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:

1. Project Commissioning, Start-up and Mobilization
2. Framing the Process for Developing the CCBP
3. Rapid Assessment Report
4. Analytical Framework for Preparing CCBP for the ULBs
5. Development Options and Suggestions
6. Implementation, Monitoring, Evaluation and Review Arrangements
7. Report on CCBP for the ULBs
8. 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 Palacode 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.

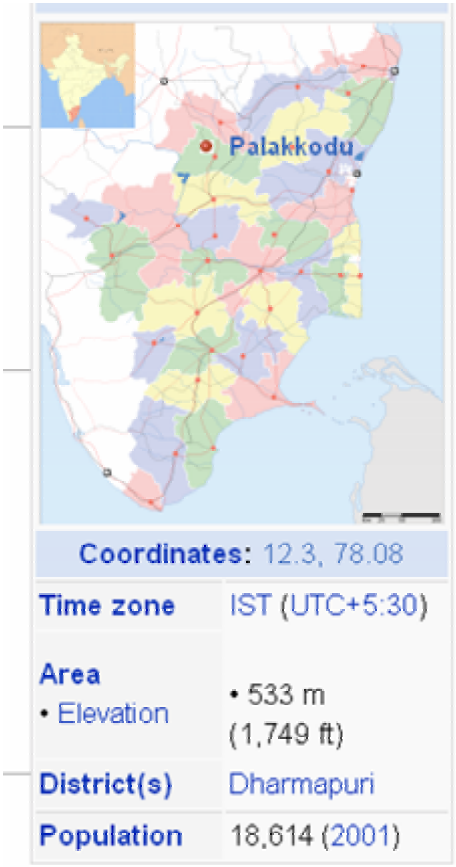
2

PROFILE OF PALACODE

2.1. REGIONAL SETTING

Palacode, a taluk head quarters Town situated 25-km from Dharmapuri (District Headquarters). This town is situated along the Royakottah-Hosur-Bangalore Railway Line with a railhead at Palacode. Trains from Bangalore to Coimbatore ply through Palacode. Agricultural produce, tomato in particular, is largely grown in Palacode area. A separate local market for tomatoes is maintained by the Palacode Town Panchayat, from which produce is transported to all parts of India.

The area of Palacode Town Panchayat is 2.50 sq. km. The primary occupation of the workforce is agriculture and trade. Nearly 10,000 strong workforce is dependent on agriculture. Palacode is a Selection Grade Town Panchayat with a population of 18,614 (as per 2001 census). Palacode town is located along Athiyamankottai (Dharmapuri) – Hosur State Highway. This town is surrounded on all side by hillocks. The town has gained its importance from Tomato, Mango, Coconut and Banana cultivation. Palacode town is bound by the following Village Panchayats:



North	:	Jharthalar Village:	South	:	Ernalli Village
East	:	Vellavalli Village:	West	:	Ernalli Village

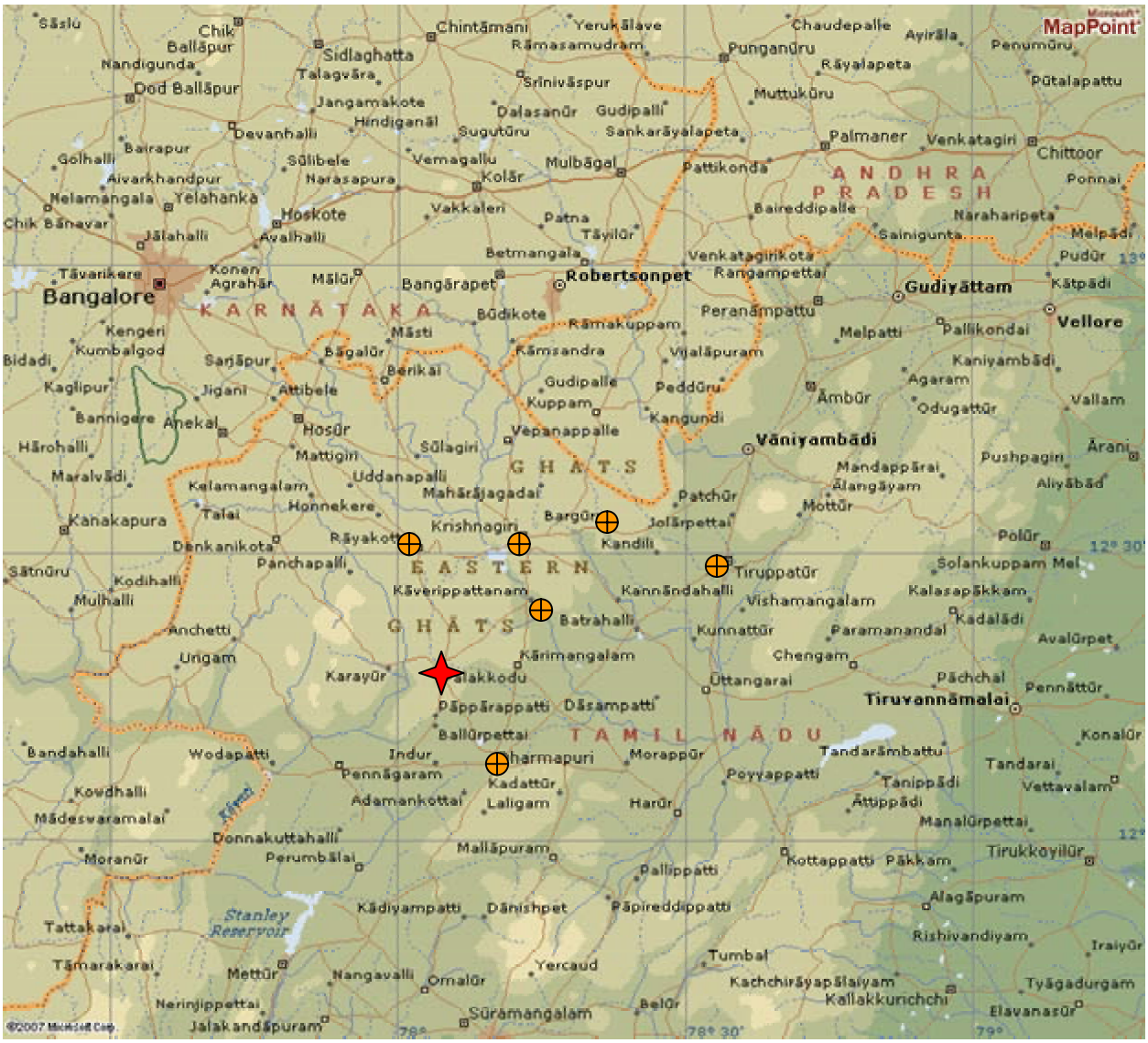
Table 2.1 Salient Features of Palacode Town

TOWN	**PALACODE**
District	Dharmapuri
Area	2.50 sq. km.
Geographic Location	12°18'00" N 78°4'60"E Elevation : 533 m above MSL
Census population	18, 614 (year 2001)
Connectivity	**Road:** Frequent bus services connect the town with Dharmapuri, Krishnagiri, Hosur, Kaveripattinam, and other urban centres in the region. **Rail:** Railway station is located within the town.
Climate	Tropical - Max. 42°C, Min. 25°C; Winter- Max. 31°C, Min. 20°C; Annual Precipitation: 895 mm.

2.2. LOCATION AND LINKAGES

Source: www.mapsofindia.com

Palacode town is 285-km northwest of Chennai, the State Capital and 25-km from Dharmapuri on the southern side, 33-km from Krishnagiri in the north and 60-km from Hosur, a municipal town on the east. It is about 35 km from Pennagaram in the western side. Because of its geographical centrality in the region, Palacode hold a prominent place in trade activities. Also it is located along the Dharmapuri - Hosur State Highway. Apart from regional roads several Major District Road (MDR), Other District Roads (ODR) and local roads connects Palacode Town with surrounding villages and other urban centre such as Pennagaram, Hogenakal and Kaveripattinam in the district and state.



Source: www.encarta.msn.com

2.3 PHYSICAL CHARACTERISTICS

2.3.1 GEOGRAPHY

Palacode is located on the northwest region of Tamil Nadu in Dharmapuri district. Palacode falls in the coordinates of 12°18'00" N 78°4'60" E with an average elevation of 533 meters above MSL. The terrain can be described as rolling in nature and is sloped towards the town centre from all directions.

2.3.2 CLIMATE

The climate in the zone ranges from semi arid to sub-humid with frequent occurrence of drought. Four distinct seasons viz., Winter (January-February), Summer (March-May), South West Monsoon (June-September) and North East monsoon (October-December) occur in this zone. The hottest months are March, April and May. The mean Annual Rainfall of the region is 895 mm. Region enjoys the rainfall from both South West and North East monsoon seasons. The maximum temperature ranges from 25°C to 42°C and minimum from 20°C to 31°C. Being an interior region the diurnal range of temperature is large particularly in the dry and hot seasons. In general the region has high relative humidity.

From October to March wind blows generally from North Easterly and Easterly directions. South Westerly and westerly winds predominate from May to September. The wind speed is least in September-October with a secondary minimum in May.

2.3.3 SOIL TYPE

The Soil type ranges from black to mixed loam; Red sandy soils are seen in Palacode Taluk. Generally the soil is low in Nitrogen and Phosphate content with no marked variation between within the region.

The North Western Agro-climatic Zone shows considerable diversity in soil types. The major soil types occurring in the region are 1) Red non-calcareous, 2) Red- Calcareous, 3) Alluvial, 4) Black soil, 5) Hill soil. Of these major area comes under red non-calcareous and red calcareous soils. In Palacode town, Black and loam soil is predominantly present, occupying 85.6 per cent area. It is followed by Red/brown calcareous soil with 9.7 per cent and black soil (4.2%). No alluvial deposits occur in this town.

2.4 AREA AND POPULATION

As per 2001 census, Population of Town Panchayat is about 18,667. The ward wise population details of the town is given in the below table. Of the total population of Palacode Town Panchayat 9,492 are males and 9,175 are female's. Males constitute about 50.80% of the population and females 49.20%. In Palacode, 15% of the population is under 6 years of age. However, a recent enumeration of population is raised to around 20,000 and these people are living in 3,800 Houses.

Table 2.2: Ward wise Population in Palacode Town Panchayat – 2001 Census

Ward	Total Households	Total Population	Male Population	Female Population	Gender Ratio
1	204	1,051	541	510	943
2	339	1,797	919	878	955
3	217	1,158	581	577	993
4	143	835	421	414	983
5	324	1,461	732	729	996
6	218	924	486	438	901
7	225	1,029	521	508	975
8	128	608	313	295	942

Ward	Total Households	Total Population	Male Population	Female Population	Gender Ratio
9	196	863	444	419	944
10	266	1,307	653	654	1,002
11	219	1,006	506	500	988
12	226	1,316	672	644	958
13	208	1,143	580	563	971
14	128	680	344	336	977
15	172	784	402	382	950
16	207	1,001	516	485	940
17	183	948	481	467	971
18	158	756	380	376	989
Total	**3,761**	**18,667**	**9,492**	**9,175**	**17,378**

Population and growth trend of Palacode is furnished in Table 4.3.

Table 2.3: Population and Growth Trend in Palacode Town Panchayat

YEAR	POPULATION		GROWTH RATE IN %	
	TOTAL POPULATION	VARIATION	DECADAL	ANNUAL
1951	7,616	--	--	--
1961	8,604	988	12.97%	1.30%
1971	11,769	3,165	36.79%	3.68%
1981	13,204	1,435	12.19%	1.22%
1991	15,853	2,649	20.06%	2.01%
2001	18,667	2,814	17.75%	1.78%

Source: Census of India 1951,61,71,81, 91 and 2001

2.4.1 GENDER RATIO

Palacode has an average gender ratio of 967 females to 1000 males. Of the total 18 wards, highest is in the Tenth (10) ward and lowest in sixth (6) ward, which is 901 females for 1000 males.

Table 2.4 Gender Ratio –Palacode Town Panchayat

Year	Total Population	Male	Female	Females per Thousand Males
1991	15,853	8,162	7,691	942
2001	18,667	9,492	9,175	967

Source: Census of India 1991 and 2001

2.4.2 LITERACY RATE

Palacode has an average literacy rate of 72%, higher than the national average of 59.5%. Male literacy is 79%, and female literacy is 64%.

