of the state.

4.5.4. TOURISM IMPORTANCE

As far as tourism potential of the town is concerned, Katpadi has no tourist attraction within its town limit. However, there are a few tourist places located around the town

and within a radius of 100 km from the town. Following are the limited tourist attractions in the region:

Vellore Fort: Vellore Fort was built in the 13th century. The fort is a major attraction to the tourists. The fort was the most formidable one during the Carnatic war of 17th century and it was claimed to be infallible. This historically famous fort retains the past glory and is still intact with all its ramparts, basements, turrets, posts, and gates. The outer wall of this fort is built of granite blocks and it is fortified with another wall as well. The fort was the site for the Sepoy mutiny of 1806 that is seen by some historians as the prelude to the Pan-Indian riot that broke out in the year 1857.

JalagandeeswararTemple: Jalagandeeswarar Temple is situated inside the Vellore Fort only. The temple is renowned for its sculptures and these sculptures speak volumes of the exquisite craftsmanship of that period. Many consider the sculpture in the porch on the left of the entrance, as a masterpiece. The temple encloses a big wedding hall that is adorned with elegant relief and monolithic sculptures. The temple was earlier used as an arsenal.

Yelagiri Hills: Situated nearby, the main attraction of the tourists in Yelagiri is boating in beautiful and small artificial lakes called Punganoor Lake.

Vainu Bappu Observatory – Kavalur: This observatory is located in Kavalur in the Javadu Hills in Alangayam, Vellore District. The Kavalur Observatory is located in a 100 acre forest land in Tamil Nadu, which is strewn with a variety of greenery of tropical region besides a number of medicinal plants. Occasional appearance of some wild life such as deers, snakes and scorpions enthuse the interest of tourists to visit this observatory. Several varieties of birds have also been spotted in the campus. The observatory is at an altitude of 725m above mean sea level

5

STAKEHOLDER CONSULTATIONS

5.1 IDENTIFICATION OF STAKEHOLDERS

Preparation of a City Corporate cum Business Plan (CCBP) is essentially a consultative process and therefore identification of stakeholders to be involved in the process is of crucial importance. The identified stakeholders may be broadly categorized as under:

- Elected Representatives;
- Service Providers/ GoTN Departments; and
- NGOs/ CBOs and Resource Persons

The identified stakeholders are involved in a proactive manner through all stages of the consultative process.

5.2 CONSULTATION PROCESS

5.2.1 GENERAL

Phase 1 of the assignment involved extensive consultations with the Stakeholders at the ULB and Departmental levels. Pursuant to the Rapid Assessment Report submission, a workshop was conducted including a wider list of stakeholders comprising non government and other representatives.

In Phase II stage of this assignment, detailed consultations were also held with the elected representatives and other non-governmental entities at the ULB level to obtain necessary feedback and development requirements. In this Phase vision of the town was also formulated through consultation process. Subsequently, development strategies, proposals, projects, estimated capital investment plan and scheduling have been formulated and submitted in the form of Strategic Plan and Interim Report. A meeting was then organized to review the reports and the review committee approved the same.

The Draft Final Report for the town was submitted under Phase III of the assignment. A review meeting with the Client was also held to finalize the identified projects and capital investments. The Draft Final Report was then presented to the ULB Council and comments from Technical Review Committee and ULB Council were addressed and submitted in the form of Addendum to the earlier submitted Draft Final Report. Addendum was also reviewed by the Review Committee and accorded approval to submit Final City Corporate Cum Business Plan Report for Katpadi Town Panchayat. This Final Report submitted towards this assignment addresses the findings and recommendations of the study

5.2.2 INDIVIDUAL / SECTOR-SPECIFIC DISCUSSIONS

The Consulting Team had a series of individual and sector-specific discussions with various stakeholders, representing both government and non-government sectors. Broadly, individual consultations were held for discussing the existing constraints / weaknesses, felt needs, opportunities and focus areas for the proposed CCBP. Sector-specific discussions were also held with service providing agencies to understand the current situation, system details, technical and administrative issues, prospects, and their preparedness to meet the emerging challenges. These discussions also focused on the town's strengths and weaknesses in facilitating economic growth and improving quality of life for all citizens.

5.2.3 CONSULTATION WORKSHOPS AND REVIEW MEETINGS

Each phase of the study was culminated with a workshop followed by a review meeting, to endorse the findings with specific remarks and suggestions. All these workshops were organized with a plenary session in which the Consulting Team presented the findings of the consultations, relevant data analysis and findings for discussions, clearly specifying the objective, agenda and expected outcome of the workshop.

The First Workshop (Workshop 1) was organized on May 10, 2007 to commence the study, discuss the initial aspects of the proposed study and key issues such as the logistics and data collection involved. This workshop was convened by the Chairperson of Katpadi Town Panchayat and attended by Executive Officer and other Officials of Katpadi town Panchayat, representatives from other key stake holding departments and service providing agencies.

Subsequent to the submission of Rapid Assessment Report a review meeting was held on July 13, 2007 in the office of TNUIFSL. Aforementioned report was reviewed by the Technical Review Committee comprising the TNUIFSL, DTP and executive and elected representatives from the ULB and the same had been approved.

Followed by a review meeting, a Second Workshop was organized on September 10, 2007 to discuss the findings of the Rapid Assessment Report. The study team presented the Rapid Assessment Report and the vision for the town and development strategies to achieve the vision was formulated during this workshop.

In continuation to the assignment, the study team prepared the Strategic Plan and Interim Report for the town highlighting the vision evolved during the consultation workshop, development proposals, projects identified and proposed capital investment. These deliverables were then reviewed by the Technical Review Committee members on December 11, 2007 and approved the same.

Consequent to the review meeting, the study team prepared the Draft Final Report for the town highlighting the borrowing capacity of the ULB and Financial Operating Plan for the projects identified and proposed capital investment under different cases. Draft Final Report also highlights the Policy Interventions and Technical Assistance required for the successful implementation of the CCBP Projects. These deliverables were then reviewed by the Technical Review Committee members on February 27, 2008 and suggestions were made. Subsequent to the review meeting,

Addendum to DFR by addressing the review comments was submitted to the Client and obtained approval for the submission of Final Report.

Followed by a review meeting, a Third Workshop was organized on April 03, 2008 to discuss the findings of the Draft Final Report. The study team presented Draft Final Report by highlighting the sector wise proposals identified, investment required for implementation, borrowing capacity of the ULB, funding options available etc.

Minutes of the consultations workshops and review meetings held are enclosed as Annexure – 2, 3, 4, 5, 6, 7 and 8.

5.2.4 DISCUSSION WITH OFFICIALS OF COMMISSIONERATE OF TOWN PANCHAYATS

The study team had a consultation meeting with the CTP, on the policies and priorities of CTP, Government of Tamil Nadu (GTN). The following were the discussion points of the meeting:

The Draft Final Reports on the City Corporate cum Business Plan (CCBP) for ten Selection Grade Town Panchayats were to be finalized after policy consultations. Towards the same, a discussion on the policies and priorities for development of the CTP, GoTN was held at the CTP, Kuralagam, Chennai on 01.04.08 and was attended by the TNUIFSL and the Consultants (CCI). The CTP chaired the meeting. The Joint Director of Town Panchayats was also present during the meeting. Also present were the Executive Officers of Gingee, Bargur, Kangayam and Katpadi Town Panchayats representing the ten town panchayats for which the DFRs are to be finalised.

At the outset, the CTP was briefed on the study related tasks progress and the process involved in the preparation of CCBPs for the ten towns. He also enquired about the stakeholders who were met in connection with the study and the feedback received as a result of interactions with them.

The CTP advised the consultants to consider the spurt in growth of population among these Town Panchayats. The consultants assured the Commissioner that relevant aspects have been taken into consideration duly in assessing and projecting the population. It was also informed by the TNUIFSL that during the Detailed Project Preparation exercise for each sub sector project, a detailed population projection sequence would be performed including the ward-level projection which shall in-turn be the basis for the design and corresponding investment.

The Commissioner had stressed the need for an extended coverage and enhanced collection of property tax and it would go a long way in the revenue generation and sustaining aspects. He requested the concerned Town Panchayat officials to identify the un-utilized and under utilized (performing and non-performing) properties and bring them to the beneficial use of the Public. He also emphasized the need for a 100% revenue collection towards the revenue mobilisation efforts of the ULBs. Satisfied with the performance of the consultants in the tasks covered so far, the Commissioner requested them to be pragmatic in advising on various project proposals to the local bodies. He stressed that ways and means should be suggested to attain self sufficiency in the financial sector. Prioritisation of projects should be based on the financial healthiness of the local body and the basic infrastructural needs of the public. He indicated that though the projects like

Underground Sewerage System are of utmost necessity, caution should be exercised in prioritising them in view of the significant capital cost involved and the financial healthiness of the local bodies.

It was suggested that such projects can be taken up on long term basis after improving the financial sustainability of the local bodies and requested the capital investment to reflect with and without the UGSS component. The consultants thanked the Commissioner for his valuable suggestions, feedback on priorities towards the finalisation of the CCBP.

6

REVIEW OF ULB IDENTIFIED PROJECTS

6.1 PROJECTS AT GLANCE

Katpadi Town Panchayat has identified projects to obtain funds from "Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT)", "Integrated Housing and Slum Improvement Scheme (IHSDP" and Model Town Proposal. The various list of projects covering all the sectors of infrastructure development were identified. The lists of projects identified under these are schemes are listed below in the following tables.

Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT):

Under UIDSSMT scheme, the Town Panchayat has identified projects for a cost of Rs.227.30 lakhs under the following sectors for the improvement of infrastructure of the town.

- Roads
- Water Supply
- Storm Water Drain

This project was prepared during the year 2006-2007. The list of works are.

I DRAINS

SL.NO	NAME OF WORK	LENGTH	ESTIMATE AMOUNT
1	Construction of drain at VTK Street, Vasanthapuram, Chengutti Road, C.M. John Street, in Katpadi Town Panchayats.	700 M	Rs. 11,20,000/-
2	Construction of drain at Jothi Nagar in Katpadi Town Panchayat in Katpadi Town Panchayat.	200 M	Rs. 5,60,000/-
3	Construction of drain at Ponnusami Goundar Street, Mattu Street in Katpadi Town Panchayat.	450 M	Rs. 12,90,000/-
4	Construction of drain at Periyappa Naiyakkar Street and Kankar 1,2,3, New Street in Katpadi Town Panchayat	450 M	Rs. 9,60,000/-
5	Construction drain at Avaram Kadu Pallikuppam Railway Gatw New Street in Katpadi Town Panchayat.	200 M	Rs. 5,70,000/-
6	Construction drain at Subrmaniya Swamy Koil Street, Perumal Koil Street in Katpadi Town Panchayat.	700 M	Rs. 11,30,000/-
	Total	**2700 M**	**Rs. 56,30,000/-**

II ROADS

SL.NO	NAME OF WORK	LENGTH	ESTIMATE AMOUNT
1	Providing Cement Concrete Pavement at Kullakarai New Street in Katpadi Town Panchayat	450 M	Rs. 8,70,000/-
2	Providing Cement Concrete Pavement at Vasanthapuram and New Street, Kankar Street in	490 M	Rs. 14,00,000/-

	Katpadi Town Panchayat.		
3	Providing Cement Concrete Pavement at Radio Room Street, Narayana Mustri Street and Govindagounder Street, in Katpadi Town Panchayat.	500 M	Rs. 13,40,000/-
4	Providing Cement Concrete Pavement at Kalarmedu Street in Katpadi Town Panchayat	490 M	Rs. 11,70,000/-
5	Providing Cement Concrete Lakshmana Reddi Street, Munumandiri Street and Kullakarai Street in Katpadi Town Panchayat	240 M	Rs. 11,40,000/-
6	Providing Cement Concrete Pavement at C.M.C. Colony and Bharathiyar Street upto V.T.K. Line Buril Ground Road in Katpadi Town Panchayat.	240 M	Rs. 11,40,000/-
7	Providing Cement Concrete Pavement at Buddhar Street, Ramarlingam Street and Andal Nagar Street in Katpadi Town Panchayat.	490 M	Rs. 14,00,000/-
8	Providing Cement concrete Pavement at Mariamman Swamy Koil Street, Subramani Swamy Koil Street and Pudu Street in Katpadi Town Panchayat.	490 M	Rs. 14,10,000/-
9	Providing Cement Concrete Pavement at Palliyar Koil Street (Nadumottur) and New Street (Railway Gate) in Katpadi Town Panchayat.	440 M	Rs. 13,90,000/-
10	Providing Cement Concrete Pavement at Bajanai Koil Street, St. Marks School (Opp) in Katpadi Town Panchayat.	490 M	Rs. 13,90,000/-
11	Providing Cement Concrete Pavement at Chennai upto Kottaiamman Koil Street, Solai Nagar Office Road, II nd Reach in Katpadi Town Panchayat.	530 M	Rs. 13,60,000/-
12	Providing B.T. Surface to Vallimalai Road Upto Palayamkuppam Buril Ground Road in Katpadi Town Panchayat.	1500 M	Rs. 13,80,000/-
13	Providing B.T. Surface to Vallimalai Road upto Ponniamman Koil Street in Katpadi Town Panchayat.	1000 M	Rs. 9,60,000/-
	Total	**7310 M**	**Rs. 1,58,60,000/-**

III WATER SUPPLY

SL.NO.	NAME OF WORK	LENGTH	ESTIMATE AMOUNT
1	Extension of Pipe line in service area in Katpadi Town Panchayat	7650 M	Rs. 3,80,000/-
2	Providing a mini power pump at Mariamman Street, Solai Nagar, Kanikoil Street, Periappa Street, Vallimalai Road Parry Line Street, Narayani Masthiri Street, Radio Road Street, Vallimalai Road (Avaramkadu), Vallimalai Road Near (Railway Gate), Kullakarai Street, Pallikupam Medu Street (Near School) Periyapudur Munimandiri Street in Kalinjur Town Panchayat.	-	Rs. 7,00,000/-
3	Providing New Borewell with Mini Power Pump at Santhi Street in Burnicepuram Buril ground in Kalinjur Town Panchayat	-	Rs. 1,60,000/-
		7650 M	**Rs. 12,40,000/-**
	GRAND TOTAL		**2,27,30,000/-**

Integrated Housing and Slum Development Program (IHSDP):

Apart from the above mentioned projects the local body has identified projects to avail assistance under the IHSDP Scheme. The proposed projects include the overall

improvements of the basic facilities of the Slums in the town. The total cost of the project proposed under this scheme is about Rs.53.2 Lakhs. The projects proposed include the provision of Water Supply, Roads, Drainage and other basic infrastructural facilities to the slums. The lists of works carried on in the slums are listed below,

SL.NO.	NAME OF SLUM	ITEM OF WORKS	LENGTH IN MT	ESTIMATE AMOUNT (RS. IN LAKHS)	INDIVIDUAL SLUM PROJECT COST.
I	Kanchanoor colony	Providing b t surface	1550m	13.7	
		Construction of drainage	270m	2.4	
		Mini power pump	1 No	1	
		Cement concrete pavement	380m	8.5	
				25.6	**25.6**
II	Vasanthapuram	Cement concrete pavement	280m	2.9	
				2.9	**2.9**
III	Periya Pudhur Colony St	Cement concrete pavement	535m	11.3	
		Mini power pump	1 No	0.5	
				11.8	**11.8**
IV	V T K Nagar	Cement concrete pavement	520m	5.1	
		Mini power pump	1 No	0.5	
				5.3	**5.3**
V	Valimalai Road	Cement concrete pavement	160m	3.3	
VI	Thiruvalluver Nagar	Cement concrete pavement	180m	4	
				7.3	**7.3**
		TOTAL PROJECT COST		**53.2**	**53.2**

In addition to the projects identified by the ULB, the study team made an effort in identifying the projects which are essential for the town's development perspective by means discussion with the stake holders during their visit to the town on 28th April 2007.

7

VISION AND STRATEGIC PLANNING

7.1 VISION OF KATPADI TOWN

The 'vision statement' of any town sets the direction and the yardstick by which the town would be judged in achieving the goals formulated for its development. The vision for the development of Katpadi Town has been perceived around the following core ideas:

- Expand the regional identity and encourage developments in the town to serve as the "Transit Node" of the region.
- To develop new industries and also support them with the required facilities.
- To provide a structure that supports 'one community' and improves communication between related town services, organizations, businesses, education, healthcare.
- Inspire and strive for exellence, innovations and achieve better living conditions.
- Extend integrated and decentralized planning measures for the town.

The 'vision statement' for Katpadi Town as arrived at during the Second Stakeholders' workshop is as follows:

Vision Statement For Katpadi

"Katpadi is envisioned to be a regional transit node supported with high standard infrastructural facilities for better living conditions in the town."

The above overall vision paved the way to formulate sector specific visions and strategies. This sector specific approach with necessary strategies will be instrumental in framing the action plans and implementing them mobilizing corresponding year wise investments,. The sector specific reforms and investments are an integral part of these strategies. Based on the above 'Vision Statement', the following broad focus Areas were identified:

- Primary Focus Areas
  - Economic & Urban Development;
  - Infrastructure Development (Provision & Delivery);
  - Environment Improvement;
  - Urban Poor and Slum Upgrading;
  - Urban Management and Sectoral Reforms; and
  - Urban Governance.

- Secondary Focus Areas
  - Public-Private-People-Partnerships;

- Community Interface; and
- Social Development.

7.1.1 SECTOR SPECIFIC VISION STATEMENTS

Extensive consultations were held with various stakeholders to identify the inputs for the aforementioned focus Areas. These consultations formed the basis for the 'Vision Statements' for each of the focus Areas. Following table presents such focus Areas and the 'Vision Statements'.

Table 7.1: Focus Areas and Vision Statements

Sl.	Focus Areas	Vision Statements
1.	Economic and Urban Development	Strengthen the town's economy by creating conducive environment for development in the town and the hinterland
2.	Infrastructure Development (Provision & Delivery)	Achieve adequate and equitable distribution of all services coupled with efficiency enhancement and sustainability
3.	Environment Improvement	Prevent pollution in all respects, which affects the safety of the inhabitants of the town along with protecting the existing natural resources from man-made intervention to maintain the environment balance in the region
4.	Urban Poor and Slum Upgrading	Improve overall living conditions of urban poor through improved housing, proper tenure and equitable basic services to bring them into the main stream
5.	Urban Management and Reforms	Strengthen the finances & resources through reform driven urban management initiatives
6.	Urban Governance	Bring transparency and accountability in the town administration through technology interface, human resource development and citizen orientation

The CCP process of Katpadi has undergone extensive consultative process with its key stakeholders in prioritizing the key sectors for development. The priorities of the central and state governments development goals have been considered in prioritizing these critical sectors, presented below.

- Water Supply
- Sewerage
- Solid Waste Management
- Traffic and Transportation
- Storm Water Drainage
- Urban Poverty

Selection and formulation of strategies are made on the basis of judgment of "outcomes" not on the bases of "inputs".

7.2 STRATEGIC PLAN

A strategy is a set of actions, policies and programs/projcts designed to achieve a specific goal. Strategies provide a direction that takes advantage of the unique conditions that exist in a location. Thinking strategically creates not only a shared vision for the future, but also a framework for decision-making and the allocation of limited resources.

The essence of the process of strategic plan for physical development is the involvement and participation of the target population or the beneficiary. Strategic plan starts from the conception of the idea of business mechanism in planning to the completion and maintenance of the plan in a sustainable mode.

The strategic plan also suggests a ten year phasing of the proposals of the plan and it intends to address the 'essential" need in terms of services, in order of micro level priority, so that a sound base would be built at the end of ten years as a take-off point, when the citizens and citizen groups will be prepared to spare their attention without pre-occupation or reservation from the priority, needs at individual locality level (i.e ward level), to the town level and consciously involve themselves in the city building process. For this there should be a target or vision at town level to pursue and accordingly channelise the efforts in their thinking, saying and doing. To arrive the future vision of the town in its perspective few relevant queries relating to resource generation management, project feasibility with sustainability and other support pre-requisites will be put across to the concillors and other stakeholders.

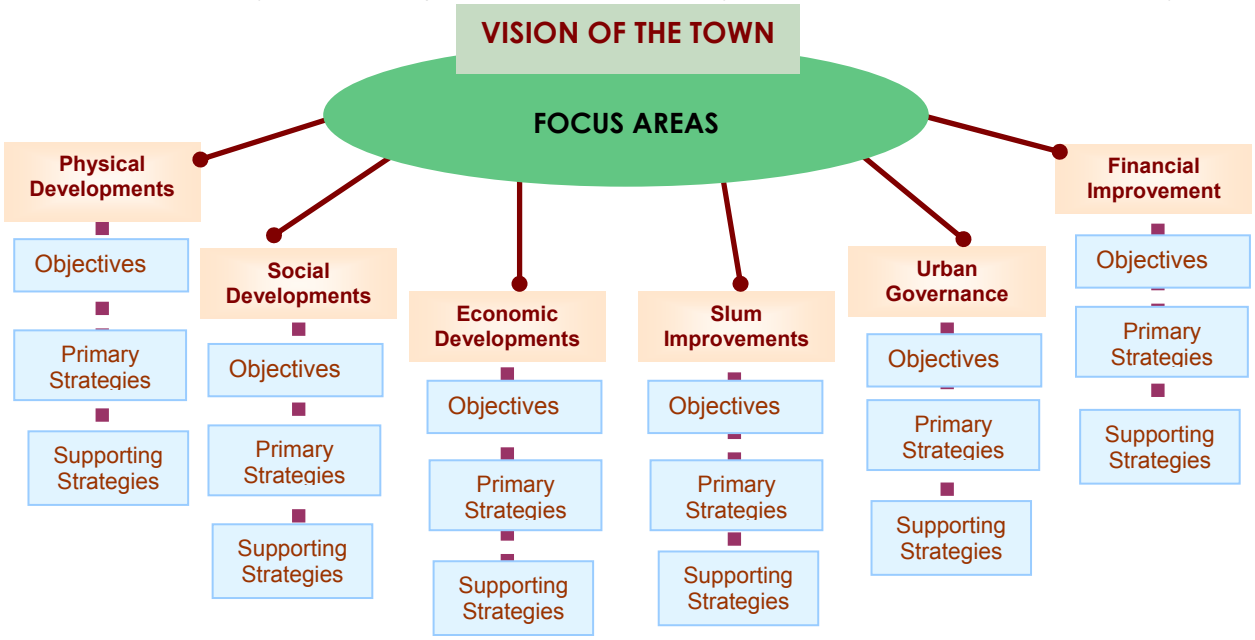
7.2.1 STRATEGIC FRAMEWORK

The Strategic Framework organizes actions and policies suggested by the community to achieve the community vision. The Strategy Framework provides a way to organize goals and specific actions as part of the town's future growth and vision.

The strategic framework proposed for Katpadi comprises of three focus areas, for each focus areas an objective has been arrived at to achieve the vision of the town by means of formulating primary and supporting strategies. The Implementation Matrix summarizes these strategies in a series of proposed actions.

Primary Strategies – Primary strategies for the town include major new development initiatives based on town and region-wide trends, and the unique position. Primary Strategies are those initiatives that are expected to have the greatest influence to redirect the role of the town in the region.

Supporting Strategies – Supporting strategies are activities and programs that would enhance the overall environment and support the primary strategies. Although these strategies are shown on a second tier, it should be understood that in many cases, they are the projects that are necessary in order to implement the primary



strategies. The strategies adopted primarily have three dimensions; improving the service delivery by higher efficiency, improving service delivery by creating infrastructure assets and improving the governance aspects of the town panchayat. In order to tackle the issues of basic, economic and social infrastructure and to achieve the vision statement, the study team in consultation with the stakeholders has identified the following broad strategies under the following sectors:

- Land Use -- Compatible land use, Development Control rules to promote and support economic activities, development of transport links.
- Core Municipal Infrastructure-- Adequacy, reliability and accessibility to core municipal services for all citizens with town panchayat as the prime service provider.
- Traffic & Transportation-- Road widening, dedicated bus lanes, cycle tracks and improvement of the public transport system in the short run; exploring the possibility of regional linkages in the long run.
- Urban Environment-- Conservation of rivers, water bodies, and natural environment of the town; making environment an integral part of every decision-making process.
- Urban Poor-- Affordable housing, tenure security, integrated service provision, access to basic infrastructure needs and social amenities
- Culture & Heritage– Preservation of heritage structures, promotion and facilitation of cultural activities, and encouragement of tourism appropriate to the town environs.
- Economic Development-- Improving infrastructure, service delivery and governance by attracting public private partnerships (PPP), creating coordination for implementing economic policies in the urban region, developing collaborations between industries and institutions to further establish Katpadi as a dynamic town of the Region.
- Urban Governance-- Redefining the roles of administration, making it accountable and transparent and empowering and involving citizens.

The Strategic framework for development has been evolved based on the outcome of the Rapid Assessments and stakeholders consultations carried out for this town earlier. Issues and Potentials for development have been the main product of such assessment and the same has been considered for evolving sector specific development objectives, primary and supporting strategies and appropriate action plan. The following table illustrates the Strategic Framework evolved for Katpadi Town Panchayat.

Table 7.2: Strategic Framework for Identification of Actions

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
PHYSICAL DEVELOPMENT			
Land use Management			
1	To encourage planned development.	1. Preparation of Master Plan to regulate development activities. 2. Develop available vacant lands in the town for future land requirements.	1. Delineation of Local Planning Area towards planning/regulation of land use activities in Katpadi. 2. Provision of better linkages with northern part of town to achieve balanced development. 3. Identification of potential areas for residential development through preparation of Master Plan. 4. In order to meet the space requirement for future, commercial and mixed residential zoning shall be earmarked within the region. 5. Provision of more public spaces for the future need. 6. Zoning of land uses specifically for Industrial purposes to attract economic activities within the region. 7. Resolving conflicting land uses by means of proper planning and land use allocations. 8. Provision of urban open spaces and higher order facilities with in the region. 9. Promotion of activities in the peripheral/outskirts in a phased manner. 10. Identification and Implementation of newer roads for guiding the future development. 11. Assessment of feasibility of establishment of regional linkages with the other urban nodes.
2	To achieve Optimum Utilization of land.	1. Channelizing the developments considering the policies and programmes of the government. 2. Optimum utilization of ULB / Govt. owned lands.	
3	To promote a spatial structure of the town that caters to the emerging economic activities and Population growth.	1. Addition of commercial infrastructure in the potential wards. 2. Promotion of neighborhood schemes to meet the future housing demand under private partnership. 3. Improvements to public domain areas - road space and institutions.	
4	To Integrate land use and transport development.	1. Improve more road open space on major arterial roads to improve the traffic flow. 2. Regulate mixed land use based road widths.	
5	To Preserve natural assets and heritage elements in the town.	1. Specific guidelines for building permission to match with road width. 2. Conservation of environmental resources & heritage. 3. Generate more urban land through market friendly mechanisms. 4. Formulate water bodies' networking programme to supply integrated open spaces to support physical and economic infrastructure.	
Water Supply			
1	To provide water supply at the prescribed rate of supply	1. Comprehensive Water Sector Development / Augmentation Plan. 2. Water Supply Operation & Maintenance Plan.	1. Water supply system to meet the 30-year demand (2010-2040). 2. Immediate action to implement Individual water supply scheme. 3. Creation of local sources to meet the current need. 4. Augmentation of WTP and Clear Water Transmission Mains for ultimate stage demand.
2	To ensure daily supply of water to the users	1. Planning and capacity augmentation for adequate and equitable water supply.	
3	To provide 100%	1. Water supply system for uncovered and extension	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
	Coverage	areas to ensure 100% coverage	5. Implementing the continuous system of water supply 6. Ensuring equitable and daily supply. 7. Developing efficient operation and management of water supply systems. 8. Redistribution/re-zoning of distribution system in existing areas. 9. Rehabilitation of existing service reservoirs if applicable. 10. Construction of additional service reservoirs if applicable. 11. Proposed distribution system in uncovered areas and extended development areas. 12. Rehabilitation and upgrading of pump stations and transmission systems. 13. Maximizing of cost recovery from system beneficiaries/users of the services. 14. Drive against illegal connection. 15. Promote individual house service connections (HSCs) in slum locations and discourage public stand posts (PSPs) as a policy measure and to increase accountability. 16. Developing technically feasible and financially viable projects for implementation. 17. Prepare an asset inventory and map the water supply systems for effective monitoring. 18. Capacity Building of the ULB staff to undertake efficient management and administrative decisions. 19. Creating Public Awareness with regards water conservation activities. 20. Assessment of gaps and investment needs in the urban poor/ slum locations.
4	To Minimize NRW component	1. Performance monitoring - energy audit, leak detection, NRW studies, water quality, etc. 2. Creation of public awareness.	
5	To achieve cost recovery	5 Comprehensive Asset management plan. 6 Institutional strengthening and capacity building. 7 Revenue enhancement through collection drives, metering and tariff rationalization to raise annual collection. 8 Establishment of GIS based assessment mechanism.	
Sewerage and Sanitation			
1	To provide sewerage system	1. Comprehensive Sewer Master Plan. 2. Prevent discharge of sewage and sullage to storm water drains.	1. Sewage collection and conveyance system for unsewered and extension areas considering ultimate stage sewage generation. 2. Ensure 100% coverage. 3. Prepare a comprehensive UGS master plan to explore
2	To provide proper sewage disposal facility	1. Treatment of sewage - decentralized advanced systems.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		2. Development of treated waste water re-use systems	the possibility of the decentralization of the system of operations for effective service delivery.
3	To provide sanitation facilities to low income groups	1. Identification of beneficiaries under various Central and State funded schemes to establish sanitation facility. 2. Expanding sanitation program to low income communities. 3. Providing subsidies to poorer communities for setting LCS facility in slum areas. 4. Integration of existing and proposed LCS & community toilets to UGSS.	4. Plan the UGS system and ensure the location of STPs in unobjectionable location. 5. Improve and ensure access to sanitary facilities for the urban poor and slum dwellers. 6. Encourage pay & use category of public conveniences with community involvement in the maintenance of the same. 7. Removal of encroachments along the water bodies. 8. De-silting of existing water bodies (i.e. Katpadi Eri) and development of the bed lining.
4	To protect water bodies	1. Identification of water bodies within town limits for conservation. 2. Manage and control developmental activities along water front areas. 3. Rehabilitation of existing water bodies. 4. Re-development of area adjoining water bodies for community use, if available. 5. Improvements to supply channel / catchment facilities, water quality maintenance and groundwater recharge in water bodies. 6. Inventory measures to control the pollution of water bodies. 7. Frequent testing of water samples.	9. Re-development of tank/lake bunds through slab lining. 10. Re-development of perimeter area - paved walkway, area lighting, compound wall/fencing, access control and landscaping; 11. Water treatment and recirculation including passive aeration systems; 12. Installation of water quality monitoring stations. 13. Assessment of gaps and investment needs in the urban poor/ slum locations.
Storm Water Drainage			
1	To ensure network coverage	1. Storm Water Drainage Master Plan / Pilot Project 2. Removal of encroachments along major and minor drains. 3. Rehabilitation of existing drains. 4. Expansion of drain network to uncovered areas.	1. Identification of hierarchy of drains in the town. 2. Identification of flood prone area. 3. Improve drainage network on a priority basis in flood-prone areas. 4. De-silting of existing storm water drains. 5. Perimeter protection of major drains. 6. Re-grading/re-surfacing of drains as required. 7. Reconstruction and restoration of drains leading into and out of the water bodies including by-pass and flood control.
2	To achieve efficient Management of natural system	1. Identify, delineate, sanitize and protect the natural drainage system of the town. 2. Awareness programs to prevent solid/liquid waste dumping into drains.	
3	To Recharge / Reuse	1. Assessment of possibilities for recharge/reuse of	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
	storm water	waste water in the town. 2. Expansion of Rain water harvesting system/structures town wide.	8. New drain network for uncovered areas. 9. Construction of new roads integrated with construction of drains. 10. Exploring Rain water harvesting measures to recharge ground water. 11. Assessment of gaps and investment needs in the urban poor/ slum locations.
Solid Waste Management			
1	To comply with MSW handing rules, 2000	1. Scientific approach for Sweeping. 2. Minimization of generation of Solid Waste. 3. Source segregation of municipal solid waste. 4. Augmentation and expansion of primary collection of waste. 5. Modernization and expansion of existing waste transportation system. 6. Municipal solid waste treatment and disposal. 7. Regulation of recyclable wastes handling and re-use. 8. Proper handling and disposal of slaughter house and other categories of wastes.	1. Phased implementation of 'Door to Door collection System' through community organisations by mobilising, facilitating, organising and supporting community activities with the help of local NGOs and SHGs. 2. Create a separate multi-disciplinary SWM cell with expertise in engineering, human resources/personnel management, awareness generation/ health. 3. Installation of 'Community Storage Bins' in areas where door-to-door collection cannot be implemented. 4. Implementation of TWO BIN System of solid waste collection. 5. Placement of dumper bins sufficient in number at market location. 6. Ensure optimum utilization of existing fleet. 7. Improvement of infrastructure facilities in the waste processing site. 8. Initiate information-Education-Communication (I-E-C) campaigns to raise awareness among the urban poor and slum dwellers of better SWM practices. 9. Initiate steps towards sharing the responsibility of primary collection of segregated garbage with citizens. 10. Develop transfer stations in a scientific, eco-friendly manner – processing waste at these sites, for different types of material. 11. Expanding the 'Voluntary Garbage Disposal Scheme' for more number of restaurants/hotels and commercial establishments and collecting user charges. 12. Persuading the hospitals to be part of the existing bio-
2	To ensure effective processing of waste through composting.	1. Increase the ambit of Solid Waste Management to include "recycling" and to facilitate and regulate the sector accordingly. 2. Encouraging local level aerobic vermin composting. 3. Compost the organic fraction of the waste. 4. Sanitary land filling of inorganic fraction of waste and the compost rejects. 5. Ensuring cost recovery/return from compost processing. 6. Implementation through PPP mode.	
3	To achieve Human resource development goals	1. Work shops and training program to educate staff 2. Entrusting responsibilities to the authorities to hold them accountable for any non conformation. 3. Encourage performance based incentives to enhance efficiency and output.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
			medical waste management facility. 13. Assessment of gaps and investment needs in the urban poor/ slum locations.
Roads, Traffic and Transportation			
1	To ensure adequate road network facility / coverage	1. Comprehensive Traffic Study for entire town. 2. Augmentation and rehabilitation of roads. 3. Widening and strengthening of road structure and removal of encroachments.	1. Improvements to the existing roads. 2. ULB maintained roads - upgradation of existing earthern / gravel road to BT / CC roads based on the incidental traffic volume count. 3. Departmental roads - widening of major roads to 2/4/6 lanes with provision of service road (pedestrians, two- and three-wheelers) within town limit. 4. Construction of FOB and pedestrian subways at major intersections including widening of the embankment and ramp landing (access and main) areas. 5. Provision of signals, pedestrian crossings, median, traffic island and signage's. 6. Pedestrian Footpaths to be provided in all the major roads for better movement. 7. Establishment of new linkages with the neighboring villages and towns.
2	To ease traffic congestion in the town	1. Study of city-wide parking requirements and development of parking infrastructure. 2. Improvement of Pedestrian Facilities. 3. Traffic streamlining. 4. Segregation of slow and fast moving vehicular traffic. 5. Construction of underpass/ over bridges at crossings. 6. Proper re-alignment of road furniture and utilities	
3	To offer regional linkages	1. Establishment of regional linkages considering the future growth potentials.	
Street Lighting			
1	To ensure adequate street lighting facility	1. Comprehensive Street light management plan. 2. Development/up-dation of Asset Register.	1. Upgradation of existing street lights. 2. Installation of high-mast cluster lighting at important junctions. 3. New street lights for uncovered and extension areas. 4. Power consumption management and implementation of energy efficiency measures. 5. Use of energy saving equipment 6. Identification of possibilities of using renewable energy sources for street lighting. 7. Identification of possibilities of underground cabling. 8. Encouraging private operators for O&M. 9. Assessment of gaps and investment needs in the
2	To Reduce/minimize energy cost	1. Energy audit studies. 2. Innovation of new technologies. 3. Utilization of alternate renewable energy sources.	
3	To Establish PPP	1. Exploration of possibilities of public private partnerships.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
			urban poor/ slum locations.
SOCIAL DEVELOPMENT			
1	To enhance quality of life.	1. Ensure a safe, healthy environment for the residents. 2. Inter- sectoral convergence for Urban Health Care. 3. Establish a successful and sustainable living environment.	1. Expansion of existing educational facility. 2. Expansion of existing health care facility. 3. Establishment of new educational institutions based on future need. 4. Establishment of new health care institutions based on future need. 5. Provision of parks, play fields and community facilities based on the demand. 6. Assessment of gaps and investment needs in the urban poor/ slum locations.
2	To achieve universal access to social facilities	1. Increasing private sector and NGO participation.	
SLUM IMPROVEMENT			
1	To ensure all poor will have access to qualitative and affordable basic services	1. Development of Comprehensive data base. 2. Community empowerment. 3. Institutional Strengthening and Capacity Building. 4. Relocation of slums located in vulnerable Areas. 5. Channelize all programs and activities of various government agencies for the urban poor through the special purpose vehicle.	1. Comprehensive listing of slums. 2. Preparation of a database on socio-economic characteristics of all slum dwellers in the listed slums. 3. Mapping and assessment of physical characteristics of slums (housing and services) for all tenable slums. 4. Preparation of DPRs for each of the slums as an integrated scheme covering both housing and services. 5. Provision of basic infrastructure - both physical (water, roads, sanitation and sewerage) and social infrastructure (clinics, schools, training facilities, etc). Construction of EWS housing schemes & fixing priorities to BPL. 6. Identify Target Beneficiaries. 7. Integrate Community Development -Provide economic generation activities. 8. Improving living condition of slum dwellers. 9. Conduct livelihood Training Program. 10. Identification of land parcels for resettlement of slum dwellers of all non-tenable slums and involvement of NGOs/CBOs in the process. 11. Awareness on health and hygiene shall be created among slum dwellers in line with the long-term goal of
2	To confirm 100 % literacy	1. Evolving a comprehensive education system. 2. Improving Educational facilities.	
3	To achieve Universal access to primary health care and no one should die of preventable diseases	1. Evolving a comprehensive health care policy. 2. Improving health facilities. 3. Improving Access to Social Services.	
4	Livelihood to all urban poor	1. Evolving a comprehensive Livelihood Policy. 2. Linking livelihoods to city's economy. 3. Community Based Approach. 4. Target women and children. 5. Economic Support/Enterprise Development.	
5	Security of tenure and Affordable Housing	1. Development of housing through partnerships – PPP. 2. Provision of land tenure security. 3. Formulation of Notification and De-notification	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		Policy.	moving towards individual toilets and doing away with public convenience systems.
ECONOMIC DEVELOPMENT			
1	To provide employment opportunities to all	1. Formation of Integrated economy development plan. 2. Creation of organized commercial centres for retail and wholesale trade. 3. Encouraging service sector by implementation of training programmes.	1. Developing civic infrastructure like water supply, drainage, sewerage, waste management etc. 2. Provision of market facility. 3. Creating infrastructure to facilitate development of industries in the region. 4. Making available serviced land for real estate development. 5. Creating amusement parks and other entertainment facilities especially for local citizens and tourists. 6. Encourage private sector to develop shopping complexes and multiplexes to meet the growing demands of the expanding middle class in the region. 7. Promote non-polluting small scale and cottage industries. 8. Encourage development and growth of housing complexes in the private sector or joint venture. 9. Creating infrastructure including making availability of land to attract educational and research institutes. 10. Relaxation of polices and procedures in order to attract investors. 11. Facilitate assistance for enterprises to build export capabilities and access global markets.
2	To encourage economic activity	1. Expansion of daily and weekly markets in the town. 2. Exploring possibilities of promoting commercial activities. 3. Active promotion of public- private partnership (PPP) for development and operation of infrastructure and utilities. 4. Initiate collaborative arrangements with other departments and economic development agencies to facilitate implementation. 5. Facilitate assistance for enterprises to improve export supply chains thereby increasing competitiveness through enhanced supplier and customer relationships and reduced operating costs.	
URBAN GOVERNANCE			
1	Greater local participation and involvement	1. Capacity Building Program. 2. Full adoption of 74th CAA Model. 3. Conduct citizen satisfaction surveys & analysis on annual basis to assess citizen needs and demands including satisfaction levels. 4. PR strategies to enhance community participation and create awareness. 5. Innovative citizen complaint redressal system including e-Governance. 6. Augment and strengthen new initiatives on citizen	1. Promotion of town identity and a sense of citizenship for all 2. Public meetings, participatory planning and budgeting. 3. Involvement of marginalised groups in the city systems. 4. Efficient investment in infrastructure. 5. Delegation of decision taking to the lowest appropriate level. 6. Collaboration and partnerships, rather than competition

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		interface and orientation. 7. Regular interface with citizen associations/forum to understand public needs.	7. Appropriate training to improve capacity of ULB officials 8. Using information technology to best advantage 9. Environmental planning and management carried out in co-operation with the citizens 10. Disaster preparedness and crime control for safer environments. 11. Monitoring of government activities by coalitions of organizations. 12. Rigorous accounting procedures 13. Clear guidelines on conduct for leaders and officials that are enforced 14. Open procurement and contracting systems 15. Ensuring transparency in financial arrangements. 16. Disclosure of information. 17. Fair and predictable regulatory frameworks. 18. Independent and accessible complaints procedures. 19. Regular flow of information on key issues. 20. Regular and structured consultation with representative bodies from all sectors of society including individuals in the decision making processes. 21. Access to government by all individuals and organizations. 22. Instruments to improve efficiency through enhanced technical, administrative and financial capacities. 23. Setting in place an active and online public Grievances' Redressal System, with automated department-wise complaint loading and monitoring system.
2	Efficient urban management	1. Establishment of town-wide framework for planning and governance 2. Functional Restructuring. 3. Proposal to develop the GIS as a tool for development planning. 4. Exposure to innovative practices of service delivery followed across the country. 5. Establishing a Project Monitoring Unit. 6. Tax Reforms. 7. Credit enhancement options other than state guarantees need to be adopted.	
3	Accountability/ Transparency/ Accessibility	1. Formation of Standing Co-ordination Committee. 2. Private Sector Participation. 3. Specific code of conduct for municipal executives and elected representatives. 4. Public education, resource mobilization, good leadership and transparent processes applied to municipal finance and development work. 5. Closer networking with media and their engagement in creating public awareness and creating demand for good governance. Cautious engagement of private sector with continuous monitoring is necessary. 6. Preparation of annual Environmental Status Report through a multi-stakeholder consultation process. 7. Modern and transparent budgeting, accounting, financial management system for all urban services and governance functions.	
FINANCIAL IMPROVEMENT			
1	Computerization Initiatives.	1. Billing and collection of taxes and user charges through e-services. 2. Speed up development of e-Governance system	1. Implementation of MIS to provide relevant information on accounts, commercial and operating systems for better decision-making and information dissemination

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		and accounting system. 3. Database management of assets, records, lands, properties, etc.	to citizens; 2. Application of e-Governance is equally important for municipal finance. 3. Mapping of properties and developing GIS-enabled property tax management system for enhancing property tax net/coverage and better administration. 4. Areas of reform measures include property tax, accounting and auditing and resource mobilization and revenue enhancement. 5. Bringing transparency and uniformity in taxation policies. 6. Tax policy and operational procedures should be simple and clear. 7. Development of templates for property tax (for self-assessment) to increase tax collection (without levying fresh taxes), including implementation strategies. 8. Property tax base should be de-linked from rental value method and should be linked to unit area or capital value method. 9. Legislative changes in the accounting systems and reporting requirements. 10. Designing of accounting procedures. 11. Standardized recognition norms for municipal assets and revenues. 12. Auditing of accounts should be carried out effectively and regularly to promote transparency and accountability. 13. Increasing revenue through measures for better coverage, assessment, billing, collection and enforcement. 14. Controlling growth of expenditure. 15. Improving the organization and efficiency of the tax administration system. 16. Augmentation of resource mobilization/revenue generation from properties belonging to ULB for improving the overall financial health. 17. Energy audit to minimize expenditure and increase
2	Reforms.	1. Innovations both at policy and project levels to speed up the urban reform process. 2. Accounting reforms - shifting from single entry cash based accounting system to accrual based double entry accounting system. 3. Reforms to have in-built mechanism of participation and commitment. 4. Institutional strengthening and financial capacity building to be an integral part of the reform measures. 5. Establishment of financially self-sustaining agency for urban governance service delivery through reforms.	
3	Privatization Initiatives.	1. Exploring areas of privatization. 2. Formulation of framework for attracting private investors.	
4	Resource Mobilization Initiatives.	1. Collection of arrears through innovative ideas and approaches using tools for community participation and fast track litigation methods. 2. Strengthen the fiscal powers of ULB to fix tax rates, fee structure and user charges through specific guidelines and notifications, which should find a place in the Municipal Rules. Prepare model guidelines for the city to allow greater flexibility in levying taxes, fees and user charges, borrowing funds and incurring expenditures;	
5	Capacity Building	1. Staffing pattern, organizational restructuring and performance appraisal. 2. Development of MIS for effective and efficient management & decision-making. 3. Publication of newsletters for creating awareness and participation.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		4. Prepare and conduct capacity building programmes for elected representatives, especially women representatives, with a view to enable them to focus on gender based issues. 5. Promote the creation of interactive platforms for sharing municipal innovations, and experiences among municipal managers. 6. Better human resources management through assessment of the training needs of personnel involved in urban administration to enhance management and organizational capabilities. 7. Assessment of fund requirement and resource persons to tackle the training needs of all personnel. 8. Capacity building to strategically position the ULB to employ highly qualified personnel based on need.	useful service life of equipment 18. Staff training, exposure visits and motivation programs to bring about awareness on recent developments and technologies. 19. Development of training material in the local language and impact and evaluation studies of the training programmes.