Table 2.5: Literacy rate: Palacode Town Panchayat

Year		Male	Female	Total
1991	Population	8,162	7,691	15,853
	Literate	5,296	3,492	8,788
	% of Literate	76.11%	52.94%	64.84%
2001	Population	9,492	9,175	18,667
	Literate	6,587	5,141	11,728
	% of Literate	79.61%	64.46%	72.17%

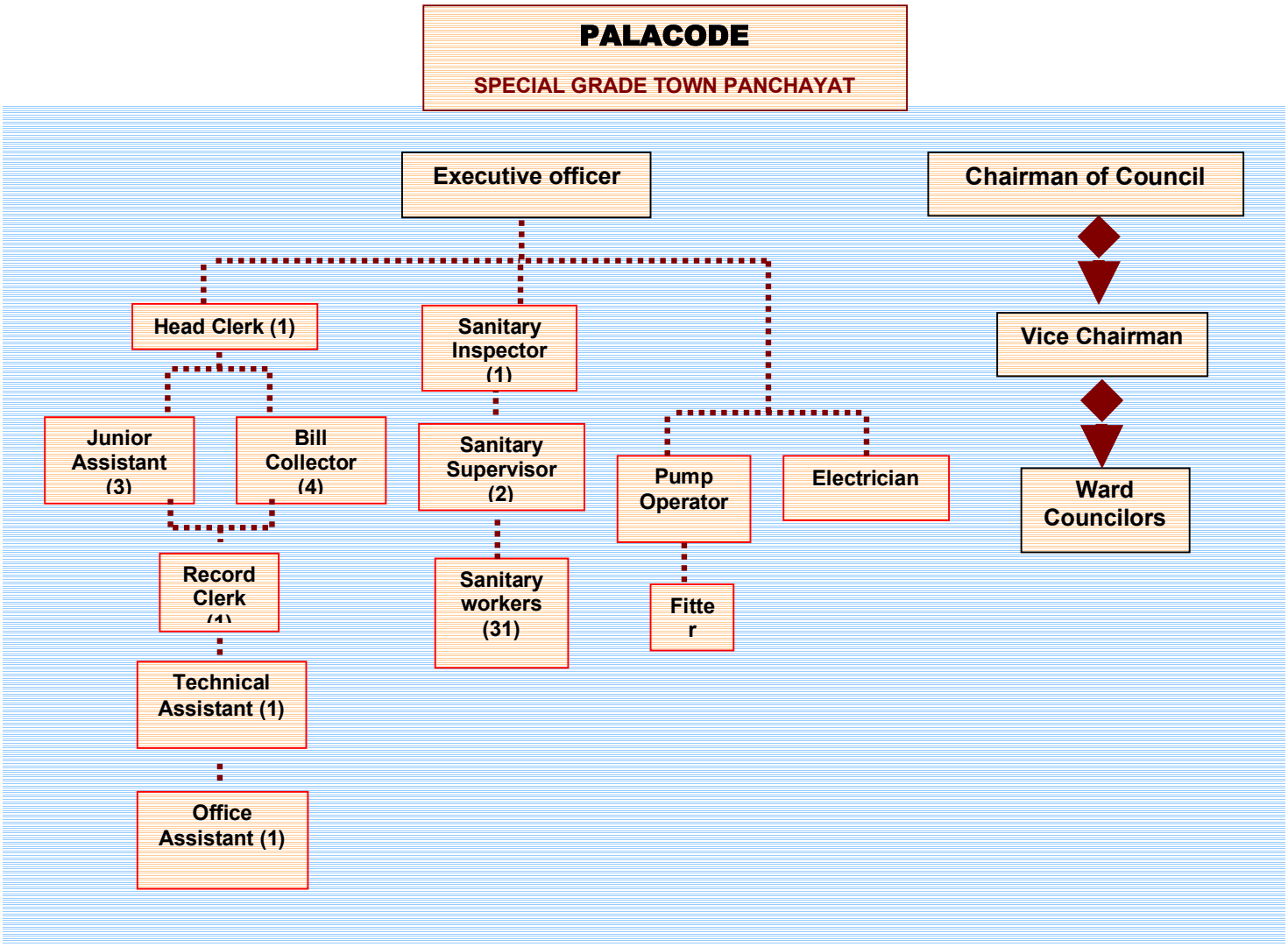
Source: Census of India 1991 and 2001.

2.5 URBAN GOVERNANCE

Palacode Town Panchayat was up graded as Selection Grade Town Panchayat from Grade I as per the proceedings of the Director of Town Panchayats, Chennai Lr.Rc.No.5819/1983/J5/dated.7.4.83.

The town is divided into 18 wards. The town is headed by the Chairman, an elected representative and 18 members. The town administration is governed by the Executive Officer of Town Panchayat.

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 and capital investment estimation and outlay is the projection of population. Projection of the future population for the Palacode 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 landuse and land availability for growth including proposed plans and potential for significant change in landuse (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.

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)

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

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 also 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 Palacode 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 11.1.

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

Year	Area	Census population	Decadal growth rate	Density
	sq.km.	pers.	%	pers./sq.km.
1951	2.50	7,616	--	3,046
1961	2.50	8,604	12.97%	3,442
1971	2.50	11,769	36.79%	4,708
1981	2.50	13,204	12.19%	5,282
1991	2.50	15,853	20.06%	6,341
2001	2.50	18,667	17.75%	7,467

Source: Analysis based on the Data provided by Palacode Town Panchayat; 2007

3.3 PROJECTION OF FUTURE POPULATION

Based on the aforementioned methodology and evaluation performed, population has been projected for the Palacode 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 Palacode Town Panchayat and the evaluation of projection methods (pilot projection) are enclosed as Annexure – 1.

A comparison of results of population projection for Palacode Town Panchayat is shown below in Table 11.2.

Table 3.2: Population Projection for Palacode Town Panchayat – Comparison

Year	Census Information	Arithmetic Increase	Geometric Increase	Incremental Increase	Exponential Increase
1951	7,616				
1961	8,604				
1971	11,769				
1981	13,204				
1991	15,853				
2001	18,667				
2007		19,993	20,651	20,212	21,950
2010		20,656	21,721	21,046	23,228
2011		20,877	22,090	21,334	23,671
2021		23,087	26,140	24,457	28,587
2025		23,971	27,961	25,834	30,828
2031		25,298	30,932	28,037	34,523
2040		27,287	35,993	31,649	40,914
2041		27,508	36,604	32,073	41,693
2051		29,718	43,315	36,566	50,352
2057		31,044	47,919	39,480	56,388
2061		31,928	51,257	41,515	60,809

3.4 RECOMMENDED PROJECTED POPULATION

The projection of future population has been performed for the Palacode 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 'Exponential Method' is optimal projections for the purposes of planning for urban infrastructure projects. Thus, it is recommended to select the lower projected value of the aforementioned methods, i.e. 'Exponential Method' as the design population for the respective project design stages and vision period. The recommended projected population is as follows:

Table 3.3: Recommended Projected Population

ear / Stage	Census Population	Recommended Projected Population
1951	7,616	
1961	8,604	
1971	11,769	
1981	13,204	
1991	15,853	
2001	18,667	
2007		21,950
2010		23,228
2011		23,671
2021		28,587
2025		30,828
2031		34,523
2040		40,914
2041		41,693
2051		50,352
2057		56,388
2061		60,809

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 landuse pattern and possible significant change in landuse 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

AREAS OF DEVELOPMENT

4.1 NEED FOR ASSESSMENT

The existing system / situation 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 a well planned development.

The objective of the Strategic Plan for Palacode is to develop a long term vision and short term strategic plan covering the priority sectors over the next five years. A City Corporate Plan (CCP) 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 CCP preparation process is essentially a consultative process and therefore identification of stakeholders to be involved in the process is of crucial importance. The Strategic Plan 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:

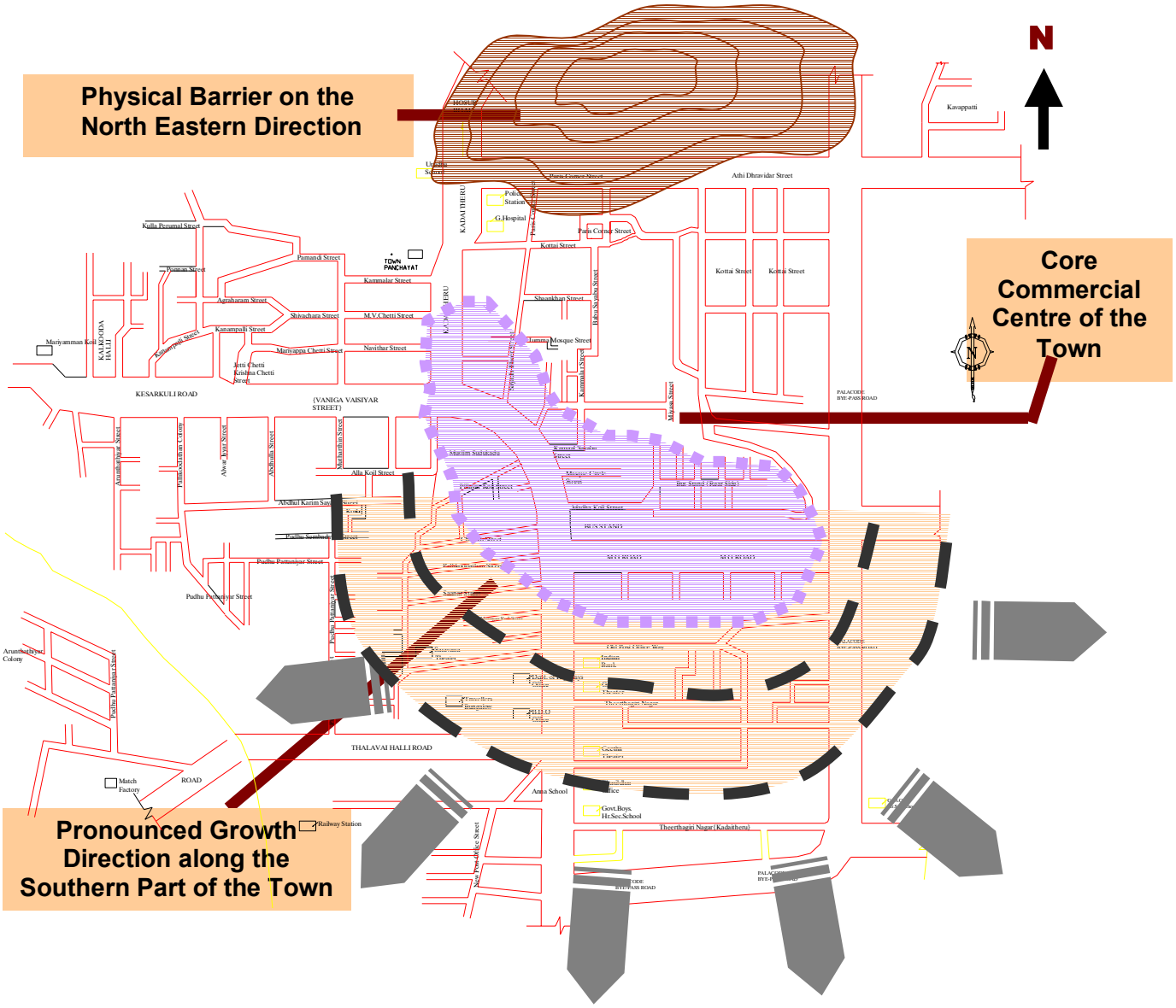
- Land Use;
- Water Supply;
- Sewerage and Sanitation;
- Storm Water Drainage;
- Solid Waste Management;
- Traffic and Transportation;
- Street Lighting; and
- Other Amenities

4.2.1 LAND USE

Master (Development) plan for this town is yet to be prepared. The development within the town is regulated with the prevailing building rules.

GROWTH AREAS AND DIRECTIONS

Palacode is famous for its commerce and trade activities. Agriculture practices in the town and its environs are the major economic activities for the town. It acts as a market town for the neighboring villages. Due to its prominent place in the region's economy, rapid commercial development has taken place in the core areas surrounding the bus stand and along State Highway and M.G. road and in ward number 5, 6, 18. Residential developments have taken place in wards 2, 3, 4, 8, 9, 12, and 13. Rest of the wards 10, 17, 14 and 15 are the constituents of rural habitations and development activities are observed to be less as compared with the central area. Agriculture activities are more in 1, 11, 14, 15 and 17 wards. In these wards land has been potentially used for cultivation of Mango and Coconut. About 400 - 500 acres of land have been used as farm lands.



Palacode's growth pattern is guided along the major transportation corridor i.e. State Highway from Dharmapuri to Hosur. Initial development of the region took place around the bus stand followed by growth in urban area surrounding the market and old settlement areas. Subsequently, development occurred in the south and southwest portion of the town. The north and northeastern part of the town have not developed in view of the presence of small hillocks. The southern side has gained prominence over the last two decades with the establishment of government offices and institutional buildings. The areas abutting the By-

pass Road, Kesarkuli Road, M.G Road have potential for development in the present scenario.

GROWTH CONSTRAINTS

Scarcity of the land has been identified as the major constraint for growth. The town is spread over 2.50 sq.km and it holds a population of approximately 20,000 persons. Due to land scarcity very high residential density pattern is observed and this results in traffic congestion especially during peak hours. The actual density in Palacode is far high than the indicated figures in view of the presence of floating population and the commercial establishments located in and around the core town area. Availability of land for development purposes has placed excess pressure on the provision of infrastructure services in Palacode. Rapid conversion of activities to mixed land use especially along M.G. Road and SH road and lack of open spaces, adversely affects the sustainable development of Palacode.

POTENTIAL FOR DEVELOPMENT

Growth potential of the town needs to be explored at the regional level. The trade potential of Palacode has not been utilized to its capacities. There is need to capitalize on the growth potential nodes in the region, through transportation linkages and special development areas, to increase the spatial growth potential of the town. Development potential of the region is linked to its trade and agro-industrial base. Therefore, a comprehensive program of setting up of storage units for Tomato and other agricultural products in the vicinity of Palacode may be identified. A well organized Tomato Chandy and weekly market in the region also needs to be established.

4.2.2 WATER SUPPLY

ASSESSMENT OVERVIEW

Palacode town Panchayat is served by a protected water supply scheme with Panjappalli and local sources being the major water supply sources. On an average, the total quantity of water supplied is 4 LL per day.

Source: Protected water supply to Palacode was first commissioned in 1982 through the Dharmapuri – Palacode Combined Water Supply Scheme (CWSS). Under this scheme, water is drawn from the present head works site in Chinnar River located at Panjapalli village which is situated at 2 km from Palacode.

Table No. 4.1: Quantity of Water Supplied

Sl No	Name of the Water Source	Capacity/ Lakh Litres
1	From Main OHT Tanks (3 Numbers) per day	9.00
2	From Mini OHT Tanks (36 M.OHT) per day	2.73
3	From GLR Tanks (10) per Day	0.20
4	From 70 Hand pumps per day	1.50
5	From Open wells (80)	10
	TOTAL	**13.53**

Source: Palacode T.P; 2007

The TWAD Board has implemented the, Papparpatti – Palacode CWSS in 2005-06 which was under the Golden Jubilee Scheme at a capital cost of Rs. 4.92 Crores at Panjapalli. Under this scheme, 3 infiltration wells of each 12m diameter and 7m depth were constructed. Raw water is pumped using 7.5hp motor (6 nos.) of for a period of 16hrs in a day. This scheme supply 7LL and 4LL to Palacode and Paparapatti villages through Pumping main of 32km length made of 300mm diameter A.C. Break Pressure Tank of 60,000 liters capacity has also been constructed. Water from source is directly pumped to 3 OHTs located in the town. In order to provide equitable water, the town is divided into 3 zones with one OHT for each zone. This scheme supplies water to the public once in two days at a supply rate of 72 lpcd on an average.

Service Reservoirs: 3 OHTs of total storage capacity of 9.0 LL have been constructed in the town. 10 GLRs with 2,000 litres storage capacity each have been constructed in addition to OHTs. 36 bore wells with mini OHTs of 1000 litres capacity each with 1.5 hp pump sets have been installed by the ULB. Table 2.2 presents the storage capacity of the existing service reservoirs in the distribution system.

Other Sources: Besides the CWSS the ULB has also created standby local sources by erecting bore wells with pump sets to pump water to OHT. At present one bore well has been constructed and water is pumped to the OHT with 60,000 litres capacity located behind BDO office using 5hp pumpset. Another bore well source has been created at Anna Nagar with an OHT with a capacity of 10,000 litres using a pump of 5hp. An OHT with a capacity of 14,000 litres with 5hp pumpset has been installed by the ULB on the Hosur-Adhiyaman road. In addition to 80 open wells and 70 hand pumps have been installed by the ULB for public use.

Table No. 4.2: Existing Storage Capacity

Type of Reservoirs	Quantity (Nos.)	Capacity (LL)
GLR	10	0.20
OHT	3	9.00
Mini OHT	36	0.36

Source: Palacode T.P; 2007

Table No. 4.3: Water Supply Zone

Zone	Ward Coverage
Zone I	1 to 4
Zone II	6 to 10
Zone III	5, 11 to 18

Source: Palacode T.P; 2007

Ward Coverage: Three OHTs constructed in the town covers all the 18 wards. Coverage of each OHT is given in Table 2.4. The OHT at Mandavelli covers 10 wards out of 18 and hence has a large coverage.

Distribution System: Palacode town is provided with 1447 service connections out of which 14 are commercial connections. ULB has also installed 96 nos. of public fountains to supply water. Distribution mains have been are laid for a length of 36km with varying diameters from 90mm to 160mm Out of the 36km length distribution mains,16km length of mains were laid during 1982 when the first scheme was implemented.

Table No. 4.4: Existing System Coverage

Service Reservoirs	Ward coverage
Mandavelli	5, 9 to 18
Police Station Backside	1 to 4
Tomato Market	6 to 10

Source: Palacode T.P; 2007

System Coverage & Per Capita Supply: The existing system of distribution covers all the wards in Palacode. But water is supplied once in two days due to lack of sustainable source. Considering the coverage based on the distribution pipe length vs. road length ratio, the existing network of 36 km translates to the coverage of approximately 85 percent of the total road length which is better in comparison with the normative standard. But it is observed that almost 50% of the existing D-system was laid 20 years back. Hence it requires extensive replacement of old pipe lines. Based on the present stage population and the total quantum supplied, the per capita water supply works out to 68 lpcd on an average which is marginally less than the normative standard of 70 lpcd (w/o sewerage scheme) as per CPHEEO guidelines.

ADEQUACY OF SERVICES

Table 4.5 shows key service indicators of the existing water supply system

Table No. 4.5: Performance Indicators - Existing Water Supply System

Sl. No.	Service Indicator	Unit	Current Status	Acceptable Norms/ Prescribed Standards
1.	Daily per capita supply (2006/2007)	Litres	68	70
2.	Roads covered with distribution network	Percent	85	> 100
3.	Storage capacity with respect to supply	Percent	71	33

Sl. No.	Service Indicator	Unit	Current Status	Acceptable Norms/ Prescribed Standards
4.	Treatment capacity available with respect to supply	Percent	N.A	100
5.	Property tax assessments covered by service connections	Percent	26	85
6.	Proportion of non-domestic service connections	percent	0.97	> 5.00
7.	Slum population per public stand post	persons	235	150

Source: Palacode T.P; 2007 and Analysis

KEY ISSUES

Discussions were held with officials and stakeholders of Palacode Town Panchayat to assess the key issues in the present water supply system and its scope for improvement and issues identified through discussions, field visits and service analysis are outlined below:

- Source Availability: The present source of water is not adequate to meet the existing and future demand, and augmentation is required to meet future requirements. During the summer (i.e. March to May) season there is no water supply from hand pumps and local bore well sources as the ground water is depleted. During summer season water supply through lorries is effected in some places. The TWAD Board Scheme which supplies 7 LL per day is found to be inadequate to meet the demand.
- Low Supply Levels: The ULB supplies 68 lpcd overall which is almost equal to the normative standard of 70 lpcd. Some places in the town (wards 11 and 12 covering Pallikuthan colony, Pudupantariar street, Pudu vannar street, Railway station road and part of Muthu Goundar street) experiences low per capita supply and lower pressure problems as these aforementioned places are located far from the existing service reservoirs and also these places are located at a higher elevation than the service reservoir. The situation becomes worse in summer season with per capita supply reducing to 30 lpcd. Water supply in the town is effected once in two days in normal season, which deteriorates to once in three or four in summer season due to non-availability of adequate water;
- Treatment Capacity: Existing Water Supply Scheme does not have any treatment facility except for chlorination since the source is sub-surface water. In view of increasing demand alternate sources such as surface water, treatment facilities and new schemes may have to be implemented;
- Inadequate Service Coverage: Only about 26% of the PTAs are provided with water supply HSCs. There are about 1400 PTAs covered with HSC's out of 4800 assessments. As more number of public fountains and hand pumps are provided in the town, public are not willing to avail house service connections. . Existing demand for water supply has not taken into account the requirement of water supply to the extended areas of development or fringe areas;
- Inadequate Summer Storage: The pattern of rainfall is erratic. There is no scope for storing rainwater for recharging, as most of the water bodies are encroached, silted and used as sewage outfalls;
- Refurbishment of the Existing System: The distribution system in Kesarkulli road, Mahidin nagar, and Kavapatti Street needs to be re-laid in order to avoid leakage and pressure loss. The pumping main from head works is also frequently affected with leakage problems. Rehabilitation works have been carried out based on complaints received. The system needs a comprehensive rehabilitation based on detailed assessment; and
- 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 DEVELOPMENT

In order to appreciate and articulate the current situation and present future possibilities, the water supply 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:

- Town supplies 68 lpcd of water to the public on an average which is moderate in comparison with the prescribed standards.
- Existing CWSS was laid during 2005-06 hence assures better service in terms of storage facility.
- The town has a storage capacity 9.56 LL only against the estimated supply of 13.50 LL.
- Town has the capacity to expand its service connections as the consumers are willing to 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

ASSESSMENT OVERVIEW

Underground Sewerage System: Palacode Town Panchayat is not provided with an Underground Sewerage System. At present approximately 2.0 MLD of sewage is being generated daily. In Palacode, 3000 households have septic tank facility. Only part of the houses in the town uses septic tank with soak pits for the disposal of sewage. Sullage /kitchen wastes are collected through open drains and conveyed to open channels leading to major water body (i.e.Thamarai Eri) which is at Pellaralli Village located about 1.5-km from the town limit. Sewage is also disposed through Sanathkumar channel and in low-lying areas within town limit (Anna Nagar located in Ward 11). Households in outer habitations of the town panchayat are not provided with protected system of sewage disposal. Open defecation and disposal into the street drains are common method of sewage disposal.

Table No. 4.6: Location of Public Toilets

Sl, No.	Location	No. of Seats		Total
		Men	Women	
1	Tomato Market (Pay & Use)	10	10	20
2	Near Market	3	3	6
3	Pillayar Koil Street	3	3	6
4	Nera Sengalliaman st (SHGs Maintained)	3	3	6
Total		**19**	**19**	**38**

Source: Palacode T.P; 2007 and Analysis

Sanitation Facilities: ULB has constructed 5 public toilets of which 2 are pay and use toilets with 10 seats each and 1 toilet under SHGs maintenance. Remaining toilets are under the maintenance of the ULB. There are about 2855 slum dwellers in Palacode spread across 4 slums. 86 LCS facilities have already been provided in these areas. In order to provide proper sanitation to those slums, 150 LCS are under construction. However existing toilet facilities as mentioned above cover the slum population only partially and rest of them have no such arrangements.

ADEQUACY OF SERVICES

Table No. 4.7: Key Performance Indicators - Sewerage and Sanitation

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Assessment covered with septic tanks	percent	53	--
2.	Assessment covered with LCS	percent	2	--
3.	Assessment covered with safe disposal facility - Total	percent	0.00	--
4.	Slum population per seat of public convenience	persons	75	--
5.	Seats under pay & use category	percent	53	--

Source: Palacode T.P; 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 an underground sewerage scheme. Absence of treatment facility at the oil mills and rice mills is a threat to environment and a separate scheme needs to be implemented to dispose off the oil mill and rice mill wastes with appropriate treatment.
- Discharge of untreated sewage to Thamarai Eri and Sanathkumar channel via storm water drains and to other low-lying areas and the resultant degradation of the environment is a critical issue. The health risk associated was highlighted as a major health hazard as well.
- About half of the total households in Palacode are equipped only with septic tanks, soak pits. These are cleaned on an infrequent basis and the collected sewage are being disposed to open spaces and low-lying areas in an indiscriminate manner;
- Inadequate and Ill-Maintained Public Sanitation: There is a high dependency by slum population on public conveniences, the seat per person is limited and most slum dwellers resort to open defecation;
- Public awareness on safe sanitation is very poor.

POTENTIAL FOR DEVELOPMENT

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:

- Low cost sanitation facilities need to be provided to outer habitations by the ULB.
- The town has the potential to set up an under ground sewerage system owing to its rapid development.
- More than 50% of households are found to have septic tank facility to dispose sewage.

4.2.4 STORM WATER DRAINAGE

ASSESSMENT OVERVIEW

Table No. 4.8: Existing Storm Water Drains

No.	Description	Length (km)	% of total
1.	Open Drains (Pucca)	14.09	36.58%
2.	Open Drains (Kutcha)	24.43	63.42%
	Total	*38.52*	*100.00*

Source: Palacode T.P; 2007

Drainage system: Due to its rolling terrain, the natural slope helps the easy disposal of storm water into the water channels. Sanathkumar channel is the major water body that flows within the town which is acting as a major rain water collection medium. The street drains that are bringing water to this river are not properly protected and this has resulted in turning this drain as a dumping place for garbage and waste water collected from the nearby areas, thus converting these natural resources as “Urban Sinks”. The ULB owned pond is located at Pellaralli village about 1.5 km from the town and this acts as a major collection point for rainfall run-off.

Drains: Palacode is provided with a network of storm water drains for a length of 38 km. (36% of the total road network of

the town). All storm water drains finally drain into the Sanathkumar channel and Thamarai Eri. The ULB maintains the storm water drains inside the municipal limit. Table 2.8 provides the details regarding the types of storms water drains in the town.