8

INFRASTRUCTURE & FINANCIAL IMPROVEMENT NEEDS

8.1 INTRODUCTION

This section of the Report pertains to the probable proposed development initiatives and specific improvements that shall be recommended to upgrade the existing systems in Katpadi to normative standards pertaining to Urban Infrastructure provision, delivery, operation and maintenance and bringing out the characteristics required for the town.

A City Corporate Cum Business Plan (CCBP) is the corporate strategy of the ULB that presents both a vision of a desired future perspective for the town and the ULB's organization, and mission statements on how the ULB, together with other stakeholders, intends to work towards achieving their long-term vision in the next five years. Thus, a CCBP preparation process is essentially a consultative process and therefore identification of stakeholders to be involved in the process is of crucial importance. The identified stakeholders represented both government and non-government sectors.

The identified stakeholders may be broadly categorized as under:

- Elected Representatives;
- Service Providers/GoTN Offices;
- Business Houses and Associations; and
- NGOs/CBOs and Resource Persons

The above stakeholders were further categorized as Vision Stakeholders, Mission Stakeholders and Action Stakeholders, to define specific roles for each of the participating stakeholders. Needless to say, the ULB has to play an important role in identifying the above stakeholders and involve them in a proactive manner through all stages of the consultative process.

8.2 CONSULTATION PROCESS

The entire CCBP preparation process has been divided into three phases. The outcomes of each of the phases were based on extensive consultations and consensus emerged thereon. Phase 1 of the assignment involved extensive consultations with 'Vision Stakeholders, while Phase 2 has a wider list of stakeholders comprising representatives from various walks of life, identified as 'Mission Stakeholders'. Phase 3 of the assignment involved 'Action Stakeholders' who were identified to participate in implementation of the CCBP. The study team had specific consultations with these stakeholders and specific roles and responsibilities were evolved so as to implement the CCBP. Each of the above phases culminated with a workshop, which endorsed the findings with specific remarks and suggestions.

Broadly, the consultation process was carried out in the following manner:

- Individual/sector specific discussions;
- Workshops.

Consultations were held in three stages as follows:

- First stage of consultations primarily addressed the concerns of the 'Vision Stakeholders'. This stage of consultations aimed at defining the draft Vision and Mission Statements for further discussions, streamlining and adoption;
- Second stage of consultations targeted the various identified 'Mission Stakeholders' and this stage of the consultative process streamlined the Vision and Mission Statements and has identified various priority actions and proposals to be addressed in the CCP; and
- Third phase of consultations looked at the feasibility assessments and investment scheduling, which were finalized in consultation with the 'Action Stakeholders'.

8.3 MISSION AREAS

An assessment of existing physical infrastructure and various basic urban services (social infrastructure - education, recreation, community, health facilities, etc.) in the town to be performed was made. Description and mapping to quantify the condition of basic amenities and urban services was also made, highlighting the needs and deficiencies sector-wise as follows:

- Water supply;
- Sewerage and storm water drainage;
- Solid waste management;
- Roads, traffic and transportation;
- Streetlights;
- Other basic urban services and facilities; and
- Slum upgrading and housing for the poor;

An assessment of the existing situation covering all the sectors like water supply, sanitation, drainage, solid waste management, internal roads, bridges, traffic management, public private transportation and streetlights at the town level was carried out specifically covering the following illustrative aspects:

Sector-Specific Analytical Instruments:

Sl. No.	Study Component	Analysis / Coverage
1.	Water Supply	Appraisal of water supply augmentation proposals in conjunction with existing distribution systems, leak detection and UFW levels, replacement needed, measures that need to be undertaken to promote continuous system of water supply, and other requirements for optimum economic performance. Review of existing status of the service in terms of sources, storage and distribution, treatment, alternative supply, connections and tariff, utility maps, nature of complaints and origins. Metering system and revenue generation/enhancement.
2.	Sewerage and Drainage	Appraisal of the sewerage and drainage systems with reference to their adequacy; augmentation of collection system, sewage treatment facilities and treated wastewater re-use/disposal systems. Review of existing status of the system in terms of type, O&M aspects, nature of complaints and origins, areas prone to flooding, etc. Reviewing of the environmental procedures and plans, low-cost sanitation and system integration.
3.	Solid Waste Management	Existing facilities and system management for handling solid waste. characteristics of solid waste, quantity generated, collection and transportation system, transfer stations, and waste processing/disposal facilities
4.	Roads, Traffic and Transportation	Road Length, Density, Coverage, Types, Connectivity, Linkages, Congestion, Parking Requirements, capacity utilization, traffic flow, infrastructure such as bus terminals, O&M aspects and related., appraisal of efficiency and equity of urban transport models, including public and private transportation system, traffic management, etc.
5.	Streetlights	Spacing, coverage, capacity utilization, energy efficiency, O&M aspects and related
6.	Education, Health and Community	Number and location of various education, health, leisure and community facilities, O&M aspects, coverage, adequacy with respect to

Sl. No.	Study Component	Analysis / Coverage
	Facilities	normative standards, catchment, etc.
7.	Deficiency Analysis	Identification of criteria for deciding deficiency for various services; • Based on study of existing situation and criteria identified, assessment of deficiencies in existing service levels; • Identification of priorities and technical alternatives; and • Estimation of unit costs for providing minimum level of services based on certain norms.

8.4 PRIORITY ACTIONS – INFRASTRUCTURE IMPROVEMENT

In order to formulate infrastructure needs of the town following priority actions would be recommended to be implemented by the ULB undertaken in consultation with the stakeholders.

Water Supply:
- Planning and capacity augmentation for adequate and equitable water supply and related capital investment.
- Water supply system for unserved areas to ensure 100% coverage
- Continuous system of water supply.
- Improvement of O&M of the system
- Performance monitoring - energy audit, leak detection, NRW studies, water quality, etc.
- Institutional strengthening and capacity building.

Sewerage and Sanitation:
- Provision of Underground sewerage system.
- Integration of existing and proposed LCS & community toilets to UGSS - the capital investment for proposed units is covered under the Urban Poor and Slum Upgrading component.
- Treatment of sewage - decentralized advanced systems.
- Re-use of treated wastewater.
- Performance monitoring - energy audit, quality, etc.

Storm Water Drainage:
- Removal of encroachments along major and minor drains.
- Rehabilitation of existing drains.
- Expansion of drain network to uncovered areas.
- Awareness programs to prevent solid/liquid waste disposal into drains.

Roads, Traffic and Transportation:
- Improvement to existing road network for present and future traffic requirement
- By-pass access for national and state highways (as applicable)
- Flyovers at major intersections and railway crossings for traffic improvement (if applicable).
- Traffic signage and junction improvement measures
- Study of city-wide parking requirements and development of parking infrastructure, specifically in commercial areas.

Street Lighting:
- Upgrading street lighting in existing areas
- Installation of high-mast cluster lighting at important junctions not presently covered with such lighting arrangements.
- New street lights for uncovered areas.
- Power consumption management and energy efficiency measures.

Solid Waste Management:
- Comprehensive Solid Waste Management Scheme (per the MSW Rules, 2000).
- Minimization of generation of Solid Waste.
- Source segregation of municipal solid waste.
- Augmentation and expansion of primary collection of waste.
- Modernization and standardization of existing waste transportation system.
- Municipal solid waste processing and disposal.
- Recyclable waste handling and recovery.
- Proper handling and disposal of slaughter house, biomedical, hazardous and related non-municipal wastes.

Conservation of Water Bodies:
- Identification of water bodies within ULB limits for conservation.
- Rehabilitation of existing water bodies.
- Re-development of area adjoining water bodies for community use.
- Development of catchment facilities, water quality maintenance and groundwater recharge in water bodies.

Slum Upgradation:
- Project formulation for integrated development of all notified tenable slums covering housing, provision of basic services and amenities.
- Provision of water supply, sanitation, access roads, etc. in all tenable slums.
- Formulation of public-private partnership projects for slum upgrading.
- Exploration of rehabilitation option as an alternative to resettlement.
- Adoption of a 'community-based approach' in service provision and delivery to suit the local context and requirements.
- Ensure involvement of women and children from project formulation to implementation to achieve sustainability.
- Target service provision like water supply, sanitation and electricity on individual household basis - to facilitate improvement in performance & collection of user charges.

8.5 PRIORITY ACTIONS – FINANCIAL IMPROVEMENT

The ULBs have been found to be proactive in their commitment to introduce reforms at the ULB level. All these reforms may be broadly categorized under the following:

- Computerization Initiatives;
- Property Tax Reforms;
- Privatization Initiatives;
- Accounting Reforms; and
- Resource Mobilization Initiatives.

The following policy framework and priority actions are required for the sustainable financial improvement of town.

STRATEGY
- Innovations both at policy and project levels to speed up the urban reform process.
- Reforms to have in-built mechanism of participation and commitment.
- Institutional strengthening and financial capacity building to be an integral part of the reform measures.
- Areas of reform measures include property tax, accounting and auditing and resource mobilization and revenue enhancement.

PROPERTY TAX
- Bringing transparency and uniformity in taxation policies.
- Tax policy and operational procedures should be simple and clear.
- Development of templates for property tax (for self-assessment) to increase tax

collection (without levying fresh taxes), including implementation strategies.
- Mapping of properties and developing GIS-enabled property tax management system for enhancing property tax net/coverage and better administration.
- Collection of arrears through innovative ideas and approaches using tools for community participation and fast track litigation methods.
- Property tax base should be de-linked from rental value method and should be linked to unit area or capital value method.

ACCOUNTING AND AUDITING
- Accounting reforms - shifting from single entry cash based accounting system to accrual based double entry accounting system.
- Legislative changes in the accounting systems and reporting requirements.
- Designing of accounting procedures.
- Accounting manual - chart of accounts, budget codes, forms and formats, etc.
- Standardized recognition norms for municipal assets and revenues.
- Auditing of accounts should be carried out effectively and regularly to promote transparency and accountability.

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT
- Increasing revenue through measures for better coverage, assessment, billing, collection and enforcement.
- Controlling growth of expenditure.
- Improving the organization and efficiency of the tax administration system.
- Augmentation of resource mobilization/revenue generation from properties belonging to ULB for improving the overall financial health.
- Energy audit of fuel and energy consumption by various depts. of ULB to minimize expenditures on fuel and energy, including energy audit and metering of street lights.
- Streamlining and strengthening of revenue base of the ULB:
    - Strengthen the fiscal powers of ULB to fix tax rates, fee structure and user charges through specific guidelines and notifications, which should find a place in the Municipal Rules. Prepare model guidelines for the city to allow greater flexibility in levying taxes, fees and user charges, borrowing funds and incurring expenditures;
    - The annual report of the ULB shall devote a section highlighting the amounts of subsidy given to a particular service, how the subsidy was funded, and who were its beneficiaries;
    - Implementation of MIS to provide relevant information on accounts, commercial and operating systems for better decision-making and information dissemination to citizens; and
    - Application of e-Governance is equally important for municipal finance.

Apart from the above, following are some of other reform measures which should be implemented to support the above identified key municipal reforms.

URBAN ENVIRONMENTAL MANAGEMENT
The costs of maintaining a healthy urban environment need to be recovered through various municipal taxes and user charges following the “polluter pays” principle. For this, the functional role of the ULB as envisaged in Item 8, 12th Schedule of the Constitution has to be resolved keeping in view the role of the Tamil Nadu Pollution Control Board, and the organizational and fiscal strength of the ULB.

ACCESS OF URBAN SERVICES TO THE POOR
Since “ability-to-pay” for the cost of environmental infrastructure service’ provision is an important criterion, cross-subsidization of tariffs, innovative project structuring and user/ community participation is the means to ensure access of these services to the poor. Again the functional and financial role of ULB with respect to the Items 10 and 11 of 12th Schedule vis-à-vis those of central and state government agencies need to be resolved.

TRANSPARENCY AND CIVIC ENGAGEMENT IN MUNICIPAL MANAGEMENT

Laws/rules/regulations specific to city/local issues should be employed to facilitate effective implementation. These should be lucid and easily understood. Participatory mechanisms should be so structured that they have legal standing and administrative power. Local bodies should be responsive and innovative and involve community participation in civic engagement as follows:

- Specific code of conduct for municipal executives and elected representatives.
- Public education, resource mobilization, good leadership and transparent processes applied to municipal finance and development work.
- Closer networking with media and their engagement in creating public awareness and creating demand for good governance. Cautious engagement of private sector with continuous monitoring is necessary.
- Setting in place an active and online public Grievances' Redressal System, with automated department-wise complaint loading and monitoring system.
- Instruments to improve efficiency through enhanced technical, administrative and financial capacities.
- Credit enhancement options other than state guarantees need to be adopted.
- Preparation of annual Environmental Status Report through a multi-stakeholder consultation process.

CAPACITY BUILDING OF THE ULB

Following are some of the key aspects of capacity building measures for ULB:

- The ULB shall maintain data to generate indicators as suggested in this document for evaluating its performance.
- Prepare and conduct capacity building programmes for elected representatives, especially women representatives, with a view to enable them to focus on gender based issues.
- Promote the creation of interactive platforms for sharing municipal innovations, and experiences among municipal managers.
- Better human resource management through assessment of the training needs of personnel involved in urban administration to enhance management and organizational capabilities.
- Assessment of fund requirement and resource persons to tackle the training needs of all personnel.
- Development of training material in the local language and impact and evaluation studies of the training programmes.
- Capacity building to better position the urban local body to employ highly qualified staff and seek superior quality of out-sourced services.

TECHNOLOGY INTERVENTIONS THROUGH COMPUTERIZATION

- Billing and collection of taxes and user charges through e-services.
- Speed up development of e-Governance system and accounting system.
- Database management of assets, records, lands, properties, etc.

HUMAN RESOURCE DEVELOPMENT

- Staffing pattern, organizational restructuring and performance appraisal.
- Development of MIS for effective and efficient management & decision-making.
- Publication of newsletters for creating awareness and participation.
- Staff training, exposure visits and motivation programs to bring about awareness on recent developments and technologies.

CITIZEN ORIENTATION AND INTERFACE

- Conduct citizen satisfaction surveys & analysis on annual basis to assess citizen needs and demands including satisfaction levels.
- PR strategies to enhance community participation and create awareness.
- Innovative citizen complaint redressal system including e-Governance.

- Augment and strengthen new initiatives on citizen interface and orientation.
- Regular interface with citizen associations/forum to understand public needs.

8.6 PROBABLE CAPITAL INVESTMENT NEEDS

Following are the identified capital investment needs which shall be discussed in detail with the stakeholders during consultation.

WATER SUPPLY SYSTEM
Rehabilitation of existing distribution system in covered areas
Rehabilitation of existing Service Reservoirs
Construction of additional service reservoirs
Proposed distribution system in uncovered areas
Raw Water Supply System to meet 30 yr demand (2010-2040)
Augmentation of Existing Raw Water Supply System
SCADA, Electrical Works, Site Clearing/Restoration
Replacement/Renewal of existing equipment (mech/elec.) at source
UNDERGROUND SEWERAGE SCHEME
Rehabilitation of existing Collection System
Proposed Collection System
House Service Connection
Pump Stations including Pump Mains and Eqp.
Road Restoration for HSCs
Sewage Treatment Plants (WSP)
Railway / NH Crossings
Community Toilets and Integration with UGSS.
ROADS, TRAFFIC AND TRANSPORTATION
Improvement to Existing Roads
Upgrading Gravel/Earthen Roads to BT/CC
New Roads Formation & network development including periphery roads
Improvement to NH/SH incl. formation
Traffic Junction Improvements
Construction of bus terminus and bus stops incl construction of new bus stops
Preparation of Traffic and Transportation Management Plan incl traffic studies
STORM WATER DRAINS
Preparation of Comprehensive SWD Master Plan
Improvement to existing minor drains
Improvement to Major Drains/Channels
Proposed drains on existing roads (130% of Existing road deducting existing drain)
Formation of new drains along proposed road network (130% of new roads)
Proposed Storm Water Pump Stations
STREET LIGHTING
Proposed SV lamps in uncovered areas
Proposed FL lamps in uncovered areas
Proposed High Mast light in major junctions
Proposed Timers for existing / new lights
Proposed Sensor Lighting
Proposed Solar Lights
Proposed Power Saver (Capacitors)
Proposed dedicated sub-stations/transformers
Proposed Tri-vector meters
Development of Lighting Management Plan
SOLID WASTE MANAGEMENT
Proposed SW Collection & Interim Storage System
Collection System at Vegetable Market
Transportation System Improvements - Tfr & Trans Vehicles

Proposed Transfer Stations
MSW Composting Plant & Miscellaneous Works
ENVIRONMENT IMPROVEMENT
Improvements to Water Bodies
Park Development Existing/Proposed
Greening / Avenue Development
Environmental Monitoring Station
SLUM UPGRADING
Construction of housing
Water Supply
Sewerage & Sanitation
Solid Waste Management
Roads & Pavements
Streetlights
Community Centers
Open Spaces/Gardens
REMUNERATIVE PROJECTS
Construction of Shopping Complexes
Construction of Lodges
Improvement to burial grounds
Electrical Crematorium
Improvement of existing and proposed playgrounds
Rehabilitation/proposed community centers/halls
Improvement to town library/proposed libraries
Proposed truck terminal
Improvement of existing markets
Proposed /dedicated vegetable/meat market
Slaughterhouse development
URBAN GOVERNANCE

9 DEVELOPMENT PROPOSALS

9.1 INTRODUCTION

This section outlines the proposed development initiatives and specific improvements that are recommended for Katpadi to upgrade the existing systems of Urban Infrastructure provision, delivery, operation and maintenance to normative standards so as to bring out the characteristics of the town. Rapid assessment performed earlier provides for cognitive navigation through the analysis and recommendations in various phases in the preparation of the CCBP for the town. The sectors covered in this chapter are given in the adjacent box.

Sectors covered

- Water Supply;
- Sewerage and Sanitation;
- Storm Water Drains;
- Solid Waste Management;
- Roads, Traffic and Transportation;
- Street Lighting;
- Basic Services for the Urban Poor;
- Other Amenities;
- Environmental Improvement, and
- Urban Governance.

Details of the investment components, capital investment phasing plan based on the above, and discussions with Stakeholders are enclosed in subsequent sections of the report.

- The sector-wise estimated capital investment and investment components required to achieve stated objectives within the period (2008-2012) is given in this section.
- Sectoral investment for proposed interventions across all sectors has been estimated based on the following parameters:
- Information available/provided by concerned departments, detailed discussions with pertinent authorities, field/site visits, techno-economic evaluation/analysis conducted by the consulting team;
- Standard Schedule of Rates issued by PWD, Highways, and other engineering boards/organizations, OP rates, prevailing market rates, and relevant information;
- Consultant's database and experience on design of projects of similar scale/nature;
- Costs indicated are only estimated costs. Detailed cost estimation shall be performed for each item of work pursuant to detailed design engineering (during the DPR preparation);
- Land procurement and/or acquisition costs have not been included;
- Capital and annual O&M cost of the water and sewage treatment facilities, as applicable, has been estimated considering the techno-economically most feasible alternative technologies; and
- Necessary provision for physical contingencies, cost escalation for implementation period greater than 18 months, administration/supervision and consultancy charges have been included.

Based on the assessment of the existing situation, projected demand, the prevalent gap and key issues/problems in the existing system, upcoming section outlines the priority actions, proposals for improvement, estimated capital investment and the strategy for implementation along with suggestive timelines.

9.2 WATER SUPPLY

9.2.1 OBJECTIVES /GOALS

The objectives and goals listed below are identified for the improvements of the existing water supply system.

- 100 % coverage as against the present coverage of 70 %
- Treated distribution at an average per capita supply as specified in CPHEEO guidelines on Water Supply and Treatment
- Mitigation of Non-Revenue Water / Unaccounted for Water (NRW/UFW)
- Continuous monitoring to ensure that the total losses do not exceed allowable limits per CPHEEO guidelines
- Continual Leak Detection and Water Audit programs for further reduction of the losses which would prove economical in the long-term.

9.2.2 WATER DEMAND

Based on the projected population and the recommended supply levels as specified in the "Manual on Water Supply and Treatment" by CPHEEO, the total future water demand will be as follows

Table 9.1: Estimated Future Water Demand

No.	Description / Parameter	Present Stage (2010)	Intermediate Stage (2025)	Ultimate Stage (2040)
1.	Projected Population	17,446	25,160	36,286
2.	Per capita supply (lpcd)	70	70	70
3.	Installed Capacity of source (MLD)	1.00*	1.00*	1.00*
4.	Augmentation of the distribution system	47.71	67.92	95.19
5.	Augmentation of the Source (mld)	1.22	1.76	2.54

*- includes capacity proposed in the on going scheme to be implemented by 2008.

The above table indicates that during the year 2025 water demand would be 1.76 MLD for the projected population of 25,160 at a daily supply rate of 70 LPCD. The existing system is not capable of meeting the increasing water demand through its present available sources and distribution network for the year 2010. Augmentation measures need to be planned considering the utilization of the existing system without over loading it. This projected scenario was discussed with the stakeholders and the following points emerged during the discussions:

- Identification and creation of opportunities for optimal utilization of the system are to be aimed at system improvement and sustainability. The distribution network is expected to cover an additional 2,280 households by individual house service connections. Water Supply may be improved to a daily basis from the present once in four days situation subject to increase of water supply source.

- Implementation of remedial measures for identified weaknesses of the system / sector to ensure that imminent and potential threats are eliminated and also prevented from recurring. Distribution losses due to Leaks can be brought down to allowable limits from the existing estimated 25%.

9.2.3 STRATEGIES FOR DEVELOPMENT

In the light of the discussions with the stakeholders, the approach would be that the ULB should facilitate creation of capital assets so as to meet the future requirements in water supply sector. A total water-supply-planning would be needed for improvement of water supply system for the town focusing on the following aspects:

- Exploring new sources
- Optimum use of existing water resources
- Conservation of ground water
- Reduction of unaccounted water and
- Institutional strengthening & Capacity building.

Considering the current deficits and the future requirements for water supply, the following strategies are suggested.

Sector Approach: Capital investments in water supply have to focus on the following issues:

1. Augmentation of Source to meet the Per Capita Demand of Water
2. Increasing storage and distribution facilities to meet Ultimate stage demand and
3. Rehabilitation of existing facilities to avoid higher costs of deferred maintenance

System Augmentation: Development of a self sustaining and high standard water supply system in the town is imperative to meet the future demand of the town. The system installed needs to provide better service, improvement and augmentation of the existing storage facilities; distribution lines etc.

Design Criteria: The ULB should increase the water supply level to achieve an average gross supply level of 70 lpcd and coverage of 100 % of the population. Due to very high population density within the ULB, if the distribution network could be extended to all the Roads within the ULB area, all the citizens would enjoy the recommended per capita water supply.

Water Supply Operation & Maintenance Plan: The plan shall be designed largely incorporating Private Sector involvement for O & M operations.

Asset Management Plan: To assess the condition and the performance of the water supply assets, it is recommended that an 'Asset Management Plan' be prepared for the assets of water supply in Katpadi town.

Metering System: For the projected population for the ultimate horizon year of 2040, about 2,280 metered connections are expected to be installed. ULB has to initiate metering system in the town. The metering system is very important as it would provide a platform for proper accounting of the water production and consumption and help reduce the unaccounted for water and thereby increase revenue generation.

Tariff Revision: Future capital investments on system up-gradation are imminent, the tariff structure shall be revised from time to time to enable cost recovery and to service the additional debt from the capital investments.

Un-accounted Water: ULB shall implement necessary studies to ascertain the Physical and Financial components of the volume of un-accounted water.

Mapping & GIS: To address the issue of system rehabilitation, mapping and establishing a GIS system is pertinent to detail out system location, characteristics, age and condition. This would enable identifying defective / dilapidated sections of the network which require repair / replacement.

Institutional Strengthening & Capacity Building: In order to design and manage the water supply systems cost effectively and in a customer focused manner the officials & Officers need to be trained for Project Planning, Implementation, and Monitoring and Evaluation programs. It is recommended for strong Strategic Plan database particularly to decrease the duplication of laying of pipeline for same distribution as well as for strong readdresal system and minimizing unaccountable losses & illegal connections.

Performance Monitoring: It is important to monitor certain key indicators to assess the performance of the system and also to ensure sustainability of the operations.

9.2.4 PRIORITY ACTIONS AND PROPOSALS

Priority Actions

The formulated strategies for development are further broken down as priority actions and their implementation plan for water supply during the Short-term period (2007-2012) are presented in the following table.

Table 9.2: Priority Actions and Implementation Plan - Water Supply

Component	Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Water Resource	Water Supply Improvement Scheme to extended areas		√	√		

Management	Construction of additional Storage reservoirs	√	√	√		
	Development of Distribution network for extended areas	√	√			
	Rainwater Harvesting Measures	√	√	√		
Augmentation of Water Supply System	Re-cycle and Re-use of treated water			√	√	
	Source Augmentation / Treatment Plant		√	√		
	Redistribution / Re-zoning of D-system in existing areas	√	√			
	Rehabilitation of Existing Service Reservoirs	√	√			
	Expansion of House Service Coverage	√	√			
	Installation of Water Meters	√	√			
	Construction of summer storage tanks		√	√		
	Upgradation and Improvement of Distribution System	√	√			

Proposals

Any improvement to the water supply system is to ensure equitable supply at reasonable charges. Following table examines the adequacy of the system components with reference to the projected demand.

Proposed Capital Works - Water Supply

- Source Augmentation;
- Provision of Water supply scheme to added areas
- Rehabilitation of storage and distribution system in existing areas;
- Augmentation of Transmission Mains and
- Extension & Augmentation of Distribution Network

Table 9.3: Demand, Supply and Required Augmentation of Water Supply System for 2025

Component	Unit	Supply Status	Demand					
			Current Year 2007		Short-term Year 2010		Long-term Year 2025	
			Demand	Surplus (Deficit)	Demand	Surplus (Deficit)	Demand	Surplus (Deficit)
Water Intake Pumping	MLD	0.40	1.13	(-) 0.73	1.22	(-) 0.82	1.76	(-) 1.36
Water Treatment Plant (if Surface water Used)	MLD	--	1.13	(-) 1.13	1.22	(-) 1.22	1.76	(-) 1.76
Service Storage	ML	1.38	0.40	(+) 0.98	0.58	(+) 0.80	0.84	(+) 0.54
Distribution System	Km	20.00	47.71	(-) 27.71	67.92	(-) 47.92	95.19	(-) 75.19

Source: Analysis

The above table indicates that except for the service storage facilities all other components of the system need improvements to meet the demand. Independent Water Supply Scheme at an estimated cost of Rs.4.36 crores is in operation. Under this scheme 4 collection wells are proposed to be constructed at Thalaiyaranpattu, Palar River Basin, by TWAD Board. This proposed scheme ensures a supply of 10 LL per day. Under this scheme, additional 6 OHT's of total storage capacity of 7.5 LL are proposed to meet the demand of the people in the town.

Based on the evaluations, discussions and priority actions following proposals have been mutually agreed upon by the study team and the Stakeholders and also considering the proposals included in the on going scheme the following proposals are recommended:

- Provision of Water Supply Scheme to extended areas;
- Raw water supply system to meet the 30-year demand (2010-2040);
- Augmentation of local sources to meet the growing demand;
- Redistribution / re-zoning of distribution system in existing areas;
- Rehabilitation of existing service reservoirs;
- Rehabilitation and upgrading of Pumps / Machineries in the existing system; and
- Augmentation of WTP and Clear Water Transmission Mains for ultimate demand.

9.2.5 ESTIMATED SECTORAL INVESTMENT

The capital cost estimated for the proposed intervention based on the parameters specified in the earlier section, are listed below:

Table 9.4. Estimated Sectoral Investment - Water supply		
Component	**Activity**	**Investment**
Water Resource Management	Water Supply Improvement Scheme to extended areas	101.89
	Construction of additional storage reservoirs	36.07
	Development of Distribution network for extended areas	180.34
	Rainwater Harvesting Measures	60.11
	Re-cycle and Re-use treated water	21.16
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	75.96
	Redistribution/Re-zoning of D-system in existing areas	90.17
	Expansion of House Service Coverage	72.14
	Installation of Meters	72.89
	Construction of summer storage tanks	36.07
	Upgradation and Improvement of Distribution System	191.61
Total		**938.39**

Necessary clearances from concerned ministries or authorities need to be acquired at the earliest. The authorities/departments/agencies that are proposed to be responsible for project formulation/implementation/monitoring are listed below, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat;
- Formulation/Implementation Agency: Katpadi Town Panchayat;
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

9.3 SEWERAGE AND SANITATION

9.3.1 OBJECTIVES /GOALS

Objectives / Goals for the town in respect of sewage disposal are to provide for an under ground sewerage system with a coverage of 50% of the population and improve sanitation in the town. An analysis has been made to assess the gaps in service levels in the town's sewerage sector taking into account the estimated generation of sewage for the projected population growth and prescribed guidelines / normative standards. The components covered in this regard are:

- Sewage generation and sewage collection system;
- Sewage treatment and disposal; and
- Requirement of land for sewage treatment facilities.

Sewage generation is estimated assuming that 80% of water proposed to be supplied plus 8 to 10 % infiltration would become sewage. This implies that a total quantity of 1.98 MLD of sewage will be generated and adequate facilities are required to treat the same.

Requirement of land has been estimated based on the available information on sewage treatment plants of similar scale, process of treatment, scalability and related issues. The nominal footprint / area required for a specific plant is known to vary based on the degree of treatment required, configuration of the land available, detailed design of treatment facilities and related factors. Decentralized sewage treatment facilities may result in a net higher requirement of land. The land requirement indicated is provided only for comparison / reference purposes. Actual land requirement for the proposed STP(s) in related procurement / acquisition/estimation should be arrived at pursuant to relevant surveys, investigation and detailed engineering design of the proposed facility. The sewage generation for various periods and land requirement for treatment facilities as estimated above are indicated in the following table:

Table No; 9.5. Demand, Supply and Required Augmentation

Project Sub-Component	Unit	Existing Status Year 2007	Demand					
			Base Year 2010		Intermediate Year 2025		Ultimate Year 2040	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Population	*In nos.*	16,214	17,446	--	25,160	--	36,286	--
Sewage Generation	*MLD*	0.78	0.95	--	1.38	--	1.98	--
New Infrastructure								
Sewage Pumping	*MLD*	--	0.95	**0.95**	1.38	**1.38**	1.98	**1.98**
Sewage Treatment Plant	*MLD*	--	0.95	**0.95**	1.38	**1.38**	1.98	**1.98**
Sewer Network	*Km*	--	45.71	**45.71**	65.92	**65.92**	95.06	**95.06**
Estimate of Requirement of Land for Sewage Treatment Alternatives								
Waste Stabilization Pond @ 4 acres / MLD	Acres/ MLD	--	3.80	**3.80**	5.52	**5.52**	7.92	**7.92**
Activated Sludge Process @ 0.25 acres / MLD	Acres/ MLD	--	0.23	**0.23**	0.34	**0.34**	0.49	**0.49**

Source: Analysis
Note: Requirement of land has been estimated based on available information on sewage treatment plants of similar scale, process of treatment, scalability and related issues. The nominal footprint/area required for a specific plant is known to vary based on the degree of treatment required, configuration of the land available, detailed design of treatment facilities and related factors. The land requirement indicated in this report is provided only for comparison/reference purposes. Actual land requirement for the proposed STP(s) in related procurement/acquisition/estimation should be arrived at pursuant to relevant surveys, investigation and detailed engineering design of the proposed facility.

9.3.2 STRATEGIES FOR DEVELOPMENT

The strategies evolved to meet the demands in sewerage sector are:

Sewerage Master Plan: A preliminary survey needs to be performed considering the terrain condition and sewage generation quantity to assess the technical and economical viability of the sewerage project. A Master Plan for Sewerage shall be prepared and it shall focus on provision of sewerage and sanitation facilities in the newly planned layouts and peripheral areas to ensure coordinated development. Master Plan shall consider the following points:

- Plan for collection, conveyance, treatment and disposal / re-use of generated sewage.
- Plan for increasing coverage over a specific period to recommended levels to ensure that beneficiaries are migrated away from the present system of sanitation.
- Assessment of present coverage and condition of sewage disposal in slums and other urban poor areas.
- Provision of sanitation through low-cost units / community facilities in slums and integration of sanitation facilities with the main sewerage scheme.
- Planning for a sewage treatment plant (waste stabilization ponds) with a capacity of 2.00 MLD to fulfill the long-term demand assessed for the year 2040.
- Availability of land for proposed sewage treatment facilities and related procurement and socio-environmental issues.
- Potential for re-use of treated wastewater (i.e. flushing of sewers and others).
- Full cost recovery of the expenditure made for both provision and maintenance.

Sewage Operation & Maintenance: Privatizing the O& M works would be found more effective, & economical.

Coverage of Low Income Settlements: There are 6 notified slum areas within the town limit. It is proposed to cover this locality by using Pay & Use type toilet facility under GoI & GoTN schemes.

Operation & Maintenance Plan: ULB shall adopt an O&M Plan and Schedule, including options of using the private sector for O&M (e.g. management contract) based on an agreed annual fee with built-in incentives for improved performance. ULB can privatize O&M of pumping stations and STP's through a service or management contract. The contractor would be made solely responsible for the O & M of the system.

Mapping & GIS: The O&M shall also include mapping & GIS of the sewer system, for proper upkeep and maintenance and regular updation. This would enable constant vigilance with regard to system malfunction and promote effective maintenance.

Asset Management Plan: Assessment and the performance of the Sewerage assets shall be made and it is recommended that an Asset Management Plan be prepared for the UGS Assets in ULB.

Tariff Revision: Future capital investments on system up-gradation being imminent, the tariff structure shall be revised from time to time to enable cost recovery and to service the additional debt from the capital investments. It is proposed to introduce a Separate Sewer Charge to service the debts and sustain O&M, of the new Capital Investments.

Institutional Strengthening and Capacity Building: Recruitment of trained engineering personnel for management of Sewer networks is an important issue confronting the ULB. The present system has been implemented and is being maintained by TWAD Board. These assets shall be transferred to the ULB for maintenance and more importantly to keep them technically updated. It is necessary that periodic training be imparted to the operations staff of the ULB.

Alternate Treatment Facility: The aforementioned strategies to a significant extent assist in provision of an efficient system of sewerage, adequate coverage, treatment and disposal in accordance with applicable discharge standards and full cost recovery. Considering the priority of the ULB and CTP, the implementation of full fledged UGSS to small towns like this is costlier and difficult to operate and maintain the system. Hence it is proposed to implement the UGSS in the long term period. In short-term period, an interceptor drains with treatment plant (i.e. Sand filters) are suggested to control / minimize the sewage and sullage load which are being disposed into the major water bodies in the town through road side drains.

Interceptor Drain with Treatment Plant:

In order to make the system to function effectively primary treatment for the wastewater before discharging in to the water bodies is necessary. This system use Interceptor drain to divert the sewage and sullage waste to collection well / screen well and grit chamber to provide pre treatment to the household wastewater and allow the bulk of the solids materials to settle out.