ADEQUACY OF SERVICES

Table No. 4.9: Key Performance Indicators - Storm Water Drains

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Road length covered with storm water drainage	percent	136	130
2.	Pucca Drains (Open & Closed)	percent	36.58	100
3.	Road length covered with Pucca drains	percent	49.85	130

Source: Palacode T.P; 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:

- Inadequate Pucca Drain Coverage: Drains cover only 36% of the road length. Besides,, kutcha drains are not well defined and are damaged during heavy rains, thus reducing the meaningful coverage of built up drains;
- Problem Areas: Brick work, Random Rubble Masonry, Plain cement concrete drains are observed to be damaged at many places within the town and further drains have not been properly networked and these missing links and lack of proper disposal system are identified as major problem areas. The pucca drains along Dharmapuri Main Road are damaged in both sides. Further drains have not been constructed in the Weekly market area and along the by-pass road.
- Silting and Solid Waste Accumulation: Silting and uncontrolled garbage dumping causes blockage and stagnation of water channels/wastewater runoff. Consequently, drains choke and overflow into neighboring areas. Tanks around the town, which act as flood moderators, have also witnessed silting; and
- Underutilized Water Bodies: Area under water bodies within the town limit is not being put to productive use as summer storage tanks. Presently, the tanks are in dilapidated condition or silted completely.

POTENTIAL FOR DEVELOPMENT

In order to appreciate and articulate the current situation and present future possibilities, the Storm Water 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:

- Natural sloping terrain helps the easy flow of storm water into the channels and water bodies.
- Major drains are available for conveyance of storm water away from residential dwellings and low-lying areas.
- Palacode has the potential to recycle and reuse the storm water, since most of the storm water leads to Thamarai Eri and to Sanathkumar channel.
- Adequate natural gradients are available for achieving self cleansing velocities for open drainage system.
- Existence of good basic infrastructure of drainage system.
- Coverage of storm water drains to road length is more than the prescribed norm of 130%.

4.2.5 SOLID WASTE MANAGEMENT

ASSESSMENT OVERVIEW

The collection, transportation, treatment and disposal of municipal solid waste is 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 Generation: The town generates about 2 MT of waste per day at the rate of 150 grams per capita. Solid waste in the town mainly comprises of waste generated from households and commercial establishments. In Palacode solid waste are from 4735 Householders, 1180 shops, 19 km Roads, 38.52 km drains, Daily market, Bus stand and other parts. Palacode is the first town panchayat in the State which is said to have implemented the scheme for scientific method of solid waste disposal with effect from 14th February, 2004. Before implementation of the scheme, the Waste was collected twice or thrice in two trips and dumped on roadsides, vacant sites and ditches. The drainage was cleaned once in fifteen days. No proper management plan was introduced in the town.

Source Segregation: Public awareness campaigns on source segregation covering each and every household, school and public places have yielded effective results. Colour-coded bins were distributed free of cost for the purpose of source segregation.(Green Colour for Bio-degradable and Black Colour for Non-biodegradable wastes respectively) Commercial establishments were stipulated to make their own arrangements for storage of waste after segregation.

Table No. 4.10: Waste Collection Point

Sl. No.	Collection Point	Coverage Wards
1.	At Kesarkulli road near Veterinary Hospital in ward 14	11 to 16
2.	Benaras St. near OHT in ward 3	1 to 4, 17 and 18
3.	Near Saravanan Theatre in ward 8	5, 6, 8, 9, and 10
4.	At Railway cross in ward 11	7 & 11

Source: Palacode T.P; 2007



Door Collection: Self help groups have been engaged for door to door collection on contract basis. 30 women from BPL families were selected and organized as “Om Sakthi Women’s social welfare group” for collecting waste from households and commercial establishments. Hand driven containerized pushcarts with ball bearing and rubberized tyre for ease of maintenance and easy to push by a single woman were specially designed and fabricated for this scheme. These Containerized pushcarts enable easy transfer of waste from pushcart to dumper at transit station. Each containerized vehicle has four bins of 50 Litre capacities each and caters to the needs of 125 – 150 houses.

The town has been divided into 30 zones, each consisting of 125-150 houses. Each zone was given a push cart and a member of the SHG was made responsible for collection of MSW from the allotted zone.

The non bio-degradable waste is handed over to the town panchayat office for further sorting of recyclable waste and recovery. Sweeping of roads, clearing and desilting of drainage channels are regularly carried out by panchayat sanitary workers. Demolition waste and debris are being transported for land filling on low lying area.

Compost Yard (Bio Manure Park): A compost yard has been developed 3 km from Palacode over an area of four acres. The Compost yard consists of 30 numbers of composting pits (15 Nos. in each row) to carry out the aerobic composting process. Compost shed of the Length of 50 m; and width of 5 m (with passage between two pits) and height of 6 m has been constructed. Each compost pit has a length: 3 m, width of 1.5 m and effective depth of 1.2 m with a capacity of 5.4 Cubic meters.

Each pit has been designed to accommodate bio - degradable waste generated in 2 days and total detention time provided for composting is 60 days. These are constructed with perforated R.C.C slab at bottom and brick masonry for walls. Cement Concrete of 1:4:8 has been laid at the bottom of the compost shed as leveling course with proper gradient in order to collect the leachate so as to avoid ground water pollution. Rain Water Harvesting structure has also been provided.

Separate areas have been earmarked for the safe disposal/storage of domestic hazardous waste and bio medical waste after proper disinfection. Ramp has been provided around the compost pits in such a manner that bio degradable waste can be directly disposed into the pits without manual handling. While unloading, cow dung slurry is being mixed with waste in order to avoid odour and fly nuisance and also to enhance the composting rate and the quality of bio manure.

Aerobic Composting Process: Composting is one of the best yet simple process for the effective management of the prevailing composition of solid waste. Open Pit Aerobic Composting process has been carried out in the existing compost yard. It is basically a waste stabilization process that requires specific conditions of moisture and aeration to produce stable compost, which can be used as bio manure and soil conditioner.
The process of composting involves filling the compost pit with bio-degradable waste along with cow dung slurry. Water is then sprinkled on the top layer to maintain moisture content of 50 – 60%. The pit has to be turned up and down for better aeration on the 7th and 15th days respectively. It is frequently monitored for temperature (maximum temperature raised in the composting pit was 70°C during the first week). Better aeration is achieved through the holes in the side walls of the pit. C/N ratio, N.P.K and metal concentrations are checked frequently to in order to ascertain and upgrade the compost quality. In order to enhance the quality of the final product, Pancha Kavyam added to the bio degradable waste on the 15th day. On completion of composting process, the bio material is dried, sieved, packed and stored in the shed for sale.

Compost Quality: Compost produced is being regularly

checked for its quality and comparison on quality of manure is detailed in the table. With the addition of Pancha Kavyam and cow dung slurry, the quality of manure as well as composting rate also get enhanced.

Monitoring: A High Level Surveillance committee has been formed at the town panchayat level in order to provide assistance in task implementation and to resolve issues as and when they crop up, The President of the Town panchayat and the Executive Officer function as the President and Secretary of the Surveillance committee. Prominent members in the town, entrepreneurs, organizers from service oriented organizations are the members of this committee.

To resolve minor issues arising at wards and supervise the developmental activities, a ward committee has been set up for each ward with the ward councilor functioning as the head of the sub committee.

The fleet of vehicles deployed for the collection and disposal of solid waste consist of One Mini lorry, one Tractor and 30 Trolleys On an average tractors and power tillers are engaged 3 trips per day by the ULB.

ADEQUACY OF SERVICES

Table No. 4.11: Key Performance Indicators - Solid Waste Management

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Estimated waste generation per capita per day	grams	150	300
2.	Waste collected as estimated by ULB (w.r.t. waste generation)	percent	88	100
3.	Waste collected as per the available capacity (w.r.t. waste generation)	percent	1	--
4.	Road length per conservancy staff	metres	942	500

Source: Palacode T.P; 2007 and Analysis

KEY ISSUES

Discussions were held with principal stakeholders of the solid waste management and 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 Effective Primary Collection Mechanism: Even With the door-to-door collection of segregated wastes in practice, this town lacks an effective primary collection system, Segregation and primary collection of waste through private participation, is under active consideration by the ULB;
- Inadequate Collection Vehicles: Inadequate fleet size of the collection vehicles, mainly pushcarts and tricycles, is hampering the collection efficiency. Also, additional dumper bins needs to be located at various locations in the town Panchayat;
- Future Inadequacy of Waste Dumping Facility: Based on the present method of disposal (waste dumping), it is estimated that the facility will reach its ultimate capacity by 2011, thus indicating a need to further land acquisition;
- Lack of Infrastructure Facilities in Waste Disposal Site: As the scientific disposal of waste is followed, the waste is being disposed through composting. But compost yard lacks basic facilities like water supply, lighting etc; and
- Occupation Health Hazards: The waste collection, loading and unloading operations have been done manually. The sanitary workers have not been provided with any protective equipment thereby posing severe heath hazards.

POTENTIAL FOR DEVELOPMENT

In order to appreciate and articulate the current situation and present future possibilities, the Solid Waste Management 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:

- Per capita solid waste generation in Palacode is around 150 gm per day which is less than the normative standard of 300 gm for towns of similar population.
- At present door-door collection of waste are performed by the ULB by engaging SHGs.
- Solid waste are scientifically treated (Vermin Composting) and compost is generated.
- Land is available and has been procured for a techno-economically feasible alternative of solid waste treatment and disposal.
- Support available from GoTN for scientific treatment and disposal of solid wastes.
- It has the potential to involve the private sector to increase efficiency in service delivery.
- Desire of citizens for a clean town.

4.2.6 ROADS, TRAFFIC AND TRANSPORTATION

ASSESSMENT OVERVIEW

Overview: Construction and maintenance of roads are the major role of the ULB within its jurisdiction, except for roads belonging to the PWD and Highway Department. The ULB is also responsible for implementing proposals from Master Plan with regard to the formation of new major roads and road widening proposals.

Commuter movement in the central part of the town leads to high traffic and congestion problems. The estimated floating population in Palacode is 15,000 persons per day.

The ULB maintains 19.26 km length of roads and 4-km by-pass roads (referred to as the Sugarcane road) and 3 km length of roads is maintained by the State Highways Department. About 52% of the total municipal road length has surfaced roads (comprising BT, CC and WBM surfaces). Non-surface roads comprise 15% of the road length maintained by the ULB.

Road Network / Traffic Pattern: The travel pattern in the town is guided by the road network and landuse pattern in the town. Dharmapuri – Hosur State Highway, (4 km stretch) By-pass road, and Major District Roads connects Palacode town with surrounding region. Local roads of 19 km length are maintained by the ULB within the town limits. These roads provide the forward and backward linkages for the transport of agricultural and allied products to the marketing centers within and outside the Town Panchayat.

The following are the important regional roads running through Palacode Town Panchayat.

1. S.H : Dharmapuri – Hosur road
2. By Pass road : Dharmapuri – Hosur By Pass road

Apart from the abovementioned roads other local roads which provide better linkages with the other places are:

1. Palacode to Kesarkuli Road
2. Palacode to Thalavai Halli road
3. M.G road

Of the aforementioned roads, trade and commercial activity is significant in this town along SH and along Kesarkuli road near the bus stand. Due to the incidence of commercial activity, traffic congestion is

a common phenomenon on these roads. Weekly market is organized along these road margins every Monday with about 300 shops. The present daily market functions along the road margins with 300 grocery shops and shops for sale of Mango and Tamarind along SH Road. Most local roads do not have adequate carriage-way especially in the bazaar area and near bus stand. Major traffic bottlenecks are observed in the following areas in Palacode:

- Bus Stand Junction;
- Near Town Panchayat Office; and
- Near BDO office.

No separate vehicle parking space has been provided by the ULB. Some of the major limitations noticed in the existing system of roads are inadequate road width, inadequacy of pedestrian sidewalks, absence of two-wheeler tracks/service lanes, and absence of parking spaces and bus lay-by. Palacode town has a bus stand over an extent of 2 acres with 12 bus bays. It is situated along the M.G. Road. On an average nearly 150 Buses ply to local villages in Palacode Taluk, and also to other districts in Tamil Nadu. Congestion is also caused by commercial traffic, mainly trucks loading and unloading Tomato from markets and the incidental mass transit modes of transport.

ADEQUACY OF SERVICES

Table No. 4.12: Performance of Key Road related Service Indicators in Palacode

Sl. No.	Service Indicator	Unit	Current Status
1.	Road density	km/sq. km	11.30
2.	Proportion of surfaced municipal roads	percent	73.00
3.	Proportion of blacktop/asphalted roads (w.r.t. total municipal roads)	percent	14.23

Source: Palacode T.P; 2007 and Analysis

The density of roads in the town is 11.30 km/sq. km. The condition of major roads is good. However, minor roads and roads within individual residential colonies are in a bad condition. Footpaths and parking facilities were found to be lacking along the streets within town limits.