The point where the drain system begins must always be higher than where it ends, and no part of the system can be higher in elevation than the starting point. The variable grade of the drain crates low spots at different points in the system. Drains are to be covered throughout its entire stretch. A manhole at 30m interval as in conventional sewerage system is also required. Annual inspection of the drain is recommended and solids need to be periodically removed from the drain.

9.3.3 PRIORITY ACTIONS AND PROPOSALS

Priority Actions

The following table presents priority actions and their implementation plan for underground sewerage during the mission period (2007-2012):

Table 9.6: Priority Actions and Implementation Plan - Underground Sewerage Scheme						
Component	**Activity**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Sewerage Collection, Treatment & Management	Implementing underground Sewerage Scheme	√	√			
	Provision of Sewage Treatment Plant		√			
	Integrating Community Toilets in the system	√				
	Establishment of Recycling Plant & Reuse system		√	√		
	Evolving system for alternate uses of treated water			√		

Proposals

An analysis for checking the adequacy of the existing system together with the ongoing project was done to dispose off the estimated quantity of sewage for the year 2040. Based on the evaluations and the discussions necessary priority actions were mutually agreed upon by the Stakeholders and the Study Team. The proposals identified are listed below and the corresponding capital works are given aside.

- Providing collection system for ultimate stage peak flow (2010-2040);
- Extending sewage collection system to uncovered areas - sewers, manholes, pump / lift stations, etc;
- Establishing sewage treatment plants on a modular basis initially for a 15-year design period with upgrading facilities to handle ultimate stage flow;
- Designing wastewater pumping and out-fall systems.
- Encouraging reuse of treated waste water.

Proposed Capital Works - UGSS

- Providing sewerage system to the town
- Extension of sewage collection system to uncovered areas
- Establishment of Sewage Treatment Plants and
- Evolving Wastewater pumping and out-fall systems.

9.3.4 ESTIMATED SECTORAL INVESTMENT

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table 9.7.Estimated Sectoral Investment – Under Ground drainage and Sanitation (Rs. in Lakhs)		
Component	**Activity**	**Investment**
Sewerage Collection, Treatment & Management	Development of Sewerage System	3390.34
	Provision of Sewage Treatment Plant	35.71
	Community toilet integration	162.30
	Recycle/ Reuse of treated wastewater	11.90
	Community Toilets	72.14
Total		**3672.39**
Estimated Sectoral Investment – Alternate Treatment Facility (Rs. in Lakhs)		
Sewerage Collection, Treatment & Management	Interceptor Drains	35.94
	Community Toilets	72.14
Total		**108.18**

Necessary clearances from concerned ministries or authorities need to be acquired at the earliest. The authorities/departments/agencies that are proposed to be responsible for project formulation/implementation/monitoring are listed, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat:
- Formulation/Implementation Agency: Katpadi Town Panchayat:
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

9.4. STORM WATER DRAINS

9.4.1 OBJECTIVES

Development of storm water drains is to be considered as a joint activity along with development / reconstruction of roads. This is more so in case of drains along major roads. Since the existing network along major roads serves as the primary conduit for the whole area, road drains have to convey storm water from the point of origin to the major channels / drains.

A well designed and developed master plan for storm water drainage should be developed taking into consideration the projected population, incidental development of road network, updated rainfall details, low-lying areas, rainwater harvesting requirements and other relevant parameters. It is also imperative to conduct awareness programs at the town level to cover all classes of residents. The programs should propagate the necessity for prevention of encroachment of storm water drains. They should also highlight the points for effective functioning of storm water drains through prevention of dumping of solid waste and discharge of sewage / sullage from households and other related issues.

9.4.2 STRATEGIES FOR DEVELOPMENT

Strategies for storm water drainage are based on the fact that roadside storm water drains are as important as the flood protection scheme for natural drains. The following are strategies identified after due consultation with the stakeholders:

Storm water Pilot Project: Under this programme a study shall be taken up to identify the flood spots within the town based on the past history of floods and a survey of all the drains in the town and their conditions. Mere cleaning of the drains could drain most of the flood spots. A de-silting exercise has to be taken up in all the natural and open drains. Mostly, strengthening of the existing drains and construction of leading drains would be sufficient.

Drainage Rehabilitation Program: The flood prone areas identified are to be relieved of the problem in future by undertaking a drainage rehabilitation program. As a part of this program, the leading drains and connections from primary to secondary and tertiary drains have to be improved and strengthened. In addition, control of weed growth, prevention of dumping of solid and construction wastes into the drains and controlling the growth of encroachments on the drains are to be given top priority.

Primary Drain Rehabilitation and Improvement Program: The primary drains are inadequate to handle the flash floods as they are not designed for such an eventuality and are not fully constructed in some sections. Moreover, significant reduction in depth and width are noticed due to siltation and encroachments on drain bunds. To alleviate these, a rehabilitation and improvement program is recommended.

Improvement Works and Construction of Tertiary Drains: Construction of tertiary drains would be taken up on a priority basis as the town comprises of only 7.50 Km. of tertiary drains covering only 16% of the road length as against a norm of 130%. It is proposed to construct tertiary drains to all the major arterials and important roads to increase the coverage and also to convert the kutcha drains to pucca drains to facilitate proper draining of storm water into natural drains.

Rehabilitation of ecosystems: Efforts need to be made to develop an ‘integrated catchment management’ plan suitably connecting all the existing water bodies. Further, hydraulic capacity of the channels and water bodies would be improved through widening and deepening and construction of side walls thereby limiting the risk of floods. De-silting need to be carried out to increase the water holding capacity and water bodies need to be protected from dumping toxic and hazardous wastes.

Operation & Maintenance Schedule: Adoption of an O&M Schedule for works varying from Drain Cleaning to Desilting, including options of using the private sector for O&M (e.g. Management Contract) is recommended for effective storm water drainage.

Monitoring and Quality Control: Monitoring of water quality parameters need to be conducted on a regular basis. The ULB needs to take up the responsibility of monitoring the parameters in the water bodies within its jurisdiction and take preventive measures, if the results are above the permissible limits. The horticulture department of town would devise pro-active strategies to limit pollution to water bodies within its limits and would co-ordinate with other agencies for monitoring the parameters in the water bodies.

9.4.3 PRIORITY ACTIONS AND PROPOSALS

Priority Actions

The priority actions identified through discussions with stakeholders and the proposals evolved for improvement should specifically be intended to achieve dual objectives, viz. optimal utilization of the available strengths of the system through requisite identification and creation of opportunities for system improvement and sustainability, and implementation of remedial measures based on the identified weaknesses of the system / sector to ensure that the imminent and potential (future) threats are eliminated and prevented from recurring. An adequacy analysis of the existing Storm Water Drainage Infrastructure in terms of the various components of the system is presented in the following Table 9.8.

Table 9.8. Demand, Supply and Required Augmentation

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2007		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Road Length	Kms	42.48	42.80	(-) 0.32	45.71	(-)3.23
System Rehabilitation						
Upgrading of Kutcha drains to Pucca drains	kms	7.50	7.50	(-) 7.50	--	--
Strengthening of Natural Drains	Kms	1.79	1.79	(-)1.79	--	--
New Infrastructure						
Storm Water Drains - (@130% of road length)	Kms	7.50	55.22	(-)47.72	59.41	(-)51.91
Open Pucca Drains	Kms	0.00	44.18	(-)36.68	47.53	(-)40.03
Closed Pucca Drains	Kms	0.00	11.04	(-)11.04	11.88	(-)11.88
Kutcha drains	Kms	7.50	---	--	--	--

Source: Analysis

The inferences drawn from the above table are:

- The total length of storm water drains is to be increased from the present 7.5 km to 59.41 km (130% of road length).
- New Pucca drains (open and closed types) for a total length of 59.41 km are to be constructed.
- Existing 7.50 km 'kutcha' drains are to be upgraded to 'pucca' status and natural drains are to be strengthened.

Priority actions identified by the stakeholders in respect of development of the existing network of major and minor storm water drains including catchment, surface and area drains are furnished below:

- Removal of encroachments along major and minor drains.
- Rehabilitation of existing drains.
- Expansion of drain network to uncovered areas.
- Awareness programs to prevent solid / liquid waste dumping into drains.

The following table presents priority actions and their implementation time frame for storm water drainage during the mission period (2007-2012):

Table 9.9. Priority Actions and Implementation Plan - Storm Water Drains

Component	Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Drains Rehabilitation	Rehabilitation of Major drains / channels		√	√	√	
	Rehabilitation of Storm Water Drains	√	√			
	Formation of Interceptor / Diverter Channels		√	√		
	Improvement measures to existing water bodies	√	√			
Construction of Drains	Provision of storm water drains along existing roads	√	√			
	Providing new drains along proposed road network	√	√	√	√	
Supporting Measures	Awareness Programs for effective use of storm drains		√	√		

Proposals

Detailed list of proposals suggested by the stakeholders during the consultation workshop are enclosed in the Annexure 7. The following proposals have been identified by the study team based on evaluations, discussions and priority actions as required and were mutually agreed upon by the Stakeholders as well as the study team:

- To achieve coverage of 130 percent of Road Length, through Built Drains.
- Development of a storm water drain master plan
- De-silting of existing storm water drains
- Re-grading / re-surfacing of drains as required
- New drain network for uncovered areas and
- Networking and improvements of the existing Water Bodies

Proposed Capital Works – Storm Water Drains

- Improvement to existing minor drains;
- Rehabilitation of existing major drains;
- Fencing and greenway development along major drains;
- Development of a storm water drain master plan; and
- New drain network for uncovered areas.

Considering the Storm water requirements, capital investments in Drainage have to be planned to address issues focusing upon;

- Construction & Improvement Works of Tertiary Drains.
- Drainage Rehabilitation works for low lying areas, through improvement of networking of Secondary and Tertiary Drains with Primary Drains;
- Improvement and Rehabilitation of Primary Drains through widening, deepening, construction of Side-Walls, and Cross-Drainage Works and Diversion works at Critical locations;
- Rehabilitation works for Water Bodies through de-silting, Strengthening of bunds and Intersection and diversion of sewage wherever required. Through networking of water bodies, it is felt that sustainability can be achieved.

It is proposed to augment additional capacity by (i) Construction of additional Open Pucca Drains to a length of approximately 47.53 km (ii) Upgrading kutcha drains to a length of approximately 7.50 km into pucca drains (iii) Strengthening, de-silting and removal of encroachments along Natural Drains for a length of 1.79 km and improve networking, and (iv) Provision of storm water drains for a length of 34.98 km along the proposed road network during the short-term period.

9.4.4 ESTIMATED SECTORAL INVESTMENT

The capital cost estimated for the proposed intervention based on the parameters specified in the earlier section, are listed below:

Table 9.10.Estimated Sectoral Investment - Storm Water Drains (Rs. in Lakhs)		
Component	**Activity**	**Investment**
Drains Rehabilitation	Rehabilitation of Major drains/channels	692.44
	Rehabilitation of Storm Water Drains	145.53
Construction of Drains	Provision of storm water along existing roads	118.24
	Formation of new drains along proposed road network	600.31
	Treatment and reuse of treated water	36.38
Total		**1592.91**

Necessary clearances from concerned ministries or authorities need to be acquired at the earliest. The authorities/departments/agencies that are proposed to be responsible for project formulation/implementation/monitoring are listed, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat & Public Works Department, Tamil Nadu.
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

9.5 ROADS, TRAFFIC AND TRANSPORTATION

9.5.1. OBJECTIVES

Based on the identified issues in Roads, Traffic and Transportation sector, it is considered imperative to ensure that typical upgrading of the road network is not limited only to widening and re-grading / paving which can provide succor only to a certain extent. In addition to increasing the area under roads and traffic movement, it is important to provide adequate parking and traffic infrastructure that will match the town's present and future needs for both private and public transport.

9.5.2 STRATEGIES FOR DEVELOPMENT

Strategies under Roads, Traffic and Transportation sector should focus on improving town wide transportation network and linkages and provision of town and regional level transport facilities. Improvements in Town's core areas are proposed in terms of RoB's, Subways, Signage and strengthening of road surfaces.
Design Criteria:

- Achieve 100% coverage of surfaced roads including up-gradation proposals.
- Ensure free flow of traffic through junction improvements and providing sufficient off-street parking
- Ensure free and safe movement of pedestrians by providing footpaths and protection barriers on sides of main roads

Inter Connectivity: There is a need for ULB to increase the network, to achieve an average cover to cater to 100 percent of the population. Given the area for development and also the settlement locations, the emphasis should be on providing connectivity to all, to address the issue of missing links and taking up road widening and strengthening measures.

Intra Connectivity: ULB needs to establish a bus stand to provide an enhanced facility for connectivity and linkages with near by urban centres of the region. To improve the regional importance and direct the growth of the town into a regional node, bus connectivity has to be established.

Preparation of Traffic Management Plan: This plan shall focus of junction improvements, traffic management within core areas of the town, regional level proposals, parking and pedestrian facilities. It has been observed that, in most of the major roads in the town

pedestrians are forced to use the carriageway due to the absence or poorly maintained footpaths. Footpaths of 1.5m wide are proposed along the major roads where heavy pedestrian movements are observed. For traffic safety and convenience, appropriate signage, markings, lighting and guideposts are required to be provided on curves, intersections, public utility places, etc. Proposals for road furniture are made considering the importance of the road safety and aesthetics.

Road Planning and Demand: The newly developing areas are lacking in terms of proper roads and new linkages. The road widening projects can, to a certain extent, increase the area under roads especially in certain commercial corridors and provide critical link roads. Planning shall also ensure that roads and provision of parking and traffic infrastructure would match the town's present and future needs for both private and public transport.

Pedestrian Facilities and Safety Measures: Pedestrians are most vulnerable road users in urban areas. It is therefore necessary to provide better facilities for pedestrians in areas where their movement is predominant. Pedestrian footpaths are proposed and these foot paths should be seen that they are free from encroachment in all the bus routes.

Asset Rehabilitation: An upgrading program for all road assets shall be undertaken to extend, refurbish and enhance the roads. Plans would be phased to optimum cost and surface condition and shall include upgrading earthen roads to Bitumen Topped Roads. This phased up-gradation would considerably reduce the costs of providing the road network.

The most critical issue is not only planning for such infrastructure, but also ensuring active and effective coordination across other sector departments. The development activities across each front, i.e., installation of sewer mains, water mains, street lights, storm water drains are to be undertaken in coordination with all the departments concerned without any repetition of works or time loss.

9.5.3 PRIORITY ACTIONS AND PROPOSALS

Priority Actions

The demand for Road, in terms of length in Km, for 2011 has been assessed based on certain criteria like, road density of approximately 14 kms per sq. km of urban area and a Per Capita Road Length of approximately 1.10 m. Thus the demand is assessed to be approximately 42.80 km as against the existing length of 42.48 km in 2007. Standards adopted for service level in respect of road surface are 5 percent for CC Roads, 85 percent for BT Roads and 10 percent for WBM Roads. The strategy adopted is that road improvements proposed are mainly through up-gradation, widening and strengthening of existing roads.

An analysis for checking the adequacy of road lengths, types of roads etc for the projected population has been made. The future trend of road network development is envisaged based on population growth & land use, efficiency of road networking system, segregation of various types of traffic, de-signalizing of junctions and up-gradation, widening & strengthening of major roads. The requirements of various categories of roads for 2011 are indicated in the following Table 9.11.

Table No: 9.11. Demand, Supply and Required Augmentation

Project Sub-Component	Unit	Existing Status	Demand	
		Year 2007	Year 2011	
			Demand	Surplus/ (Deficit)
Road Length	Kms	**42.48**	**45.71**	**-**
Concrete Road	Kms	5.40		-
BT Road (Approved + Unapproved)	Kms	16.34		-
WBM Road	Kms	11.62		-
Cut stone slab	Kms			-

Project Sub-Component	Unit	Existing Status	Demand	
		Year 2007	Year 2011	
			Demand	Surplus/ (Deficit)
Earthen Road	Kms	9.12		-
System Rehabilitation – Upgradation of Internal Town Roads				
BT Roads to Concrete Roads	Kms	5.40	-	**(2.75)**
Restoration of BT Roads	Kms	16.34	-	**(5.00)**
WBM Roads to BT Roads	Kms	11.62	-	**(6.00)**
Earthen Roads to BT Roads	Kms	9.12	-	**(9.12)**
New Infrastructure – New Roads Formation				
Concrete Road	Kms	5.40	5.81	**(0.41)**
BT Road	Kms	16.34	31.99	**(2.82)**
WBM Road	Kms	11.62	7.90	
Earthen Road	Kms	9.12	-	-

Source: Analysis

The following table presents priority actions and their implementation plan for roads, traffic and transportation during the mission period (2007-2012).

Table 9.12: Priority Actions and Implementation Plan - Roads, Traffic and Transportation

Component						
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Construction of ROBs & RUBs /Sub-ways	√	√			
	Strengthening existing roads	√	√			
	Up gradation of important roads		√	√		
	Formation of new roads		√	√		
	Widening of Major roads	√	√			
	Parallel Roads, New Link Roads		√	√	√	
	Junction Improvements		√	√		
	Bridges		√	√		
	FOBs		√	√		
	Culvert		√	√		
	Signals	√	√			
	Signage and markings	√				
	Road divider & Medians	√				
	Traffic Island	√	√			
	Parking Lots/ complexes	√	√			
	Bus Terminals	√	√			
	New Ring Road			√	√	√
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disabled	√	√			
	Pedestrianization	√				
	Pedestrian crossings	√	√			
	Foot paths	√	√			
	Construction of ROBs & RUBs /Sub-ways	√	√			

Proposals

The proposals listed below have been identified by the Study Team based on evaluations, discussions and priority assigned and mutually agreed upon by the Stakeholders:

New Additional / Improvements to Existing Roads: It is proposed to augment additional area under road network through (i) Formation of new additional length of 0.41 km of Cement Concrete Road of 2.82 km of

Proposed Capital Works – Roads, Traffic and Transportation

- Pavement Improvements to ULB maintained roads widening and improvement to HD maintained roads;
- Construction of NH by-pass roads;
- Construction of flyovers and subways; and
- Studies on parking requirements and town-wide public transportation system.

Black Topped Roads. (ii) Strengthening of existing BT roads to a length of 5.00 Km (iii) Up-gradation of BT to CC roads to a length of 2.75 km and (iv) Up-gradation of 9.12 km of Earthen Roads to BT roads.

Junction Improvements: Intersections must be designed and operated for simplicity and uniformity. The design must take into account of the capabilities and limitations of drivers, pedestrians and vehicles using intersections. The main objective of the intersection design would be to minimize conflict points. The improvement measures normally include:

- Proper channelisation
- Foot path on approaches of the junctions
- Planned pedestrian crossing
- Shifting of utilities necessary for widening
- Land acquisition/ removing encroachment
- No parking zones upstream of the junction for at least 50 m
- Adequate and safe turning radius
- Appropriate gradient of the road at the intersection

Detailed list of improvement works suggested by the stakeholders during the consultation workshop are enclosed in the Annexure 7. As stated earlier, based on the discussions, it was noted that the land requirement for provision of new roads and other infrastructure in newly developed areas has been identified and earmarked in the City Corporate cum Business Plan (CCBP) for Katpadi. However, formation and development of the above roads are not discussed in CCBP.

9.5.3 ESTIMATED SECTORAL AND INVESTMENTS

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table 9.13.Estimated Sectoral Investment – Roads, Traffic and Transportation (Rs. in Lakhs)

Component	Activity	Investment
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Strengthening existing roads	189.80
	Up gradation of important roads	82.59
	Formation of new roads	278.93
	Junction Improvements	24.26
	ROBs & RUBs/Sub-ways	4851.00
	Foot over Bridges	606.38
	Culvets	3.64
	Signals, Signage and markings	42.45
	Road divider & Medians	12.13
	Traffic Island	12.13
	Parking Lots/ complexes	60.64
	Bus Stand Improvements	151.59
	Provision of Bus Shelters	58.21
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disabled	30.32
	Pedestrian crossings	6.06
	Foot paths	72.77
Total		**6482.88**

Necessary clearances from the concerned ministries or authorities need to be acquired at the earliest. The authorities/ departments/ agencies that are proposed to be responsible for project formulation/ implementation/ monitoring are listed but shall not be necessarily limited to, the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat and Highways Department., Railways Department

9.6 SOLID WASTE MANAGEMENT

9.6.1 OBJECTIVES

The objective of solid waste management (SWM) for Katpadi Town would be to achieve optimum use of manpower, providing them with required vehicles/machineries and protective accessories and making the collection, transportation and disposal as per MSW (management & handling) Rules 2000. These rules came into effect under section 3, 6 and 25 of the Environment (Protection) Act, 1986 of GoI.

9.6.2 STRATEGIES FOR DEVELOPMENT

Strategies for solid waste management are to be evolved at all steps of the process from collection till disposal, and the same has been discussed below

SOURCE SEGREGATION

Involving the community and citizens in proper SWM is an essential strategy. Segregating waste at source by the community is a pre-requisite. The ULB shall be responsible for collection of segregated waste through a standardized transportation system and ensure proper treatment/ processing and disposal.

ULB should organize public awareness programs through suitable modes of communication to educate waste generators on not indiscriminately disposing solid waste onto streets, open spaces, vacant plots and drains.

PRIMARY COLLECTION

Following are the broad interventions suggested for improvement of primary collection:

- Provide daily waste collection bins/ bags to all households and establishments for separately keeping organic/ wet bio-degradable waste. Ensuring regular and reliable service by deploying street sanitary workers to clear such wastes during their street sweeping operations so that bio-degradable wastes are collected within 24 hours of generation;
- Community may be educated through awareness programs on proper source segregation, storage and handling prior to primary collection

ULB can evaluate the option of involving NGOs and SHGs for solid waste collection.

STREET CLEANSING

The most important aspect of improving effectiveness of street cleansing operations may be addressed by improving the working environment of the sanitary workers and fixing norms for each sanitary worker so that the factor of accountability may be established to review the performance of each sanitary worker.

Sanitary workers shall sweep the roads and footpaths in the area allotted to them as well as collect the domestic, trade and institutional wastes in their handcart from all households, shops and establishments situated along the stretch of road / street allotted. Roads / streets, which have a central median or divided section, should be considered as two roads and road length allocated accordingly. Alternatively, separate sanitary worker may be engaged for sweeping two sides of such roads. All above shall include cleaning the surface drains abutting the road. Sanitary workers should be assigned fixed individual beats and ‘pinpoint’ work according to the density of the area to be swept.

The sweeping norms mentioned below are for cleaning streets in the first 4 hours of the working day:

- High-density area : 250 to 350 running meters of road length.
- Medium-density area: 400 to 600 running meters of road length.
- Low-density area : 650 to 750 running meters of road length.

In order to avoid inconvenience to the citizens by dust generated from street sweeping and also to facilitate sweepers to perform their duty without interruption from constant vehicular movement,

TEMPORARY STORAGE

ULB should ensure that containers are provided at an average distance of 250 meters from the place of work of the sanitary workers. The average distance between 2 containers should, therefore, not exceed 500 meters. The distance between the containers shall be determined on the basis of the load of waste / refuse that is likely to be received at the container from the area concerned. The containers should be placed on cement concrete or asphalt flooring having a gradual slope towards the road to keep the site clean. The flooring should facilitate the transfer of waste from the handcart/tricycle into the container. A catch pit may be provided close by if storm water drains exist in the town. In areas where placement of large containers (dumper placer containers) is inconvenient, small containers of 1.00 cu. m size may be placed on the roads, lanes and by-lanes at specific distances. It is of paramount importance to ensure compatibility of the containers with the existing and proposed transportation fleet.

Another option that could be considered in such a situation is to avoid placing a container altogether and instead press into service small waste collection vehicles for direct transfer of waste from the handcarts/tricycles into such vehicles. Such vehicles can be parked at suitable locations in the congested areas where sanitary workers can bring the waste easily. It is suggested to use innocuous agents like bleaching powder and other permitted insecticides to prevent the menace of breeding of flies and mosquitoes at the community storage points. Further, such an application of innocuous agents would facilitate maintaining a hygienic environment. Further, proposed training of rag pickers by NGOs would facilitate collection of recyclable waste at the doorstep avoiding the necessity to pick-up such wastes from the community waste storage points.

The standards and norms prescribed in the Manual[1] pertaining to temporary waste storage points are based on the total waste generation and the spacing, viz. a) the total capacity of the temporary waste storage points should be equivalent to at least 1.5 times the total waste generation, and b) the spacing between two temporary waste storage points should be less than or equivalent to 500 m.

TRANSPORTATION

Synchronization of collection with the transportation process is one of the key steps to be initiated by the ULB. The collection of waste needs to be containerized and the proposed transportation system should be compatible with the collection system. The synchronization of transportation with that of the collection process should be planned in a phased manner considering the financial capability and operation and maintenance capacity of the ULB. The vehicles used for the transportation of waste shall synchronize with that of the collection system. Based on the market surveys and situation analysis and discussion with the ULB, two types of vehicles are envisaged for the town as described below:

[1] Manual on Municipal Solid Waste Management.

- Dumper Placer -Twin Container is proposed to cater to the needs of the fast moving vehicles. This vehicle would have two containers, each of capacity 3 cu. m with side loading and unloading facilities using hydraulic system. This vehicle is envisaged to undertake 4 trips per day with total waste carrying capacity of 12 MT per day, primarily used for the wider roads within the town; and
- Three-Wheeler Auto Cargo is proposed to cater to the needs of the small and congested lanes of the town especially in the old town areas. These vehicles would have an open container of capacity 1.4 cu. m with manual loading and rear hydraulic unloading facilities. This vehicle is envisaged to undertake 5 trips per day with total waste carrying capacity of 3-4 MT per day.

The transportation of wastes is envisaged to be containerized as per the norms / standards prescribed in the Manual. Accordingly, it is envisaged to replace the existing open transport system in a phased manner. As per the norms / standards, it is suggested to have a vehicular capacity equivalent to 1.3 times that of the actual generation of waste. However, from the economic point of view, vehicles less than 10 years (economic life) are proposed for regular routes on a daily basis. Those approaching their economic life would be used as reserves and for pinpoint operations, thereby achieving the requisite carrying capacity of the fleet. With containerization of the transport, the number of trips may be considerably increased due to saving in time for handling, loading and unloading the generated waste.

TREATMENT AND DISPOSAL

Presently, ULB has adopted only dumping as the method of waste disposal. It is recommended to implement an effective mechanism for treatment and disposal of generated solid waste. Evaluation of available technologies for solid waste treatment and disposal should be performed on the following lines:

- Available project experience information or proven technology (domestic/international)
- Suitability of process for region-specific field condition
- Scale of operation
- Technical feasibility
- Feasibility of capacity upgrade
- Economy of operation - capital and annual O&M cost
- Requirement of land, water and power
- Manpower and level of skill requirement
- Capability of the ULB to manage the facility
- Environmental impact of such technology
- Process aesthetics and
- Overall life cycle cost.

Based on the scale of waste generated in the town and viability of the treatment technologies, aerobic composting is recommended as the techno-economically feasible process. However the process may be subjected to further detailed investigation and for subsequent implementation. A detailed study needs to be made on this alternative prior, to finalization.

Operation and Management Schedule: Adoption of an O&M Schedule, including options of using the private sector for O&M (e.g. management contract). In view of the criticality of the information on vehicle movement in assessing the collection and disposal efficiency of the local body, it is recommended that a standard register at the disposal site and transfer station be maintained. The register should contain information on each of the vehicle trips at both the locations and the origin of waste collection. The Schedule can be used for periodic maintenance of vehicles to defer Costs. A summary of this information shall be prepared at the end of the day, to be verified by the health officer.

Approach for Optimal Manpower Utilization it is considered that there would not be much further requirement to induct conservancy workers. The existing street sweeping operations

in the ULB a shall be regulated to ensure operational efficiency of the system, the following measures are suggested, (i) Markets and other areas of the town shall be swept at least twice a day and sweeping should be done on Sundays and holidays in core areas and denser areas. (ii) Sweepings shall be collected separately as degradable and non-biodegradable waste and deposit in containers kept at various locations and de-silting of larger drains may be done by a separate crew equipped with appropriate tools. Additional man power shall be employed on Contract basis for street sweeping.

Institutional Strengthening and Capacity Building: Recruitment of trained engineering personnel for management is an important issue confronting the ULB, and as well of more importance is to keep them technically updated. It is necessary that periodic training be imparted to the operations staff of the ULB.

Training & Public Awareness: Training may be given at all levels. NGOs and private sector be fully involved. IEC activities have their role in SWM but the best approach to ensure general cleanliness may be through imposition of administrative charges on erring citizens.

9.6.3 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Priority actions identified by the stakeholders, discussed and finalized in respect of development of the solid waste management sector in Katpadi are furnished below:

- Comprehensive Solid Waste Management Scheme (per the MSW Rules, 2000).
- Minimization of generation of Solid Waste.
- Source segregation of municipal solid waste.
- Augmentation and expansion of primary collection of waste.
- Modernization and expansion of existing waste transportation system.
- Municipal solid waste treatment and disposal.
- Regulation of recyclable waste handling and re-use.
- Proper handling and disposal of slaughter house and related wastes.

Following table presents priority actions and their implementation plan for solid waste management during the mission period (2007-2012):

Table 9.14 : Priority Actions and Implementation Plan - Solid Waste Management

Component	Activity	Y1	Y2	Y3	Y4	Y5
Primary Collection	Providing bins for Door-Door Collection	√	√	√		
	Introducing Containerized Tri-Cycles		√	√		
	Providing Equipment for Garbage Recovery Personnel		√	√		
	Providing Equipment for Street Sweeping Personnel		√	√		
	Use of Tipper Lorries for Debris Collection			√		
Secondary Collection	Container Bins (1.25 MT Capacity) for Residential Areas		√	√	√	
	Container Bins (1.25 MT Capacity) for Market, Bus Stand, Commercial Areas & Railway Station		√	√	√	
	Modernization of Transfer Stations			√		
Transportation	Use of Dual Load Dumper Placer Vehicles		√	√	√	
	Use of MSW Mobile Compactor mounted on WB Chassis Truck with Driver Cabin and all accessories			√		
	Mechanical Street Sweepers - Tractor Mounted			√		
	Use of Mini-Loaders (BobCats or equiv.) with Skid Steering or suitable arrangement			√		
Waste Processing & Disposal	Integrated Waste Treatment		√	√		
	Sanitary Landfill Facility	√	√			

Table 9.14 : Priority Actions and Implementation Plan - Solid Waste Management						
Component	**Activity**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
	Scientific Closure of the abandoned dump sites		√	√		
Administration Complex	Establishing Administration and Utilities Complex including HT Electrical Sub-station			√		

PROPOSALS

Proposed Capital Works - Solid Waste Management

- Source segregation system;
- Augmentation of primary collection system;
- Augmentation of transportation system;
- Transfer stations with required equipment;
- Municipal solid waste treatment plant; and
- Establishment of landfill sites.

The total Solid Waste Generation in 2007 at a per capita generation of approximately 123 grams / day is estimated to be 2.0 MT, indicating a priority need for Scientific Disposal of Waste. Since, the population density of the ULB is high, the Waste generation at the present rate has been assumed as 210 grams / day (based on present rate). A growth rate of generation of waste at 2 percent per year is assumed and the demand for future is assessed. The total Solid Waste Generation for 2025 is estimated to be 5.28MT. The Present Disposal system of Open Waste Dumping, poses a potential health and environmental hazard considering the quantity of waste generated, location of disposal site and its environs. Hence options for Scientific Waste Disposal and Composting need to be explored on priority basis. The details of Service Levels suggested for future are presented in Table 9.14

Table 9.15: Design Criteria and Target Service Level

Description	Unit	Based On CPHEEO Norms
		2025
Population	In nos.	25,160
Per capita Waste Generation	Grams/day	210
Collection Type	-	Door-to-Door Collection and Source Segregation of Waste
Collection Demand	Percent of Generation	100
Vehicle Capacity Adequacy	Percent of Rated Capacity	100
Treatment Type	-	Composting of Waste & Sanitary Landfill
Treatment Demand	Percent of Generation	100
Total Solid Waste Generation	MT	5.28

Source: Norms

Highest priority has to be accorded for segregation & storage of waste at source to facilitate an organized and environmentally acceptable waste collection, processing and disposal system. Source segregation of recyclable and bio-degradable (organic) waste provides an efficient way for resource recovery and also results in substantial reduction of pressure and pollution in Landfill sites. The following measures have been recommended for improving the present primary collection and Street Sweeping practices of the ULB;

Primary Collection: Implementation of 'Door-to-door collection' through 100 percent privatization is recommended through a 'two-bin' system.

Source segregation and collection of commercial waste including hotels and market waste can be privatized. Construction waste has to be stored at the premises of the construction, either in skips or suitable containers, and has to be directly emptied to the notified disposal site by the generator. Meat and fish markets should store waste in non-corrosive bins of maximum 100-liter capacity each and transfer contents to large container to be kept at the market just before lifting of such large containers. Slaughterhouses should keep separate containers for animal waste and other wastes and disposed separately in accordance with applicable rules and regulations. It is also being recommended that this system of source

segregation and storage is encouraged through community education and awareness campaigns and hence no capital investments are envisaged in this regard. Introduction of bio-medical waste management facility with support from Indian Medical Association is also recommended.

Details of 'Collection System' and 'Specific Actions' for storing the segregated waste are summarized in Table 9.15 and Table 9.16 respectively.

Table 9.16: Details of Proposed Primary Collection System

Mode of Collection	Area of collection	Primary collection vehicle	Secondary storage
Door to Door	1. Residential colonies of High and Middle income group	Multi-bin cart/ tricycle-with 2 bins for Biodegradable waste and 1 for recyclable	1.Bio-degradable in Skips/ wheel containers 2. Non-biodegradable-Sell or hand over to waste collector
	2. Hotels/ Restaurants	Closed vehicle to collect Biodegradable	Direct transport to Disposal site
Large Community Bin System	Fruit and Vegetable Markets/ Transfer Stations	Carrying bins to Transfer Point	Skip / Dumper Placer
Small Community Bin System	Slums/urban poor Colonies	Carrying bins to Transfer Point	Transfer contents of biodegradable to community bins

Table 9.17: Details of Specification of Segregated Waste

S. No.	Source	Storage of Segregated Waste	
		Bio-Degradable	Non-Bio-degradable
1	Households	10-15 liters capacity plastic/ reinforced plastic/ LDPE/ metal bin with lid	A bin or Bag of suitable Size
2	Hotels, Restaurants	60 liters capacity-LDPE /HDPE	A bin or Bag of suitable Size
3	Shops, Offices, Institutions	Suitable container not exceeding 60 liters	A bin or Bag of suitable Size
4	Market Stalls	40-60 liters bin-LDPE/HDPE	A bin or Bag of suitable size
5	Function Halls	Bin/ Skip matching to Municipal Collection system	A bin or Bag of suitable size
6	Hospitals, Nursing homes	60 liters capacity bin for non-infectious bio-degradable waste	Store waste as per Bio-medical Waste Mgmt Handling Rules 1998
7	Construction/ Demolition waste	-	Store with in premises and deposit in the notified Site by the local body or to the municipal Vehicle
8	Garden Waste	Store with in premises	Deposit in large community bin or to the municipal vehicle

It is proposed that the entire area of the ULB be brought under door-to-door collection. Hence no additional dust bins are proposed, except for slums and a few other areas which are estimated to be 20 to 25 percent of the area of the town. The rest of the 75 to 80 % of the area of the town shall be brought under a privatized storing system by 2010-11.The existing dust bins shall be phased out in an organized manner based on the implementation of the system. Based on these assumptions, the equipments for primary collection required for future waste generation has been estimated

Secondary Collection and Transportation: The following measures have been recommended for improving the practices of the ULB regarding secondary collection and transportation of wastes:

It is recommended to retain all Tippers, for secondary collection purpose, in places where Dual Loaded Dumper Placers cannot be introduced. It is also recommended that Dual Loaded Dumper Placers (DLDPs) be introduced to improve the collection efficiency and to cover 80 percent area of the town in a phased manner. The introduction of Dual Loaded Dumper Placers shall be based on the needs of the Secondary Collection Points. An

advanced segregation and recycling facilities may be introduced, in the future dispensing with these collection points ultimately. Presently, the Vehicle Capacity Adequacy Ratio is 75%. This indicates an overall capacity deficiency of 3 tons by 2011 and a deficiency of 5 Tons by the year 2025 for achieving 100% collection efficiency.

It is estimated that an additional Dual Loaded Dumper Placer with 6 numbers of containers will be required for collection of approximately 8.5 tons of waste that will be generated in Katpadi Town by the year 2025. Following table presents the system demand for collection and transportation of solid wastes in Katpadi town by the year 2025.

Table 9.18: System Demand for Solid Waste Management

S.No	Type	Required per Design and CPHEEO norms
Primary Collection		
1	Tri-Cycles	15
2	Push-carts*	10
4	Tipper Lorries - Used for Construction / Other Debris Collection**	1
Secondary Collection & Transportation		
1	Dumper Bins for Dual Dumper Placers (1.25 MT capacity)	2
2	Dual Dumper Placer Vehicles (2.5 to 3 MT cap.)	2
Waste Processing & Disposal		
Sanitary Landfill Complex		
1	Front End Loader with Shovel for MSW Landfill - waste spreading	1
2	Backhoe Loader (Gen. Purp.) for MSW Landfill - Hydr Excavator & Front End Loader Combo - for loading, excavation, embankment constr etc., (3 nos. + 1 standby)	1
3	Landfill/ Soil Compactor with Pad Foot Shell Arrangement	1
4	Tipper Trucks w/ custom built body and Double Ram Hydraulic Tipping Arrangement for Waste Handling (Eicher Model 10-90, Ashok Leyland or Equivalent)	1
5	Tractor with Water Tank, Pump, Spray Nozzle with Extender Arm Attachment for Fine Spray Dispensing	1
Aerobic Composting Complex		
1	Compost Turner and Aeration Attachment with Tractor	1
2	Front End Loaders with Shovel (JCB Model or equiv)	1
3	Tractor with Water Tank, Pump, Spray Nozzle with Extender Arm Attachment for Fine Spray Dispensing	1
4	Tipper Trucks w/ custom built body and Double Ram Hydraulic Tipping Arrangement for Waste Handling (Eicher Model 10-90, Ashok Leyland or Equivalent)	1
5	Mini-Loaders (BobCats or equiv.) with Skid Steering or suitable arrangement	1

Note: * Existing Push carts should be used for sold waste collection in slums and areas where width of street is less than 10 ft. only.

Based on the estimated generation of Solid Waste, it is recommended that a landfill site for safe disposal of Solid Waste be developed by the ULB. Based on the successful implementation of the door-to-door collection and source segregation practices in the town, the options of converting waste into energy and implementing composting projects may be explored.

Approximately 60% of the waste generated in Katpadi is organic in nature. In terms of its quantity, it is expected that approximately 3 tons of organic waste will be generated which can be taken up for Composting. The land requirement for compost facility is estimated at 0.5 acre, which will accommodate ‘windrow pads’, ‘ancillaries’ and ‘circulation area’.

Inorganic waste constitutes approximately 40 % which is 1 ton in absolute quantity and it is proposed to be disposed through sanitary landfill facility. The Sanitary landfill is proposed for a volumetric capacity of 1.00 M cu.m, with at least Three Lifts (One Lift below ground and Two Lifts above ground). Landfill facility design is based on CPHEEO design assumptions for Sanitary Landfills, wherein a landfill height of 5 m and a bulk density of 0.85 Tons/ m3 are assumed.

However, the actual height of landfill depends on the geological/ geographical conditions of the site and technology of landfill development. The land requirement for Landfill facility is estimated at 2 acres.

The following proposals have been identified by the study team based on reported evaluations, discussions and priority actions as required and mutually agreed upon by the Mission Stakeholders:

- Implementation of source segregation system;
- Installation of additional primary collection bins and related component;
- Augmentation of transportation fleet - tractors, dumper-loader trucks
- Installation of transfer stations with compactors, material handling equipment and wastewater disposal facility (drains, pump station etc.);
- Implementation of municipal solid waste treatment system; and
- Construction of landfill for non-bio-degradable waste including lining, under-drains, gas extractor/burners and perimeter protection.

9.6.4 ESTIMATED SECTORAL INVESTMENT

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table 9.19.Estimated Sectoral Investment – Solid waste Management (Rs. in Lakhs)

Component	Activity	Investment
Primary Collection	Providing bins for Door-Door Collection	1.70
	Containerized Tri-Cycles	1.97
	Equipment for Garbage Recovery Personnel	0.61
	Push Carts	0.45
	Equipment for Street Sweeping Personnel	0.26
	Tipper Lorries - Used for Construction/Other Debris Collection	10.53
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)	1.19
	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)	1.19
	Transfer Stations Modernization	95.15
Transportation	Dual Load Dumper Placer Vehicles	34.56
Waste Processing & Disposal	Integrated Waste Treatment	493.38
	Sanitary Landfill Facility	39.56
	Scientific Closure/Cleanup of existing dump site	11.07
Administration Complex	Administration and Utilities Complex	30.32
Total		**721.92**

9.7 STREET LIGHTING

9.7.1 GOALS / OBJECTIVES

The principal issue in this sector is that the present level of power consumption and future power requirement for provision of adequate street lighting for the town roads. Hence the goal will be to provide adequate lighting in the town and at the same time identify measures to reduce energy charges.

9.7.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Priority actions identified by the stakeholders, discussed and finalized in respect of improvement of the street lighting sector are furnished below:

- Upgrading street lighting in existing areas which essentially entail replacement of fluorescent lights with sodium vapor or equivalent lamps and installation of high-mast cluster lighting at important junctions that are not presently covered with such lighting arrangements
- Provision of new street lights for uncovered areas
- Identifying power consumption management and energy efficiency measures
- Development of General Lighting Plan

Following table presents priority actions and their implementation plan for street lighting during the mission period (2007-2012):

Table 9.20: Priority Actions and Implementation Plan - Street Lighting

Component	Activity	Y1	Y2	Y3	Y4	Y5
System Improvement	Proposed SV lamps in uncovered areas	√				
	Proposed FL lamps in uncovered areas	√				
	Proposed High Mast light in major junctions	√				
	Proposed Timers for existing / new lights	√	√			
	Proposed Sensor Lighting	√	√			
	Proposed Solar Lights		√	√		
	Proposed Power Saver (Capacitors)	√	√			
	Proposed dedicated sub-station/transformers	√	√			
	Proposed Tri-vector meters	√				

PROPOSALS

Proposed Capital Works – Street Lighting

- Upgrading street lighting in covered areas;
- Provision of new street lighting for uncovered areas;
- Augmentation of Power Supply Infrastructure; and
- Installation of operational control and energy efficiency equipment.

The proposals listed below have been identified by the study team based on discussions and evaluations of priority actions as required and mutually agreed upon by the mission Stakeholders:

- Replacement of FL with SV or equivalent lamps at major intersections
- Extension of street lighting fixtures to uncovered areas (poles, bulk-head fittings, control systems and solar panels as-applicable)
- Enhancement of transformers / sub-stations (as applicable) and
- Installation of capacitors, timers / trip sensors and other operational control equipment at control nodes.

It is proposed to improve the lighting facilities in Katpadi town by

- Installation of 840 Light Poles,
- Installation of New High Power Fixtures and Conversion of Tube Lights to High Power Fixtures, of 213 Nos, and
- Installation of 627 nos. of Tube light fixtures. Based on Discussions and field visits, it is understood that the existing Street Lights are in good functional condition and do not require any major rehabilitation measures.

The measures required for improvement of Street Lighting sector of Katpadi town by 2011, are tabulated below:

Table 9.21: Demand, Supply and Required Augmentation of Street lighting

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2007		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)*
Street Lights	*No's*	850	1483	**633**	1690	**840**
New Infrastructure						
Tube Light Fixtures	*Nos.*	725	1186	**(461)**	1352	**(627)**
High Power Fixtures	*Nos.*	125	297	**(172)**	338	**(213)**
High Mast Lights	*Nos.*	--	2	**(2)**	3	**(3)**

Source: Analysis

The capital cost estimated for the proposed intervention based on the parameters specified in the earlier section, are listed below:

Table 9.22: Estimated Sectoral Investment - Street Lighting (Rs. In Lakhs)		
	Activity	**Investment**
Service Improvement	Proposed SV lamps in uncovered areas	22.74
	Proposed FL lamps in uncovered areas	88.69
	Proposed High Mast light in major junctions	42.45
	Proposed Timers for existing / new lights	7.88
	Proposed Sensor Lighting	3.79
	Proposed Power Saver (Capacitors)	0.00
	Proposed dedicated sub-station/transformers	0.21
	Proposed Tri-vector meters	15.16
	Proposed dedicated sub-stn/transformers	4.85
Total		**185.77**

Necessary clearances from the concerned ministries or authorities need to be acquired at the earliest. The authorities/ departments/ agencies that are proposed to be responsible for project formulation/ implementation/ monitoring are listed, but shall not be necessarily limited to, the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat and TNEB.

9.8 BASIC SERVICES FOR THE URBAN POOR

9.8.1 OBJECTIVES

Slum upgrading (including rehabilitation) initiatives and improving the quality of life of the urban poor in general and slum dwellers in particular, shall be an integral part of the CCBP.

The ULB needs to supplement the current initiatives on its part with aggressive strategies to fulfill the requirements of the urban poor. The best practices and strategies outlined in this chapter shall be at the macro level, specific to social development, as infrastructure provision and deficiencies are already addressed by the underlined strategies under each sector in the previous chapter covering Infrastructure development. The priority actions identified through discussions with stakeholders and the proposals evolved for improvement are to be specifically intended to achieve dual objectives, viz. optimal utilization of the available strengths of the system and implementation of remedial measures based on the identified weaknesses of the system/ sector to ensure that the imminent and potential (future) threats are eliminated and prevented from recurrence.

9.8.2 STRATEGIES FOR DEVELOPMENT

The ULB shall initiate community development activities within its administrative jurisdiction and integrate this aspect in its overall plan. Hence, various Central and State Government programmes shall converge into the overall development plan.

9.8.3 POVERTY ALLEVIATION AND COMMUNITY DEVELOPMENT PROGRAMS

Beneficiary Selection: The target beneficiaries need to be identified based on a socio-economic survey and efforts need to be initiated to form community development societies (CDS's) covering the target population and implement guidelines on the lines of SJSRY in beneficiary selection. The community needs to be encouraged to avail the benefits under various slum development programs by developing linkages with lead bankers and ensuring the free flow of communication and a proper reporting procedure. A town level training strategy shall be formulated to focus on the targeted beneficiaries. The strategy will aim at the people to be trained including policy makers, town officials, community members as well as the beneficiaries.

Programme Monitoring: Monitoring of the programme is equally important as implementation. Effective monitoring paves the way for replication and improving of such initiatives.

Social Inclusion of Vulnerable Groups: The vulnerable groups are socially under-privileged women and the aged who are generally restricted by the dominant groups in any community. Voice for these vulnerable groups in community development programs is necessary. It can be ensured only through effective awareness campaigns. Improving the literacy levels among the poor and the slum dwellers will also ensure the elimination of the differences among the communities and ensure participation of vulnerable groups. This initiative aims at a long-term goal and needs sustained longstanding efforts on the part of CDS's. The activities of the CDS's shall be monitored through an evaluation procedure on a periodic basis.

9.8.4 COMMUNITY DEVELOPMENT

Community development needs to be integrated to provide economic and employment generation activities. The ULB has to strengthen its efforts to identify NGOs and CBOs and encourage them to work specifically for the empowerment of the urban poor in general, and slum dwellers in particular.

The ULB may concentrate on organizing specific training programs on tailoring, housekeeping, mechanic work, lathe working, computer operation, coir works, etc. to guarantee employment/self-employment for the identified beneficiaries. Training needs assessment, designing the training programs, identification of training institutions and resource persons to bring in community development also needs to be focused.

Education: Support from various sections for involvement in education and to enhance opportunities for increased access to literacy development is to be encouraged. There is a need to develop strong linkages between education, training programs and resources. Value added services (computer coaching classes, tuition, etc.) may be encouraged. The ULB shall facilitate school-linked programs and support services.

Strengthening Community Development Initiatives: The ULB should strengthen efforts to involve people in planning and decision-making and encourage participation of community in physical as well as economic development activities. Government departments, schools, institutions and community-based organizations are to be encouraged to provide opportunities for people's participation. Proper coordination between the various actors in community development is also to be effected. The ULB has to identify NGOs/ CBOs to develop appropriate linkages with town level authorities and community. Following are some

of the policy initiatives required to support/ facilitate 'best practices':

- Support transformation of informal settlements which are notified. Allow for incremental development and gradual improvement of settlements without loading excessive infrastructure and construction costs. Provide the support required to speed up the process through access to financial, organizational and technical inputs.
- Draw up a town level plan quantifying present informal settlement population, and prepare an action plan to target integration of the population into the town. Communities residing in these settlements must be encouraged towards self-assessment and identification of priorities through which they can initiate changes in their settlements.
- Provide the poor with better access to housing finance at affordable cost through micro-credit schemes and community-based lending.
- Promote the cluster, collective or cooperative society approach in allocation of land to the poor. Develop a range of tools through which communities of the poor and their organizations begin a dialogue with the ULB on issues of tenure, infrastructure and housing.
- Develop innovations in delivery mechanism through which communities can begin to work with local authorities to ensure universal provision of basic sanitation and other amenities and services.
- The poor should be empowered to take full part in town governance and thereby access their due share of resources. Action for economic empowerment should include facilitating self-managed thrift and credit societies in order to link the poor to institutional credit.
- Eviction without provision of full resettlement and livelihood opportunities should be avoided. In-situ upgrading should always be the preferred option, except in completely untenable situations. The ULB should play an enabling role in linking poor people to a range of innovative housing and livelihood options.
- The ULB should work with communities using participatory methods to map their access to infrastructure services (water supply, toilets, drainage, garbage removal, etc.) and prioritize their needs/demands. Opportunities should be actively explored for the poor to participate in both infrastructure construction and ongoing service delivery. Although individual family facilities should be the priority, constraints of space may require innovative service delivery options such as community-managed and shared facilities.

9.8.5 PRIORITY ACTIONS AND PROPOSALS

Priority actions identified by the stakeholders and discussed and finalized for development works relating to slum upgrading in particular and betterment of urban poor in general in Katpadi are described below. These actions will focus on creation of opportunities for improvement of the present system and its sustainability. The policy framework and priority actions listed below have been identified by the study team based on discussions and evaluations as required and agreed upon by the Stakeholders.

POLICY DIRECTIVES / ACTIONS

- Development of comprehensive 'slum upgrading' policy to identify, notify and upgrade the slums with clear assignment of responsibilities.
- Finalization of parameters for listing and categorization of slums as tenable and non-tenable category.
- Establishment of a sustainable continuous and non-lapsable fund flow for slum improvement programs.
- Appropriate institutional arrangements for transfer of land from the GoTN to ULB for undertaking slum improvement schemes and housing for urban poor.
- Exploration of the possibility of land acquisition for slums located on private lands.

PREPARATORY ACTIVITIES

Based on the policy directives described above certain preparatory activities are to be initiated prior to taking up the improvement works and such preparatory activities are listed below:

- Comprehensive listing of slums.
- Notification of tenable slums within ULB area and mapping.
- Preparation of a database on socio-economic characteristics of all slum dwellers in the listed slums.
- Mapping and assessment of physical characteristics of slums (housing and services) for all tenable slums.
- Identification of land parcels for resettlement of slum dwellers of all non-tenable slums and involvement of NGOs/CBOs in the process.
- Preparation of DPRs for each of the slums as an integrated scheme covering both housing and services.

Proposed Capital Works – Slum Upgrading

- Construction and upgradation of dwelling units; and
- Integrated development of slum through all basic amenities like water supply, sanitation, solid waste management, roads, storm water drains, streetlights, etc.

IMPROVEMENT MEASURES

Following are the improvement measures recommended by the Study Team for improvement of urban poor in the ULB:

- Provision of basic coverage/provision of water supply, sanitation, access roads, etc. in all tenable slums.
- Project formulation for integrated development of all notified tenable slums covering housing, provision of basic services and amenities.
- Formulation of public-private partnership projects for slum upgrading.
- Exploration of rehabilitation option rather than resettlement.
- Adoption of a 'community-based approach' in service provision and delivery to suit the local context and requirements.
- Ensure involvement of women and children from project formulation to implementation to achieve sustainability.
- Target service provision like water supply, sanitation and electricity on individual household basis - to facilitate improvement in performance & collection of user charges.
- Facilitation of 'e-service' provision and delivery, by communities with appropriate supervision by the ULB.
- It is recommended that the ULB bear the cost of provision of services with complete or partial recovery.

Following table presents priority actions and their implementation plan during the mission period (2007-2012):

Table 9.23: Priority Actions and Implementation Plan - Slum Upgrading

Sl. No.	Activity	Y1	Y2	Y3	Y4	Y5
I. Policy Directives / Actions						
1.	Develop comprehensive 'slum upgrading' policy to identify, notify and upgrade slums with clear assignment of responsibilities	▬				
2.	Finalize parameters for listing and categorization of slums (tenable & non-tenable category)	▬				
3.	Establish a sustainable continuous and non-lapsable fund flow for slum upgrading programs		▬ ▬ ▬	▬ ▬ ▬	▬ ▬ ▬	
4.	Institutional arrangements for land transfer from GoTN to ULB for slum improvement schemes and housing for urban poor	▬	▬			

Table 9.23: Priority Actions and Implementation Plan - Slum Upgrading						
Sl. No.	**Activity**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
5.	Explore the possibility of land acquisition for slums located on private lands					
II. Improvement Measures						
1.	Comprehensive listing of slums					
2.	Notify tenable/non-tenable slums and mapping within ULB area					
3.	Prepare a database on socio-economic characteristics of all slum dwellers in listed slums					
4.	Mapping and assessment of physical characteristics of slums (housing and services) for all tenable slums					
5.	Identify land parcels for resettlement of slum dwellers of all non-tenable slums and involve NGOs/CBOs in the process					
6.	Prepare DPRs for each of the slums as an integrated scheme - both housing and services					
7.	Implement DPR covering both housing and services in all tenable slums					
8.	Formulate public-private partnership projects for slum upgrading					
III. Improvement Measures in Notified Slums						
1.	Prepare a database on socio-economic characteristics of all notified slums					
2.	Mapping and assessment of physical characteristics of all notified slums (housing and services)					
3.	Adopt community based approach for preparing projects and involve NGOs/CBOs in the process					
4.	Prepare DPRs as an integrated scheme covering both housing and services					
5.	Implement DPR covering both housing and services in all tenable slums					

9.8.6 ESTIMATED SECTORAL INVESTMENT

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table 9.24 : Estimated Sectoral Investment - Slum Upgrading and Urban Poor (Rs. in Lakhs)		
Sl. No.	**Particulars / Capital Investment Components**	**Investment**
1.	Dwelling Units	306.10
2.	Water Supply	30.61
3.	Sewerage and Sanitation	61.22
4.	Solid waste Management	45.91
5.	Roads and Pavements	73.46
6.	Street Lights	7.35
7.	Community Centers	24.26
8.	Open Spaces/Gardens	24.26
	Total	**573.16**

Necessary clearances from the concerned ministries or authorities need to be acquired at the earliest. The authorities/departments/agencies that are proposed to be responsible for project formulation/implementation are listed, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat and TNSCB.

9.9 OTHER AMENITIES

Following table presents priority actions and their implementation plan during the mission period (2007-2012):

Table 9.25 : Priority Actions and Implementation Plan – Other Amenities

Component	Activity	Y1	Y2	Y3	Y4	Y5
Service Improvement	Improvement to burial grounds (w/o gasifier)	√	√			
	Improvement of existing and proposed playgrounds	√	√			
	Rehabilitation/proposed community centers/halls	√	√			
	Improvement to town library/proposed libraries	√	√			
	Proposed /dedicated vegetable/meat market		√	√		
	Proposed weekly markets		√	√		
	Improvements to the School Buildings		√	√		
	Proposed Medical Treatment Facilities within the town.		√	√		
	Slaughterhouse development with Treatment plant facility		√	√		

9.9.1 ESTIMATED SECTORAL INVESTMENT

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table 9.26: Estimated Sectoral Investment – Social Facilities (Rs. in Lakhs)

Sl. No.	Particulars / Capital Investment Components	Investment
1.	Improvement to burial grounds (w/o gasifier)	31.76
2.	Improvement of existing and proposed playgrounds	127.05
3.	Rehabilitation/proposed community centers/halls	38.12
5.	Improvement to town library/proposed libraries	121.97
6.	Proposed /dedicated vegetable/meat market	50.82
7.	Proposed weekly markets	38.12
8.	Improvements to the School Buildings	107.99
9.	Proposed Medical Treatment Facilities within the town.	12.71
10.	Slaughterhouse development with Treatment plant facility	31.76
	Total	**528.53**

Necessary clearances from the concerned ministries or authorities need to be acquired at the earliest. The authorities/departments/agencies that are proposed to be responsible for project formulation/implementation are listed, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat and the concerned departments.

9.10 ENVIRONMENTAL MANAGEMENT

9.10.1 OBJECTIVES

The existing urban environment in Katpadi needs to be improved since the developments and the environmental conditions have two way relationship in the sense that if one gets affected the other will also get affected. This section pertains to the proposed development initiatives and specific improvements that are recommended to upgrade the existing urban environment and supporting infrastructure such as conservation of water bodies, improvement of greeneries etc.

9.10.2 DEVELOPMENT STRATEGIES

The strategies for environmental management in Katpadi encompass various segments and each one segment has to be dealt with relevant strategies as indicated below:

MANAGEMENT MEASURES - RAIN WATER HARVESTING

Most state governments have recently started to focus on rainwater harvesting to protect environmental resources, recharge the ground water table, create awareness on water usage, etc. Though the merits of rainwater harvesting are a known fact, they have not trickled down to required policy measures like pollution abatement, resource' networking, eco-system rehabilitation, etc. Therefore, it is imperative that the strategies mentioned below are implemented together with rainwater harvesting measures in an integrated manner.

Strategies / Implementation Measures
- Rain Water Harvesting;
- Protection of Resources;
- Slum Networking;
- Pollution Abatement; and
- Eco-systems' Rehabilitation.

PROTECTION OF ENVIRONMENTAL RESOURCES

One of the most critical interventions is the protection of environmental resources. The protection of natural water bodies, channels and open spaces from further encroachments shall be carried out in a coordinated manner. Areas adjoining water bodies shall be developed and clearly marked and notified to prevent further encroachment.

SLUM NETWORKING PROGRAM

Slum networking should be viewed as integrated improvement of the entire town using slums, not as isolated islands, but as an urban net. The spatial spread of slums together with contiguity between informal settlements gives an opportunity to strengthen town level infrastructure networks. There is a close correlation between slum locations and the natural drainage paths of the town, which needs to be tapped and improved upon with the infrastructure services. This approach would help in building low cost service trunks, particularly for gravity-based systems of sewerage and storm drainage, together with environmental improvements such as cleaning of channels and major drains.

MONITORING AND QUALITY CONTROL

Monitoring of water quality parameters is being conducted by the SPCB. It is imperative that other departments that provide urban infrastructure should consult and coordinate all developmental initiatives with the SPCB and the SPCB shall, in turn, ensure that all applicable norms and standards are complied with.

Water Quality Monitoring Parameters
- BOD levels;
- Nitrate levels;
- Extent of heavy metals; and
- Extent of toxic substances.

9.10.3 AIR POLLUTION CONTROL

INVENTORY OF AIR QUALITY

There is an imminent need to augment and update the database on air quality indicators and initiate research on the health impacts of specific contaminants. The database shall include

sources, emission concentrations and identify non-scheduled industrial and commercial premises with air pollution potential so as to develop emission reduction strategies. This shall be taken up in co-ordination with SPCB and the Traffic Police.

Principal Causes - Air Pollution
- Vehicular emissions;
- Industrial emissions; and
- Construction related activities.

LOCAL EDUCATION AND ENFORCEMENT PROGRAM

Identification of potential air pollution sources shall require mitigation through a structured education program. This program shall be drafted in consultation with the SPCB and the Traffic Police Department. It would focus primarily on vehicular pollution and would include promotion of emission testing of vehicles.

9.10.4 POLLUTION FROM SOLID & HAZARDOUS WASTES

STUDY ON WASTE SOURCES AND CHARACTERISTICS

There is a clear inability on the part of the ULB to maintain data on waste characteristics and thereby identify suitable mitigation methods. Data from waste characteristic studies shall be periodically collected, updated and validated to maintain information on the identification of sources of generation, quantum of per capita generation, physical and chemical characteristics of the waste etc.

Issues - Hazardous Waste Management
- Collection & disposal of medical waste;
- Lack of disposal facilities; and
- Lack of initiatives on reuse and

LOCAL EDUCATION AND COMMUNITY PARTICIPATION

With high per capita generation trends, measures shall be adopted to reduce waste generation at source. This shall be made possible only through awareness creation and by eliciting active community involvement. The ULB shall take a pro-active role in sensitizing communities on waste minimization through a robust awareness campaign and education. The support of NGOs/CBOs and other agencies can be solicited in conducting such mass awareness programs.

IDENTIFICATION OF COMMERCIAL OPPORTUNITIES

Identification of waste characteristics, sources and creation of public awareness is expected to open avenues for commercial opportunities for waste management. With the ULB successfully contracting out waste collection to the private sector, it would be appropriate if further avenues like treatment and disposal, etc. are explored to carry out sustainable waste disposal practices on a public-private-partnership format.

9.10.5 PLANNING FOR OPEN SPACES & OTHER RESOURCES

Open spaces and other connected resources have to be planned so that they become lungs for the town. The development of open spaces would also enhance overall environmental quality. It is suggested that proposals should be framed for carrying out studies or planning exercises required for framing capital projects. Some of the best practices and strategies that can be adopted are listed below.

SITE SELECTION AND MARKING

Potential green areas have to be identified, rehabilitated and maintained in order to reduce the deficit of open spaces and parks. Resources like gardens, parks, cemeteries, wastelands, heritage sites, industrial areas, forest, agricultural land, institutions and the road network shall be identified for potential greening activities.

NETWORKING OF RESOURCES

As specified in the earlier sections, open spaces along or next to water bodies shall be identified, rehabilitated and maintained in order to connect recreational and cultural areas. Restoration shall start simultaneously at various areas by clearing the obstacles and greening the areas. Special emphasis shall be given to planting trees. The immediate action

plan consists of greening areas where new developments are proposed and areas that are rapidly developing.

The integration of natural resources in the city for recreational and cultural purposes shall be targeted to attract investments, increase commercial exchanges, and create job opportunities.

LAND USE INTERVENTIONS

Broadly three land uses can be identified for distributing green corridors - residential, commercial and industrial. It is difficult to define clear-cut strategies to convert them to green spaces, as each will have a characteristic of its own. However, residential areas seem to be the easiest to link and make part of a green network. Industrial locations consist partly of open spaces and land reserves that can be integrated to the green corridors.

The implementation of green corridors might be slow due to access and financial constraints. A convincing argument for planting trees is the impact of the increase on property values. Areas which are not available for connection may be given incentives by the government to form green corridors.

MAINTENANCE OF PARKS & PLAYGROUNDS

The possibility of entrusting resident associations and private agencies with the responsibility of maintaining parks, playgrounds and the proposed green corridors can be evaluated. Resident associations can contribute minimum amounts towards maintenance, while the balance can be borne by the ULB.

9.10.6 PRIORITY ACTIONS

Following table presents priority actions and their implementation plan during the mission period (2007-2012):

Table 9.27 : Priority Actions and Implementation Plan – Environmental Improvement

Component	Activity	Y1	Y2	Y3	Y4	Y5
Service Improvement	Improvement of Existing Parks	√	√			
	Landscaping of the residential colonies	√	√			
	Greening / Avenue Development		√	√		

9.10.7 ESTIMATED SECTORAL INVESTMENT

Based on the parameters specified in the earlier section, the capital cost has been estimated for the proposed intervention and are listed below:

Table9.28 : Estimated Sectoral Investment – Parks & Greening Development (Rs. in Lakhs)

Sl. No.	Sector / Component Description	Investment
1.	Rehabilitation of Water bodies	297.97
2.	Improvement of Existing Parks	24.05
3.	Greening / Avenue Development in residential areas	1.77
	Total	**323.78**

The authorities/departments/agencies that are proposed to be responsible for project formulation/ implementation/monitoring are listed, but shall not be necessarily limited to the following entities:

- Nodal Agency: Katpadi Town Panchayat.
- Formulation/Implementation Agency: Katpadi Town Panchayat and Forest Department

9.11 URBAN MANAGEMENT AND GOVERNANCE

The ULBs have been found to be proactive in their commitment to introduce reforms at the ULB level. All these reforms may be broadly categorized under the following:

- Computerization Initiatives;
- Property Tax Reforms;
- Privatization Initiatives;
- Accounting Reforms; and
- Resource Mobilization Initiatives.

9.11.1 POLICY FRAMEWORK AND PRIORITY ACTIONS

As specified earlier, priority actions have been discussed and finalized by the stakeholders for urban management and sectoral reforms for ULBs. The following policy framework and priority actions have been identified by the study team based on reported evaluations, discussions and priority actions as required and mutually agreed upon by the stakeholders:

STRATEGY

- Innovations both at policy and project levels to speed up the urban reform process.
- Reforms to have in-built mechanism of participation and commitment.
- Institutional strengthening and financial capacity building to be an integral part of the reform measures.
- Areas of reform measures include property tax, accounting and auditing and resource mobilization and revenue enhancement.

PROPERTY TAX

- Bringing transparency and uniformity in taxation policies.
- Tax policy and operational procedures should be simple and clear.
- Development of templates for property tax (for self-assessment) to increase tax collection (without levying fresh taxes), including implementation strategies.
- Mapping of properties and developing GIS-enabled property tax management system for enhancing property tax net/coverage and better administration.
- Collection of arrears through innovative ideas and approaches using tools for community participation and fast track litigation methods.
- Property tax base should be de-linked from rental value method and should be linked to unit area or capital value method.

ACCOUNTING AND AUDITING

- Accounting reforms - shifting from single entry cash based accounting system to accrual based double entry accounting system.
- Legislative changes in the accounting systems and reporting requirements.
- Designing of accounting procedures.
- Accounting manual - chart of accounts, budget codes, forms and formats, etc.
- Standardized recognition norms for municipal assets and revenues.
- Auditing of accounts should be carried out effectively and regularly to promote transparency and accountability.

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT

- Increasing revenue through measures for better coverage, assessment, billing, collection and enforcement.
- Controlling growth of expenditure.
- Improving the organization and efficiency of the tax administration system.
- Augmentation of resource mobilization/revenue generation from properties belonging to ULB for improving the overall financial health.
- Energy audit of fuel and energy consumption by various depts. of ULB to minimize expenditures on fuel and energy, including energy audit and metering of street lights.
- Streamlining and strengthening of revenue base of the ULB:

- Strengthen the fiscal powers of ULB to fix tax rates, fee structure and user charges through specific guidelines and notifications, which should find a place in the Municipal Rules. Prepare model guidelines for the city to allow greater flexibility in levying taxes, fees and user charges, borrowing funds and incurring expenditures;
- The annual report of the ULB shall devote a section highlighting the amounts of subsidy given to a particular service, how the subsidy was funded, and who were its beneficiaries;
- Implementation of MIS to provide relevant information on accounts, commercial and operating systems for better decision-making and information dissemination to citizens; and
- Application of e-Governance is equally important for municipal finance.

Apart from the above, following are some of other reform measures which should be implemented to support the above identified key municipal reforms.

URBAN ENVIRONMENTAL MANAGEMENT

The costs of maintaining a healthy urban environment need to be recovered through various municipal taxes and user charges following the "polluter pays" principle. For this, the functional role of the ULB as envisaged in Item 8, 12th Schedule of the Constitution has to be resolved keeping in view the role of the Tamil Nadu Pollution Control Board, and the organizational and fiscal strength of the ULB.

ACCESS OF URBAN SERVICES TO THE POOR

Since "ability-to-pay" for the cost of environmental infrastructure service' provision is an important criterion, cross-subsidization of tariffs, innovative project structuring and user/ community participation is the means to ensure access of these services to the poor. Again the functional and financial role of ULB with respect to the Items 10 and 11 of 12th Schedule vis-à-vis those of central and state government agencies need to be resolved.

In addition to the above, the GoI has formulated a Reform Agenda under JNNURM. Adherence to this Reform Agenda and Timeline is mandatory for accessing funds under the proposed UIDSSMT.

Good governance in the municipal context stands on two broad principles, viz. transparency and civic engagement and capacity building measures. Following sections highlight key elements of the above two principles of good governance specific to the ULB.

TRANSPARENCY AND CIVIC ENGAGEMENT IN MUNICIPAL MANAGEMENT

Laws/rules/regulations specific to city/local issues should be employed to facilitate effective implementation. These should be lucid and easily understood. Participatory mechanisms should be so structured that they have legal standing and administrative power. Local bodies should be responsive and innovative and involve community participation in civic engagement as follows:

- Specific code of conduct for municipal executives and elected representatives.
- Public education, resource mobilization, good leadership and transparent processes applied to municipal finance and development work.
- Closer networking with media and their engagement in creating public awareness and creating demand for good governance. Cautious engagement of private sector with continuous monitoring is necessary.
- Setting in place an active and online public Grievances' Redressal System, with automated department-wise complaint loading and monitoring system.
- Instruments to improve efficiency through enhanced technical, administrative and financial capacities.
- Credit enhancement options other than state guarantees need to be adopted.
- Preparation of annual Environmental Status Report through a multi-stakeholder consultation process.

CAPACITY BUILDING OF THE ULB

Following are some of the key aspects of capacity building measures for ULB:

- The ULB shall maintain data to generate indicators as suggested in this document for evaluating its performance.
- Prepare and conduct capacity building programmes for elected representatives, especially women representatives, with a view to enable them to focus on gender based issues.
- Promote the creation of interactive platforms for sharing municipal innovations, and experiences among municipal managers.
- Better human resource management through assessment of the training needs of personnel involved in urban administration to enhance management and organizational capabilities.
- Assessment of fund requirement and resource persons to tackle the training needs of all personnel.
- Development of training material in the local language and impact and evaluation studies of the training programmes.
- Capacity building to better position the urban local body to employ highly qualified staff and seek superior quality of out-sourced services.

As specified earlier, priority actions have been discussed and finalized by the stakeholders for urban governance for ULB. The following policy framework and priority actions have been identified by the study team based on reported evaluations, discussions and priority actions as required and mutually agreed upon by the stakeholders.

TECHNOLOGY INTERVENTIONS THROUGH COMPUTERIZATION

- Billing and collection of taxes and user charges through e-services.
- Speed up development of e-Governance system and accounting system.
- Database management of assets, records, lands, properties, etc.

HUMAN RESOURCE DEVELOPMENT

- Staffing pattern, organizational restructuring and performance appraisal.
- Development of MIS for effective and efficient management & decision-making.
- Publication of newsletters for creating awareness and participation.
- Staff training, exposure visits and motivation programs to bring about awareness on recent developments and technologies.

CITIZEN ORIENTATION AND INTERFACE

- Conduct citizen satisfaction surveys & analysis on annual basis to assess citizen needs and demands including satisfaction levels.
- PR strategies to enhance community participation and create awareness.
- Innovative citizen complaint redressal system including e-Governance.
- Augment and strengthen new initiatives on citizen interface and orientation.
- Regular interface with citizen associations/forum to understand public needs.

The above assignment will be carried out by the concern ULBs with full support from the GoTN. The outcome of the above assignment shall provide clear guidelines and impetus to the towns for good urban governance.

9.11.2 CAPITAL INVESTMENT ESTIMATE

In order to provide financial assistance for continuing ongoing reforms and strengthening these reforms in line with the priority actions and proposals highlighted above, an amount of Rs. 1.51 crores has been estimated and incorporated in the CIP. The above estimate has been prepared based on the information available / provided by concerned departments, detailed discussions with pertinent authorities, and Consultants database and experience on similar initiatives.

10

CAPITAL INVESTMENT PLAN

10.1 CAPITAL INVESTMENT PLAN

The City Investment Plan (CIP) is the multi-year scheduling of identified and prioritized investments. The scheduling or phasing of the plan has been developed keeping in mind likely fiscal resources availability (for new investments and O & M), technical capacity for construction and O & M, and the choice of specific improvements to be carried out for a period of six years, and in subsequent phases.

The need for the CIP is on account of:

- Assessment of town growth and infrastructure needs (to be carried out once every five years)
- Preliminary outline feasibility and engineering studies carried out for new projects
- Scheduling of investments of ongoing and committed projects with funding from other sources
- Assigning of priorities within the constraints of available financial resources

10.1.1 PROCESS

The Capital Investment Plan involves the identification of public capital facilities to cater to the demands of the town population during different stages (design stages) as per the requirements of various urban services. The following process is adopted in identifying capital investment requirement and formulating the CIP.

Capital Investment Plan - Process

- Project Identification
- Project Screening and Prioritization
- Project Phasing

PROJECT IDENTIFICATION

The general criteria used in identifying projects were the goals of the various departments with regard to efficient service delivery, prompt customer service, environmental sustainability, strategic implementation of projects, community benefits, infrastructure maintenance needs, and the growing demand. The town stakeholder consultations and focus group discussions held as part of the CCP preparation process were another important aspect in the identification of projects. These consultations brought out deficiencies at the macro and micro levels and have provided the first platform for the identification of projects. Infrastructure delivery benchmarks in the form of indicators were also used to arrive at the demand and the gaps in service delivery, which further correlated with the results of the stakeholder consultations to arrive at specific project proposals.

PROJECT SCREENING, PRIORITIZATION AND PHASING

From the identified list of proposals and priority actions, projects are prioritized based on need and funding options. The prioritization also considered various alternatives for FOP, which is phased based on the sustainability of the ULB with regard to its finances. Specific importance is given to the Stakeholders and opinions/feedback of the elected representatives for institutionalizing the CIP process. As a final step, project phasing is carried out considering investment sustainability for various options of the FOP.

10.1.2 STRATEGIES

STRATEGIC CAPITAL INVESTMENT

The town shall use fiscal notes and policy analysis to assist in making informed capital investment choices to achieve the stakeholders' long-term goals. This process provides guidance for capital budgeting and long-term planning of capital facilities for all departments, for identifying and balancing competing needs, and for developing short- and long-term capital finance plans for all capital investments.

Capital Investment Plan - Strategies
- Strategic Capital Improvement
- Facility Siting
- Decision Making
- Program Funding

This process includes defining desired outcomes of capital investments, evaluating potential investments at the town level by applying standard criteria for assessing alternative investments, and making more efficient use of all potential resources. The town shall budget sufficient funds to perform major and preventive maintenance of existing facilities that is considered cost effective. The town shall use maintenance plans for capital facilities and a funding allocation plan for such maintenance, and may revise these plans from time to time.

There is a need for fiscal impact analyses of all major capital projects considered for funding. Such analyses shall include, but not be limited to, one-time capital costs, life-cycle operating and maintenance costs, revenues from the project, and costs of not doing the project. The ULBs shall make major project specific capital decisions through the adoption of the Town's operating and capital budgets, and the CIP.

FACILITY SITING

Encourage the location of new community-based capital facilities. The town shall consider providing capital facilities or amenities as an incentive to attract both public and private investments.

DECISION MAKING AND PLAN FUNDING

Work together with other stakeholders towards coordinated capital investment planning, including coordinated debt financing strategies to achieve the goals of the CCP. Explore funding strategies for capital facilities, particularly for those that serve or benefit citizens throughout the region.

10.1.3 INSTITUTIONALIZING THE CIP PROCESS

The City Investment Plan is an important element of, and is significant in terms of, the town's management process and sustainability with regard to the delivery of basic services. The CIP also provides a framework for the annual budget cycle of ULB for the next 6-10 year period, and thereafter for subsequent investment phases.

As a part of the process of CIP preparation for the CCP, ULB and para statals have:

- Analyzed and discussed with the stakeholders, the existing applicable norms and standards for infrastructure services;
- Agreed and recommended a reasonable and realistic option;
- Justified and provided rationale if the chosen option is not within the existing service level standards; and
- Identified the roles and responsibilities of various stakeholders in the implementation of identified projects.

10.1.4 SECTORS COVERED

In order to streamline the responsibilities for implementation and operation & maintenance (O&M) of the assets created, and in line with the provisions of the 74th CAA, Tamil Nadu Urban Local Bodies Act, 1998, and the commitment/assurance of the GoTN to transfer different functions to the ULB as per the 74th CAA, all the proposed capital investments have been broadly categorized under the following sectors:

- Water supply;
- Underground sewerage system.
- Roads, traffic and transportation;
- Storm water drains;
- Street lighting;
- Solid waste management;
- Slum upgrading;
- Environment Improvement; and
- Urban governance.

10.2 CAPITAL FACILITIES, INVESTMENT PHASING AND IMPLEMENTATION

The City Investment Plan involved the identification of public capital facilities to cater to the demand of the town populace in two phases - by the year 2025 and by 2040 - according to the likely short- and long-term infrastructure needs.

The project identification has been done through a demand-gap analysis of the services and reconciliation of the already identified projects as part of various outline, preliminary and in some cases detailed engineering studies. The analysis has also built on recently completed technical studies where these are available. Further project prioritization and strategizing of the investments, and phasing of these investments are based on the strategies listed out under each service sector through stakeholder consultations. The projects derived are aimed at ensuring the optimal and efficient utilization of existing infrastructure systems and enhancing the capacity of the systems and services to cater to the demands of future population additions. Certain other projects listed as part of the CIP include developmental projects other than those addressing the core service sectors viz. system modernization, river conservation etc. The City Investment Plan and forecast future of needs for provision of capital facilities under each identified sector are presented below. These assets will help ULB to universalize services for the current population as well as accommodate the expected increase in population. In sectors where long-term planning is required (for example, source development for water supply), a 30- year planning horizon (till the year 2040) is considered. Assets created in such sectors consider the projected population in this horizon. ULB expects that these infrastructure assets would not only guarantee services to its citizens, but also signal a proactive commitment to potential investors considering the Katpadi Local Planning region.

10.3 CAPITAL INVESTMENT ESTIMATE

An estimate of the capital investment that is required to achieve the objectives of various Mission Areas and comply with the respective Mission Statements is presented in this section. This estimate is based on the following:

- Discussions held with stakeholders;
- Review of available information on the existing system;
- Discussion with Stakeholders during the respective stages of preparation of the CCP;
- Assessments through field visits and specific discussions with entities responsible for system implementation, operation and maintenance;
- Available Standard Schedule of Rates (SSOR);
- Consultant's database and experience with projects of similar scale and nature;
- Requisite cost escalation on materials and labor for 2007-2008 rates of implementation;

- Requisite cost escalation for contracts over 18-month implementation period; and
- Requisite provision for unforeseen items of work and physical contingencies.

10.4 SUMMARY OF INVESTMENTS

The total estimated capital investment required for providing efficient services to the present and future population of Katpadi by the year 2040 is Rs. 15194 lakhs. The planning horizon for the projects identified in sectors of urban poor slum improvements, land use development planning and other similar sub-projects for 2011 and accordingly the entire identified investment is proposed for funding in short term. The planning horizon for core service sectors of Water Supply, Sewerage are planned for Long-term period of 2040 and projects under Storm Water Drainage and Solid Waste Management are designed for immediate and short-term needs of 2011 and 2025 respectively. Hence, mindful of the need for efficient resource planning, only part of the identified investment is proposed for funding in short-term. In case of Roads, Traffic and Transport sectors, part of the identified investment is proposed for funding in short-term considering the immediate need for improving road network and transport systems in the town.

Table 10.1. Summary of Sector-wise Total Investment Proposed – with Under ground Sewerage

Sl.No	Sectors	Estimated Investment Rs. In Lakhs	% to Total
1	Water Supply System	938.39	6.18
2	Underground Sewerage Scheme	3,672.39	24.17
3	Roads, Traffic and Transportation	6,482.88	42.67
4	Storm Water Drains	1,592.91	10.48
5	Street Lighting	185.77	1.22
6	Solid Waste Management	721.92	4.75
7	Environment Improvement	323.78	2.13
8	Other Development Proposals	528.53	3.48
9	Slum Upgrading	573.16	3.77
10	Urban Governance	174.35	1.15
	Total Capital Investment	**15,194.09**	**100.00**

The above figure describes the sector wise capital investment proposed for the infrastructure development of Katpadi. Out of all the basic amenities, Roads, Traffic & Transportation accounts Rs. 6482 lakhs which is about 42 percent of total capital investment estimated. It is then followed by improvements to Underground Drainage system and provision of storm water drainage system with the share of 24 percent and 10 percent share of capital investment.

10.4.1 SUMMARY OF INVESTMENTS – WITHOUT UGS

From the discussion with the CTP, Technical Review Committee and stakeholders of the ULB it was observed that Underground sewerage system takes the long-term priority of the town taking into consideration huge capital investment requirements and operation and maintenance requirements. Hence, instead of typical underground sewerage system the study suggested to implement interceptor drains in short-term period. The interceptor drains with treatment plant are suggested to control / minimize the sewage and sullage load which are being disposed into the major water bodies in the town through road side drains.