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:

- Inadequate Coverage: There is only 0.98 m per capita road coverage as compared to a norm of 1.75 m per capita coverage. Inadequate coverage is noticed in the newly developed layouts, and extension areas;
- High Density and Congested Lanes: Total area of the town is 2.50 sq.km with a population of 20,000 people accommodated in it. This leads to high congestion within the town. Roads in the central areas and surrounding the old areas are narrow and surrounded by heavily built-up areas. These roads also carry large volumes of traffic that cater to visitors and commercial trading in the area. These factors make the lanes highly susceptible to air pollution and delayed travel times;
- Encroachment: The margins of roads are encroached upon in several sections of major roads of the town by small time street vendors, illegal parking and other informal activities all along the M.G. road and Hosur road. With little margins left on the roads, the effective carriageway of the road is reduced drastically leading to congestion and accidents; and
- Absence of Street Furniture/Signage: The three major roads/junctions lack signals, signage, and footpaths. Improper road sweeping results in most roads being covered with top-soil, mud and granular particles which further reduces the driving safety.

POTENTIAL FOR DEVELOPMENT

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 prepare the roadmap for an improved, effectively planned, designed, operated and maintained system:

- Palacode has good road connectivity with other urban centres like Dharmapuri, Hosur.
- An extensive network of roads providing for internal and radial connectivity is available which can be streamlined and enhanced for improved traffic management.
- GoTN is committed to improve the roads and transportation.
- More than 70% of the roads are better surfaced i.e. B.T or Asphalt.

4.2.7 STREET LIGHTING

ASSESSMENT OVERVIEW

Street lighting: Palacode Town Panchayat is provided with 679 lighting fixtures placed at a distance of 42 m interval approximately. Almost all the lights are in working condition. The compositions of street lights are given in the table 4.13:

Table No. 4.13: Existing Street lights

Type of Fixtures	Nos
Fluorescent (Tube Lights)	571
Sodium Vapor Lamps	107
High mast light	1
Total	679

Source: Palacode T.P; 2007

KEY ISSUES

Key issues identified under this sector are shifting of poles along the kerb-side of the road and inadequate lighting since spacing of street lights in this town is maintained at 42 m which is far more than the standard spacing of 30 m. Hence the need for new street lights especially in the newly formed extension areas and major junctions needs to be studied and provided.

Table No. 4.14: Performance of Key Street Lighting Service Indicators in Palacode

Sl. No.	Service Indicator	Unit	Current Status	Normative Standards
1.	Spacing between lamp posts	metres	42	30
2.	Proportion of fluorescent lamps (tube lights) w.r.t. total fixtures	percent	84	60
3.	Proportion of high power fixtures w.r.t. total fixtures	percent	16	40

Source: Palacode T.P; 2007 and Analysis

POTENTIAL FOR DEVELOPMENT

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:

- The town has the potential to involve private sector for operation and maintenance of street lighting.
- Town has the potentials to utilize renewable energy sources to reduce energy cost.
- Proportion of fluorescent lamps is more than the normative standard 84% of the total street lights is observed to be fluorescent.

4.3 SOCIAL DEVELOPMENT

- Palacode is well known town for Education facilities in the region. The town has 6 Primary Schools, one High School, 2 Higher Secondary Schools for Boys and Girls

respectively and one Matriculation School. Number of enrolments in each of these schools is listed below.

S.No	School Name	Street	Ward No.
1	Government Boys Higher Secondary School	Main Road	7
2	Government Girls Higher Secondary School	Bye pass Road	7
3	Panchayat Union Elementary School Town	Kottai street	2
4	Panchayat Union Elementary School, Agraharam	Agrahara street	18
5	Panchayat Union middle Urdu School.	Main Road	2
6	Panchayat Union Elementary School. Anna School (South)	Main Road	7
7	Vidyamandhir Matriculation School	Pamandi street	18

School Name	Male	Female	Total
1. Govt. Higher Sec School	2718	-	2718
2. Urdu Middle school	107	133	240
3 .P.U.E.School (Town)	133	159	292
4. P.U.E.School (Agraharam)	236	213	449
5. P.U.E.School (South)	303	266	569
TOTAL	3497	771	4218

Tomato Market

- Palacode is popularly known for its Tomato market. The seasonal sale of this commodity to other states and towns is between March and July with whopping revenue close to Rs.1.00 Crore.
- The total area under tomato cultivation is 8 acres the season day daily must outing the vehicles 50 to 75 lorries.

Weekly Chandy

- Palacode Weekly Chandy (Monday) is located at Hosur – Adhiyaman kottai Road (Survey No. 903/1A1) and total extent of site is -- 2.32 Acre. One weekly Chandy receives a yearly income of Rs. 3.05.999/- in (2005-2006) and Rs. 3.05.000 /- in (2006-2007).

Daily Chandy

- Town Panchayat owned daily market which is situated in the centre of Palacode Town in (Survey no, 924/1) wherein 200 shops are let out for hire by Town Panchayat and this has earned an annual income of Rs.19.00 lakhs. The total extent of this site is 1.26 hectares.

Bus Stand

- ULB owned Bus Stand of 'C' Class with 12 bays exists in the town along Hosur – Adhiyaman Kottai Main Road. Government Transport Corporation and Private Bus services operate daily buses from various towns for providing good and sufficient conveyance facilities. In a day about 150 buses ply to various towns and villages. One

High Mast Light has been provided by the Town Panchayat in the Bus stand. Toilet and Drinking Water facilities have been provided in the Bus stand.

- Palacode bus stand was initially constructed having 8 bus bays. 12 shops 1 restaurant and an Office building (let out to the State Bank of India) under IUDP loan assistance of Rs 15.00 Lakhs. It was renovated at an estimated cost of Rs. 21.00 Lakhs using General Fund consisting of 18 shops and one restaurant and Pay use toilet facilities for both men and women.

Bus Stand shops

1. IUDP Shops - 18
2. JVVT Shops - 6
3. General Fund Shops - 12
4. Bank Building - 1
5. Register Office Shops - 15

Sl. No.	Shop Name / Location	No. of Shops.	Annual Income (In Rs.)
1	J.V.V.T Shops	6	4,90,500
2	IRDT	18	5,47,032
3	General fund Shops	33	17,34,000
4	Flower shops & Hotels	8	3,34,800

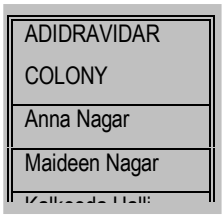
- A shopping complex with 102 shops, one hotel and a pay and use toilet facility is owned by the Town Panchayat (survey number 439) with a total area of 1.51 acres yielding annual revenue of Rs. 36.00 lakhs.
- The town has one Government Hospital located in ward no. 1.
- ULB has provided Roadside Park near bus stand under the sponsorship of State Bank of India. Apart from this there are no other parks / open spaces.
- There are two burial grounds within the town limits. One at Kesarkuli Road in ward 15 and the other near the market in the 7th ward. Total extent of these burial grounds is approximately 5 acres each. The three burial grounds in Jarthalla Village Panchayat are also used by the people of Palacode.

4.4 SLUM IMPROVEMENT

4.4.1 AN OVERVIEW

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

As per the Census 2001 and the data available from the ULB, Palacode town has 4 notified slums located in wards 1, 2, 11 and 15 in which there are approximately 432 houses with a population of 3,986 (approx.). Most of these slums are located in the rural habitation, encroaching both private and municipal land. Discussions with officials indicated that most of the notified slums are not provided with basic services and amenities. Discussions have also indicated that the major problems in slum areas are the inadequate provision of drains and sanitation facilities.



4.4.2 SERVICE PROVISION IN SLUMS

Housing: Housing condition in slums is observed to be significantly deficient. Large proportions of households were found staying in rudimentary households and remaining in pucca houses, where percentage of households staying in Pucca houses is very less. Majority of households reside in kutcha houses with built area less than 100 sq. ft. It was noticed that most of the unapproved slums have come up recently within the last 10 to 12 years due to the migration of workers from the nearby areas to work in the farm lands of the

town.

Infrastructure Services: Based on the discussions with the officials of the ULB, the overall view about the existing infrastructure in the slums is understood and presented below. The Government is initiating various programs, to improve the condition of slums and to make slum dwellers self-dependent.

- Water Supply: The main sources of water supply in slums are from open wells, hand pumps and public stand posts (PSPs). The ULB has provided 10 units of water taps/hand pumps/ PSPs covering all the slums. Dependency on the PSPs is high, on an average approximately 120 persons per PSP against the standard norm of 75 persons per PSP.
- Sanitation: Most of the slums do not have access to sanitation facilities. Safe sanitation facilities comprise of public conveniences and ISPs. Public toilets are provided at 3 locations in order to cover the slum dwellers. Some people in the slums even resort to open defecation on vacant lands, which is a cause of serious health concern. Dependency on public convenience seat and urinals are very high, on an average each public convenience seat serves approximately 73 persons, against the prescribed norms of 30 to 50 persons per public convenience seat/urinal.
- Solid Waste Management: According to the discussions held with the ULB officials, it was indicated that no designated solid waste collection points or waste bins have been provided in the slums. Solid waste from these places is collected only once in a week. As a result, in most of the slums, waste is disposed in nearby vacant areas and in open drains creating unhygienic conditions.
- Roads: The ULB has provided about 2 km length of surfaced roads within the slums. The per capita road maintained by the ULB in slums works out to be 0.15 m that is less than the total roads maintained by the ULB at the town level.
- Storm Water Drains: Slum settlements in the town are not provided with a proper storm water drain. Earthen drains are mostly damaged or clogged due to solid waste dumping and silting. Formation of drains along existing roads and new roads is essential need of these areas.
- Streetlights: Overall, Streetlight spacing in the town is about 55 m, and in slum areas it is noticed to be far higher. It is noticed that several road junctions and street stretches are poorly lit, and some of the slums are devoid of any facilities of street lighting.

4.4.3 KEY INDICATORS AND ISSUES

The details of performance indicators for the town are furnished in the table below.

Table No. 4.15: Performance Indicators for Slums in the Palacode

Sl. No.	Service Indicators	Unit	Current Situation	Benchmark/ Standards
1.	Proportion of slum population to total city population (2005/2006)	percent	15.29	< 10
2.	Household size in slums (per HH)	persons	5	--
3.	Distribution network reach (against road length in slums) in slums	percent	23	> 100
4.	Slum population per public stand post	persons	120	75
5.	Slum population per seat of public convenience/ ISP Complex	persons	73	60

Source: Palacode T.P; 2007 and Analysis

Key Issues: Some of the key issues pertaining to provision and delivery of services to urban poor in Palacode Town are presented below:

- 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 is witnessed and

- Slums are provided with inadequate waste collection bins, thus resulting in dumping of garbage on road-side and in the drains;

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:

- Basic services like water supply, sanitation, drainage, 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.
- Desire to form community organizations.
- Good awareness level in slum areas.

4.5 ECONOMIC DEVELOPMENT

4.5.1 ECONOMIC BASE

Palacode, a trade based town with significant commercial activities is located close to Dharmapuri, the district headquarter along the State Highway (Dharmapuri to Hosur). The town is close to Andhra Pradesh and Karnataka States. The Royakota – Hosur – Bangalore railway line passes through the town. Trains from Bangalore to Coimbatore pass via Palacode railway station which is a boon to the people of Palacode region (especially business people who come to this town for business affairs from Bangalore, Hosur, Salem, Erode Coimbatore, and Kerala) inhabitants.

Tomato is cultivated on a large scale in and around Palacode town and an exclusive Chandy for Tomato trade is maintained by the ULB. Palacode Tomato Market was constructed during the year of 2003-2004 with a total extent of 8 acres and located along SH at the southern end of town. Tomato is exported to almost all parts of India as daily 50-75 lorries leave for these destinations. The turn over per day is estimated around Rs.2 Crores.

Other than tomato, cultivation of Mango, Tamarind and Coconut plays an important role in determining the economic status of Palacode. There are about 300 acres of farm land in Palacode with a cultivation of Mango, Tamarind and Coconut. The nearby villagers are also involved in Mango and Coconut cultivation. Hence for the hinterland, Palacode acts as a major commercial centre. Tomato is exported to other states and districts largely during the months of March to July.

Palacode is also famous for its Sugar mill. The Dharmapuri Co-operative Sugar Mills is located at a distance of 2 km from the town on Royakota – Hosur Road. This industry generates large-scale direct employment, apart from providing indirect employment to thousands of persons in rural areas who are involved in cultivation, harvesting, transport of cane and other services. This is the one of the Major Industries in the Palacode Taluk. When Dharmapuri was carved out of Salem district in 1965, the new district hardly had any development to boast of. Dharmapuri, a drought-prone region, has been considered by the Centre as one of the most backward districts in the entire country. Dharmapuri District

Cooperative Sugar Mill at Palacode has a capacity of 3.50 lakh tonnes of sugarcane and produces 3.55 quintals of sugar during the period. Sugarcane from Dharmapuri, Palacode, Hosur and Denkanikottai are crushed in this mill.

Though the primary occupation of most of the people in and around Palacode is agriculture there is also a trend to shift to tertiary activities. This has resulted in the steep increase in agricultural labour demand. This is primarily due to the losses sustained by the agriculture in the last 10 years and due to the steep raise in demand of skilled and unskilled labor for industries in and around Vellore and Krishnagiri towns. Palacode Monday Market is famous for its grocery wholesale and retail trade. It acts as a trade and commercial centre in the region. The town requires a comprehensive approach in evolving suitable plan for organizing and guiding the commercial developments within the town especially around the market areas, which has a higher potential for development. This also necessitates directing the future growth of commercial activities away from central areas to outskirts in order to control the congestion in the core town.