Table 10.2 Summary of Sector-wise Total Investment Proposed – Without Underground Sewerage Project

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
1	Water Supply System	938.39	8.07
2	Sanitation & Interceptor Drain	108.08	0.93
3	Roads, Traffic and Transportation	6,482.88	55.74
4	Storm Water Drains	1,592.91	13.70
5	Street Lighting	185.77	1.60

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
6	Solid Waste Management	721.92	6.21
7	Environment Improvement	323.78	2.78
8	Other Development Proposals	528.53	4.54
9	Slum Upgrading	573.16	4.93
10	Urban Governance	174.35	1.50
	Total Capital Investment	**11,629.78**	**100.00**

Out of all the basic amenities, Road Improvements accounts to 6,482 lakhs which is about 55 percent of total capital investment estimated. It is then followed by environment storm water drains and water supply with a share of 13 percent and 8 percent respectively.

10.4.2 Phasing and Prioritization of Proposed Capital Investment Plan

The Capital Investment Plan (CIP) has been prepared for a period of 5 years (FY 2008-09 to FY 2012-13). The phasing has been worked out based on the priorities assigned by the stakeholders and preparedness of the service providing agencies to prepare the DPRs and initiate implementation of the proposals. The phasing of the identified projects and investments is based on the following principles:

- Priority needs, with developed areas receiving priority over future development area.
- Inter and intra-service linkages, viz. water supply investments shall be complemented by corresponding sewerage/ sanitation improvements.
- Size and duration of the requirements, including preparation and implementation period.
- Project-linked revenue implications, such as installing house connections where supply and distribution capacities have been increased.
- The scheduling of adequate time to allow pre-feasibility, full feasibility and safeguard investigations for those large sub-projects which will require such analysis.
- Scheduling additional infrastructure requirements to match with the population, and tourist inflow growth over the plan period.

Ranking of Priorities by Stakeholders

It is to be mentioned although a town may find it suitable to implement projects on a sequential basis through an assessment of its priorities, in the specific case of Katpadi development through a multi-pronged approach is the need of the hour.

An indicative priority-based capital investment plan has been outlined below to ensure that the much needed improvement on a cross-sectoral basis can be achieved. Table 10.3 outlines the overall priority ranking based on an assessment of need and as evinced by the stakeholders.
Water Supply, Storm Water Drain, Roads improvements and Remunerative Projects predominate the priority requirement for Katpadi due to the following factors:

Table 10.3: Sector wise Ranking of Priority

Sl. No	Sector	Priority of ULB	
		Short-term Projects	Long-term Projects
1	Water Supply System	1	
2	Underground Sewerage & Sanitation		5
3	Roads, Traffic and Transportation	4	
4	Storm Water Drains	3	
5	Sanitation & Interceptor Drains	2	
6	Street Lighting	5	
7	Solid Waste Management		1
8	Environment Improvement		3
9	Remunerative Projects	6	
10	Slum Upgrading		2
11	Urban Governance		4

- Improvement to the Water Supply and Distribution System is ranked as No.1 since existing supply rate is less than the normative standard of 70 lpcd.

- Further the existing system is a combined water supply scheme, on implementation of the dedicated water supply scheme, the existing system requires to be improved extensively to ensure equitable and adequate supply to all the areas of the town.
- The extended areas and newly developed layouts of the town require to be provided with water supply distribution system.
- Next to Water Supply, Sanitation & Interceptor drains & Storm Water Drains take the 2nd rank. In consultation with stakeholders, being a fast developing residential town the sanitation facilities has to be improved to ensure proper flow and also to prevent the flooding during the rainy season. Improvements to the storm water drains are ranked as No: 3, for the town lack even the basic state of drain facilities in the town.
- Road improvement is ranked as No.4 since the town is not provided with proper road facility lead to congestion in the core area of the town. Formation of new link roads will ease the considerable traffic in the town.
- Implementation of remunerative projects was ranked as no. 5 by the stakeholders. Remunerative projects like construction of shopping complex, marriage hall, improvement of weekly market, development of park & playfields etc.
- Sub-Sectoral priority identified during stakeholder's consultation is given in the Table 10.4.

Table 10.4: Sub-Sectoral Priority

Water Supply		
Component	**Activity**	**Priority**
Water Resource Management	Water Supply Improvement Scheme to extension areas	2
	Construction of additional Storage reservoirs	1
	Development of Distribution network for extension areas	2
	Rainwater Harvesting Measures	3
	Re-cycle and Re-use treated water	7
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	8
	Redistribution/Re-zoning of D-system in existing areas	4
	Expansion of House Service Coverage	5
	Installation of Meters	6
	Construction of summer storage tank	3
	Upgradation and Improvement of Distribution System	2
Underground Sewerage Scheme and Sanitation		
Component	**Activity**	**Priority**
Sewerage Collection, Treatment & Management	Development of Sewerage System for Town	3
	Provision of Sewage Treatment Plant	4
	Community toilet integration	5
	Recycling Plant & Reuse system	6
Sanitation Facility	Community toilets	2
	Interceptor drains	1
Roads, Traffic and Transportation		
Component	**Activity**	**Priority**
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Construction of ROB's& RUB's/Sub Ways	1
	Strengthening existing roads	2
	up gradation of important roads	3
	Formation of new roads	6
	Junction Improvements	4
	Foot over Bridges	5
	Culverts	9
	Signals, Signage and markings	6
	Road divider & Medians	6
	Traffic Island	7
	Parking Lots/ complexes	7
	Bus Stand Improvement	10
	Provision of Bus Shelters	8
Improved Pedestrian Facilities	Accessibility to the disadvantaged	11
	Pedestrian Crossings	13
	Foot paths	12

Storm Water Drains		
Component	**Activity**	**Priority**
Drains Rehabilitation	Rehabilitation of Major drains/channels	2
	Rehabilitation of Storm Water Drains	1
Construction of Drains	Provision of storm water along existing roads	3
	Formation of new drains along proposed road network	4
	Treatment and re-use of storm water	5
Street Lighting		
Component	**Activity**	**Priority**
Service Improvement	Proposed SV lamps in uncovered areas	5
	Proposed FL lamps in uncovered areas	4
	Proposed High Mast light in major junctions	3
	Proposed Timers for existing / new lights	6
	Proposed Sensor Lighting	2
	Proposed Solar Lights	8
	Proposed Power Saver (Capacitors)	5
	Proposed dedicated sub-station/transformers	1
	Proposed Tri-vector meters	7
Solid Waste Management		
Component	**Activity**	**Priority**
Primary Collection	Providing bins for Door-Door Collection	6
	Containerized Tri-Cycles	4
	Push Carts	5
	Equipment for Garbage Recovery Personnel	1
	Equipment for Street Sweeping Personnel	3
	Tipper Lorries - Used for Construction/Other Debris Collection	2
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)	8
	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)	7
	Transfer Stations Modernisation	9
Transportation	Dual Load Dumper Placer Vehicles	13
	Mechanical Street Sweepers - Tractor Mounted	11
Waste Processing & Disposal	Integrated Waste Treatment	12
	Sanitary Landfill Facility	14
	Scientific Closure of the abandoned dump sites	6
Administration Complex	Administration and Utilities Complex including HT Electrical Sub-station	4
Environmental Improvement		
Component	**Activity**	**Priority**
Service Improvement	Rehabilitation and Improvement of Water Bodies	2
	Creation of new park	1
	Greening / Avenue Development	3
Other Development Proposals		
Component	**Activity**	**Priority**
Service Improvement	Improvement to burial grounds (w/o gasifier)	4
	Improvements of existing and proposed playgrounds	2
	Rehabilitation of proposed community centres/ halls	3
	Improvements to town library/ proposed libraries	1
	Proposed /dedicated Vegetable / Meat market	9
	Proposed Weekly markets	7
	Improvements to the School buildings	8
	Proposed Medical Treatment Facilities within the town.	6
	Slaughterhouse development with treatment plant facility	5
Slum Upgradation		
Component	**Activity**	**Priority**
	Dwelling Units	4
	Water Supply	1

Service Improvement	Sewerage and Sanitation	3
	Solid waste Management	5
	Roads and Pavements	2
	Street Lights	6
	Community Centers	7
	Open Spaces/Gardens	8

BORROWING CAPACITY OF THE TOWN CONSIDERING 30% DSR

Borrowing Capacity for the ULB is prepared after taking into consideration, the revenue inflows and outflows from the base scenario, i.e. the income from sewerage and water charges and O&M on assets is taken. In order to arrive at the sustainability, three different parameters were used which are,

- TE[2] /TR[3] <1
- DS[4] /TR <=30%
- 30% of the operating surplus should be retained as surplus and the balance can only be leveraged.

The least of the above 3 factors was arrived at as the possible annuities payable by the ULB. With this a conversion factor was worked out to determine the Borrowing Capacity and the Investment Capacity. The maximum sustainable investments for the next 5 years are summarized as follows:

Table 4.6: Borrowing & Investment Capacity of ULB *(Rs. In lakhs)*

Details	2008-09	2009-10	2010-11	2011-12	2012-13
Borrowing Capacity	245.32	324.98	356.87	454.85	564.46
Investment Capacity	377.42	499.96	549.03	699.76	868.40

From the above table, borrowing capacity of the town is estimated as Rs. 1946.47 lakhs and the investment capacity of the ULB is estimated as Rs. 2994.58 lakhs within the proposed CCBP project implementation period (Short-term period). Borrowing capacity of the town is taken as the base for prioritizing the identified projects under CCBP.

FINALIZATION OF FUNDING OPTIONS AND THE OPTIMAL WAY TO IMPLEMENT THE IDENTIFIED INVESTMENT REQUIREMENTS

In order to finalize the funding options, the study team had a meeting with CTP, TNUIFSL, ULB and other stakeholders. It was then finalized that the projects within the borrowing capacity (i.e. Rs. 2994.58 lakhs) of the ULB would be taken up for implementation. Taking into consideration the present policies and priorities of CTP and other stakeholders, the study team suggested the ULB to implement the **CCBP IDENTIFIED PROJECTS WITHIN THEIR BORROWING CAPACITY** for a short-term period.

As specified earlier, although the sectors have been ranked for prioritization, it is recommended that the Katpadi Town Panchayat initiates necessary action on a cross-sectoral basis and phases out the identified investment pursuant to development of necessary details and based on sustainability and availability of funds. Necessary action may involve preparation of master plans, feasibility studies/assessments (where required), detailed project reports and spade work of pertinent administrative/technical sanctions and approvals towards obtaining funds for implementation of identified proposals/priority actions.

Since the town does not have a borrowing capacity to fund the CCBP identified projects the study team suggested to implement projects such as construction of Shopping Complexes,

[2] TE – Total Expenditure
[3] TR – Total Revenue
[4] DS – Debt Service

Improvement of daily and weekly market, Construction of Community halls by various funding options suggested in the section 12.4.

10.5 FINANCIAL RESOURCES

Innovations in terms of

- ***Public-Private-Partnerships***
- ***Private sector participation***

The analysis on financial resources is worked out for the interventions to be carried out within the ULB area. The sectors that are not in the domain of the ULB are not taken for financial analysis and they are considered to be taken by other line agencies. Majority of the investments have to come from the ULB for the provision of water supply and sewerage and if these are not integrated with other interventions, the deficiencies in services still persist. Though innovations in terms of public-private-partnerships and private sector participation (i.e. BOT, BOOT, DBOT modes) are possible in some sectors, still it is in nascent stage of development and hence public spending should continue in some way in the future.

- ***Beneficiary Contribution for Environmental Services***
- ***Concept of User charges for Sustainability of Service provision***

An important aspect that needs consideration in raising the financial resources should be through beneficiary contribution. Of late, the beneficiary contribution is as much as 30% of the total costs of environmental services. These practices have to be promoted in the right earnest and the concept of user charges need to be introduced to make the services sustainable. The interventions should be in line with achievable targets and their resource generation.

- ***Financially Self-supporting Projects***
- ***Cost of services in line with Level of Service and Affordability of population***

The overall spatial strategy and resultant programs elaborated in the earlier chapters should be supported with financial allocations and a co-ordinated mechanism has to be in place. Efforts should be directed to develop financially self-supporting projects, wherever possible and cost recovery should be the policy for such cases.

The cost of services should be pegged with the level of services and the affordability of the population. Though some assistance can be anticipated in the form of subsidies and external grant, it would not be sufficient to attain the required standards and hence the real earnings have to be improved and this must be the priority of the economic policies and programs formulated for Katpadi.

Streamlining and Strengthening of

- ***Existing Tax base***
- ***Resource mobilisation efforts***

The assessment of investment sustenance concludes that though the current finances of Katpadi Town Panchayat are healthy, they would not be in a position to match the proposed investments in infrastructure to achieve the desired vision unless the existing tax base and the resource mobilisation efforts are streamlined and strengthened. In order to augment/ enhance its financial resources ULB should identify alternate resources like user charges for the services for conservancy, parking fee etc.

- ***More Property tax for better Service delivery***
- ***Change of Lease rights to Free hold with respect to current Market rates***

ULB should attempt an enhanced property tax rate (surcharge) in areas which have better infrastructure. Another innovative option of resource mobilization, which most of the local bodies are adopting is to change the lease right to free hold or review all the current lease agreement with respect market rents and take appropriate action.

In combination of aforementioned financial resources, ULB would implement reform measures suggested in the Section - 15.5 for Urban Local Body to improve their revenue base.

10.5.1 FUNDING ASSISTANCE FROM FIS

- ***Assistance from funding agencies like TNUDF, TUFIDCO etc.***

Apart from the aforementioned financial resources ULB shall look for external funding assistance from Financial Institutions (FIs) like TNUDF, TUFIDCO etc to fund CCBP identified projects. Funding pattern of various sectors of development is given below for reference purposes:

Means of Finance	Loan	Grant	Own	Total
Water Supply System	55%	30%	15%	100%
Underground Sewerage Scheme	45%	30%	25%	100%
Roads, Traffic and Transportation	60%	30%	10%	100%
Storm Water Drains	60%	30%	10%	100%
Street Lighting	60%	--	40%	100%
Solid Waste Management	20%	70%	10%	100%
Environment Improvement	20%	70%	10%	100%
Other Development Proposals	65%	20%	15%	100%
Slum Upgrading	10%	80%	10%	100%
Urban Governance	20%	70%	10%	100%

11 MUNICIPAL FISCAL STATUS

11.1 OVERVIEW

The ULBs normally have their own sources of revenue, collected in the form of taxes and/or user charges though most of their revenue/ income is in the form of assigned revenue and/or budgetary revenue grant. Barring the ULBs, all other departments and agencies provide the services through budgetary support.

11.2 MUNICIPAL FINANCES

11.2.1 GENERAL

Accounts of the ULB are maintained on cash basis (single entry accounting system) till the FY 2002-2003. The financial status of each ULB has been reviewed for the past six years, commencing from FY 2002-03. Currently ULB in Tamil Nadu maintain three separate funds, namely General Fund, Water & Drainage Fund and Education Fund. All these funds are managed under two heads namely, Revenue Account and Capital Account. For the purpose of this analysis, revenue & capital account of the ULB is considered and Education Fund is clubbed with General Fund, because it is predominantly reimbursement inclined. Key financial indicators have been computed and compared with the desired benchmark to ascertain strength or weakness inherent to the system and appropriate remedial measures that can be envisioned.

For the purposes of analysis, all the account items are broadly categorized under the following major heads:

- Revenue Account: All recurring items of income and expenditure are included under this head. These include taxes, charges, salaries, maintenance expenses, debt servicing, etc.
- Capital Account: Income and expenditure items under this account are primarily non-recurring in nature. Income items include loans, contributions by GoTN, other agencies and capital grants under various State and Central Government programmes and income from sale of assets. Expenditure items include expenses booked under developmental works and purchase of capital assets.
- Advances, Investments and Deposits: Under the municipal accounting system, certain

Table 11.1: Summary of Finances of the Katpadi Town Panchayat

All figures in Rs. Lakhs

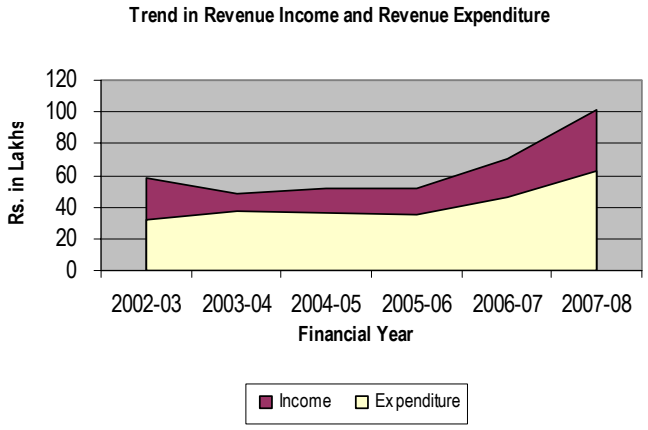
Sl. No.	Account Head	Summary Statement (All figures in Rs. Lakhs)					
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
REVENUE ACCOUNT							
1	Income	58.82	48.89	51.84	51.63	70.81	101.41
2	Expenditure	31.84	37.37	35.96	34.83	46.34	63.27
3	Status (Surplus/Deficit)	26.98	11.51	15.88	16.80	24.47	38.14
CAPITAL ACCOUNT							
1	Income	2.09	9.61	10.89	11.76	20.35	31.00
2	Expenditure	9.81	11.21	12.91	6.83	5.00	9.50
3	Status (Surplus/Deficit)	(7.72)	(1.60)	(2.02)	4.93	15.35	21.50
OVERALL STATUS							
1	Income	60.91	58.5	62.73	63.39	91.16	132.41
2	Expenditure	41.65	48.58	48.87	41.66	51.34	72.77
3	Status (Surplus/Deficit)	19.26	9.91	13.86	21.73	39.82	59.64

Source: Katpadi Town Panchayat; 2007

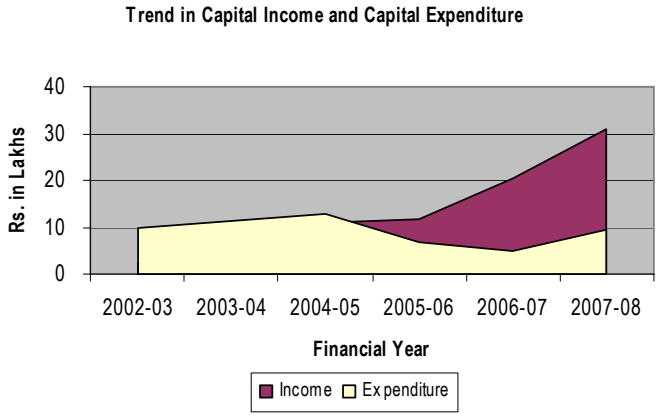
items are compiled under advances, investments and deposits. These items are temporary in nature and are essentially adjustments for the purpose of recoveries and payments. Items under this head include income tax deductions, investments/realization, pension payments, provident fund, payment and recoveries of advances to employees and contractors, etc.

11.2.2 FINANCIAL STATUS

Financial assessment of the Katpadi town panchayat has been carried out based on the financial information collected for six financial years, i.e. FY 2002-03 to FY 2006-07. In addition, the budget estimate of the ULB for FY 2007-08 was also taken up for analysis. Income of the ULB has grown to a level of Rs. 132.41 lakhs in FY 2007-08 from Rs. 58.82 lakhs in FY 2002-03, at a compounded annual growth rate (CAGR) of 20.65 percent. Similarly the revenue expenditure has shown a CAGR of 26 percent during this period. Katpadi has maintained an overall surplus consistently over the assessment period. The figures on the municipal finances along with the charts are given for reference.



Capital income comprises loans, grants and contributions in the form of sale proceeds of assets, and contributions and deposits received. A major share on capital income is in the form of deposits received on account of capital work assignment. The capital account has witnessed a deficit-implying utilization of revenue surpluses to fund capital works. During the assessment period, the ULB has received major capital grant through Drought Relief Fund and road improvement grant from GoI for the implementation of infrastructure projetcs. The following sections present a detailed review of revenue and capital accounts, primarily aimed at assessing the municipal fiscal status and provide a base for determining the ability of the ULB to sustain the planned investments.



11.2.3 REVENUE ACCOUNT

The revenue account comprises two components, revenue income and revenue expenditure. Revenue income comprises internal resources in the form of tax and non-tax items. External resources are in the form of assigned revenues and revenue grants from the GoTN. Revenue expenditure comprises expenditure incurred on salaries, operation & maintenance, administrative expenses and debt servicing.

REVENUE INCOME

The revenue sources can be broadly categorized as own sources (includes both tax and non-tax revenues), assigned revenues and grants. The source-wise income generated during the review period is presented in the table below. The base and basis of each income source has been further elaborated in the following section.

Table 11.2: Source-wise Revenue Income

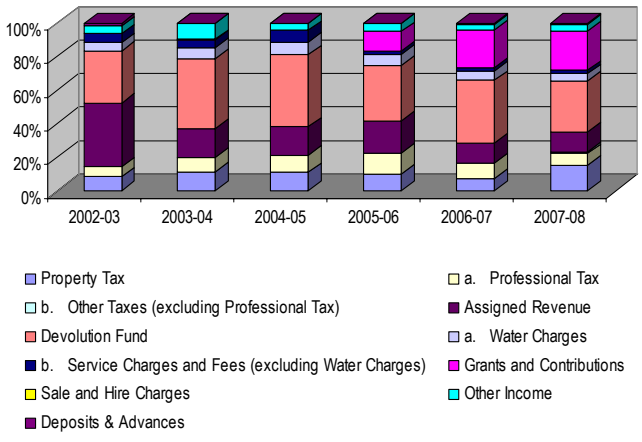
Sl. No.	Account Head	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
REVENUE ACCOUNT							
1	Property Tax	4.96	5.57	5.75	5.91	6.50	20.00
2	Other Taxes						
	a. Profession Tax	3.44	4.09	5.21	7.27	8.50	9.50
	b. Others	0.00	0.00	0.00	0.00	0.00	1.00
3	Assigned Revenue	22.28	8.55	8.80	11.05	11.05	16.00
4	Devolution Fund	18.32	20.28	22.30	19.30	34.00	40.00
5	Service Charges and Fees						
	a. Water Charges	3.03	3.30	3.90	3.99	5.00	6.00
	b. Service Charges and Fees (excluding Water Charges)	3.10	2.33	3.62	1.14	1.91	2.52
6	Sale and Hire Charges	0.00	0.00	0.00	0.00	0.00	0.20
7	Other Income	2.65	4.76	2.25	2.97	3.25	5.49
SECTORAL CONTRIBUTION TO TOTAL REVENUE							
1	Property Tax	8.43	11.40	11.09	10.13	7.13	15.10
2	Other Taxes						
	a. Profession Tax	5.84	8.36	10.04	12.48	9.32	7.17
	b. Others	0.00	0.00	0.00	0.00	0.00	0.76
3	Assigned Revenue	37.88	17.48	16.96	18.96	12.12	12.08
4	Devolution Fund	31.14	41.46	42.99	33.12	37.30	30.21
5	Service Charges and Fees						
	a. Water Charges	5.15	6.76	7.52	6.85	5.48	4.53
	b. Service Charges and Fees (excluding Water Charges)	5.28	4.77	6.98	1.95	2.10	1.90
6	Sale and Hire Charges	0.00	0.00	0.00	0.00	0.00	0.15
7	Other Income	4.51	9.74	4.34	5.09	3.57	4.15
GROWTH TRENDS IN %							
1	Property Tax	--	12.37	3.20	2.69	10.05	207.69
2	Other Taxes	--	0.00	0.00	0.00	0.00	0.00
	a. Profession Tax	--	18.98	27.39	39.67	16.88	11.76
	b. Others	--	--	--	--	--	--
3	Assigned Revenue	--	(61.65)	2.96	25.58	(0.00)	44.80
4	Devolution Fund	--	10.70	9.97	(13.44)	76.13	17.65
5	Service Charges and Fees		0.00	0.00	0.00	0.00	0.00
	a. Water Charges	--	9.07	18.11	2.29	25.23	20.00
	b. Service Charges and Fees (excluding Water Charges)		(24.90)	55.36	(68.62)	68.03	31.94
6	Sale and Hire Charges	--	--	--	--	--	--
7	Other Income	--	79.74	(52.72)	31.74	9.53	68.92

Source: Katpadi Town Panchayat; 2007

Property tax is the major source of tax revenue while other taxes include tax on carriages & carts, advertisement tax, profession tax and tax on animals. Non-tax sources included all non-tax revenues such as fees and charges levied as per the Act. Such revenue sources include rent from municipal properties, fees & user charges, sale & hire charges and others.

Major source of revenue income is in the form of Property Tax, Assigned Revenue and

Share of Revenue Receipts



Devolutions, which contributes to about three-fourth of the revenue income on average. As a whole, revenue income has registered an annual growth of about 20 percent on average during the assessment period. The composition of income during the last five years is graphically represented in the adjacent graph.

Details	Share (%)
Own tax revenues	20.12
Non-tax revenues	17.27
Assigned revenues	19.25
Devolution funds	36.04

While the growth pattern is a common feature to be talked about while analyzing the financials, it is equally important to analyze the composition of income which actually reveals the status of the local body with respect to the sustainability of revenues; i.e., if the share of own revenues is higher, it means that the local body's dependence on devolutions and grants are much less and hence they are capable of taking up capital projects. As for the composition of income of Katpadi TP, the major contributors are the devolution funds with around 36% and assigned revenues with about 19%, thus together forming approximately 54% share of the total income. Property tax takes the next place with about 11% share of the total income. All other income stated is averaging each at 5% to 8%.

The analysis clearly reveals that the assigned source of revenues are at least 1.5 times higher than that of the own sources. This is not a healthy trend as the ULB is entirely dependent on the sources from the Govt. rather than depending on their own sources. If in some case, Govt. does not devolve the funds, the entire balance sheet gets a hit that year, which would lead to huge overdrafts for even managing the revenue expenditure. This trend needs to be changed by innovating financing models in the projects taken up by the local bodies. Such attempts have been mentioned in this CCP exercise, where innovative modeling of finances could be attempted.

Property Tax: The most important category in the own sources of income is the property tax[5]. This tax is imposed on land and buildings depending on their nature of use. Property tax component comprises holding tax, latrine / drainage tax and lighting tax. Property tax is based on the Annual Rental Value (ARV) of property and is the single largest and most elastic source of revenue. The ARV of the property varies with the nature of use, viz. a) residential use - owner occupied, b) residential use - rental and c) commercial use.

Table 11.3: Demand-Collection-Balance (DCB) Statement for Property Tax

Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
No. of Assessments	2766	2801	2947	3003	3010
Growth in Assessments (%)	--	1.27	5.21	1.90	0.23
Demand (Rs. in lakhs)					
Arrear	68.32	51.24	51.80	76.93	108.21
Current	43.53	47.13	52.64	62.08	31.43
Total	111.85	98.37	104.44	139.01	139.64
Collection (Rs. in lakhs)					
Arrear	30.74	14.80	7.60	7.85	8.63
Current	29.86	31.77	29.84	22.78	8.36
Total	60.60	46.57	37.44	30.63	16.99
Balance (Rs. in lakhs)					
Arrear	37.58	36.44	44.20	69.08	99.58
Current	13.67	15.36	22.80	39.30	23.07
Total	51.25	51.80	67.00	108.38	122.65
Collection Performance (Percentage)					
Arrear	44.99	28.88	14.67	10.20	0.00
Current	68.60	67.41	56.69	36.69	26.60
Total	54.18	47.34	35.85	22.03	12.17

Source: Katpadi Town Panchayat; 2007

The ARV is calculated based on the plinth area, building and land cost. The present tax rate is 12.00 percent of the ARV, which comprises 7 percent of ARV on holding tax, 2.5 percent on latrine/ drainage tax and remaining 2.5 percent on lighting tax. ULB is empowered to revise the property tax at least once in five years (quinquennial revision).

The property tax collection has decreased from Rs. 60.60 lakhs in FY 2001-02 to Rs. 16.99

[5] Property tax belongs to the class of general benefit taxes, primarily indirect user charges for municipal services whose benefits are collective and not confined to any particular individual / community.

in FY 2005-06. This significant increase has been due to the proactive efforts of the ULB to bring in more assessments into the tax net and improve collection performance as there was no tax revision earlier during this period. As a whole, the property tax component has registered an average annual growth rate of 11 percent during the assessment period.

Property tax demand-collection-balance (DCB) statement analysis indicates a uniform increase in number of property tax assessments during the last five financial years with an average increase of over 2.8 percent per annum. Average property tax per property works out to Rs. 188. About 6 percent of the total assessments are commercial properties.
Similar growth trends are also observed in current property tax demand, which has increased from Rs. 111.85 lakhs in FY 2001-02 to Rs. 139.64 lakhs in FY 2005-06. During the same assessment period, the arrear demand has also increased from Rs. 68.32 lakhs in FY 2001-02 to Rs. 108.21 lakhs in FY 2005-06. On average, about 60 percent of the total demand constitutes the arrears. The collection performance also shows improvement during the assessment period. The overall collection performance was about 54 percent during FY 2001-02, which has decreased to 22 percent during FY 2004-05. Similarly, collection performance of current tax has also decreased from 68 percent (in FY 2001-02) to 37 percent (in FY 2004-05) and arrear collection has also decreased from 44 percent to 10 percent during the assessment period.

Other Taxes: Other tax revenues are in the form of taxes levied on carriage & carts, animals, advertisement, professional tax and others. The most important category in own sources of income is the property tax. Professional tax is the other most important tax and it contributes about 4 percent of the total tax revenue. The other taxes contributed about 9 percent of the total own sources on average during the assessment period.

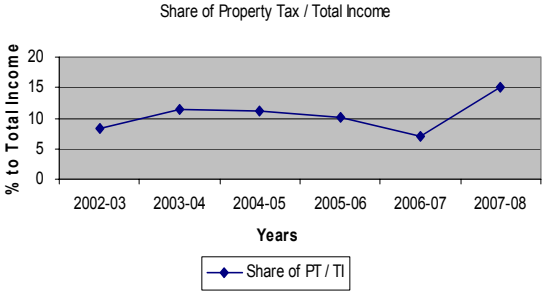
Assigned Revenues: Assigned revenues include revenues transferred to the ULB by the Got under specific acts. This source of revenue income comprises duty on transfer of properties, entertainment tax / public resort and other assigned revenues. Income through assigned revenue contributes to about 10 to 30 percent of revenue income, the growth of which however has been inconsistent. Other sources of assigned revenue include duty on transfer of properties, entertainment tax/public resort, and others and these sources have not contributed during the last three financial years of the assessment period as indicated. As a whole, the assigned revenue has shown inconsistent growth rate during the assessment period.

Devolution: Based on the Second State Finance Commission recommendations, Got transfers 8% of its state revenue to the local governments. It is the one of the single largest source of revenue to the ULB, it accounts to 36% of total revenue over the assessment period.

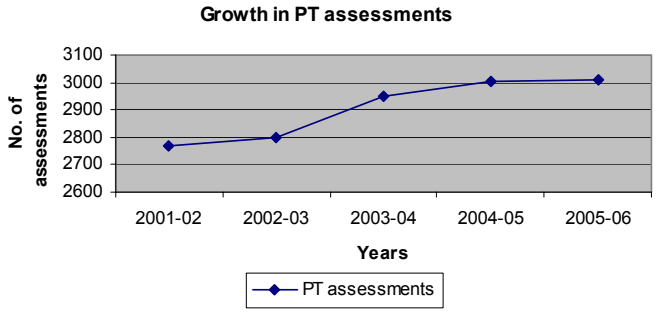
Non-Tax Revenue / Remunerative Enterprise: Income from remunerative enterprises is categorized as non-tax income received in the form of rentals from assets like shopping complexes, market fees, parking fees and income from other real assets owned by the ULB. Rent from the municipal properties is the major contributor among non-tax revenue items, which contributes about 4 percent on average, about Rs. 5 lakhs per annum on average during the assessment period.

GROWTH PATTERN OF REVENUE INCOME:

Growth pattern is mainly required for big ticket incomes like property tax, professional tax, and income from water supply. The below graph represent growth in property tax in absolute terms. However if we look at the share of property tax to the total income it has been fluctuating over the last five years which is indicated in the graph below. This clearly indicates lack of collection efficiency as property tax assessments cannot reduce. The ULB shall look into the possibilities of resurveying the entire property with its present value by which un-assessed and under assessed property could be roped into the tax stream.

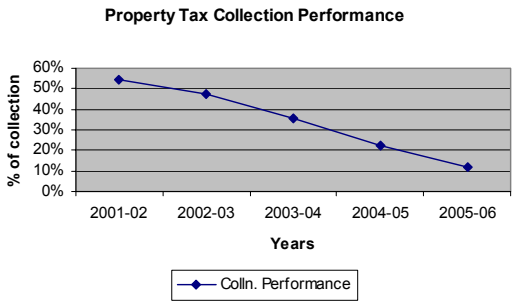


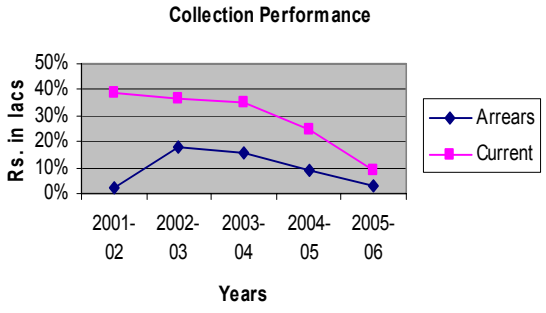
The above graph represents growth in property tax in absolute terms. There is a constant growth trend in the property tax during the assessment period. The share of property tax to the total income it has been varying around 7-14% over the last five years, averaging to about 11.20% which is indicated in the above graph. There are two reasons for such composition, (I) due to lack of collections, (ii) lack of growth of no. of assessments. Analysis of growth of no. of assessments could reveal the reason for the lesser composition. The ULB shall also look into the possibilities of resurveying the entire property with its present value by which un-assessed and under assessed property could be roped into the tax stream.



The graph relating to PT assessments show a steady increase which is indicating a good trend in the growth of the town as well as the increase in tax base. If the share of property tax to total income is compared with the increase in PT assessments, from the above graphs we can see that the share is fluctuating in spite of increase in PT assessments (2%). Hence it is evident that the collection performance has not been to the scale required.

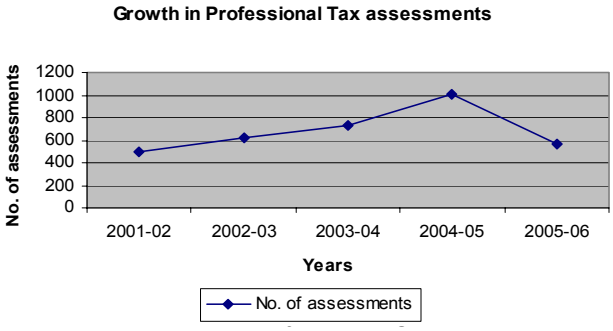
The collection performance indicated in the graph is self-explanatory and provides the reason for the decreased share of PT to the Total Income. Breaking this further, the graph below indicates the arrears and current collection performance:





Professional Tax:

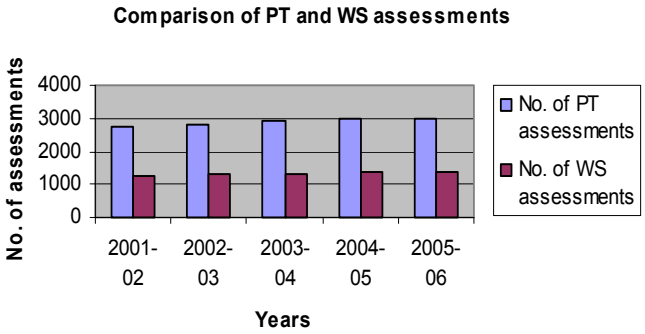
Even though the share of professional tax is fairly lower, it is a sustainable income, the pattern of which should be analyzed. The average share of professional tax over the period of last



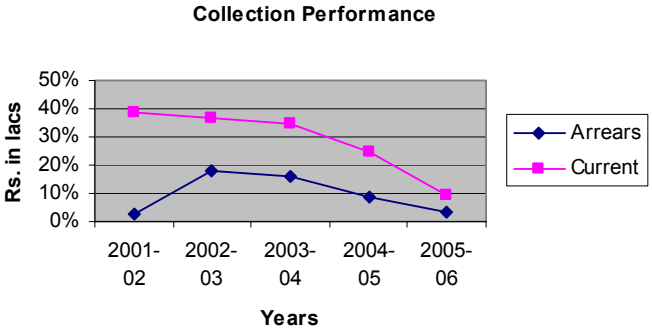
five years is 8%, which is less in composition compared to other heads of income. The no. of assessments has been gradually decreasing over the last five years. However the collection performance of professional tax has been consistently increasing, which is encouraging. The average collections over the last year are around 62%.

Water Charges:

Income from water charges is normally said to be a major source of income. But in case of Katpadi TP, income from water charges forms just 5.53% of the total income. An analysis of no. of water assessments in comparison to no. of property tax assessments could reveal the status of water supply in the town. The graph clearly reveals that there is a requirement of increasing the no. of connections to house holds. Analysis shows that the average water supply assessments are roughly just 45% of the total property tax assessments. The graphical representation of total no. of assesses is given in the adjacent table.

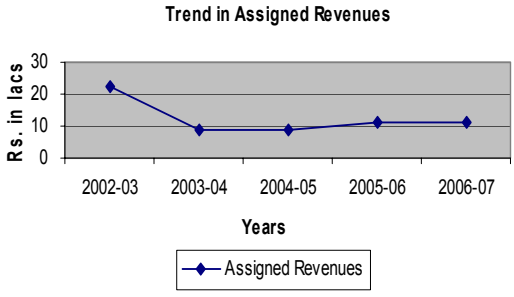


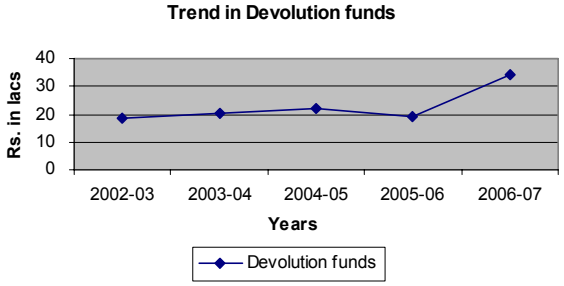
From the graph, it can be seen that as against the demand raised for water charges, collection has been only an average of 40%. Therefore it is inferred that there is a need to increase water supply connections. As part of the CIP, the consultants have proposed certain measures to augment water sources and also to construct the collection system for water supply in the town.



Assigned Revenue:

This includes Stamp duties and entertainment tax. The major income under this head is from duty on transfer of property (stamp duty), which is around 95% of the assigned duty and balance from entertainment tax. Assigned revenue constitutes approximately 5% of the total income. The revenues under this head seem to be fluctuating in the initial years and more or less stable in the next years. The growth in no. of PT assessments is proportional to the assigned revenues. When there is a gradual increase in the PT assessments, there should be an increase in assigned revenue, which is missing.





Devolutions:

There has been a consistent and substantial income from the devolutions. The devolution forms an average of 40% approx. of the total income of the TP. There is a steep increase in the devolution funds during the year 2005-06. This revenue has been acting as a supplement

for the total income. It should also be mentioned that Katpadi has not been depending on this source of revenue for meeting its recurring expenditure, from the balance sheet.

REVENUE EXPENDITURE

Revenue expenditure of the ULB has been analyzed based on expenditure heads broadly classified under the following heads:

- Personal cost;
- Administrative expenses;
- Operating expenses;
- Interest & finance charges;
- Revenue grants, contributions and subsidies; and
- Miscellaneous / other expenses.

Application of funds by each sector and head-wise utilization of the revenue expenditure is presented in the table and charts. It may be observed that the establishment expenditure accounts for about 15 to 20 percent of total expenditure on average during the assessment period. In comparison with revenue income, about one third is utilized for payment of salaries. The other major sector having higher utilization is the repairs and maintenance expenses, which accounts for about 30 percent of the revenue expenditure on average. During the assessment period, revenue expenditure has indicated an average growth of about 26 percent per annum while the corresponding growth in revenue income was 20 percent. A sector-wise break up of costs is shown graphically. A Detailed analysis of each head of expense follows-

Personnel cost & terminal benefits to employees:

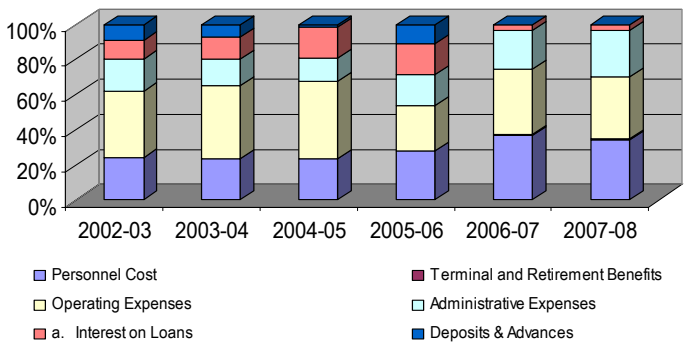
This include salaries and other related payments to

Table 11.4: Head-wise Revenue Expenditure

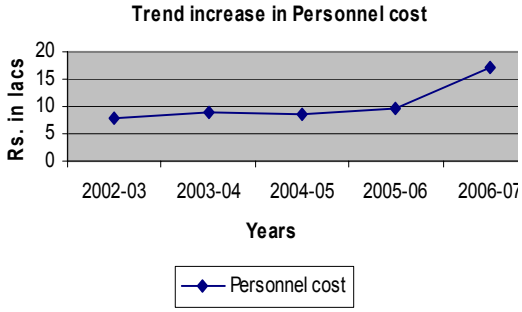
Sl. No.	Account Head	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
EXPENDITURE ACCOUNT							
1	Personnel Cost	7.73	8.81	8.53	9.67	17.15	21.85
2	Terminal and Retirement Benefits	0.04	0.04	0.04	0.06	0.20	0.15
3	Operating Expenses	11.97	15.44	15.82	9.09	17.10	22.25
4	Repair and Maintenance	9.43	13.27	13.93	12.53	38.42	54.06
5	Administrative Expenses	5.87	5.65	4.65	5.95	10.44	16.77
6	Finance Expenses						
	a. Interest on Loans	3.29	4.79	6.36	6.21	1.25	2.00
SECTORAL CONTRIBUTION TO TOTAL EXPENDITURE							
1	Personnel Cost	18.73	17.40	17.10	20.43	20.23	18.62
2	Terminal and Retirement Benefits	0.10	0.08	0.08	0.12	0.24	0.13
3	Operating Expenses	29.01	30.48	31.70	19.20	20.17	18.96
4	Repair and Maintenance	22.85	26.21	27.92	26.45	45.33	46.07
5	Administrative Expenses	14.22	11.16	9.32	12.56	12.32	14.29
6	Finance Expenses						
	a. Interest on Loans	7.96	9.46	12.75	13.12	1.47	1.70
GROWTH TRENDS IN %							
1	Personnel Cost	--	13.97	(3.21)	13.42	77.29	27.41
2	Terminal and Retirement Benefits	--	0.00	0.00	47.02	243.52	(25.00)
3	Operating Expenses	--	28.92	2.45	(42.51)	88.06	30.12
4	Repair and Maintenance		40.76	4.94	(10.07)	206.74	40.69
5	Administrative Expenses	--	(3.69)	(17.77)	27.98	75.54	60.63
6	Finance Expenses						
	a. Interest on Loans	--	45.80	32.78	(2.36)	(79.88)	60.00

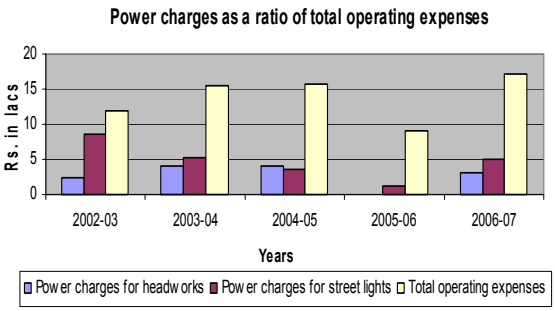
Source: Katpadi Town Panchayat; 2007

Share of Revenue Expenditure

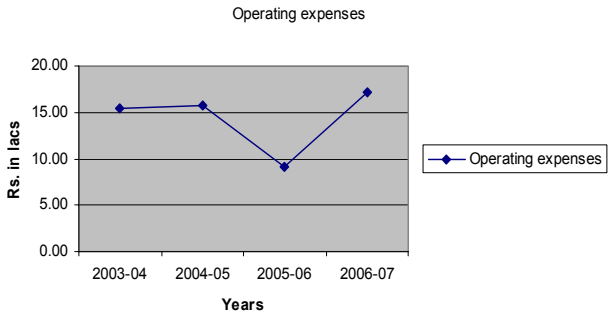


employees. The expense has been more or less steadily increasing; it reaches the maximum in the year 2006-07. The growth trend of personnel expenses is as follows-
The personnel cost has drastically decreased in the years 2003-4 over the previous year. Reasons for the same are now known. The ULB shall try to outsource certain activities like solid waste management, and outsource sanitary workers. Many of such activities would help in reducing the personnel cost.



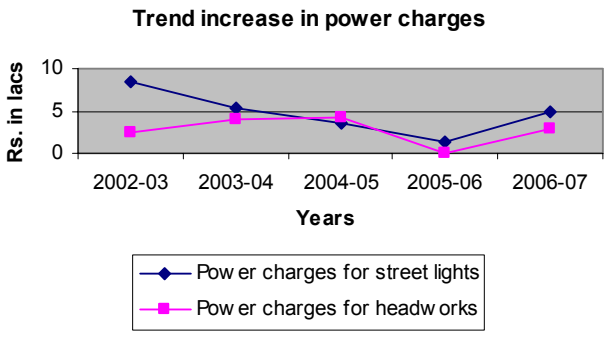


Operating Expenses:

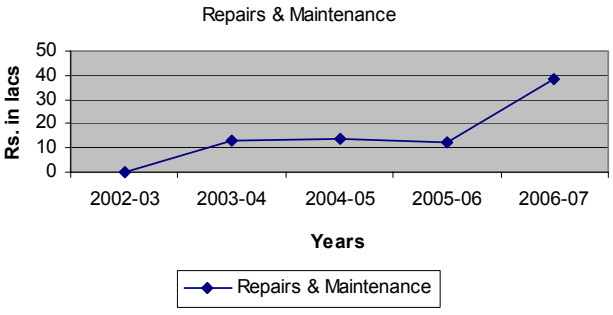


This head of expenditure include power charges, maintenance expenses of gardens, parks hospitals, removal of debris, purchase of scavenging materials, etc. The major item under this head is the power charge which constitutes roughly 10% of the total expenditure (during 2006-07) and over 81% of the total expenditure under this head. This excludes power charges pertaining to sewerage system and includes only water works. Street light maintenance is the major expense reported with a contribution of roughly 35% to this head of income followed by its power charges consuming 29% of the operating expenses, which is a cause of concern. Power charges towards head water works constitute 18% towards this head of income. The composition of power charges as part of the total operating expenses is given in the above graph.

From the numbers and the graph, it is seen that power charges consumes the majority portion. The ULB shall focus its attention on reducing the costs incurred under this head by privatizing the entire street lighting, to the Energy Service Companies. This is the model which is being tried by many local bodies. This applies to both street lighting and water supply.



It is to be noted that the above analysis does not include sewerage systems. If sewerage systems are proposed, the ULB cannot sustain the expenditure in their balance sheet. Energy efficiency measures can be attempted by the TP in a small scale.



Repairs & Maintenance:
This head includes repairs and maintenance of assets like drainage, bridges, roads, etc. The major item of expenditure under this head is towards payment to TWAD board, and water supply and sewerage maintenance costs. The next major expenditure is basically road topping expenditure. With proper water supply systems in place, this could be reduced. Moreover, the ULB shall also do a leak detection study, upon implementation of which the maintenance costs of water supply could be less. The cent age charges obtained by TWAD are now 5%which is much less than the 18% originally it used to be. To this extent this expense could come down in the near future. The trend so far is given in the adjacent graph.

Administrative expenses:
As far as Katpadi TP is concerned, Administrative expenses constitute roughly 12% of the total expenditure. Other than normal recurring expenses, the major item is contribution to other funds. The reason and nature of contribution is not known. However other recurring expenses largely seem to be under control.

DEBT SERVICING

ULB is having an outstanding loan of Rs. 570.80 lakhs as on March 31, 2006. Considering the current property tax demand (FY 2007-08) of Rs. 139 lakhs, the ULB can leverage debt to finance its projects to an extent of Rs. 280 - 420 lakhs as this would be within the threshold range of minimum 2 and maximum 3 times the current property tax demand generally considered by financial institutions for the purposes of lending. But it is observed that ULBs property tax collection performance is only one third of the total demand. Hence, based on the revenue receipts and revenue expenditure during the assessment period, the ULB is in a position to draw loans[6] to an extent of about Rs. 11 lakhs only on average.

11.2.4 CAPITAL ACCOUNT

The capital account comprises two components, viz. capital income and capital expenditure. The base and the basis of transactions in this account are elaborated below.

CAPITAL INCOME

Capital income mainly comprises income/receipts for capital works like loans/ borrowings, capital grants from the Central/State Government, and sale proceeds from assets apart from transfers from the revenue account to the three capital funds maintained by the ULB, viz. Municipal General Funds, Earmarked Funds and Reserve Funds. This account also has contributions received in the form of security deposits/EMD from suppliers, contractors, etc.

It is noteworthy that the ULB has received capital grants of Rs. 115 lakhs during the FY

Table 11.5 : Break-up of Capital Receipts/Income

Head	2002-03	2003-04	2004-05	2005-06
Grants in aid from State Government				
Basic Amenities	0.00	13.63	0.00	0.00
11th Central Finance Commission	70.28	22.40	21.63	10.51
M.P, L.A.P	20.00	10.00	0.00	0.00
M.L.A, L.A.P	0.00	7.00	0.00	0.00
Drought Relief	15.50	16.00	17.50	84.50
Specific Grants- Part II Scheme	5.00	25.00	0.00	0.00
Bus Stand/ C.C Roads	20.00	0.00	0.00	0.00
Road improvement	0.00	0.00	30.00	0.00
Street lights	0.00	0.00	5.00	0.00
Others . Please specify	56.50	22.30	0.00	20.07
Total Grants from State Govt. (A).	**187.28**	**116.33**	**74.13**	**115.08**
Grants from Central Government				
National Slum Development	22.00	10.47	16.40	0.00
Total Grants from Central Govt. (B)	**22.00**	**10.47**	**16.40**	**0.00**
Total Capital Income (A+B+C)	**209.28**	**126.80**	**90.53**	**115.08**

Source: Katpadi Town Panchayat; 2007

[6] Based on the acceptable thumb-rule, about 25 percent of the total revenue receipts and/or about 30 percent of the total revenue expenditure, whichever is lower, can be considered as leverageable surplus.

2005-06 through the Drought relief fund and 11th central finance commission grant. Also, there were no transfers to the capital funds during this period.

CAPITAL EXPENDITURE

Capital expenditure may be broadly categorized under three broad heads, viz. a) acquisition/ purchase of fixed assets; b) capital projects; and c) other capital expenses like refund of deposits, spending from the municipal funds, etc.

The ULB has been spending almost half of total capital expenses on Roads, Storm Water Drains and Culverts during the assessment period. The ULB has spent about Rs. 12 lakhs during the FY 2005-06.

11.3 REVIEW OF FINANCE

Highlights of the finance of Katpadi Town Panchayat under different heads are listed below.

		Minimum	Maximum	Average	Unit
A.	**Resource Mobilization Indicators - General**				
1	Share of Property Tax Component	7.13	15.10	10.55	percent
2	Share of Other Taxes (including Professional Tax)	5.84	12.48	8.99	percent
3	Share of Assigned Revenue	12.08	37.88	19.25	percent
4	Share of Devolution Funds	30.21	42.99	36.04	percent
5	Share of Service Charges and Fees	6.43	14.51	9.88	percent
6	Share of Grants and Contributions	0.00	23.41	9.54	percent
7	Share of Sale and Hire Charges	0.00	0.15	0.03	percent
8	Share of Other Income	3.57	9.74	5.23	percent
9	Share of Deposits & Advances	0.00	1.77	0.49	percent
10	Per Capita Income -Year 2006-07			816.64	Rupees
11	Growth in Property Tax Component	2.69	207.69	47.20	percent
12	Growth in Other Taxes (including Professional Tax)	16.88	39.67	25.29	percent
13	Growth in Assigned Revenue	(61.65)	44.80	2.34	percent
14	Growth in Devolution Funds	(13.44)	76.13	20.20	percent
15	Growth in Service Charges and Fees (including Water Charges)	(31.84)	34.72	10.32	percent
16	Growth in Service Charges and Fees (excluding Water Charges)	(68.62)	68.03	12.36	percent
17	Growth in Other Income	(52.72)	79.74	27.44	percent
18	Growth in Advances	(100.00)	16.67	(41.67)	percent
19	Growth in Total Receipts	(16.86)	56.42	20.65	percent
B.	**Resource Mobilization Indicators - Property Tax**				
1	No. of Assessments as on 2006/2007			3010	Nos.
2	Growth in Assessments	0.23	5.21	2.87	percent
3	Current Tax Rate			12	percent
4	ARV per Property - 2006/2007			8702	Rupees
5	Tax Per Property (Average)			191	Rupees
6	Collection Performance				
	a. Arrear Demand	0.00	44.99	19.75	percent
	b. Current Demand	26.60	68.60	51.20	percent
	c. Total Demand	12.17	54.18	34.31	percent

C.	**Resource Mobilization Indicators - Profession Tax**				
1	No. of Assessments as on 2006/2007			563	Nos.
2	Growth in Assessments	(44.42)	38.01	12.75	percent
3	Current Tax Rate			25	percent
4	Tax Per Assessment (Average)			833	Rupees
5	Collection Performance				
	a. Arrear Demand	0.00	100.00	48.35	percent
	b. Current Demand	3.73	69.41	32.72	percent
	c. Total Demand	14.40	62.94	45.78	percent
D.	**Resource Mobilization Indicators - Water Charges**				
1	No. of Connections as on 2006/2007			1384	Nos.
2	Growth in Connections	0.14	3.91	3.48	percent
3	Collection Performance				
	a. Arrear Demand	2.58	17.68	9.55	percent
	b. Current Demand	9.09	38.57	28.73	percent
	c. Total Demand	4.01	23.85	15.18	percent
E.	**Expenditure Management**				
1	Share of Personnel Cost (Establishment)	17.10	20.43	18.75	percent
2	Share of Terminal and Retirement Benefits	0.08	0.24	0.12	percent
3	Share of Operating Expenses	18.96	31.70	24.92	percent
4	Share of Administrative Expenses	9.32	14.29	12.31	percent
5	Share of Finance Expenses	1.47	1.47	7.74	percent
6	Share of Deposits & Advances	0.21	0.21	3.68	percent
7	Per Capita Expenditure - 2006-2007			522.76	Rupees
8	Growth in Personnel Cost (Establishment)	(3.21)	77.29	25.78	percent
9	Growth in Terminal and Retirement Benefits	(25.00)	243.52	53.11	percent
10	Growth in Operating Expenses	(42.51)	88.06	21.41	percent
11	Growth in Administrative Expenses	(17.77)	75.54	28.54	percent
12	Growth in Finance Expenses	(79.88)	60.00	11.27	percent
13	Share of Debt Servicing Expenditure	1.47	13.12	7.74	percent
14	Operating Ratio	0.70	1.04	0.89	Ratio
15	Growth in Debt Servicing Expenditure	(79.88)	60.00	(0.91)	percent
16	Growth in Total Expenditure	(5.09)	79.01	26.71	percent
F.	**Debt and Liability Management**				
1	Agency wise Outstanding Loan Amount				
	a. Government of Tamil Nadu			3.23	Rs. Lakhs
	b. MUDF/TNUDF			15.00	Rs. Lakhs
	c. Other Financial Institutions			37.42	Rs. Lakhs
	Total			55.65	Rs. Lakhs
2	Outstanding Loan Per Capita			343.24	Rupees
3	Ratio of Outstanding Loan to Property Tax Demand			0.90	Ratio
4	DS/TR (Debt Service/Total Revenue)	1.37	12.26	6.86	percent

11.4 KEY FINANCIAL INDICATORS

To assess the financial situation and performance of the ULB, certain key financial indictors have been generated. Following are the heads under which specific indicators of financial status and performance of the ULB have been assessed:

- Resource mobilization;
- Expenditure management; and
- Debt and liability management.

Following table provides performance of various key financial indicators of the ULB during the assessment period, along with the comparison with certain desirable benchmarks for evaluation.

Table 11.6: Performance of Key Financial Indicators in Katpadi Town Panchayat

Sl. No.	Account Head	Summary Statement					
		(All figures in Rs. Lakhs)					
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
1	Revenue Account Status (Incl. OB)	32.18	30.44	32.43	43.36	49.76	64.85
2	Operating Ratio (Rev. Expen./Rev. Inc.)	0.70	1.04	0.96	0.81	0.93	0.89
3	Debt Servicing - % of Income	5.59	9.80	12.26	10.66	1.37	1.51

Source: Katpadi Town Panchayat; 2007

Performance of Katpadi Town Panchayat

	Minimum	Maximum	Average	Desirable Benchmark
Existing (2000-01 to 2005-06)				
OR (Ratio)	0.70	1.04	0.89	Less than 1.00
DSR (%)	1.37	12.26	6.86	Less than 25 percent
Category			1	

Note: **1**: **Financially Sound**; **2**: Financially Fragile; **3:** Financially Insolvent

12

FINANCIAL OPERATING PLAN

12.1 OVERVIEW

The Financial Operating Plan (FOP) is a multi-year forecast of finances of the urban local body. The FOP can be generated for a short term (5 to 7 yrs) and also for the long-term (20 yrs) period. In the context of this assignment, the FOP is generated for the short term (2008-09 to 2012-13). The projection has also been extended for the long-term (20 years) to essentially provide a snapshot of the impact of identified investments on the municipal finances in the long run.

The objective of this section is to assess the investment sustenance capacity of the ULB vis-à-vis the projects identified in the CIP as part of the CCBP preparation. FOPs are essentially a financial forecast, developed on the basis of the growth trends of various components of income and expenditure, based on time-series data. Accordingly, the financial forecast has been prepared for the ULB. Broadly, all the sectoral components envisaged for funding are under the ULB. The FOP is in full consonance with the town's vision & approach to development and priorities and action plans approved by the stakeholders. Several assumptions were made while forecasting finances. The study team has adopted necessary caution to adopt the assumptions based on current growth trends, contribution pattern of various revenue drivers, and utilization pattern of various expenditure drivers. In addition, various quantifiable assets and liabilities of the ULB were also taken into account and phased over a period of time. The following section provides insight into the various assumptions made, necessary logic and justifications for such assumptions.

12.2 BASE AND BASIS

In order to assess the investment sustaining capacity of the ULB, the fiscal situation is simulated through a Financial Operating Plan (FOP). The FOP is a multi-year forecast of finances for a term of 20 years. It is used to forecast revenue income and operating expenditure for the period between FY 2008-09 and FY 2012-13 and between FY 2012-13 and FY 2027-28. However, capital expenditure is planned from FY 2009-10. Following are the important considerations towards simulating the fiscal situation of the ULB and include both existing and new resources.

- Income considerations
  - Revision of property tax ARV by 35 percent in FY 2007-08 and FY 2012-13 from the existing previous base (quinquinennial revision);
  - Revision of about 30 percent in the base tariff for water and sewerage (as applicable) during FY 2008-09, matching with the commissioning of the proposed schemes has been proposed. A concurrent increase of 5 percent per annum for other years as per the prevailing procedure of the GoTN Notification is also taken into consideration;
  - Improving arrears tax collection efficiency to at least 75 percent and current collection efficiency to at least 85 percent;
  - Growth in other revenue income items based on past performance and/or likely growth; and
  - Any additional resources generated as part of proposed investments are taken into consideration.

- Expenditure considerations
  - Establishment expenditure assumed to increase at the rate of 8 percent per annum (8 percent is considered as there has been a consistent low growth rate over the past years and also there is a restriction by the GoTN for fresh recruitment);
  - Repairs & maintenance to grow based on past performance and/or likely growth;
  - Proposed capital expenditure and phasing based on investments recommended;
  - Additional O&M for new investments are also taken into account.

12.3 KEY ASSUMPTIONS

In forecasting income and expenditure, key assumptions and guiding principles adopted are indicated in Table 12.1 below:

Table 12.1: Basic Assumptions for the FOP

No.	Particulars	Assumption for Forecast
A.	**REVENUE INCOME**	
1.	**Taxes**	
	Property Tax	
	- ARV Revision	25% during FY 2008-09 and FY 2013-14
	- Growth in Assessments	Ceiling 7% Gradually stabilize at 4-5%
	- Collection Performance	Arrear demand - 19% Current demand - 51%
	Other Taxes	5% annual growth
2.	**Water Supply**	
	Water Tariff Revision	25% revision of base tariff during FY 2008-09 while commissioning the new scheme 5% automatic revision every year as per prevailing practice and GoTN Notification
	Coverage	Ceiling 85% of Property Tax Assessments
	Connection Charges	20% increase every 3 years starting from FY 2008-09
	Collection Performance	Arrear demand - 9% Current demand - 28%
3.	**Sewerage**	
	Sewer Charges Revision	25% revision of base tariff during FY 2008-09 while commissioning the new scheme 5% automatic revision every year as per prevailing practice and GoTN Notification
	Coverage	Ceiling 75% of Property Tax Assessments
	Connection Charges	25% increase every 3 years starting from FY 2008-09
4.	**Assigned Revenue**	
	Other Assigned Revenues	--
5.	**Other Revenue Items**	
	Rent from Municipal Properties	Ceiling 15%
	Fees and User Charges	Ceiling 20%
	Sale and Hire Charges	15% annual growth
	Revenue Grants, Contributions and Subsidies	Ceiling 5%
	Other Income	Ceiling 15%
B.	**REVENUE EXPENDITURE**	
1.	Establishment	8% annual growth
2.	Administrative Expenses	8% annual growth
3.	Repairs and Maintenance - Existing Assets	20% annual growth
4.	Interest and Finance Charges - Others	Based on annuity calculation on the loans outstanding
5.	Revenue Grants, Contributions and Subsidies	Ceiling 5%
6.	Miscellaneous / Other Expenses	Ceiling 10%
C.	**CAPITAL STRUCTURING**	
1.	Capital Grants - GoI/UIDSSMT	80% of capital expenditure
2.	Capital Grants - GoTN as Counterpart Contribution	10% of capital expenditure

No.	Particulars	Assumption for Forecast
3.	ULB as Counterpart Contribution	10% of capital expenditure To be transferred from revenue surplus (primary operational surplus) Resource gap to be met through debt
4.	Loans/Borrowings	8% interest repayable in 15 years.
5.	Investment phasing	Optimum Scenario: As per the CIP under 'optimum scenario', full investment. Sustainable Scenario: As per the CIP under sustainable investment level only.

12.4 SCENARIOS AND FINANCIAL PROJECTIONS

Based on the above assumptions and the proposed and prioritized CIP, separate FOPs have been generated. As stated earlier, the investments pertaining to all sectors have been incorporated in the FOP prepared for the ULB. Pertinent O&M expenses (on new assets) and the receivables thereon are also incorporated into the FOP. The FOP is generated under the following scenarios:

- Base Case - Optimum Scenario: This scenario assumes the capital investment estimate and the phasing as per the 'Optimum Scenario'. The FOP has been generated assuming full CIPs under the 'Optimum Scenario' for ULBs; and
- Sustainable Scenario Option: This scenario is envisaged to ascertain a sustainable level of the ULB for the proposed CIP considering the ULB's capital investment capacity and its capacity to maintain the new assets.

From the discussion with the CTP and stakeholders of the ULB it was observed that Underground sewerage system takes the long-term priority of the town taking into consideration huge capital investment requirements and operation and maintenance requirements. Hence the study team worked out the implementation and financial operating plan with and without Underground sewerage project. In short-term period, an interceptor drains with treatment plant are suggested to control / minimize the sewage and sullage load which are being disposed into the major water bodies in the town through road side drains. FOP has been evolved for the following four cases.

- Case 1 – FOP under Sustainable Scenario within their Borrowing Capacity
- Case 2 – FOP without Underground Sewerage Project under Optimum Scenario
- Case 3 – FOP with Underground Sewerage Project under Optimum Scenario
- Case 4 – FOP within their Borrowing Capacity – Zero Grant

Even though scenarios are worked out, there is a possibility of reducing the capital investment and thus increasing the borrowing / investment capacity of the ULB. Certain projects have been identified, which can be outsourced or privatized, the list of which and their costs are given as follows:

S.NO.	PROJECTS	DESCRIPTION	AMOUNT	REMARKS
1	Sanitation	Community Toilets	72.14	This project can be executed with the help of SHGs which also provides for employment opportunities to the BPL population. Under the Second World Bank project, this was one of the best practices developed. The ULB shall try out this methodology which also requires effective communication with the citizens. By this way, the ULB can save the capital cost and also provide an efficient service delivery.
2	Roads	Strengthening existing roads, upgradation of roads, formation of new roads,	551.32	Government periodically announces grant programs for development or upgradation of roads. This particular project identified can be posed under these grant projects, in phases, as UIDSSMT does not support individual projects,

		widening of roads		but takes an integrated approach. Further, the ULB does not have surplus financials to meet the expenditure by themselves.
3.	Storm water drains	Provision of Storm water along existing roads, Formation of new drains	1411.00	As said above, this can also be included in Govt. sponsored programs as part of the road project.
4.	Street Lighting		305.94	It is now prevalent to take up maintenance of street lighting by Energy Saving Companies, which are being tested in municipalities. This can be done here, where the initial investment will be made by the ESCO, and they will maintain the street light system for a particular concession period. This initiative can be taken up by Katpadi TP, through the advice of CTP
5.	Solid Waste Management	Primary, Secondary collection, transportation and disposal	721.92	Almost all municipalities in Tamil Nadu have now started privatizing most of their SWM activities, in order to have better efficiency in service and also cost-effective. This is cropping up in the light of the Supreme Court ruling. It is felt that Katpadi TP shall follow the same principle, so that there is a better efficiency in service, and ends up neither in capital investment nor O&M costs. Alternatively, if it is felt that the amount of garbage generated is not attractive to a private investor, there are programs coming up like Integrated Solid Waste Management piloted by the TNUDF, where studies have commissioned for Corporations. This study envisages a single contract for primary, secondary collection, transportation, composting and landfill activities by one BOT operator. When there is a cluster of ULBs, it would be an attractive investment for the operator. In this context, Katpadi TP, which is located in the vicinity of Vellore municipality / district HQ / Corporation, can always be one among the cluster, and the project could be implemented through this mechanism.
6.	Other Development Proposals	Proposed Community Centers / halls	38.12	Since the finances of the ULB are very poor, and the value of the project is less, it is suggested that these may be taken up under various grants and contributions flowing into the revenue stream of the ULB, like the MLA / MP funds. But, the ULB shall take adequate care that these funds henceforth shall be properly utilized for the projects envisaged, in the light of demands.
7.		Proposed dedicated vegetable / meat market	121.97	There are two ways of doing this project – i.) Land could be earmarked for this market. Thereon, with the initial investment of a BOT operator, the entire market could be constructed by him, and the rentals collected by the operator himself. There could be a contractual binding as to payments to the ULB by the operator annually or half-yearly, on the basis of the rental income. ii) The second option would be prepare designs, showcase the designs and identify lessees, get upfront rentals from them so that it covers the capital cost, then start construction. This method will help the ULB in firming up the lessees for the market, as well as meet the construction cost without disturbing the balance sheet to certain extent
8.		Proposed weekly markets	50.82	Similar to the above

9.		Construction of shopping complex	107.99	Similar to the above
10.		Slaughter development with treatment in the market	12.71	As said above, for the weekly daily market, if option (i) is considered, the operator himself can run the slaughter house, or, if (ii) is considered, the ULB can construct this with MP grants, as the size of the project is very less

In order to give a base scenario, as expected, none of the above measures are incorporated in the FOP. Hence with the base case, the following two scenarios are worked out.

CASE 1: CAPITAL INVESTMENT CONSIDERED UNDER THE SUSTAINABLE SCENARIO:

This is a scenario where the investments are sized according to the financial capabilities of the ULB. This is worked out based on certain assumptions. The method of such workings and the results thereon are given in the forthcoming sections.

Method and Assumption:

The sustainable scenario is prepared after taking into consideration, the revenue inflows and outflows from the base scenario, i.e. the income from sewerage and water charges and O&M on assets is taken. In order to arrive at the sustainability, three different parameters were used which are,

- TE /TR <1
- DS /TR <=30%
- 30% of the operating surplus should be retained as surplus and the balance can only be leveraged.

The least of the above 3 factors was arrived at as the possible annuities payable by the ULB. With this a conversion factor was worked out to determine the Borrowing Capacity and the Investment Capacity. The maximum sustainable investments for the next 5 years are summarized as follows:

Table 12.2: Borrowing & Investment Capacity of Sustainable Case Scenario *(Rs. In lakhs)*

Details	2008-09	2009-10	2010-11	2011-12	2012-13
Borrowing Capacity	0.00	0.00	0.00	0.00	330.07
Investment Capacity	0.00	0.00	0.00	0.00	507.79

From the above table it is found that ULB does not have a borrowing and investment capacity to fund the projects identified under CCBP. In the judgment of the consultants, the ULB shall execute the works mentioned in the section 12.4 within a period of 2 years and then go in for further capital investments.

Short Term (Upto 2012-13)	Maximum	Minimum
Borrowing Capacity	330.07	0.00
Investment Capacity	507.79	0.00
Long-Term (Upto 2027-28)	**Maximum**	**Minimum**
Borrowing Capacity	355.83	0.00
Investment Capacity	547.43	0.00

For executing the above, it is quite obvious that ULBs may not have the capacity to prepare contract documents or conduct feasibility study. For this purpose, they may engage a bid process consultant through grant funds available with the CTP, and with the guidance of FIs who are developing such practices

CASE 2: CAPITAL INVESTMENT CONSIDERED UNDER THE BASE CASE – OPTIMUM SCENARIO:

This scenario assumes the capital investment estimate and the phasing as per the 'Optimum Scenario'. The FOP has been generated assuming **full CIPs excluding underground sewerage project** under the 'Optimum Scenario'.

Capital Investment Considered for FOP Generation (Case 2: FOP without UGSS): In order to formulate FOP, projects that are directly implementable and having the impact over the finance of ULB are considered. In this case UGS scheme to the town is not considered since implementation of this scheme requires heavy capital investment. Also in this case, projects which are implemented by other departments like formation of Ring road and Junction improvements etc are not considered for FOP iteration. Sector wise capital investments considered are given in the following table.

Table 12.3: Proposed Capital Investment for FOP Generation – Without Underground Sewerage Project

Sl.No	Sectors	Estimated Capital Investment (Rs. In Lakhs)	% to Total
1	Water Supply System	938.39	15.42
2	Sanitation & Interceptor Drain	84.04	1.38
3	Roads, Traffic and Transportation	1,025.50	16.85
4	Storm Water Drains	1,411.00	23.18
5	Street Lighting	305.94	5.03
6	Solid Waste Management	721.92	11.86
7	Environment Improvement	323.78	5.32
8	Other Development Proposals	528.53	8.68
9	Slum Upgrading	573.16	9.42
10	Urban Governance	174.35	2.86
	Total Capital Investment	**6,086.62**	**100.00**

Assumptions:

Based on the phasing assumed the financials are done with certain basic assumptions on the means of finance. Loan assumptions were made conservatively, and are an average of the various grants and loans available. Moratorium is not considered on a conservative side. The O&M is assumed based on sectors.

Table 12.4: Assumptions on Means of Finance

Fund Option	2008-09	2009-10	2010-11	2011-12	2012-13
Loan	50%	50%	45%	45%	40%
Grant	30%	30%	40%	40%	30%
Own	20%	20%	15%	15%	30%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 12.5 Assumptions on Means of Finance (Rs. In Lakhs)

Loan Assumptions	2008-09	2009-10	2010-11	2011-12	2012-13
Tenor	15	15	15	15	15
Rate of Interest	8.75%	8.75%	8.75%	8.75%	8.75%

The O&M is assumed based on sectors. Recent trends on O&M have been adopted for making these assumptions.

Table 12.6: Estimated O&M Requirements for Proposed Capital Investments *(Rs. In lakhs)*

O&M Costs	% of O&M	2008-09	2009-10	2010-11	2011-12	2012-13
Water Supply System	2%	4.94	6.82	6.80	0.21	0.00
Underground Sewerage Scheme	2%	0.94	0.50	0.24	0.00	0.00
Roads, Traffic and Transportation	1.50%	4.79	5.01	5.59	0.00	0.00
Storm Water Drains	1.50%	2.41	7.62	4.82	4.06	2.25
Street Lighting	1%	2.98	0.08	0.00	0.00	0.00
Solid Waste Management	2%	0.01	6.82	7.46	0.15	0.00
Environment Improvement	2%	4.32	2.13	0.03	0.00	0.00
Other Development Proposals	1%	2.32	2.37	0.59	0.00	0.00
Slum Upgrading	2%	1.84	4.75	4.88	0.00	0.00
Urban Governance	1%	0.44	0.44	0.44	0.44	0.00

O&M Costs	% of O&M	2008-09	2009-10	2010-11	2011-12	2012-13
Total		24.98	36.54	30.84	4.86	2.25
Cumulative O&M		24.98	61.52	92.35	97.21	99.46

The following table summarizes the outcome of the FOP under the 'Base Case - Optimum Scenario' against select key indicators.

FINANCIAL OPERATING PLAN - Base Case: Optimum Scenario (Under Case 2)

Existing (2002-03 to 2007-08)	Minimum	Maximum	Average
OR (Ratio)	0.70	1.04	0.89
DSR (%)	1.37	12.26	6.86
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.71	1.03	0.95
DSR (%)	6.63	249.17	139.25
Category			**2**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.71	1.20	1.02
DSR (%)	0.23	249.17	92.53
Category			**3**

Note: 1: Financially Sound; **2: Financially Fragile**; 3: Financially Insolvent

Under the above scenario ('Base Case - Optimum Scenario'), if the full investment of Rs.6086.82 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit of Rs. 1125.05 Lakhs by the year 2012-13 (Short term Period). In Long-term period ULB may reaches a surplus position of Rs.6646.85 Lakhs by the year 2024-25 provided necessary financial reforms are accomplished within the recommended duration.

Further, in order to meet resource requirements of its own contribution, the ULB would need to take loan of Rs. 3487.87 Lakhs during this period. In order to sustain the proposed capital investment, the ULB may require grant support from the GoTN and GoI to the extent of at least Rs. 2374.62 Lakhs during this period. This is expected capital grant contribution from the GoTN at and GoI at 10 percent each.

In order to meet resource requirements of its own contribution, the ULB would need to transfer its revenue surpluses of Rs.74.05 Lakhs during this period. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

Table 12.7: Summary of Base Case – Optimum Scenario (Under Case 2) *(Rs. In lakhs)*

Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	64.85	61.67	(64.20)	(353.10)	(772.76)
Revenue Receipts	132.54	143.61	154.26	168.09	267.35
Revenue Expenditure	132.36	144.72	158.35	173.38	189.95
Operating Ratio	1.00	1.01	1.03	1.03	0.71
Debt Servicing Ratio	6.63	90.44	187.73	249.17	162.26
Operating Deficit/Revenue Grant Requirement	0.00	1.11	4.09	5.29	0.00
Closing Balance	61.67	(64.20)	(353.10)	(772.76)	(1125.05)
Capital Grant – GoI	0.00	331.12	436.42	353.34	66.43
Capital Grant – GoTN	0.00	331.12	436.42	353.34	66.43
ULB Contribution - Transfers from Revenue Surplus	0.00	0.00	0.00	0.00	74.05
ULB Contribution - Loan/Borrowings	0.00	993.35	1309.25	1060.02	125.25
Public Contribution	0.00	0.00	0.00	0.00	0.00

It can be observed that there is an operational deficit in the FY2009-10, 2010-11, and 2011-12 during the short-term period, and also a deficit in a closing balance in all FYs, due to huge investments made. This is also due to higher loan dependency for the projects identified under CCBP since revenue surplus is very minimal. However, based on assumptions, the capital components of the assumed investments are the loans (Rs. 3980.27 lakhs) and the own contributions (Rs. 40.63 lakhs) to be made by the ULBs. The interest portion is taken for calculation of the revenue surplus; the principal repayment is taken as a capital expenditure. The negative surplus in the closing balance is due to transfers from revenue account to capital expenditure in order to meet the ULB contribution.

CASE 3: CAPITAL INVESTMENT CONSIDERED UNDER THE BASE CASE – OPTIMUM SCENARIO:

This scenario assumes the capital investment estimate and the phasing as per the 'Optimum Scenario'. The FOP has been generated assuming full CIPs under the 'Optimum Scenario'.

Capital Investment Considered for FOP Generation (Case 3: FOP with UGSS): In order to formulate FOP, projects that are directly implementable and having the impact over the finance of ULB are considered. Under this case, Projects which are implemented by other departments like Formation of New Roads, Junction Improvements etc., are not considered. Sector wise capital investments considered are given in the following table.

Table 12.8: Proposed Capital Investment for FOP Generation – With Underground Sewerage Project

Sl.No	Sectors	Estimated Capital Investment (Rs. In Lakhs)	% to Total
1	Water Supply System	938.39	9.82
2	Underground Sewerage Scheme	3,672.39	38.43
3	Roads, Traffic and Transportation	1,025.50	10.73
4	Storm Water Drains	1,411.00	14.77
5	Street Lighting	185.77	1.94
6	Solid Waste Management	721.92	7.56
7	Environment Improvement	323.78	3.39
8	Other Development Proposals	528.53	5.53
9	Slum Upgrading	573.16	6.00
10	Urban Governance	174.35	1.82
	Total Capital Investment	**9,554.80**	100.00

Assumptions:

Based on the phasing assumed the financials are done with certain basic assumptions on the means of finance. Loan assumptions were made conservatively, and are an average of the various grants and loans available. Moratorium is not considered on a conservative side. The following table summarizes the outcome of the FOP under the 'Base Case - Optimum Scenario' against select key indicators.

Table 12.9: Assumptions on Means of Finance

Fund Option	2008-09	2009-10	2010-11	2011-12	2012-13
Loan	50%	50%	45%	45%	40%
Grant	30%	30%	40%	40%	30%
Own	20%	20%	15%	15%	30%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 12.10: Assumptions on Means of Finance (Rs. In Lakhs)

Loan Assumptions	2008-09	2009-10	2010-11	2011-12	2012-13
Tenor	15	15	15	15	15
Rate of Interest	8.75%	8.75%	8.75%	8.75%	8.75%

FINANCIAL OPERATING PLAN - Base Case: Optimum Scenario (Under Case 3)

Existing (2002-03 to 2007-08)	Minimum	Maximum	Average
OR (Ratio)	0.70	1.04	0.89

DSR (%)	1.37	12.26	6.86
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.63	1.03	0.94
DSR (%)	6.63	351.17	191.76
Category			**2**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.58	1.20	0.98
DSR (%)	0.20	351.17	125.02
Category			**2**

Note: 1: Financially Sound; **2: Financially Fragile**; 3: Financially Insolvent

Under the above scenario ('Base Case - Optimum Scenario'), if the full investment of Rs.9554.80 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit of Rs.1646.98 by the year 2012-13 (Short term Period) respectively. In Long-term period deficit may be increased to Rs.9484.47 Lakhs by the year 2027-28.

Further, in order to meet resource requirements of its own contribution, the ULB would need to take loan of Rs. 5363.65 Lakhs during this period. In order to sustain the proposed capital investment, the ULB may require grant support from the GoTN and GoI to the extent of at least Rs. 3761.89 Lakhs during this period. This is expected capital grant contribution from the GoTN at and GoI at 10 percent each.