4.5.2 OCCUPATIONAL PATTERN

The total workers in the town as per 2001 census are 6,990 which include 6,489 Main workers and 501 Marginal workers. The workers constitute about 37% of the total population, Male workers are about 5367 and Female workers are 1623.

Table 4.16: Occupation Pattern: Palacode Town Panchayat-1991 & 2001

Year	Total Population	Total Main Workers		Primary Sector		Secondary Sector		Tertiary Sector	
		No. of Main Workers	% of Main Workers	No. of Main Workers	% of Main Workers	No. of Main Workers	% of Main Workers	No. of Main Workers	% of Main Workers
1991	15,853	5,296	33.41%	1,636	30.89%	664	12.54%	2,996	56.57%
2001	18,667	6,489	34.76%	918	14.15%	248	3.82%	5,323	82.03%

Source: Census of India 1991 and 2001

Tertiary sector constitute 82% of the total workforce and the secondary sector, constitutes for about 3.8%. Primary sector is about 14% and forms the second major occupation of the town.

4.5.3 TOURISM IMPORTANCE

As far as the tourist attraction is concerned, Palacode has no tourist attraction within its town limit. There are few tourist places located within the radius of 100 km of the town. Following are the limited tourist places in the region:

Hogenakkal Falls

Hogenakkal Falls is located near the border of Karnataka State, at a distance of 46 Km from Dharmapuri. The name Hogenakkal is derived from Kannada meaning “Smokey Rocks”. When the river falls on the rock below, the gushing force of water causes a smoke-like haze, leading to the origin of the name. At Hogenakkal, cruising on country-made dinghies (“Parisal”) is a local attraction.

Theerthamalai

Theerthamalai is an important sacred place in Harur taluk of Dharmapuri district. Shri Theerthagirishwarar Temple is located at the top of a hillock. Chola and Vijayanagara kings are known to have patronized this temple. A lot of devotees throng the temple during Maha Shivarathiri.

Hanumanthathirtham

This place is situated on the bank of Pennaiyar at a distance of 10 km from Uthangarai and traditionally associated with Tirtamalai. It is believed that Hanuman was instructed by Lord

Rama to get water from the Ganges for his penance at Tirtamalai. However, he could not do it in time. So Rama was said to have done Asthraprayogam and got it. Disappointed, Hanuman was said to have thrown down the vessel in which he brought the holy water and this spilled water is believed to be the "Hanumantirtham".

Adhiyamankottam

The capital of Adhiyamans, ancient rulers of Tagadur, was Adhiyamankottam which is situated on the Salem-Dharmapuri road at a distance of 7 km from Dharmapuri. The ruins of the roughly oval shaped fort can be visited. The Chenraya Perumal temple is held as a protected monument. It is believed to have been constructed both by Krishna Deva Raya and Hoysala kings.

Kottakovil

This is one of the famous temples built for Lord Shiva. It is located on the northern side of Dharmapuri. This old temple was renewed and maintained by the Government and people of Dharmapuri. Rare sculptures and paintings can be found in this temple. The main speciality of this temple is the 'Hanging pillar'.

Subramanya Siva Memorial

A monument built in memory of the patriot Subramaniya Siva at his resting place near Papparapatti, Pennagaram Taluk.

4.5.4 LOCATIONAL ADVANTAGE

Palacode town is 285km northwest of Chennai, the State Capital and 25km from Dharmapuri on the southern side, 33km from Krishnagiri in the north and 60km from Hosur, a municipal town on the east. It is about 35km from Pennagaram in the western side. Because of its geographical centrality in the region, Palacode hold a prominent place in trade activities. Also it is located along the Dharmapuri - Hosur State Highway. Apart from regional roads several Major District Road (MDR), Other District Roads (ODR) and local roads connects Palacode Town with surrounding villages and other urban centre such as Pennagaram, Hogenakal and Kaveripattinam in the district and state.

5

STAKEHOLDER CONSULTATIONS

5.1 IDENTIFICATION OF STAKEHOLDERS

Preparation of a City Corporate Plan (CCP) 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 submission of Rapid Assessment Report, 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 Palacode 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 sector. Broadly, individual consultations were held for discussing the existing constraints/weaknesses, felt needs, opportunities and focus areas for the proposed CCP. 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 is to culminate with a workshop followed by a review meeting, to endorse the findings with specific remarks and suggestions. All these workshops are organized with a plenary session in which the Consulting Team shall present 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 30, 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 Palacode Town Panchayat and attended by Executive Officer and other Officials of Palacode town panchayat, representatives from other key stakeholding departments and service providing agencies.

Subsequent to the submission of Rapid Assessment Report a review meeting was held on June 22, 2007 in the office of TNUIFSL. Aforementioned report was reviewed by the Technical Review Committee comprising the TNUIFSL, CTP and executive and elected representatives from the ULB and the same has been approved.

Followed by a review meeting, a Second Workshop was organized on July 25, 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 was then reviewed by the Technical Review Committee members on October 29, 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 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 (GoTN). 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 finalised after policy consultations. Towards the same, a discussion on the policies and priorities of the Commissionerate of Town Panchayat,

Government of Tamil Nadu was held at the Commissionerate of Town Panchayats, Chennai at Kuralagam on 01.04.08 and was chaired by CTP and attended by the TNUIFSL, Joint Director of Town Panchayats, Executive Officers of Gingee, Bargur, Kangayam and Katpadi Town Panchayats (from among the ten town panchayats for which the DFRs are to be finalized) and the Consultants (CCI).

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 brings 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

Proposals under Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) GoI funded Program:

Under "Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT)", Palacode Town Panchayat has identified infrastructure projects at an estimated capital outlay of Rs. 236.50 lakhs. This project was prepared during the year 2006 and the council has also passed a resolution by approving the identified projects. The project has been sent to the Commissioner of Town Panchayats, Chennai for the approval. The following categories of roads and drainage have been proposed under this Project. The list of proposed works is given below:

WATER SUPPLY:

In order to facilitate water supply to this Palacode Town TWAD board suggested to construct 4 OHTs of total capacity of 1,30,000 liters (60,000 liters (1 no) 30,000 liters (2 nos) 10,000 liters (1 no) and 1 GLR (10,000) at an estimated cost of Rs. 12.00 lakhs.

ROADS:

A total number of 1 B.T Road and 1 CC road have been suggested to be taken up at an estimated cost of Rs. 23.75 lakhs (9.25 +14.50) for a length of 3.130 km (1.565+1.565) respectively.

Sl No.	No of Works.	Length in Km	Est. Amount (in Lakhs)
01.	2	3.130	23.75

DRAINS:

The following works are suggested to be taken up.

Sl No.	No of Works.	Length in Km	Est. Amount (in Lakhs)
01.	8	5.93	98.00

Sl.No.	Name of Work	Length In Km	Width In Meter	Estimate Amount in Lakhs	Justification
1	Construction of drain at Adhiyaman Kottai - Hosur Main Road navas basha clinic to kesarkali road	0.50	1.00	18.00	only Drainage Provision given
2	Construction of drain at Adhiyaman Kottai - Hosur Main Road Maidhanam Roundahan to Sub Register Office	0.50	1.00	18.00	only Drainage Provision given

Sl.No.	Name of Work	Length In Km	Width In Meter	Estimate Amount in Lakhs	Justification
3	Construction of drain at Adhiyaman Kottai - Hosur Main Road to Sub - Register office to tomato market	0.50	1.00	18.00	only Drainage Provision given
4	Construction of drain adhiyaman kottai - Hosur Main Road Green Land Theatre to tomato market	0.50	1.00	18.00	only Drainage Provision given
5	Construction of drain at adhiyaman kottai - Hosur Main Road from Government hospital to green land theatre	0.65	1.00	18.00	only Drainage Provision given
6	Construction of drain at M.G.Road Theerthagiri Nagar Maindeen Nagar Kavapatti	1.20	3.00	12.75	only Drainage Provision given
	Total	**3.85**		**102.75**	

Proposals under Integrated Housing and Slum Development Program (IHSDP) – GoI Scheme:

Palacode Town Panchayat has 4 notified slums. The financial position of ULB was not found adequate to meet the growing demand of the public and hence project has been proposed by the ULB to avail assistance under IHSDP as per the prevailing guidelines of the Scheme and willing to abide the pattern of assistance and mandatory contribution from Local body and the individual beneficiary. The basic requirement of slums has been assessed by the ULB and accordingly the project has been prepared with a total project cost of Rs.372.25 Lakhs.

Project Name	IHSDP – Construction of 325 New Houses (in-situ) and up gradation of Existing house150 houses (in-situ) in Palacode Town Panchayat, Dharmapuri Dist, Tamil Nadu.
Nodal Agency	Commissionarate of Municipal Administration (CMA)
Implementing Agency	Palacode Town Panchayat
Project Cost	Rs. 372.25 1akhs
Central Govt. Share	Rs. 297.80 lakhs
State Govt. Share	Rs. 36.05 lakhs
Beneficiary Share	Rs. 38.40 lakhs (12% of the housing component)

SUMMARY OF COSTING:

Rs. in lakhs

PROJECT COMPONENTS	PROJECT COST	CENTRAL SHARE	STATE SHARE	ULB SHARE	BENEFICIARY SHARE
Housing Units at Rs.80,000/- per DU **(Total 325)**	260.00	208.00	20.80	-	31.20
Housing Upgradation at Rs. 40,000/- **(150 Nos.)**	60.00	48.00	4.80	-	7.20
CC Roads - 0.10 Km	1.00	0.80	0.20	-	-
Storm Water Drain - 2.00 Km	20.00	16.00	4.00	-	-
Water Supply Mini Power Pump (25 Nos)	22.50	18.0	4.50	-	-
Street Lights (55 Nos)	2.75	2.20	0.55	-	-
Community Toilet (1 No)	6.00	4.80	1.20	-	-
TOTAL	**372.25**	**297.80**	**36.05**		**38.40**

Palacode Town Panchayat has indicated that the Estimate is worked out on the basis of the PWD Schedule of rates for the year 2006-07 and mentioned that they had obtained necessary statutory approvals required for this project.

FUNDING PATTEN:

SOURCE	AMOUNT (RS. IN LAKHS)	% OF SHARE
Central Share	297.80	80% of the total Project Cost
States Share	36.05	20% of the total Project Cost
Beneficiary Contribution	38.40	12% of the Total Housing Component
Total	**372.25**	

PROJECT COMPONENTS:

Housing – New Construction:

Construction of new House and 325 Beneficiaries have been identified by the ULB. The Houses are proposed to be taken-up on plots where the slum dwellers are possessing Patta / Registered documents. The type of building is RCC roof and type design provided for living area, kitchen and toilet.

Details of Housing Scheme Component are given below:

No. of Dwelling Units : 325
Cost per Unit : Rs. 80,000/-
Funding Pattern : Rs. 64,000/- (GoI subsidy)
Rs. 6,400/- (State's Share)
Rs. 9,600/- (Beneficiary contribution)
Building Design : The Unit Design Consists of Living room, Kitchen, Bath cum Toilet with RCC Roof.
Built – up Area : 27.00 Sq. M

Brief Specification: There are 325 nos. of dwelling units will be newly constructed at the estimate cost of Rs.80,000 per unit. There are 3 rooms provided in the houses. Built up area of the house is 27.00 m^2.

Housing – Improvement to Existing Houses:

No. of Up gradation House : 150
Cost per House : Rs. 40,000/-
Funding Pattern : Rs. 32,000/- (GoI subsidy)
Rs. 3,200/- (State's Share)
Rs. 4,800 /-(Beneficiary contribution)

Brief Specification: There are 150 nos. of houses will be upgraded to the estimate cost Rs.40000/- per unit. The damaged wall, reconstructed with brick work in cement mortar. The existing or proposed walls will be plastered with cement mortar 1:5 12 mm thick. The exiting damaged tiled roof (or) existing damaged AC Sheet roof will be dismantled and providing RCC roof.

Roads and Pavements:

Type and length of roads and pavements proposed : Total of 0.100 km of CC road is proposed for Anna Nagar, Maidheen Nagar, Adhi Dravidar St, Arundhadhiyar St.

Storm Water Drains:

Total length of storm water drains : Cement Concrete Drain is proposed for a Proposed total length of 2.00 km for four Identified slums.

Ultimate point of disposal : The Agency has informed that the proposed drains are connected to the major drains, which is drained in to Palacode East Thamarai Eri

Street Lighting:

No. of street lighting poles proposed : Total 55 Number of streetlights is proposed all the 4 Identifies slums, considering the minimum pole spacing 30 m

Community Toilet Complex:

Specification : 10 seater toilet complexes have been Proposed with 2 bath rooms and caretakers room

Water supply : In this Project 25 nos of Mini power pump will be proposed. 4 Nos per slum. (Drilling of the new borewell 100M depth and errection of 1.00 HP submersible motor pump set and providing brick under platform and fixed 100 fibre cable PVC Tank)

PROJECT COST:

This Project has been cleared by the Commissionerate of Town Panchayats, Chennai, and forwarded to Commissioner of Municipal Administration, "Nodal Agency" for IHSDP scheme for placing the same in "State Level Sanctioning Committee" for the approval and forwarding the same to GoI and other agencies for approval and financial assistance. Funding pattern of the aforementioned capital outlay of Rs. 372.25 lakhs under proposed sectors for slum development are given in the following table.