In order to meet resource requirements of its own contribution, the ULB would need to transfer its revenue surpluses of Rs.109.61 Lakhs during this period. Public contribution in the form of deposits collected for UGS to the tune of Rs. 169.58 lakhs need to be mobilized by the ULB in advance. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

Table 12.11: Summary of Base Case – Optimum Scenario (Under Case 3) *(Rs. In lakhs)*

Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	64.85	61.67	(111.79)	(509.84)	(1100.97)
Revenue Receipts	132.54	143.61	154.26	168.09	302.90
Revenue Expenditure	132.36	144.72	158.35	173.38	189.95
Operating Ratio	1.00	1.01	1.03	1.03	0.63
Debt Servicing Ratio	6.63	123.58	258.48	351.17	218.91
Operating Deficit/Revenue Grant Requirement	0.00	1.11	4.09	5.29	0.00
Closing Balance	61.67	(111.79)	(509.84)	(1100.97)	(1646.98)
Capital Grant – GoI	0.00	476.60	632.55	535.84	235.95
Capital Grant – GoTN	0.00	476.60	632.55	535.84	235.95
ULB Contribution - Transfers from Revenue Surplus	0.00	0.00	0.00	0.00	109.61
ULB Contribution - Loan/Borrowings	0.00	1382.70	1812.86	1569.84	598.24
Public Contribution – UGS Deposits	0.00	47.11	84.79	37.68	0.00

It can be observed that there is an operational deficit in the FYs during the short-term period, and a deficit in a closing balance, due to huge investments made. This is also due to higher loan dependency for the projects identified under CCBP since revenue surplus is very minimal.

CASE 4: CAPITAL INVESTMENT CONSIDERED UNDER THE SUSTAINABLE SCENARIO – ZERO GRANT:

This is a scenario where the investments are sized according to the financial capabilities of the ULB. This is worked out based on certain assumptions. The method of such workings and the results thereon are given in the forthcoming sections.

Method and Assumption:

The sustainable scenario is prepared after taking into consideration, the revenue inflows and outflows from the base scenario, i.e. the income from sewerage and water charges and O&M on assets is taken. In order to arrive at the sustainability, three different parameters were used which are,

- TE /TR <1
- DS /TR <=30%
- 30% of the operating surplus should be retained as surplus and the balance can only be leveraged.

The least of the above 3 factors was arrived at as the possible annuities payable by the ULB. With this a conversion factor was worked out to determine the Borrowing Capacity and the Investment Capacity. The maximum sustainable investments for the next 5 years are summarized as follows:

Table 12.14: Borrowing & Investment Capacity of Sustainable Case Scenario *(Rs. In lakhs)*

Details	2008-09	2009-10	2010-11	2011-12	2012-13
Borrowing Capacity	0.00	0.00	0.00	0.00	330.07
Investment Capacity	0.00	0.00	0.00	0.00	507.79

Therefore FOP for the revised investment estimates was worked out. It is quite obvious that when there is no revenue deficit at the base scenario, there cannot be a revenue deficit in this scenario. However a detailed FOP has been worked out with the basic assumption that O&M is 2% on the overall investment. The summary of the results of the sustainable scenario under this case is as follows:

Under this scenario, 90% of the proposed investment is funded through loan funding, and remaining 10% is from ULB contribution either as a revenue surplus or loan from any financial institutions. Assumptions under this scenario and means of finance are given in the adjacent table.

Table 12.15: Assumptions on Means of Finance (Rs. In Lakhs)

Loan Assumptions	2008-09	2009-10	2010-11	2011-12	2012-13
Tenure	15	15	15	15	15
Rate of Interest	8.75%	8.75%	8.75%	8.75%	8.75%
Loan Amount	0.00	0.00	0.00	0.00	355.46
Annuities	0.00	0.00	0.00	0.00	43.45
Cumulative annuities		0.00	0.00	0.00	0.00
Total annuities for the year	0.00	0.00	0.00	0.00	43.45

From the above table it is found that ULB does not have a borrowing and investment capacity to fund the projects identified under CCBP. In the judgment of the consultants, the ULB shall execute the works mentioned in the section 12.4 within a period of 2 years and then go in for further capital investments.

Short Term (Upto 2012-13)	Maximum	Minimum
Borrowing Capacity (Rs. in lakhs)	330.07	0.00
Investment Capacity (Rs. in lakhs)	507.79	0.00
Long-Term (Upto 2027-28)	**Maximum**	**Minimum**
Borrowing Capacity (Rs. in lakhs)	355.83	0.00
Investment Capacity (Rs. in lakhs)	547.43	0.00

For executing the above, it is quite obvious that ULBs may not have the capacity to prepare contract documents or conduct feasibility study. For this purpose, they may engage a bid process consultant through grant funds available with the CTP, and with the guidance of FIs who are developing such practices.

Suggestions:

- As mentioned in the earlier sections, the ULB can go in for BOT projects wherever possible, in order to reduce initial investments, preferably in remunerative projects, Sanitary Landfill and Composting Facility and also in traffic and transportation sector.
- Energy efficiency measures can be adopted in order to reduce O&M costs in areas of street lighting, etc.

The ULB contribution can be managed by the leveraging concept. A bridge loan can be obtained from cheaper sources so that the initial upfront investment of ULB can be avoided and as a result the negative closing balance can also be avoided. This can be managed as there is still a revenue surplus available and repayments can be accommodated. Results of FOP for both scenarios under case – 1, case - 2 and case -3 are enclosed in the Annexure – 9A, 9B and 9C.

Recommendations on Capital Investment Plan

- It is recommended that the ULB plan for utilizing capital investment within their Investment Capacity (i.e. Rs. 507.79 Lakhs) during the period from 2008-09 to 2012-13 to effectively manage the finances of the ULB.
- In the case where the GoTN assures additional budgetary support through revenue grants for the O&M of the new assets created, the ULB should explore capital investment plan under the 'Optimum Scenario'.
- The decision on the capital utilization under the 'Optimum Scenario' should be made only based on a commitment from the GoTN on the extent of capital grant support and revenue grant support.

12.5 REVENUE ENHANCEMENT MEASURES

ULB often face the pressure of inadequate resources to meet recurring expenditure and investment needs for core urban civic services. There is a growing realization among urban managers on the need to innovate, especially in the context of declining state and central government's financial support to ULB, to sustain investments and to carry on their functions. In addition to state level initiatives in the form of legislative and regulatory measures, ULBs need to make efforts to enhance their resource base through a series of reforms at local levels.

"Innovation" is now recognized as the key to success in resource mobilization efforts of ULB to tap revenue sources, both tax and non-tax. In addition to raising municipal resources, ULB need to adopt innovative mechanisms in cost cutting or expenditure management for effective financial planning. Besides, additional resource mobilization at local government levels is usually possible through "taxation" (under which property tax is the mainstay of ULB) and "user charges".

In recent years, apart from internal resource mobilization, ULB need to tap funds in the form of direct borrowings from Financial Institutions, capital markets (through municipal bonds), or through appropriate financial intermediaries or institutions and various other arrangements for attracting direct private investment (indirect access). In order to access such funds or supplement resources by way of external borrowing, ULB need to assess their sustaining capacities and requires steps to gain investor confidence by enhancing tax rates, improving collection efficiencies, enabling public-private partnerships, etc.

This section of the report highlights the salient features of the innovative resource mobilization practices need to be included in the ULB to enhance its revenue base to sustain the proposed investments in the CCP:

1. Public Participation through Beneficiaries Contribution
2. Property Tax Rate Enhancement

3. Improving Property Tax Collection
4. Levy of New User Charges
5. Cost Reduction

1. Public Participation through Beneficiaries Contribution

Beneficiary's contribution is emerging as an effective instrument for generating resources to meet capital needs and sustaining investments. The beneficiary contribution can indeed be a significant source of finance for local bodies, especially for financing capital-intensive projects. ULB need to keep the debt component of the project fund as low as possible and solicited beneficiary contribution to fund the project. Beneficiary's contribution can be sort for infrastructure projects like provision of Underground Sewerage scheme for the town at an estimated investment of Rs. 3,672 lakhs. Under this scheme ULB need to borrow a loan amount of Rs. 1652 lakhs (45% of proposed investment) from the financial institutions. ULB can levy a non-refundable, one-time deposit charge for domestic and non-domestic connections to the tune of Rs. 10,000 and Rs. 15,000 per connection respectively in order to reduce the loan amount considerably.

Public private partnership would be encouraged so as to complement the resources and the efforts of the ULBs in development and provision of urban services. The Government would take a leading role in creating & enabling environment for facilitating these partnerships. Private sector participation would be encouraged across the following areas:

- Property and water tax assessment.
- Operation and maintenance of water treatment plants and pumping stations
- Municipal solid waste management
- Construction, operation and maintenance of bio-medical and hazardous waste treatment facility
- Awareness campaigns for cleaner environment
- Maintenance of roads, public parks, streetlights and public toilets.
- Large scale township development projects.
- Construction of bridges, flyover and by-passes around town.
- Make non-performing municipal assets to performing assets by suitable methods.

2. Property Tax Rate Enhancement

Enhancement in tax rate is one of the essential requirement for the ULB to improve their base of the own resources. As per SFC recommendations revision of Annual rental value (ARV) has fallen due in 2003. Government of Tamil Nadu should implement the SFC recommendation of revision of property tax every five years.

3. Improving Property Tax Collection

Map based system of maintaining records using Geographic Information system (GIS) would improve the coverage of information on the properties and widen the tax net.

Special tax collection camps and door-to-door campaigns need to be initiated for collection of taxes and charges. Councilors shall take interest in organizing such camps, through which people are encouraged to utilize facilities and pay taxes which will increase the collection performance. The following revenue enhancement measures are suggested to improve the revenue base of the ULB:

- Carrying out Legal and Procedural reforms for enhancement of property tax and its effective collection.
- Comprehensive assessment of properties to enhance base of property tax
- Stricter enforcement of tax.
- Normalization of property valuation and tax assessment mechanism to capture

appreciation in value of property.
- Creation of a property valuation cell to ensure uniform procedures for valuation of properties.
- Comprehensive communication with the public to address their concerns regarding property tax assessment.
- Enhancement in the non-tax collection by improving the rate structure and collection mechanism.
- New areas need to be explored for rent and fee collection.
- Computerization of database of properties and other income sources.
- Full cost recovery for urban utilities: Ensure cost recovery for urban utilities especially water, through rationalization of tariff structure.

4. Levy of New User Charges

Imposition of Solid Waste Charges as an additional source of local revenue, which is a fairly recent innovation can be tried.

Levy of vacant Land Tax (VLT) as per the GoTN provision will improve the revenue base and it will also encourage the development of urban activities.

5. Cost Reduction

- Implementation of energy saving measures in street light sector will reduce the energy cost considerably. An Energy Management Plan need to be prepared by the ULB and an option/feasibility of privatization of O&M activities need to be studied. Alternate energy sources shall be generated with the involvement of private operators (i.e. Wind Mills) to subsidize the energy cost.
- Privatization of MSWM activities will reduce the operation cost and ensure better service delivery since ULB lacks sufficient staff strength both at managerial and field level.

13

PRIORITY ASSET MANAGEMENT PLAN

13.1 OVERVIEW

This section focuses on priority asset management to inform, help and guide policymaking by city governments. Assets can be used by the city administration to help them achieve their objectives; yet studies find that municipal assets are often underutilized by the local governments or improperly transferred or sold. Assets can be put into productive use, or they can be acquired, sold, transformed or otherwise disposed of to benefit ultimately the citizenry.

The ultimate purpose of an Asset Management Plan is to ensure that assets are operated and maintained in a sustainable and cost effective manner, so that they provide the required level of service for present and future customers.

"The combination of management, financial, economic, engineering and other practices, applied to physical assets with the objective of providing the required level of service in the most cost effective manner".

And an Asset Management Plan is:

"A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the life cycle of the asset in the most cost-effective manner to provide a specified level of service".

Asset management plan is "knowing" about assets, what they are, where they are, what condition they are in, how much they are worth, what level of service is expected of them and at what cost, how they are performing, what extra capacity they have, what future capacity is required, when they need to be replaced/upgrade, what will the cost be to replace / upgrade, what further works are required to meet future demand and what improvements are programmed. A brief about Asset Management Process (AMP) is enclosed in Annexure - 10.

13.2 INVENTORY OF MUNICIPAL ASSETS

The Asset Management starts with the identification and inventory of assets that the municipalities own, control, or administer and the inclusion of this listing in an orderly asset management system. In some municipalities, a register of land and other assets includes both private and public properties, a database that provides municipal government information from which to manage real estate and infrastructure use, and to administer taxes and services effectively. Maps and lists of real estate property, including surplus property earmarked for disposal are available at Local Planning Authorities, but these properties do not necessarily have assigned values. Long term planning document like Master Plan incorporates a framework for planning the use and management of physical assets especially land. There are significant differences in the availability of information because cadastral registers for land have different time spans and years of operation, and municipal authorities and communities assign different priorities to establishing effective registries.

The first stage of implementation of an asset management program for municipal infrastructure relies on the essential element of inventory. For each element in each category of infrastructure it is fundamental to know about all as mentioned bellow:

- Available Assets
- Location of Assets
- Age of Assets
- Quantity of Assets
- Physical Characteristics of Assets

It is starting point and for the determination of the high level strategy and objectives of the program. The inventory can consist of approximations of the quantity, size, materials, and age of each category of asset. For the project level decisions more detail is necessary for condition and performance assessment. This level of inventory detail can require a commitment to a multi year program of data collection and field verification.

CLASSIFICATION

A useful distinction for the classification of properties is the division between core properties or assets needed for the basic operation of the municipality and often assigned to the municipal government by law, and surplus properties or assets that are not necessary for the normal operations of the municipal government but are still in under public ownership. Assets needed for the operation of the municipality are sometimes further differentiated according to use: necessary governmental use or social use. Governmental use would refer to the assets used in the provision of public goods and services such as municipal buildings, schools, hospitals, and police and fire stations, where the goal would be efficient provision of public services. Social use would refer to property used for parks and recreation.

SOME GUIDELINES FOR MUNICIPAL ASSET INVENTORY PREPARATION

A municipal asset inventory can be set up incrementally, based initially on existing information, and improved through consultation, campaigns and surveys. The focus should be on identifying major physical assets and subsequently on making this list publicly available. The process should be seen as an ongoing effort and should be placed under a responsible office or unit with appropriate mandate and resources. The basic approach should be to:

- List major municipal assets
- Identify properties in use by major function
- Examine current development plans and requests for the modification of status of property
    - New uses
    - Private sector interest, potential for sale, lease
    - Proposal to use the asset by other municipal or government departments
    - New public sector projects, might include public assets as well as private assets in the proposal (e.g. road project)
- . Identify properties that are vacant or otherwise indicated as surplus

13.2.1 CONDITION ASSESSMENT

Historically asset monitoring to determine condition has been subjective based on local knowledge and experience. Formal procedures now exist to assess asset condition. The development and continued use of condition assessment data will allow preparation of verifiable predictive decay curves for particular asset types and hence permit prediction of remaining life. Consideration of economic influences and other factors will also be required in the adopted life for the asset type.

By considering the current condition point on an assumed decay curve, the profile can predict the effective life (time) before failure. This failure time can by physical end of life, minimum level of acceptable service, or limit of capacity of the asset.

Condition assessment ranks assets on a five step scale as follows:

1. Very Good - Very good condition, where only normal maintenance is required.
2. Good - Minor defects only where minor maintenance is required to approximately 5% of the asset.
3. Fair - Maintenance required returning to accepted level of service where significant maintenance is required to 10-20% of the asset.
4. Poor - requires renewal where significant renewal or upgrade is required to 20-40% of the asset.
5. Very Poor - Assets unserviceable where over 50% of the asset requires replacement.

It is not necessary to assess all assets immediately. It is only necessary to assess those that are going to be critical in the next 5 years. The extent and repetition of condition assessment will be influenced by:

- The criticality of the assets
- The type of assets
- The relative age of the assets
- The rate of deterioration of the assets
- The economic value of the outcomes to the business
- Unplanned maintenance history

Generally the older the assets the more frequent the assessment of condition is required. It is necessary to know whether failure is imminent, and if previous assessments have shown degradation, at what rate.

13.2.2 VALUATION OF MUNICIPAL ASSETS

Valuation of assets is an important consideration and challenge. Accurate information is needed on the state, the financial value, and physical and environmental characteristics of the assets that the municipal governments own or manage. The condition of municipal assets is a factor that needs to be considered since assets such as infrastructure tend to have a life cycle. A good understanding of the value of assets is needed when decisions are to be made on sale or disposal of assets, when reinvestment efforts are needed or when joint ventures, investments or partnerships are launched.

There are different methodologies for valuation of municipal assets depending on the objectives for which this is done. For record keeping purposes, properties and their physical and economic characteristics might be recorded according to the following normative criteria:

- Nominal book values, cadastral information, maps, number of property, etc.
- Replacement values (updated values to recent cost estimates, taking into consideration depreciation due to technical obsolescence and wear and tear).
- Comparative market values of property. If it is real estate property, comparative values and ranges for market transactions might be a good approximation. Rental values should be noted if relevant. For very important items with a commercial opportunity cost, engaging valuation consultants might be cost effective.
- Asset valuation with potential costs and benefits of alternative uses.
- Expected values: for properties that could have alternative economic use and that might be subject to sales, transfer or negotiation for concessions or joint ventures, the responsible official of asset management for the municipality could estimate an opportunity cost as a minimum reservation price. The information asymmetries and capacity between the local governments and the private sector are normally so high, that for purposes of transaction, open bidding processes are recommended. As mentioned

above, asset management professionals could be retained in preparing internal reservation prices.

- Social and cultural value of assets: these may not easily translate into financial values, but these should be considered and from the perspectives of different segments of a municipality. Assets such as sacred sites, historical markers or cultural treasures should be noted on inventories. Before action is taken that in any way will affect these relevant assets, very careful consideration should be given and consultations organized.

The financial valuation of properties and different forms of assets on a net present value (or cost benefit) analysis framework might be appropriate, if the property has a minimum level of value (defined as percent of total expenditures for the period, say initially 2% and upward) and depending on the potential use of the asset. For smaller valued items, a more accessible comparative conversion table could be used as the first approximation, with automatic indicators adjusted for inflation and depreciation (both physical and technical) in order to reduce administrative costs but keeping the system transparent. Capital valuation methods, returns on assets, assessment of values from different perspectives and use of property, should form part of the administrative tools of asset management.

13.3 ASSET DESCRIPTION

ULB assets include physical assets such as land, infrastructure and movable assets, financial assets such as cash, stocks and bonds, and intangible assets such as goodwill. Under this assignment the study team focus on first category, namely the major physical (fixed) assets: **land or real estate assets**, which constitute a major portion of municipal assets, and **infrastructure** such as buildings, water supply and related systems, road networks, storm water drains, transportation and communication systems.

Considering the aforementioned Asset Management Process (AMP's) following infrastructure and land assets are identified in the Katpadi Town Panchayat:

Infrastructure Assets cover accessories in the water supply system, sanitation facilities provided by the local body, storm water drains both pucca and kutcha drains, roads of different typology, various accessories involved in street lighting, solid waste equipments, vehicles and communication system etc., Sector wise assets of Katpadi Town Panchayat is given in the following section.

Water Supply Sector:

All the units relating to water supply systems covering Head works, Transmission Ducts, OHT's, Reservoirs, Supply and distribution mains, House connections, Treatment units and other related appurtenances belong to the town Panchayat. The following table highlights the list of water supply assets existing in the town Katpadi:

Type of Assets	Quantity (Nos.)	Remarks
Collection wells @ Thirumani	4	--
Sump	1	1,00,000 LL
Pump at Booster Station @ Mathinagar	2 nos	50 Hp
Sump	1	1,00,000 LL
Gravity main from head works	12" A.C. Pipes	8 kms
OHT's	8	5.50LL
Power Pumps	15	1.0LL
Open Well with pump sets	10	
Ground Level Reservoir	1	0.5LL
Distribution System	3" P.V.C.pipe	20 kms
Hand pumps	108	--
Public Fountains	95	--
House Service Connections	1446	--

Sanitation Sector:

Type of Assets	Quantity (Nos.)	Remarks
Public Conveniences	5	25

Roads Sector:

Sl. No.	Road Typology	Length (in km)
1.	Surfaced Roads	
	- Cement Concrete	5.40
	- Blacktop/Asphalted	16.34
	- WBM	11.61
	Sub Total (Surfaced Roads)	33.35
2.	Non-Surfaced Roads	
	- Stone Slab	--
	- Gravel	--
	- Earthen	9.20
	Sub Total (Non-Surfaced Roads)	*9.20*
	Total (Municipal Roads)	**42.45**

Drainage Sector:

No.	Description	Length (km)
1.	Open Drains (Pucca)	--
2.	Open Drains (Kutcha)	7.5
3.	Closed Drains (Pucca)	--
	Total	***7.5***

Solid Waste Management Sector:

No.	Description	Quantity (Nos.)
1.	Dust bin (Round Bins)	--
2.	Containers (Mild Steel)	--
3.	Open type (Masonry)	--
4.	Tractor cum trailer	--
5.	Tipper Mini Lorry	--
6.	Auto (others)	2

Lighting Sector:

NO.	Type of Fixtures	Nos
1.	Fluorescent (Tube Lights)	507
2.	Sodium Vapor Lamps	385
	Total	**892**

Consultations with the Stake holders of Katpadi Town, has revealed that currently ULB does not have any record of productive assets of their own, rented or leased which might fetch them any revenue**.** Un-productive assets cover land use under parks, play fields, pump house, over head tank, local body office building, educational use, health institutions, burial ground etc. These assets may not fetch revenue to the local body but these assets provide environmental and social benefits to the local community

13.4 O&M PLAN FOR SERVICES

The term 'Operation and Maintenance' (O&M) has been used as a general concept covering a wide range of activities carried out by public utilities, government and communities in order to sustain their services and to maintain existing capital assets.

Specifically, in the present context:

- **Operation** refers to the procedures and activities involved in the actual delivery of services, e.g. abstraction, treatment, pumping, transmission and distribution of drinking-water.
- **Maintenance** refers to activities aimed at keeping existing capital assets in serviceable condition, e.g. cleaning of open drains, repairing public taps.

Under this assignment a review of O&M performance of the ULB has been performed covering core infrastructure services.

Following are the identified O&M impacts and ULB constraints during the stakeholder's consultation regarding service provision:

No	Sector	Component	Issue/ Problem Statement/ O&M Aspect	O&M Impact	ULB Constraint/ Capacity Assessment
1	Water Supply	Transmission System	Long length transmission	High Energy Charges, High Risk of System Losses	Cost Constraint, Lack of Dedicated Maintenance Staff, Lack of Energy Efficiency Monitoring System
		Distribution System	Low Coverage through HSCs	Lowered Revenue	Stringent implementation and introducing a chargeable system for PF based connections
			Unauthorized Connections	Risk of high UFW component	Lack of efficient monitoring and curbing mechanism
			System Losses - old lines	Physical losses, low lpcd, low pressure, tail end areas affected	Physical asset survey or records not available and Old system not updated
2	Sanitation	Liquid Waste	No UGSS System	Disposal into storm water drains impacts environmental degradation.	Cost constraint, Not able to provide safe collection and disposal system
				Blockage in SWD frequently	Lack of Dedicated Maintenance Staff
				Pollution on water bodies, land and air.	Lack of Environmental Management Plan and its implementation
		Solid Waste	No Door – Door Collection	Dumping of wastes in the site	Lack of Sanitary Staff, Absence of public awareness, Segregation at source not adequate
			Secondary Transportation	Double handling of wastes	Sufficient vehicles for collection & transportation is absent
			Treatment & Disposal of wastes	Composting done for Biodegradable Waste, Non-bio and Non-recyclable waste dumped causing pollution of groundwater, air and land.	Land availability constraints, Lack of infrastructure and equipment facility for disposal of non-biodegradable waste
		Public Conveniences	Lack of Toilet facility	Disposal into drains and open defecation	Cost constraints to provide facility
3	Storm Water Drain	Network Coverage	Low Coverage	Water stagnation on streets, reduced service life of roads.	Cost constraint
			Improper Network of Drains & Garbage dumping	Leads to unhygienic condition, Dumping of wastes causes SWD blockages Reduced carrying capacity Overflow during heavy flood	Absence of proper disposal points, Absence of Storm Water Drain Master Plan
4	Roads, Traffic & Transportation	Road Coverage	Low coverage	Recent developed and expansion areas less covered, % of surfaced / Paved roads are minimal	Lack of dedicated staff, Cost constraint
			Improper Maintenance of Roads	Frequent repair works, dusty road surface, hassle to commuters	Non-availability of road registers, poor workmanship, lack of skilled staff, cost constraint
			Congested roads, Traffic conflict points	Increased Travel Time, Thrust on Environment Quality	Absence of Traffic Operational & Management Plan
5	Street Lighting	Coverage	Low coverage	Average spacing of street lights are more	Cost constraint
			Lack of power saving equipments	High Energy Charges, frequent repairs & replacements of fixtures	Cost constraint, lack of energy auditing

13.5 OPERATIONAL STRATEGIES

The ULB requires monitoring the condition and performance of assets, and investigating any system deficiencies, which are outside the parameters of the target level of service. It would then identify the work required to correct defects and the most cost effective renewal option. Monitoring activity would include:

- Monitoring contractor performance
- Analysis of customer complaint and service problem records
- Proactive inspection of critical assets and report on condition
- Analyzing condition reports provided by the Contractor during the day-to-day operation of assets and,
- As necessary, carrying out material testing to determine asset condition and decay rates.

Assets are to be operated assets in accordance with the following current operating procedures:

- Inspect assets at least on a monthly basis
- Provide appropriate supervision for installation of connections and other similar work.
- Inspect and report on condition when working on the systems.

It is always necessary to minimize asset ownership costs:

- Identify, evaluate and introduce new technologies and monitoring/control equipment that may improve operational and management efficiency and modify standards as appropriate.

Manage risk exposure:

- Provide a prompt and effective response to system failures.
- Maintaining appropriate insurance cover for key assets.
- Undertaking structural checks of key assets.

13.6 MAINTENANCE STRATEGIES

The short-term maintenance strategy for the ULB is intended to retain the current levels of service with respect to asset condition and functionality whilst minimising costs. In the longer-term maintenance activity will be modified as necessary to reflect: -

- The age of assets relative to expected economic life cycle
- The risk of failure of critical assets
- Changes in the desired level of service
- The nature and timing of asset upgrading/development works.

To achieve this, the following maintenance activities will be undertaken:

UNPLANNED MAINTENANCE

The activities in unplanned maintenance to be undertaken are as follows:

- Maintain a suitable level of preparedness for prompt and effective response to emergencies and asset failures by ensuring the availability of suitably trained and equipped staff and service delivery contractors.
- Ensure ready availability of serviceable spare parts and equipment necessary for the prompt restoration of service.
- Respond to asset failures due to structural integrity with the initial objective of restoring service as quickly as possible by the most economic method available, making temporary repairs if major repairs or renewals are required.
- Emergency and incident investigation and works as appropriate.

PLANNED (PREVENTATIVE) MAINTENANCE WORKS

Similarly the unplanned maintenance works include the following:

Undertake a programme of planned asset maintenance as necessary to:

- Deliver the required levels of service.

- Minimise the risk of equipment failure.
- Ensure safety.
- Avoid economic inefficiencies due to deferring maintenance.

Once a defect has been identified remedial work is programmed before the risk and consequence of failure become unacceptable, with priority given to defects which:

- are life threatening
- are likely to cause premature failure prior to the next inspection
- safety is compromised, or
- If severe economic deterioration of an asset will occur.

When scheduling maintenance work it is planned to make the best use of available resources wherever possible, including coordination of multiple repair works in the same area. The upgrade and replacement of assets should be done with specifications identified in the management plans and checked by design and necessary modeling.

The effectiveness of the preventative maintenance programmes are continuously monitored and rescheduled as necessary to achieve efficiencies. The frequency and cost of all maintenance activities are monitored wherever possible to enhance decision-making.

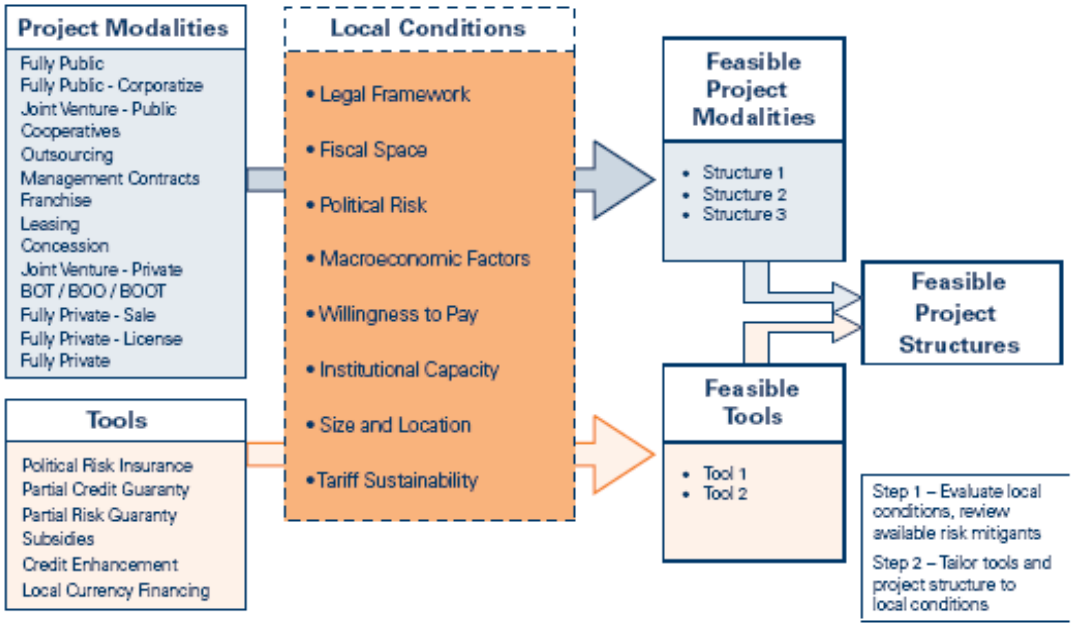
Maintenance work is aimed at ensuring the system functions properly. Many of the maintenance activities are similar and follow comparable methodologies despite occurring in different locations. Other beneficial effects also occur as a result of the maintenance e.g. clearing of refuse and debris from the watercourses and outfalls has aesthetic benefits and prevents ongoing gross contamination of the waterway.

14

PROJECT RISKS, ENVIRONMENTAL AND SOCIAL IMPACTS

14.1 PROJECT STRUCTURING OPTIONS AND ASSOCIATED RISKS

Project Structuring is an integral part of managing the lifecycle of major infrastructural projects. This process has involved the systematic identification, analysis and evaluation of risks across all fronts. The following figure illustrates the framework adopted for formulation of project structuring and identification of associated risks in any kind of infrastructure projects. The following diagram illustrates the determinants of project structuring:



14.2 PROJECT IMPACTS

Any infrastructure project improve general living standards within urban localities, they can also have associated impacts on the local environment and people. The Project structuring and associated risks can be done in three phases. The initial phase is the development and design of the project and is normally denoted as Pre-construction phase in which both the environmental and social screening can be brought out. Training for the understanding the environmental issues to the project implementing authorities by means of capacity building/create awareness on environmental issues, mitigation measures, Developing environmental and social screening formats, information sharing on good practices etc. The second phase is the construction phase, operation and maintenance phase and the last phase is the closure of the project.

14.2.1 ENVIRONMENTAL IMPACTS

Any development project is likely to have an influence on the environment. In order to predict the impacts of proposed project over the environment an Environmental Impact Assessment needs to be performed. "Environmental Impact Assessment can be defined as the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made". The purpose of the assessment is to ensure that decision-makers consider environmental impacts before deciding whether to proceed with new projects. Under this assignment the following list of sectors are identified for development:

- Water Supply
- Underground Sewerage System
- Solid Waste Management (Landfill and Composting)
- Roads and Storm Water Drain Improvements
- Construction of Bus Stands, Shopping Complex and Marriage Halls.

Depending upon the infrastructure project the impact and measures needed to safeguard from any negative impact may vary and are discussed in the subsequent sections of this report.

A.WATER SUPPLY PROJECTS

These projects involve source creation or improvement of existing sources, laying of conveying main, construction of water treatment plants, laying of internal distribution line, construction of pumping stations, construction of overhead tanks, underground sumps etc. The following aspects of environmental impacts need to be given attention while undertaking the aforementioned activities:

DEVELOPMENT AND DESIGN PHASE

Potential impacts	Action to be taken
Clearances	▪ All clearances required for Environmental aspects during construction shall be ensured and made available before start of work.
Riparian conflicts	▪ Regulate extraction of water to reduce the effect of downstream users
Tree cutting	▪ Try saving trees by changing the alignment ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Planning Temporary Traffic Arrangements	▪ Adequate actions to direct and regulate traffic shall be taken in consultation with the PIA, Dept. of Police to prevent jamming of roads during construction. While planning alternative routes, care to be taken to minimize congestion and negative impacts at sensitive receptors such as schools & hospitals.
Disposal of waste water	▪ The wastewater shall comply with the standards of TNPCB to let out into the stream/nallah/open land/irrigation purposes, and necessary permission to be obtained from the concerned department. ▪ Ensure efficient working condition of the treatment plant.
Storage of materials	▪ The contractor shall identify the site for temporary use of land for construction sites/storage of construction materials, etc.

CONSTRUCTION AND OPERATION PHASE

Systems/ Impacts	Action to be taken
Water Head Works	
Change of stream course due to diversion channels to construct intake structures	▪ No appreciable change to stream course shall occur due to diversion channel and structures shall be constructed accordingly.
Restoring river bed/water source	▪ Ensure the restoring of river bed to its natural shape free from any construction debris that may obstruct flow.
Water quality at source	▪ Establish baseline water quality prior to initiation of construction and to be periodically monitored and reported to the Engineer.
Construction of Transmission Mains	
Protection of topsoil	▪ The top soil to be protected and compacted after completion of work, where pipelines run, including open lands and agricultural lands.
Laying of pipeline	▪ Adequate precautions should be taken while laying water supply mains to avoid possibility of cross connection with sewer lines
Water Treatment Plant / Booster Stations	
Disposal of Sludge	▪ A suitable site should be identified for the safe disposal of sludge generated at the WTP site and got approved by the Engineer. Prepare a sludge disposal plan that adheres to the same.
Distribution Network and OHTs	
Laying of distribution pipelines	▪ Adequate precautions should be taken while laying water supply mains to avoid possibility of cross connection with sewer lines.

B. UNDER GROUND SEWERAGE PROJECT

These projects involve developing the contour maps, laying of branch and main sewer lines, conveying mains, pumping stations, treatment plant etc. The following aspects of environmental impacts need to be given attention while undertaking aforementioned activities:

DEVELOPMENT AND DESIGN PHASE

Potential Impacts	Action to be taken
Clearances	▪ All clearances required for Environmental aspects during construction shall be ensured and made available before start of work.
Disposal of construction debris and excavated materials	▪ The contractor shall identify the sites for debris disposal and should be finalized prior to the start of earthwork excavation; taking into account the following: ▪ The dumping does not impact natural drainage courses. ▪ Avoid disposal on productive land
Tree cutting	▪ Try saving trees by changing the alignment ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Planning Temporary Traffic Arrangements	▪ Adequate actions to direct and regulate traffic shall be taken in consultation with the PIA, Dept. of Police to prevent jamming of roads during construction. While planning alternative routes, care to be taken to minimize congestion and negative impacts at sensitive receptors such as schools & hospitals.
Disposal of waste water	▪ The wastewater shall comply with the standards of TNPCB to let out into the stream/nallah/open land/irrigation purposes, and necessary permission to be obtained from the concerned department. ▪ Ensure efficient working condition of the treatment plant.
Storage of materials	▪ The contractor shall identify the site for temporary use of land for construction sites/storage of construction materials, etc.

CONSTRUCTION AND OPERATION PHASE

Systems/ Impacts	Action to be taken
Construction of Pumping / Lifting Stations	
Locating of vents on sewer system, low cost sanitation and sewage pumping stations	▪ While placing the vent shafts, precautions should be taken to minimize odour nuisance.
Disposal of silt/sludge	▪ A suitable site should be identified for the safe disposal of silt/ sludge generated at the Pumping / Lifting station sites, which should be away from the water bodies, residential & sensitive areas, agricultural areas and etc., and got approved by the Engineer.
Construction of Sewerage Treatment Plant	
Contamination of ground water quality	▪ Ground water quality may get contaminated due to leaching of waste water. So, the treated water quality shall comply with the standards laid down by the PCB for disposal onto land, water body or for irrigation use. ▪ Regular monitoring is required for the treated sewage quality and also the ground water quality in the near by areas and ensure compliance with PCB standards.
Impact on surrounding areas	▪ To avoid problems of foul smell polluted air, insects, noise pollution and other problems buffer zones to be provided in the form of Green Belt around the STP site.
Disposal of treated waste water	▪ The treated water quality shall comply with the standards of TNPCB before letting out into the stream/nallah/open land/irrigation purposes, and necessary permission to be obtained from the concerned department. ▪ Ensure efficient working condition of the treatment plant ▪ Prevent the pollution of stream water and other water bodies receiving STP discharge.
Disposal of Sludge	▪ A suitable site should be identified for the safe disposal of sludge generated at the WTP site and got approved by the Engineer. Prepare a sludge disposal plan that adheres to the same.

C.SOLID WASTE MANAGEMENT (LANDFILL AND COMPOSTING)

These projects may include developing land fill, compost yards with washing facilities, compound walls, purchase of vehicles for transporting the garbage, etc.,

PUBLIC HEALTH, OCCUPATIONAL HEALTH & SAFETY

Public health may be affected by the project activities by noise and dust pollution during the construction phase especially during landscaping, provision of access road and site preparation. The activities that affect public health during operation and its closure are given below:

Operation phase & Closure Phase

Emission of bio-gas, high noise levels during loading and unloading and high dust level affect public health, waste dispersion, bad odour and spreading of infectious diseases are other factors that affect public health during the operation and closure phase of the projects.

SOCIO-ECONOMIC CONDITIONS

The socio-economic impacts of the proposed projects within the local area are given below:

During the Construction phase, employment and visual issues are the two major impacts. The share of local employment needs to be considered carefully during all construction activities. The Visual impacts will result from disposal of debris and dispersion of solid waste generated from the workers.

Impact on the i) Employment and ii) prosperity in Business are the major socio-economic impacts known to occur during the Operation phase. The locals are concerned about sharing the job opportunities with others during this phase. This issue should be given more attention with regard to training. As far as Business prosperity is concerned, the supply of spare parts and consumable from local market is expected to enhance local life quality.

Rehabilitation of landfill, Electricity generation and Treated leachate may be the other impacts during project closure period. A program for designing a final landscape and site restoration should be provided as far as rehabilitation of land fill is concerned. The electricity generated from the biogas will be supplied to the locals. The treated leachate may be reused for irrigation purpose.

FLORA AND FAUNA

The proposed activities that affect Flora and Fauna species during construction and operation phase are given below:

During the Construction Phase, Flora and Fauna species may be affected by high dust pollution and direct damage especially during landscaping, provision of access road, site preparation and removal of soil cover.

During the Operation Phase, high dust level and dispersion of solid waste affect the flora and fauna species during the project activities such as construction of new cells, loading, unloading and transportation of solid waste.

WATER RESOURCES

The proposed activities that affect water resources during construction and operation phase are given below:

Water resources may be affected due to the demand of water for soil compaction and pollution of ground water during Construction phase. Ground water may be contaminated due to the maintenance of machineries and resulting domestic waste water from workers.

Hazardous waste dumping and leachate leakages are the two major activities that affect the water resources during Operation phase. Leachate treatment unit need to be installed on a paved area to prevent ground water contamination and also a proper reuse and recycle mechanism to be considered for the treated leachate.

ARCHEOLOGY

Unseen archeological remains (if any) might be affected during landscaping and site preparation.

MITIGATION MEASURES AND MONITORING PROGRAM

Following are the mitigation measures that need to be implemented in order to reduce the potential negative impacts:

- Dust level need to be controlled during construction activities and transportation of materials.
- Proper handling of dispersed solid waste during transportation and storage.
- Proper handling and taking safety requirements for collection and storage of the solid waste to prevent odour generation.
- Taking restrict control on animals and insects (vector diseases) like dogs, cats, rats etc.
- Applying continuous cover over the cell during the operation to prevent odor impact.
- Control the existence of the scavengers at the solid waste landfill site to prevent firing and dispersion of the wastes.
- Noise levels need to be controlled during the construction and operation activities.
- Monitoring programs need to be implemented covering monitoring of noise levels and ambient air quality.

- Implementation of safety procedures and availability of safety equipment for workers.
- Training and awareness programs for drivers and workers on proper handling of waste and personal protective equipments. Conducting routine medical exams for workers.
- Training of employees to identify hazardous waste and proper safety procedure on handling and reporting such items.
- The domestic wastewater resulting during construction and operation phases need to be collected and managed in safe manner.
- The endogenous trees or plants should be used when rehabilitant the site.
- Restrict activities as much as possible to the project site and allocate track roads for construction.
- Hunting and collection of wildlife, especially residents and migratory raptures should be strictly forbidden.

D. ROAD IMPROVEMENTS

Activities	Management Measures
Pre-Construction Stage	
Land Acquisition R&R	▪ The acquisition of land and private properties will be carried out in accordance with the RAP and entitlement framework for the project. ▪ It should be ensured that all R& R activities are to be completed before the construction activity starts, on any sub-section of the project.
Tree Cutting	▪ Trees will be removed from the Corridor of Impact (CoI) and construction sites before commencement of construction with prior intimation to the Forest Department. Prior permission will be obtained from the District Collector. ▪ Try saving trees by changing the alignment ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Replacement of common amenities	▪ All common amenities such as community sources of water, bus shelters etc., will be relocated wherever necessary. The relocation site identification will be in accordance with the choice of the community and completed before the construction starts

Activities	Management Measures
Construction Stage	
Clearance and grubbing	▪ Vegetation will be removed from the RoW before the commencement of construction and will be carried out such that the damage or disruption to flora is minimum. ▪ Only ground cover / shrubs that impinge directly on the permanent works or necessary temporary works will be removed with prior approval from the engineer. The contractors, under any circumstances will not damage trees (in addition to those already identified and felled with prior permission from the forest department)
Excavations	▪ All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized. ▪ The excavation shall conform to the lines, grades, side slopes and levels shown in the drawing or as directed by the Engineer. ▪ The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures and water bodies.
Earth fill	▪ Embankment and other fill areas, unless and other wise permitted by the Engineer, be constructed evenly over their full width and the contractor will control and direct movement of construction vehicles and machinery over them.
Dust	▪ All earth work will be protected in a manner acceptable to the engineer to minimize dust generation.
Compaction of soil	▪ To minimize soil compaction construction vehicles, machinery and equipment will move or be stationed in designated area (RoW, haul roads as applicable) only
Silting, contamination of water bodies	▪ Silt fencing to be provided around the stockpiles at the construction sites close to water bodies. ▪ Construction materials containing fine particles will be stored in an enclosure such that sediment – laden water does not drain into the nearby water courses.

Activities	Management Measures
Environmental Monitoring	▪ The contractor will undertake seasonal monitoring of air, water, noise and soil quality through an approved monitoring agency.

E. CONSTRUCTION OF BUS STANDS, SHOPPING COMPLEX AND MARRIAGE HALLS

Activities	Management Measures
Pre-Construction Stage	
Land Acquisition R&R	▪ The acquisition of land and private properties will be carried out in accordance with the RAP and entitlement framework for the project. ▪ It should be ensured that all R& R activities are to be completed before the construction activity starts, on any sub-section of the project.
Tree Cutting	▪ Trees will be removed from the site if arises and construction sites before commencement of construction with prior intimation to the Forest Department. Prior permission will be obtained from the District Collector. ▪ Try saving trees by alternatives ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Replacement of common amenities	▪ All common amenities such as community sources of water, bus shelters etc., will be relocated wherever necessary. The relocation site identification will be in accordance with the choice of the community and completed before the construction starts

Activities	Management Measures
Construction Stage	
Clearance and grubbing	▪ Vegetation will be removed from the site before the commencement of construction and will be carried out such that the damage or disruption to flora is minimum. ▪ Only ground cover / shrubs that impinge directly on the permanent works or necessary temporary works will be removed with prior approval from the engineer. The contractors, under any circumstances will not damage trees (in addition to those already identified and felled with prior permission from the forest department)
Excavations	▪ All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized. ▪ The excavation shall conform to the lines, grades, side slopes and levels shown in the drawing or as directed by the Engineer. ▪ The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures and water bodies.
Earth fill	▪ Embankment and other fill areas, unless and other wise permitted by the Engineer, be constructed evenly over their full width and the contractor will control and direct movement of construction vehicles and machinery over them.
Dust	▪ All earth work will be protected in a manner acceptable to the engineer to minimize generation of dust
Compaction of soil	▪ To minimize soil compaction construction vehicles, machinery and equipment will move or be stationed in designated area (RoW, haul roads as applicable) only
Silting, contamination of water bodies	▪ Silt fencing to be provided around the stockpiles at the construction sites close to water bodies. ▪ Construction materials containing fine particles will be stored in an enclosure such that sediment – laden water does not drain into the nearby water courses.
Environmental Monitoring	▪ The contractor will undertake seasonal monitoring of air, water, noise and soil quality through an approved monitoring agency.

14.2.2 SOCIAL IMPACTS

Social issues may arise in the proposed projects, if there is need for private land (or) government land that has been occupied or encroached upon. Normally it arises due to the implementation of project that results to:

1. Loss of assets,
2. Loss of income or means of livelihood, and
3. Indirect group oriented impacts due to loss of access to common properties and resources

For mitigating the social Impacts, the need for Resettlement and Rehabilitation plan or Social Management Plan is to be prepared when the land which is acquired /alienated or transferred results in involuntary displacement and /or loss of livelihood, sources of income and access to common properties/ resources on which people depend for economic, social and cultural needs irrespective of their legal status.

OBJECTIVES OF SOCIAL MANAGEMENT PLAN

The main objective of preparing any social management plan/ RAP should be resettlement and rehabilitating of project affected persons with the aim of improving their living standard. A base line survey can be carried to understand the social economic of the project affected persons, plans for minimizing land acquisition/ alienation and transfer of R&R by exploring alternate designs and or technology. The local body during the project appraisal will address the availability of alternate design, site and its suitability, etc and choose the alternate that requires the least land and that involves least R&R

R&R IMPLEMENTATION

It should precede the project activities and the process of R&R will be completed before the commencement of the project activities.

15 POLICY INTERVENTIONS

15.1 INTRODUCTION

Katpadi is a town with a projected population of 37,910 in 2021. In addition, it is anticipated that another 10,000 will form the floating population component in the town. Re-organization of institution, improvement and capacity building programs are required to meet the needs of managing Katpadi 2021. This chapter discusses the agenda for institutional reforms in town governance and urban poor. It also reviews the institutional reform initiatives already undertaken at the ULB level and State Government level to successfully implement and operate the CCBP projects.

15.2 AGENDA AND OBJECTIVE OF INSTITUTIONAL AND POLICY REFORMS

The agenda for further institutional and policy reforms should be guided by the following broad objectives:

- To institute a nodal agency, which could provide effective governance to the ULB;
- To ensure that the function and powers of this agency and its constituents, match their responsibilities and make them fully accountable.
- To enable clarity of jurisdiction of various agencies and entrusting pertinent responsibilities
- To structure administration such that it reaches the people and vice versa, to ensure effective problem solving mechanisms in place
- To evolve an effective system of town planning, keeping in view the needs in the context of Local Planning Area (LPA);
- To strengthen and build capacity within the ULB, its constituents and other agencies entrusted with relevant tasks,; and
- To make the primary focus of the system and its constituents, the functional requirements of management of Katpadi;

15.3 REFORMS

The ULBs of Tamil Nadu have been generally found to be proactive in their commitment to introduce reforms at the ULB level. All these reforms may be broadly categorized under the following:

- Computerization Initiatives;
- Property Tax Reforms;
- Privatization Initiatives;
- Accounting Reforms; and
- Resource Mobilization Initiatives.
-

A brief description on the above reform initiatives and their current stage are given in the following sections of this report.

15.3.1 POLICY FRAMEWORK AND PRIORITY ACTIONS

As specified earlier, priority actions have been discussed and finalized by the stakeholders for urban management and sectoral reforms for the ULB. The following policy framework and priority actions have thus been identified based on reported evaluations, discussions and

priority actions as required and mutually agreed upon by the stakeholders:

STRATEGY

- Innovations both at policy and project levels to speed up the urban reform process.
- Reforms to have in-built mechanism of participation and commitment.
- Institutional strengthening and financial capacity building to be an integral part of the reform measures.
- Areas of reform measures include property tax, accounting and auditing and resource mobilization and revenue enhancement.

PROPERTY TAX

- Bringing transparency and uniformity in taxation policies.
- Tax policy and operational procedures should be simple and clear.
- Development of templates for property tax (for self-assessment) to increase tax collection (without levying fresh taxes), including implementation strategies.
- Mapping of properties and developing GIS-enabled property tax management system for enhancing property tax net/coverage and better administration.
- Collection of arrears through innovative ideas and approaches using tools for community participation and fast track litigation methods.
- Property tax base should be de-linked from rental value method and should be linked to unit area or capital value method.

ACCOUNTING AND AUDITING

- Accounting reforms - shifting from single entry cash based accounting system to accrual based double entry accounting system.
- Legislative changes in the accounting systems and reporting requirements.
- Designing of accounting procedures.
- Accounting manual - chart of accounts, budget codes, forms and formats, etc.
- Standardized recognition norms for municipal assets and revenues.
- Auditing of accounts should be carried out effectively and regularly to promote transparency and accountability.

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT

- Increasing revenue through measures for better coverage, assessment, billing, collection and enforcement.
- Controlling growth of expenditure.
- Improving the organization and efficiency of the tax administration system.
- Augmentation of resource mobilization/revenue generation from properties belonging to ULB for improving the overall financial health.
- Energy audit of fuel and energy consumption by various departments of ULB to minimize expenditures on fuel and energy, including energy audit and metering of street lights.
- Streamlining and strengthening of revenue base of the ULB:
    - Strengthen the fiscal powers of ULB to fix tax rates, fee structure and user charges through specific guidelines and notifications, which should find a place in the Municipal Rules. Prepare model guidelines for the city to allow greater flexibility in levying taxes, fees and user charges, borrowing funds and incurring expenditures;
    - The annual report of the ULB shall devote a section highlighting the amounts of subsidy given to a particular service, how the subsidy was funded, and who were its beneficiaries;
    - Implementation of MIS to provide relevant information on accounts, commercial and operating systems for better decision-making and information dissemination to citizens; and
    - Application of e-Governance is equally important for municipal finance.

Apart from the above, following are some of other reform measures which should be implemented to support the above identified key municipal reforms.

URBAN ENVIRONMENTAL MANAGEMENT

The costs of maintaining a healthy urban environment need to be recovered through various municipal taxes and user charges following the "polluter pays" principle. For this, the functional role of the ULB as envisaged in Item 8, 12th Schedule of the Constitution has to be resolved keeping in view the role of the Tamil Nadu Pollution Control Board, and the organizational and fiscal strength of the ULB.

ACCESS OF URBAN SERVICES TO THE POOR

Since "ability-to-pay" for the cost of environmental infrastructure service provision is an important criterion, cross-subsidization of tariffs, innovative project structuring and user/ community participation is the means to ensure access of these services to the poor. Again the functional and financial role of ULB with respect to the Items 10 and 11 of 12th Schedule vis-à-vis those of central and state government agencies need to be resolved.

15.4 URBAN GOVERNANCE

Good governance in the municipal context stands on two broad principles, viz. transparency and civic engagement and capacity building measures. Following sections highlight key elements of the above two principles of good governance specific to the ULB.

TRANSPARENCY AND CIVIC ENGAGEMENT IN MUNICIPAL MANAGEMENT

Laws/rules/regulations specific to city/local issues should be employed to facilitate effective implementation. These should be lucid and easily understood. Participatory mechanisms should be so structured that they have legal standing and administrative control. Local bodies should be responsive and innovative and involve community participation in civic engagement as follows:

- Specific code of conduct for municipal executives and elected representatives.
- Public education, resource mobilization, good leadership and transparent processes applied to municipal finance and development work.
- Closer networking with media and their engagement in creating public awareness and creating demand for good governance. Cautious engagement of private sector with continuous monitoring is necessary.
- Setting in place an active and online public Grievances' Redressal System, with automated department-wise complaint loading and monitoring system.
- Instruments to improve efficiency through enhanced technical, administrative and financial capacities.
- Credit enhancement options other than state guarantees need to be adopted.
- Preparation of annual Environmental Status Report through a multi-stakeholder consultation process.

CAPACITY BUILDING OF THE ULB

Following are some of the key aspects of capacity building measures for ULB:

- The ULB shall maintain data to generate indicators as suggested in this document for evaluating its performance.
- Prepare and conduct capacity building programmes for elected representatives, especially women representatives, with a view to enable them to focus on gender based issues.
- Promote the creation of interactive platforms for sharing municipal innovations, and experiences among municipal managers.
- Better human resource management through assessment of the training needs of personnel involved in urban administration to enhance management and organizational capabilities.
- Assessment of fund requirement and resource persons to tackle the training needs of all personnel.
- Development of training material in the local language and impact and evaluation studies of the training programmes.

- Capacity building to better position the urban local body to employ highly qualified staff and seek superior quality of out-sourced services.

As specified earlier, priority actions have been discussed and finalized by the stakeholders for urban governance for the ULB. The following policy framework and priority actions have been identified by the study team based on reported evaluations, discussions and priority actions as required and mutually agreed upon by the stakeholders.

TECHNOLOGY INTERVENTIONS THROUGH COMPUTERIZATION

- Billing and collection of taxes and user charges through e-services.
- Speed up development of e-Governance system and accounting system.
- Database management of assets, records, lands, properties, etc.

HUMAN RESOURCE DEVELOPMENT

- Staffing pattern, organizational restructuring and performance appraisal.
- Development of MIS for effective and efficient management & decision-making.
- Publication of newsletters for creating awareness and participation.
- Staff training, exposure visits and motivation programs to bring about awareness on recent developments and technologies.

CITIZEN ORIENTATION AND INTERFACE

- Conduct citizen satisfaction surveys & analysis on annual basis to assess citizen needs and demands including satisfaction levels.
- PR strategies to enhance community participation and create awareness.
- Innovative citizen complaint redressal system including e-Governance.
- Augment and strengthen new initiatives on citizen interface and orientation.
- Regular interface with citizen associations/forum to understand public needs.

The above assignment has to be carried out by the ULB with full support from the GoTN. The outcome of the above assignment shall provide clear guidelines and impetus to the towns for good urban governance.

15.5 REFORM AGENDA AND TIMELINE

In addition to the aforementioned policy framework and priority actions, the GoI has formulated a Reform Agenda to access financial assistance under the proposed UIDSSMT. Adherence to this Reform Agenda and Timeline is mandatory for accessing funds under the proposed UIDSSMT. This section provides a brief note on preparedness of the GoTN/ULB and a broad timeline.

15.5.1 AGENDA FOR REFORM (OUTLINED IN UIDSSMT)

The main thrust of the UIDSSMT strategy of urban renewal is to ensure improvement in urban governance so that ULBs become financially sound with enhanced credit rating and ability to access the market capital for undertaking new programmes and expansion of services. In this improved environment, there would be greater possibility of public-private participation in provisioning of various services leading to more investment into the sector and better delivery of urban services. To achieve this objective, the State Governments and urban local bodies will be required to accept implementation of an agenda of reforms. The reforms spelt out under UIDSSMT fall under two categories, viz. mandatory and optional. In order to accomplish the desired reform agenda and to provide an holistic approach, it is proposed to initiate various state level and city level reforms (termed as general reforms) to facilitate smooth and effective implementation of all reforms identified/specified under the UIDSSMT Guidelines. Accordingly, the suggested reform agenda has the following set of reforms:

- General Reforms - State Level Reforms (Reform Initiatives A.1 to A.3)

- Mandatory Reforms - State Level Reforms (Reform Initiatives B.1 to B.7)
- General Reforms - Urban Local Body Level Reforms (Reform Initiatives C.1 to C.5)
- Mandatory Reforms - Urban Local Body Level Reforms (Reform Initiatives D.1 to D.5)
- Optional Reforms (Reform Initiatives E.1 to E.10)

15.5.2 MANDATORY URBAN REFORMS

STATE-LEVEL REFORMS

- Implementation of decentralization measures as envisaged in 74th CAA, 1992, of the GoI: Functions specified in Schedule 12 have been incorporated into the municipal acts. However, the functions of town planning, regulation of land use and construction of buildings, water supply and sewerage have not yet been actually transferred to the ULBs. Operationalization of this would be required through suitable institutional changes, executive orders and some legal actions.

- Repeal of Urban Land Ceiling and Regulation Act: This Act has been repelled in the State.

- Reform of Rent Control Laws: There is a Rent Control Act in the State.

- Rationalization of Stamp Duty to bring it down to no more than 5 percent within the next seven years: At present the Stamp Duty in the State is revised at 8 percent. Some states like Maharashtra and Karnataka have already reduced their stamp duty to less than 5 percent. The experience is very positive with stamp duty revenues increasing due to better compliance. The GoTN may consider reducing the Stamp Duty in a phased manner.

- Enactment of Public Disclosure Law: Public disclosure of municipal budget proposals, performance, service levels and other information required by citizens on a six-month basis through appropriate methods like display at ward/ zonal offices, newspapers, web page, etc. This will increase transparency of the ULBs and bring in efficiency. This can be done by incorporating new clauses in the Municipal Corporation and Municipal Acts.

- Enactment of Community Participation Law: Institutionalizing citizen participation in municipal affairs through community participation in different aspects of municipal administration will improve the municipal citizen interface and enhance effectiveness of administration. This also can be done by incorporating new clauses in the Municipal Corporation and Municipal Acts.

- Associating elected ULBs with City Planning and Civic Service Functions: Suitable action suggested as under 'Implementation of decentralization measures as envisaged in 74th CAA, 1992, of the GoI may be taken.

REFORMS AT ULB LEVEL

- Adoption of modern, accrual-based double entry system of accounting in ULBs: At present, the ULB maintains accounts on a cash based system. This is not sufficient to get information on the financial health of the ULB and to improve the financial management. The GoI and the Comptroller and Auditor General of India (C&AG) have developed the National Municipal Accounting Manual (NMAM). There is need to introduce modern, accrual-based double entry system of accounting in the ULB in line with the above manual. As a first step, a State-Level Municipal Accounting Manual should be prepared based on the NMAM.
- Introduction of system of e-Governance in ULBs: Introduction of e-Governance in ULBs is recommended to improve delivery of services and help them to create citizen-centric and business-centric environments for good governance. This will also be in line with the

proposed e-Governance project of the GoI.

- Reform of Property Tax in ULBs: Introduction of objective based property tax system such as unit area and self-assessment systems will help rationalize the tax base. Moreover, introduction of MIS and GIS based mapping will help to bring all properties into the tax system and increase tax collection. Based on the experience of other states it may be ascertained whether any changes in the Municipal Corporation Act are needed.

- Levy of reasonable user charges by ULBs to recover full cost of operation and maintenance: At present cost recovery from urban water supply and sewerage services is relatively low and unsatisfactory when compared with the incurred O&M expenditure. Low cost recovery is one of the potential causes for poor efficiency of the services. It is necessary that user charges for these services reflect the actual costs and recover at least O&M costs.

- Provision of basic services to urban poor: Provision of basic services to the urban poor including security of tenure at affordable prices, improved housing, water supply, sanitation, while ensuing delivery of other already existing universal services of the Government such as education, health and social security is required.

15.5.3 ISSUES FOR APPROVAL OF THE GOTN

- Town Planning: Views of the ULBs should be incorporated in town planning and regulation of land use and building construction. Provisions may be made for obtaining the views of municipal councils/corporations on development plans. Size of building (by use) and layout plan will be decided from time to time through a Government Order. Necessary changes may be made in the Town Planning Act and Rules.

- Water Supply and Sewerage: Consequent to the 74th CAA, the ULBs are responsible for ensuring these services to the citizens. Different options of service management either by the ULB or by a private operator through a management contract can be explored. Necessary amendments should be carried out to the applicable Acts and Rules in accordance with set norms and standards by the GoTN/GoI in this regard.

- Reduction in Stamp Duty: Stamp Duty to be reduced to 5 percent from the existing 8 percent over the next seven years at the rate of 0.50 percent per year. The Finance Department may initiate the necessary action in this regard.

- Public Disclosure: The existing Municipal Acts may be amended to incorporate a provision for public disclosure of budgets, capital projects, revenue and expenditure, level of services, etc. The type, periodicity and method of disclosure will be as per rules made from time to time under these provisions in the Acts.

- Increasing Community Participation: The Municipal Acts may be amended to enable formation of area committees in municipal corporations and ward committees in municipal councils. Number and manner of selection of members and functions of the area/ward committees will be as per rules framed under provisions in the Acts from time to time.

- Accounting System: Amend the Municipal Act to enable introduction of the accrual-based double entry accounting system. Prepare a State-Level Municipal Accounting Manual based on NMAM. The new system should be introduced in all municipal corporations of the State.

- E-Governance: e-Governance should be introduced in ULBs of the State. It should cover the following functions in the first phase: (a) registration and issue of births/deaths certificates; (b) payment of property tax, utility bills; (c) grievances and suggestions; (d)

building approvals; (e) procurement and monitoring of projects; (f) health programs; (g) accounting system; and (h) personnel information system.

- Property Tax: The applicable act should be amended to introduce the unit area and self-assessment system for property tax. Rules for introduction of the unit area and self-assessment system for property tax to be prepared under the applicable act.

- User Charges: The ULB in the identified municipalities and town panchayats should prepare an information system that provides data on O&M for water supply and sewerage services. Pricing of water supply and sewerage services should reflect actual costs and should cover O&M costs within five years. The GoTN will provide support to ULBs to implement this reform.

- Delivery of Services to Poor: The State Government should continuously support ULBs to extend basic services to the urban poor. A policy paper on this subject should be prepared.

Adherence to the above reform agenda and efficient implementation, especially the ULB level reforms, would go a long way in improving the creditworthiness of the ULB and in enhancing sustainability of the proposed capital investments. Based on the above, a suggestive timeline for the reform agenda has been developed during the study process and is furnished in Table 15.1.

Reforms already implemented by ULB would be discussed in detail during the next stake holder's consultation and also reforms which need to be implemented by the ULB and a time frame for the implementation of the same would be presented to the stakeholders for further refinement through consultation.

Table 15.1: Suggestive Timeline for the Reform Agenda

Sl.	Particulars/Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
A.	**GENERAL REFORMS - STATE LEVEL REFORMS**							
A.1	**Implementation of State Water Sector Reforms**							
	Organize Reform Workshop							
	Review Present Policies							
	Strengthen Legislative Framework							
	Review Institutional Structure							
	Review Regulatory Arrangements							
	Prepare Roadmap for Implementation							
	Implement the Roadmap							
A.2	**Review the Municipal Acts**							
	Review of Law in context of JNNURM / UIDSSMT							
	Link with Town Planning Law							
	Legal basis for DPC							
	Provision for Area Committee							
	Provision for Disclosure							
	Procedure Compliance for Amendment to Municipal Law							
	Amendment to Municipal Law							
A.3	**Development of Municipal Accounting Manual**							
	Preparation of State Accounting Manual as per NMAM							
	State Municipal Accounting Manual							
B.	**MANDATORY REFORMS - STATE LEVEL REFORMS**							
B.1	**Implementation of Decentralization Measures as envisaged in 74th CAA, 1992 of the GoI**							
	Review Present Policies							

Sl.	Particulars/Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Strengthen Legislative Framework							
	Review Institutional Structure							
	Review Regulatory Arrangements							
	Prepare Roadmap for Implementation							
	Implement the Roadmap							
B.2	**Repeal of Urban Land Ceiling and Regulation Act**	ALREADY REPEALED						
B.3	**Reform of Rent Control Laws**	NOT RELEVANT						
B.4	**Rationalization of Stamp Duty to bring it down to less than 5 percent**							
	Preparation and Approval of Cabinet Note on Stamp Duty Rationalization							
	Implementation and Rationalization to bring it down to less than 5 percent							
	Accomplishing desired Rationalization as per the JNNURM Guidelines							
B.5	**Enactment of Public Disclosure Law** (as part of Reform Initiative **A.2**)							
B.6	**Enactment of Community Participation Law** (as part of Reform Initiative **A.2**)							
B.7	**Associate elected ULBs - City Planning & Civic Services** (as part of Reform Initiative **A.2**)							
C.	**GENERAL REFORMS - URBAN LOCAL BODY LEVEL REFORMS**							
C.1	**Enhancement of Creditworthiness of the ULB**							
	Review of Income and Expenditure							
	Identification of Steps to Increase Revenue							
	Finalization of Rules for Property Tax Assessment							
	Survey and GIS of Properties for Property Tax Assessment							
	Implementation of Resource/ Revenue Mobilization Measures							
C.2	**Improvement of Financial Management in the ULB**							
	Appoint Local CA as Consultant							
	Training of Employees on new Accounting System							

Sl.	Particulars/Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Opening Balance Sheet							
	Parallel Accounting System							
	Shift to New System							
	Improved Expenditure Management							
	Improved Financial Management							
	Introduce Improved Audit System							
C.3	**Water and Sanitation Charges**							
	Financial Diligence							
	Measures to Improve Cost Recovery							
	Energy Savings Plan							
	Prepare Implementation Plan							
	Implement Improvement Plan							
C.4	**Development of E-Governance System**							
	Assess existing IT Initiatives							
	Develop Options to Introduce E-Governance System							
	Develop Service Delivery Strategy							
	Assessment of Functional Requirement							
	Develop Technical Options							
	Project Management Framework							
	Implementation Framework							
	Explore PPP Options							
	Initiate and/or Upgrade ULB Website							
C.5	**Devolution of Functions**							
	City / Town Planning and Building Approvals							
	Water Supply and Sewerage							

Sl.	Particulars/Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
D.	**MANDATORY REFORMS - URBAN LOCAL BODY LEVEL REFORMS**							
D.1	**Accrual-based Double Entry Accounting System** (as part of Reform Initiative **C.2**)							
D.2	**Introduction of System of E-Governance** (as part of Reform Initiative **C.4**)							
D.3	**Reform of Property Tax in Urban Local Bodies** (as part of Reform Initiative **C.1**)							
D.4	**Levy Reasonable User Charges - recover Full O&M Cost** (as part of Reform Initiative **C.3**)							
D.5	**Provision of Basic Services to Urban Poor**	ALREADY IN PLACE						
E.	**OPTIONAL REFORMS**							
E.1	**Revision of Bye-Laws - Building Approval Process**							
E.2	**Simplification - Conversion Agriculture to Non-Agriculture Use**							
E.3	**Property Title Certification System**							
E.4	**Earmarking 20-25% Lands for EWS Housing**							
E.5	**Computerization of Land & Property Registration**	NOT POSSIBLE TO INTRODUCE						
E.6	**Bylaws - Rainwater Harvesting Mandatory**							
E.7	**Byelaws - Reuse of Recycled Water**							
E.8	**Administrative Reforms - Reduction in Establishment**							
E.9	**Structural Reforms**							
E.10	**Encouraging Public-Private Partnerships**							

16

TECHNICAL ASSISTANCE

16.1 INTRODUCTION

The objective of the Technical Assistance (TA) is to strengthen project management and institutional capabilities, and improve overall readiness for project implementation by the ULB. TA shall assist the ULBs, to efficiently and effectively manage, coordinate, implement, and monitor the Projects identified, including the institutional and financial reform initiatives under the CCBP. The key outcome of TA shall be (i) identification of key project personnel and creation of project management and project implementation units; (ii) training for the executing and implementing agencies to familiarize them with policies and procedures; (iii) completion of consultants' selection and prequalification of contractors; (iv) preparation of standard bid documents for works and procurement of goods, materials, machinery and supplies; (v) identification of required land and acquisition notification with disclosure to affected people issued by the implementation agencies and prepared resettlement guidelines; and (vi) introduction of institutional and financial reforms. The TA shall assist the ULBs in conducting public awareness and stakeholder consultations to improve understanding and acceptance of the Project and build consensus for introducing institutional and policy reforms outlined in UIDSSMT, whose completion is expected in March 2012.

16.2 METHODOLOGY AND KEY ACTIVITIES

As each ULB has its own historical background, institutional arrangements, financial situation and project implementation experience, the needs and readiness for capacity building will differ. To support up-front capacity building, each ULB should formulate a nodal body for the Project implementation, and to identify the department responsible for each of the three components of the Project. Key activities under each TA component include the following:

1. Component A: Project Implementation Support and Establishment of Managerial Structure

The TA shall refine the managerial and personnel structure for the ULB, and prepare a detailed ToR for the key personnel. The TA shall assist the ULB to define their clear role in undertaking activities under the CCBP. In doing so, the TA has to prepare an operational manual defining the role of each entity in implementing the Project and delegating suitable powers. Furthermore, the TA has to strengthen the supervisory capacity of DTP, TNUDF, the ULBs in monitoring activities related to project implementation.

The TA shall implement the project management systems and procedures proposed in the CCBP. They include, among others, overall project management, contract management, project performance monitoring and evaluation, procurement, recruitment of consultants, project accounting, construction supervision, fund

management, and reporting. The TA has to assist the ULB in preparing for project start-up activities, including, among others, preparing of short-range action plans, recruiting and training staff, establishing a steering committee and a central-level project management unit (PMU) within DTP/ TNUDF and state-level PMUs and project implementation units (PIUs), satisfying the conditions for loan effectiveness, short listing, and recruiting of project consultants, preparing budgets and early disbursement requests, preparing standard procurement documents and contracts, and firming up arrangements for land acquisition and resettlement.

The TA shall assist the ULB in learning about TNUDF policies and procedures for procurement, recruitment of consultants, disbursement, fund management, environmental and social safety guards, corruption prevention, auditing, reporting, and other key aspects of project operations. Furthermore, the TA need to help train the ULB personnel in planning, leading, organizing, and coordinating project activities through participatory workshops and on-the-job involvement in project management. These activities shall be carried out after an assessment of the training needs of project states and ULBs.

2. Component B: Institutional and Financial Reforms

The TA consultants need to assist the ULB in carrying out urban management, institutional, and financial reforms recommended by the GoI/GoTN. This include strengthening of ULB with severe deficiencies; initiation of water utilities arrangement in ULB; improvement of urban planning; and improvement of property taxation and user charges for such services as water supply, sewerage, and solid waste management. The following specific activities have to be undertaken in the ULB:

(i) Verify and evaluate infrastructure assets in the ULB.
(ii) Prepare and digitize the customer database.
(iii) Assess human resource capacities and deficiencies in the various sectors, and formulate options for the current employees in the sector.
(iv) Assess and register property (for tax purposes) and develop a database supported by a management information system/geographical information system to increase property tax and tariff revenues.

3. Component C: Public Relations and Stakeholder Consultation

The TA has to assist the ULB in organizing and carrying out stakeholder consultation and awareness campaigns to (i) improve public understanding and acceptance of the Project, and (ii) seek feedback and build consensus for introducing the institutional reforms recommended by the GoI/GoTN.

16.3 IMPLEMENTATION ARRANGEMENTS

First step towards implementing the projects, ULB may have to establish a tri party agreement with CTP and TNUDF. A Draft Memorandum of Agreement (MoA) is enclosed in the Annexure – 15 and 16 for review.

ULB shall be the Executing Agency for the TA, and is responsible for overall coordination with the TNUDF and CTP. A central-level steering committee and a Project Monitoring Unit (PMU) need to be established within CTP, and a state-level steering committee and PMU / Project Implementation Unit (PIU) is to be

established. CTP and the TNUDF shall provide full administrative and technical support to the appointed consultants and coordinate activities with the ULB.

Recently, Municipal Administration and Water Supply (MAWS) Department has issued a G.O dated 11-04-2008 on the subject of delegation of additional powers and functions to Local governments (Refer Annexure – 17 for G.O. No.61). A plan like the City Corporate Cum Business Plan (CCBP) is the first step to accomplish the G.O issued by MAWS department. ULB need to implement the CCBP identified projects under phased manner considering the priority of the stakeholders of the town in conjunction with the policy of GoTN and CTP. The implementation framework for the identified projects is given in the following sections of this report.

17

IMPLEMENTATION FRAMEWORK

17.1 AGENCIES INVOLVED

The ULBs are presently governed by seven Acts, one each for six city Municipal Corporations and one for Municipalities and Town Panchayats. The Town Panchayats which were governed by the Tamil Nadu Panchayats Act (1958) were brought under Tamil Nadu District Municipalities Act (1920) consequent on the historic 74th Constitutional Amendment Act (74th CAA) and on the basis of conformity legislations adopted by the State Legislature from 1st June 1994.

The town Administration is vested with the Local body. With the enactment of Tamil Nadu Urban Local Bodies Act 1998, a full-fledged local body came into function with an elected Chairperson and Councilors. The ULB discharges various obligatory and discretionary functions as per the provisions of the TN ULB Act, 1998, and provides various specified civic services/infrastructure facilities to the citizens of the town. Apart from the ULB, there are other Government departments and their directorates with development related responsibilities and functions. The following table provides an insight into the development related responsibilities and functions of various Government departments/institutions in the region which have a direct bearing on service provision and delivery:

Table 17.1: Development Related Responsibilities and Functions of Various State Government Departments / Institutions

Sl. No.	Name of the Department/ Institution	Responsibilities and Functions
1.	Local Planning Authority, (LPA)	▪ LPA was constituted under the Town & Country Planning Act, 1971. ▪ Responsible for development of Local Planning area. ▪ Preparation of interim, comprehensive and zonal development plans. ▪ Enforcement of the provisions of the development plan, zoning regulations and planning and building standards by way of issuing permissions for construction of buildings. ▪ Preparation of development schemes and its implementation. ▪ All Town planning functions, development controls and building / layout sanctions. ▪ Principal objectives of the authority include creation of housing stock, creation of commercial complexes, improvement of city level infrastructure, environmental improvement, parks and plantations in colonies, blocks, institutions and roadsides.
2.	Public Works Department (PWD)	▪ Responsible for construction, repair and maintenance of buildings and other related structures financed from the state and capital budget allocations of the GoTN. ▪ Also responsible for ensuring that no encroachment or structure, whether temporary or permanent is erected on the land and property under the control of PWD. It is also responsible for removal of such encroachments as per the GoTN rules. ▪ Maintaining a register of land, buildings and properties belonging to the GoTN and under the administration of PWD.
3.	Highways Department,	▪ Responsible for construction, repair and maintenance of roads, bridges, flyovers and other related structures financed from the state and capital

Sl. No.	Name of the Department/ Institution	Responsibilities and Functions
		budget allocations of the GoTN. ▪ All major arterial roads and link roads that enable links to other parts of the district and state are under the control of the Highways department.
4.	Tamil Nadu Water Supply and Drainage Board (TWAD)	▪ Responsible for construction and maintenance of water supply (combined), sanitation and sewerage schemes on behalf of local bodies at ULB cost and in cases of CWSS, appropriate bulk supply charges.
5.	Water Resources Organization, (WRO), GoTN	▪ Responsible for maintenance of major rivers / tanks/ irrigation canals and construction and maintenance of major dams including Rain water Harvesting Works under the ownership of PWD within the state.
7.	Tamil Nadu Pollution Control Board, (TNPCB)	▪ Responsible for pollution control and environmental protection ▪ Dealing with environmental monitoring, certification/clearances and pollution control in the State ▪ Also undertakes environmental planning studies, district profiles and environmental management plans
8.	Directorate of Town & Country Planning, (DTCP)	▪ Advises the GoTN on matters pertaining to urban and regional planning ▪ Supervises the functioning of the respective Local Planning Authority
9.	a) Industries Department, GoTN b) Small Industries Development Corporation (SIDCO), GoTN	▪ Responsible for planning and establishment of industrial zones in the State. ▪ Responsible for development of industrial estates and industrial areas in districts, creation of industrial infrastructure and amenities there in.
10.	Tamil Nadu Tourism Development Corporation, (TTDC)	▪ Responsible for identification and development of tourism importance sites, publicity and development of infrastructure facilities. Arrangement of different tourism packages covering different tourist sites.
11.	Tamil Nadu Slum Clearance Board, (TNSCB)	▪ Develops improvement schemes for notified/regularized slum settlements in the state of Tamil Nadu; and ▪ Infrastructure provision is financed through loans and grants from GoTN and GoI.
12.	Tamil Nadu Housing Board, (TNHB)	▪ Responsible for construction of Group tenements and individual houses for Low, Middle and High-Income Groups.
13.	Tamil Nadu Electricity Board, (TNEB)	▪ Responsible for provision of electricity and maintenance within the state.
14.	Tamil Nadu State Transport Corporation, (TNSTC)	▪ Responsible for provision of transport facilities through operating buses to the various destinations within state and to neighboring states as well. ▪ Responsible for administration and maintenance of buses owned by the TNSTC.
15.	Hindu Religious and Charitable Endowments Administration Department, (HR&CE), GoTN	▪ Responsible for administration and maintenance of Temples within the state of Tamil Nadu.
16.	1. Archaeological Survey of India (ASI), GoI 2. State Archaeological Department, GoTN	▪ Responsible for identification, protection and preservation of ancient monuments of national and state importance. ▪ Also responsible for excavation of new sites of archeological importance.

Source: Analysis

Following table provides an insight into the institutional responsibilities, including the roles played by the private sector for various urban infrastructure and services:

Table 17.2: Institutional Responsibility - Urban Infrastructure

Urban Infrastructure	Planning and Design	Construction	Operation and Maintenance
Water Supply	Local Body/TWAD	Local Body/TWAD	Local Body
Sewerage	Local Body/TWAD	Local Body/TWAD	Local Body
Sanitation	Local Body	Local Body	Local Body

Urban Infrastructure	Planning and Design	Construction	Operation and Maintenance
Storm Water Drainage – *Major Drains & Canals*	PWD/WRO	PWD/WRO	Local Body
Storm Water Drainage & Related Structures along major roads/highways	Highways Department	Highways Department	Local Body
Storm Water Drainage – *Minor Drains*	Local Body	Local Body	Local Body
Solid Waste Management	Local Body	Local Body	Local Body with Private Sector Participation
Roads (including Flyovers) - *Major Roads*	Highways Department	Highways Department	Highways Department
Municipal Roads (including Flyovers) - *Minor/Internal Roads*	Local Body	Local Body	Local Body
Street Lighting	Local Body	Local Body	Local Body with Private Sector Participation

Source: Analysis

17.2 PROJECT FORMULATION

Pursuant to identification of the required investments, development of Detailed Project Reports is an important activity that will essentially jump-start the pre-implementation process. The following recommendations are made to ensure effective project formulation:

- A "Project Formulation & Design Coordination Committee" at the regional level to cover all the identified ULBs may be instituted which may be composed of senior engineers from relevant departments, boards and experts who are involved in related engineering, research and development activities
- A central design database shall be developed by the Committee containing the following information:
  - Design infrastructure (specifications and drawings) from earlier contracts and on the existing system.
  - Design information on the proposed improvements.
  - Details and data on surveys and field investigations performed (topographical/ geotechnical /traffic volume counts, etc. as applicable).
- The aforementioned database shall be upgraded and validated into a "Project Implementation and Commissioning Database", which is explained in the following section.
- The Committee shall also ensure efficient and reliable data sharing between the various entities that are involved in preparation of the projects for subsequent implementation; this measure is intended to mitigate and possibly prevent/ significantly reduce future rework and ensure timely implementation in a cost effective manner.
- It is also recommended that the aforementioned Committee be involved in the implementation stage to ensure that the design intent is conveyed into system implementation, operation and maintenance.

17.3 PROJECT MANAGEMENT

It is recommended to appoint a Project Management Consultant (PMC) who will be entrusted with, but not necessarily be limited to, the following responsibilities:

- Overall project management including financial (specific to project-related investment) management.
- Field coordination of capital works between the client, contractor and design consultant to ensure that the approved design intent is conveyed into implementation and that system operation reflects the same.
- Quality control and specification compliance in all spheres of equipment, labor, material and construction methods.
- Verification and provision of critical decision-making support and recommendations on change orders and/or physical contingencies.
- Facilitate approvals from pertinent authorities for implementation, commissioning and licenses to operate.
- Enforce stringent adherence to an Environmental Management Plan that should be developed specific to each project/sectoral improvement.
- Facilitate creation and operation of a “Project Implementation & Commissioning Database” which shall contain at a minimum, the following information:
  - All information from the Central Design Database;
  - Documentation pertaining to the present project:
    - Design
    - Specifications
    - Drawings
    - Change orders
    - As-built drawings
    - Communication/correspondence files.
- It is also imperative for the Project Management Consultant (PMC) to perform the aforementioned responsibilities to the highest degree of quality since this database will be the ultimate record of the project for future upgrades/modifications.
- Specific attention needs to be paid to documentation/correspondence files since these files will provide future insight to the past chronology of events, issues, resolutions and other relevant information.
- The PMC must also facilitate and assist in implementing a system for sequentially and chronologically appending future modifications to the database, so that all changes made are accurately reflected and available for future reference.
- The PMC should involve the ULB officials in the process so as to take up further such projects bythemselves.