Rs. in lakhs

NAME/ LOCATION OF SLUM	CONSTRUCTION OF NEW HOUSES		UPGRADATION OF HOUSES		ROADS CC PAVEMENTS		CEMENT CONCRETE DRAINS		WATER SUPPLY		STREET LIGHT	SANITARY COMPLEX	TOTAL
	No. of houses	Cost of Construction	No of Houses	Cost	Length of Roads in meter	cost	Cost of works	Nos	Nos	Cost			
Maidheen Nagar	74	59.20	67	26.80	100	1.00	3.00	1	5	4.50	0.65	-	**95.15**
Adhidravidar Street	24	19.20	8	3.20	-	-	7.00	1	5	4.50	0.60	6	**40.50**
Anna Nagar	83	66.40	43	17.20	-	-	5.50	1	7	6.30	0.75	-	**96.15**
Arundhadhiar Street	144	115.20	32	12.80	-	-	4.50	1	8	7.20	0.75	-	**140.45**
Total	**325**	**260.00**	**150**	**60.00**	**100**	**1.00**	**20.00**	**4**	**25**	**22.50**	**2.75**	**6**	**372.25**

Apart from 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 of First Stakeholder's workshop which was held on 31st May 2007 at the Town Panchayat.

7

VISION AND STRATEGIC PLANNING

7.1 VISION OF PALACODE TOWN

The vision statement of any town sets the direction and the yardstick by which the town would be judged to achieve the goals formulated for its development. The proposed vision for the development of the town of Palacode, have been perceived around the following core ideas.

- Strengthen and expand existing agricultural-related trade and services, and 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.
- To provide high standard of living conditions through provision of better amenities and facilities in the town.
- Extend integrated and decentralized planning measures for the town.

Vision Statement For Palacode

"Palacode is envisioned as a center for agri-products and related industries in the region, and also provide improved living conditions for the residents in the town."

The overall vision for the city paved the way to formulate sector specific vision and strategies. This sector specific approach with year wise strategies and corresponding year wise investments will be instrumental in framing the action plan/ implementation plan. The sector specific reforms and investments are an integral part of the year wise 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 Statement'.

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 environmental 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 Palacode 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.

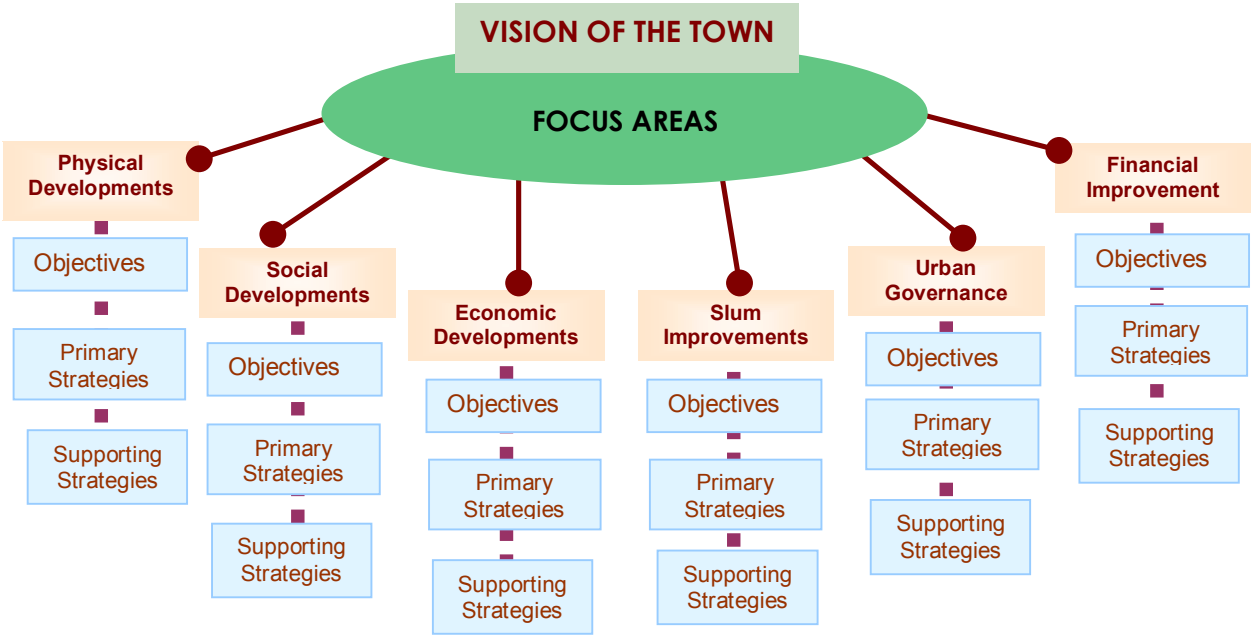
7.2.1 STRATEGIC FRAMEWORK

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 Palacode is comprised of three focus areas, for each focus areas an objective is arrived 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 and 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 Palacode 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 outcomes of the Rapid Assessments and stakeholders consultations carried for this town earlier. Issues and Potetials for the 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 Palacode Town Panchayat.

Table 7.2: Strategic Framework for Identification of Actions – Palacode Town Panchayat

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
PHYSICAL DEVELOPMENT			
Land use Management			
1	To Decongest core area.	1. Preparation of Master Plan to regulate development activities. 2. Develop available open spaces as organized parking lots to decongest narrow roads.	1. Delineation of Local Planning Area towards planning/regulation of land use activities in Palacode. 2. Expansion of the present administrative boundary of the ULB by merging neighboring villages. 3. Identification of potential areas for residential development through preparation of Master Plan. 4. Shift/relocate markets located in the core area to newer sites to decongest activities and develop the area future uses. 5. Zoning of land uses specifically for Industrial purposes to attract economic activities within the region. 6. In order to meet the space requirement for future, commercial and mixed residential zoning shall be earmarked within the region. 7. Assessment of feasibility of establishment of regional linkages with the other urban nodes. 8. Resolving conflicting land uses by means of proper planning and land use allocations. 9. Provision of urban open spaces and higher order facilities with in the region. 10. Identification and Implementation of Scheme roads for guiding the future development. 11. Promotion of activities in the peripheral/outskirts in a phased manner. 12. Identification of suitable locations for providing parking lots.
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 locate perennial water sources. 3. Creation of local sources to meet the current need. 4. Augmentation of WTP and Clear Water Transmission Mains for ultimate stage demand. 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
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% Coverage	1. Water supply system for uncovered and extension areas to ensure 100% coverage	
4	To Minimize NRW component	1. Performance monitoring - energy audit, leak detection, NRW studies, water quality, etc. 2. Creation of public awareness.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
5	To achieve cost recovery	1. Comprehensive Asset management plan. 2. Institutional strengthening and capacity building. 3. Revenue enhancement through collection drives, metering and tariff rationalization to raise annual collection. 4. Establishment of GIS based assessment mechanism.	areas. 9. Rehabilitation of existing service reservoirs if applicable. 10. Construction of additional service reservoirs if applicable. 11. Proposed distribution system in uncovered 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.
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 the possibility of the decentralization of the system of operations for effective service delivery. 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.
2	To provide proper sewage disposal facility	1. Treatment of sewage - decentralized advanced systems. 2. Development of treated waste water re-use systems	
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.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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.	7. Performance monitoring - energy audit, quality, etc. 8. De-silting of existing water bodies and development of the bed lining. 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. 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.
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 storm water	1. Assessment of possibilities for recharge/ reuse of waste water in the town. 2. Expansion of Rain water harvesting system/structures town wide.	
Solid Waste Management			

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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-medical waste management facility. 13. Assessment of gaps and investment needs in the urban poor/ slum locations.
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 vermi 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.	
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 earthen / gravel road to BT / CC roads based on the incidental traffic volume count.

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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. 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.
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 urban poor/ slum locations.
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.	
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			

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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 moving towards individual toilets and doing away with public convenience systems.
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 Policy.	
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. Improvement of tomato market facility. 3. Provision of cold storage facility. 4. Relocation of existing weekly chandy to alternate site.

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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.	5. Creating infrastructure to facilitate development of agro based industries. 6. Making available serviced land for real estate development. 7. Promotion of food processing industry. 8. Establishment of hotel and lodging facility for the commuters. 9. Creating amusement parks and other entertainment facilities especially for local citizens and tourists. 10. Encourage private sector to develop shopping complexes and multiplexes to meet the growing demands of the expanding middle class in the region. 11. Promote non-polluting small scale and cottage industries. 12. Encourage development and growth of housing complexes in the private sector or joint venture. 13. Creating infrastructure including making availability of land to attract educational and research institutes. 14. Relaxation of polices and procedures in order to attract investors. 15. Facilitate assistance for enterprises to build export capabilities and access global markets.
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 interface and orientation. 7. Regular interface with citizen associations/forum to understand public needs.	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 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.

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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.	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.
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.	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.
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 and accounting system. 3. Database management of assets, records, lands, properties, etc.	1. Implementation of MIS to provide relevant information on accounts, commercial and operating systems for better decision-making and information dissemination to citizens; 2. Application of e-Governance is equally important for municipal finance. 3. Mapping of properties and developing GIS-enabled

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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.	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.
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;	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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. 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.	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 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 system of Urban Infrastructure provision, delivery, operation and maintenance to normative standards and characteristics required for a Palacode.

A City Corporate Plan (CCP) 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 CCP 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 of for each of the participating stakeholders. Needless to say, the ULB have to play an important role in identifying the above stakeholders and has involved 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 had specific consultations with 'Action Stakeholders' that were identified to participate in implementation of the CCP with specific roles and responsibilities. Each of the above phases culminated with a workshop, which endorsed the findings with specific remarks and suggestions.

Broadly, the consultation process shall be carried out in the following manner:
- Individual/sector specific discussions;
- Workshops.

Consultations would be 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 shall be performed in the form of description and mapping to quantify the condition of basic amenities and urban services, highlighting needs and deficiencies for the following sectors:

- 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 would be carried out.

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 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 in general have been found to be proactive in their commitment to introduce reforms at the ULB level and Palacode Town Panchayat is no exception. 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 including construction of new bus stops
Preparation of Traffic and Transportation Management Plan including 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 Kalayanamandapam
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 to upgrade the existing system of Urban Infrastructure provision, delivery, operation and maintenance to normative standards and characteristics required for a town panchayat. Rapid assessment performed provides for cognitive navigation through the analysis and recommendations in various phases in the preparation of the City Corporate cum Business Plan for the town. The sectors covered in this chapter are given in the adjacent box.

Sectors covered

- Water Supply;
- Sewerage and Sanitation;
- Storm Water Drainage;
- 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 WATER DEMAND

The existing water supply levels in Palacode need to be increased in terms of coverage and quantity. Potable water needs to be supplied in an equitable manner to achieve the average per capita water supply as specified in CPHEEO guidelines on Water Supply and Treatment and to cater to 100 percent of the projected population. Non-Revenue Water/ Unaccounted for Water (NRW/UFW) and system losses need to be mitigated and monitored to ensure that the total losses do not exceed the allowable limits (15 percent) as specified in the CPHEEO guidelines. Further reduction of the losses through an effective and continual leak detection and water audit program is highly recommended and this would prove advantageous in the long-term.

Based on the projected population and the permissible supply levels as specified in the "Manual on Water Supply and Treatment" by CPHEEO, the total future water demand has been estimated and furnished in the table below:

Table 9.1: Estimated Future Water Demand

No.	Description / Parameter	Present Stage (2010)	Intermediate Stage (2025)	Ultimate Stage (2040)
1.	Projected Population	23,228	30,828	40,914
2.	Per capita supply (lpcd)	70	70	70
3.	Installed Capacity of source (MLD)	1.35	1.35	1.35
4.	Augmentation required at Source (MLD)	1.63	2.16	2.86

It can be observed from the above table that the existing system requires immediate augmentation. The system is not capable of meeting the increasing water demand for the year 2010 through its present available sources (assumed based on projected population). Augmentation measures need to be identified considering the utilization plan of the existing source (Bore well sources and Papparpatti – Palacode CWSS). Existing system should be utilized only to the presently installed capacity and should not be overloaded because of low ground water level in the local bore well sources during the summer months (considerable part of the year). Therefore it is felt that additional Scheme can be augmented for meeting the ultimate stage water demand conditions. It is important that capital investments in the water supply sector are planned to broadly address the following issues:

- Augmentation of installed capacity of existing facilities to meet the growing demand; and
- Rehabilitation of existing facilities to avoid higher costs of deferred and inadequate maintenance.

Therefore, the priority actions identified through discussions with stakeholders and the proposals planned for the system improvement have been recommended with the intension of achieving the following objectives:

- 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 identified weaknesses of the system/sector to ensure that imminent and potential (future) threats are eliminated and prevented from recurring.

9.2.2 STRATEGIES FOR DEVELOPMENT

The Strategies formulated for water supply focus on exploring new sources, optimum use of existing water resources, total water supply planning, conservation of ground water, reduction of unaccounted for water and largely on Institutional strengthening & Capacity building. The ULB should facilitate creation of capital assets so as to meet the future requirements for the provision of water supply.

It is envisaged that during the year 2025 water demand would be about 2.16 MLD for 30,828 people at a daily supply rate of 70 LPCD. The distribution network is expected to cover additional 9,400 households by individual HSCs. Daily water supply will be effected from the present supply of once in three days. Considering the current deficit and the future requirements for water supply, the following strategies are suggested.

Sector Approach: Capital investments in water supply have to be planned to address issues focusing upon; (i) Augmentation of source to meet the per capita demand of water; (ii) Augmentation in the existing storage and distribution facilities to meet increasing growing demand; and (iii) Rehabilitation of existing facilities to avoid the higher costs of deferred maintenance;

Design Criteria: The ULB should increase the supply levels in terms of coverage, to achieve an average gross supply of 70 lpcd and to cater to 100 percent of the population. Assuming that distribution network is extended to more than 95 percent of the Roads within ULB area, given very high population density within the ULB, all the citizens will enjoy the required supply.

Source Augmentation: Development of a sustainable and quality source of water for onward supply with requisite treatment/ disinfection is a critical issue that confronts the Palacode town panchayat. Perennial sources need to be identified and tapped effectively. Although raw water intake systems can be installed to meet future demand, the Panjapalli scheme needs to be evaluated and modified, if necessary, since the MWL during summer months in the Panjapalli Dam may not allow adequate water to flow into the intake well. For future augmentation of water supply from the Panjapalli Scheme, alternative intake system, as listed below can be evaluated for adoption:

- Collector Wells (only if sufficient sand depth to an extent of 5-m or higher is available); and
- Infiltration Wells/Galleries (a network or array of wells/ galleries may be required with appropriate inter-spacing as determined from summer yield tests in accordance with the established curve of interference).

An alternative which is practiced in drought-prone areas is also recommended and requires further investigation at the detailed engineering stage. Summer storage tanks can be developed in the vicinity of major water bodies. These tanks are essentially large earthen structures which can be designed based on the probable holding capacity established through analysis of rainfall intensity, flow during flood conditions and evaporation factors. High discharge pumps can draw water from water bodies and other supply channels (based on location) during high flow/ flood conditions and pump the same to the summer storage tanks for later abstraction as a surface source for treatment and supply to the existing distribution system during drought conditions. This measure will also serve to conserve water and enhance groundwater storage potential. In the face of full utilization of the surface source to meet future demand, groundwater use can be restricted and eventually managed in an efficient manner. The existing infrastructure for groundwater abstraction can be used to meet localized distribution requirements during drought seasons when the yield from Panjapalli and local source is likely to decrease. The aforementioned discussion is indicative of the future requirement for the Palacode in the long-term.

Water Supply Operation & Maintenance Plan: The plan shall be designed largely by involving the Private Sector for O & M operations. This may be done through a management contract with a private agency, which would be solely responsible for the O & M of the system, based on agreed annual fee, with built-in incentives for improved performance.

Asset Management Plan: To address the condition assessment and the performance of the water supply assets, it is recommended that a detailed asset management plan be prepared for the assets of water supply in Palacode town.

Consumer Metering System: The ULB need to initiate metering system in the town. For the projected population, there shall be about 9,400 nos. of metered connections in ultimate design year of 2040. It is, therefore important that service connections be provided with metering system under this project. 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 help in revenue generation.

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.

Unaccounted for Water: ULB shall implement leak detection studies to ascertain the volume of unaccounted water. This to an extent, if corrected properly, would help ULB to realize more water.

Re-cycle & Re-use: Strategy for Use of Recycled water for Non-potable use, based on a Pilot Study for the ULB.

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 dilapidated sections of the network and those that require replacement.

Institutional Strengthening & Capacity Building: The officials 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 a strong readdresal system and minimizing unaccountable losses & illegal connections.

9.2.3 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for water supply during the Short-term period (2007-2011):

Table 9.2: Priority Actions and Implementation Plan - Water Supply

Component	Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Water Resource Management	Water Supply Improvement Scheme to extended areas		√	√		
	Construction of additional Storage reservoirs	√	√	√		
	Development of Distribution network for extended areas		√	√		
	Rainwater Harvesting Measures	√	√	√		
	Re-cycle and Re-use treated water			√	√	
Augmentation of Water Supply System	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 Meters	√	√			
	Construction of summer storage tank		√	√		
	Upgradation and Improvement of Distribution System		√	√		
	Rehabilitation of Existing Service Reservoirs	√	√			

PROPOSALS

The improvement to the water supply system is designed to ensure that the installed water supply infrastructure meets the community's needs (water demand) for adequate and equitable supply at reasonable charges. The projected demand for the year 2025 is compared with the optimum supply available from the existing source, to verify the adequacy and need to augment the capacity of certain components.

Proposed Capital Works - Water Supply

- Provision of Water supply scheme to added areas
- Rehabilitation of storage and distribution system in existing areas;
- Source Augmentation;
- Augmentation of Transmission Mains;
- Augmentation of Storage Capacity; 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	1.35	1.54	**(0.19)**	1.63	**(0.28)**	2.16	**(0.81)**
Water Treatment Plant (if Surface water Used)	MLD	-	1.54	**(1.54)**	1.63	**(1.63)**	2.16	**(2.16)**
Service Storage	ML	0.96	0.51	**0.45**	0.54	**0.42**	0.71	**0.25**
Distribution System	Km	36.00	33.15	**2.85**	34.55	**1.45**	42.91	**(6.91)**

Source: Analysis

As reported by the ULB the average drawl of water from the existing sources is worked out to be 1.35 MLD. The total requirement of water is calculated as 1.63 MLD for the short-term period (2010) and 2.16 MLD for the long-term period (2025). Deducting the existing quantum of water availabilities, the net requirement of water for short-term period is 0.28 MLD and 0.81 MLD for long-term period. From the above table, it is confirmed that additional distribution mains of 6.91 km length need to be established to fulfill the demand during the long-term period. Both Service storage facility and Distribution system are sufficient to meet the short-term demand.

Apart from the aforementioned proposals the following requirements are identified through Stakeholders consultation:

- Replacement of existing pumping main to a length of 5km was stressed during stakeholders consultation since frequent leakages in the system affects the regular supply of water to the public;
- Even though storage capacity is more than the normative standard of 33% of total water supplied, some areas like Pudupantandar, Pallikuthan colony, Pudu Vannar Street, Railway station Road and Muthu Goundar street are located in the elevated areas requiring booster station with sump; and
- In order to meet the water demand during summer months local bore well source need to be established at various locations.

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

- 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;
- Construction of additional service reservoirs;
- Rehabilitation and upgrading of Pumps/Machineries in the existing system; and
- Augmentation of WTP and Clear Water Transmission Mains for ultimate stage demand.

The above proposals are envisaged to initially cover the problem areas within the town as a first priority, and then in later stages the concept of design/implementation similar to that adopted for ULB, can be implemented on a modular/zonal basis in the peripheral areas consistent with future development.

The Hogenakkal Water Supply and Fluorosis Mitigation Project at a project cost of Rs.1,340 crores are under the proposal of TWAD board. This scheme is meant for providing safe drinking water to fluorosis-affected rural habitations and urban towns in the districts of Dharmapuri and Krishnagiri. This project is a long standing demand of the people of these two districts. Palacode, which is an important center of Dharmapuri District, is one of the beneficiaries of the scheme. The cost component of providing potable supply to Palacode and the internal system improvements is indicated in the estimated sectoral investment.

Pursuant to finalization of the overall sectoral investment for the ULB, specific cost of the components featuring in the aforementioned CWSS, upon finalization, will be segregated for purposes of identification of funding sources and the financial analysis.

9.2.4 ESTIMATED SECTORAL INVESTMENT

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

Table 9.4: Estimated Sectoral Investment - Water Supply

(Rs. in Lakhs)

Component	Activity	Investment
Water Resource Management	Water Supply Improvement Scheme to Added areas	95.58
	Construction of additional Storage reservoirs	116.32
	Development of Distribution network for added areas	62.22
	Rainwater Harvesting Measures	60.11
	Re-cycle and Re-use treated water	18.03
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	80.79
	Redistribution/Re-zoning of D-system in existing areas	216.41
	Expansion of House Service Coverage	252.47
	Installation of Meters	120.23
	Construction of summer storage tank	30.06
	Upgradation and Improvement of Distribution System	200.48
	Rehabilitation of Existing Service Reservoirs	15.87
Total		**1268.55**

Necessary clearances from concerned ministries or authorities need to be acquired by the ULB 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: Palacode Town Panchayat;
- Formulation/Implementation Agency: Palacode Town Panchayat;
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

9.3 SEWERAGE AND SANITATION

An assessment of the existing gap in service levels in the town's sewerage sector in relation to the estimated future generation of sewage based on projected growth in population and prescribed guidelines/normative standards has been performed for the following components:

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

The demand-gap assessment has been performed for the short-term period, i.e. intermediate stage (15 years) and for the long-term, i.e. ultimate stage (30 years), and is presented in the table below:

Table 9.5: Demand, Supply and Required Augmentation of UGS System for 2040

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.*	21,950	23,228	-	30,828	-	40,914	-

Sewage Generation	*MLD*	1.07	1.29	-	1.71	**-**	2.27	**-**
New Infrastructure								
Sewage Pumping	*MLD*	-	1.29	**(1.29)**	1.71	**(1.71)**	2.27	**(2.27)**
Sewage Treatment Plant	*MLD*	-	1.29	**(1.29)**	1.71	**(1.71)**	2.27	**(2.27)**
Sewer Network	*Km*	-	34.55	**(34.55)**	42.91	**(42.91)**	45.46	**(45.46)**
Estimate of Requirement of Land for Sewage Treatment Alternatives								
Waste Stabilization Pond @ 4 acres / MLD	Acres/ MLD	-	5.16	**(5.16)**	6.84	**(6.84)**	9.08	**(9.08)**
Activated Sludge Process @ 0.25 acres / MLD	Acres/ MLD	-	0.32	**(0.32)**	0.43	**(0.43)**	0.57	**(0.57)**

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. Decentralized sewage treatment facilities may result in a net higher requirement of land. 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.

9.3.1 STRATEGIES FOR DEVELOPMENT

It is envisaged that during the year 2040, 95% population will be covered and sewage generation of 2.27 MLD from net water supply of 59 LPCD (80% of 70 lpcd water supply rate + 8-10% infiltration rate) and treatment facility amounting to the same with the following strategies:

Sewerage Master Plan: Preliminary survey need to be performed considering the terrain condition and sewage generation quantity to assess the technical and economical viability of a sewerage project. A plan for sewerage should be prepared and the focus areas shall include, but not necessarily be limited to the following:

- Overall plan for collection, conveyance, treatment and disposal/re-use of generated sewage in the development area.
- A definite plan for increasing coverage over a specific period to recommended levels, which will ensure that beneficiaries are migrated away from the present system of sanitation.
- Present coverage and condition of sewerage 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.
- The sewage treatment plant (waste stabilization ponds) with a capacity of 2.30 MLD to fulfill the long-term demand during 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).

Preferred Treatment Facility: Treatment of collected sewage in accordance with the pollution control norms and river discharge standards is critical and poses a significant hazard to public health if not designed, implemented, operated and maintained in a proper manner. A conventional method of treatment such as waste stabilization ponds (WSP) is the best suitable treatment method for towns having less population and also this method of treatment requires relatively low O&M costs when compared with other treatment methods.

Re-Cycle & Re-Use: Another issue that must be dealt with is the re-use of treated wastewater, which can reduce the overall demand on freshwater. The following uses are recommended for further evaluation:

- Re-use of treated water for supplementing fire-fighting demand. Although it is impractical to install a wet system of fire protection, treated wastewater can be stored at strategic

locations at ground level with pumping arrangement or overhead tanks for access by the fire department. These locations will have to be clearly demarcated, accessible and equipped with watch/ward to prevent misuse or human contact with the treated wastewater. In the present scenario, this option may not be viable and is presented here only for future consideration.

- Re-use for wet sweeping of main roads - modern equipment is commercially available to sweep and clean main roads through mechanical brushing/sweeping combined with a water spray to keep suspended particulate matter to a minimum. Water for this operation can be obtained from treated wastewater. This is normally applicable in major cities. In the case of Palacode, this option may not be practical. The option to utilize treated and disinfected wastewater for gardening and related open spaces' maintenance can be evaluated.
- Flushing of head manholes/sewers - This operation is probably the best use for treated wastewater and is most beneficial to the longevity of the sewers that are proposed in all the towns within the Palacode region. Periodic flushing of the head manholes using treated wastewater discharged from mobile flushing units is recommended to reduce silt deposition in sewers. The flushing operation can be performed on a rotational basis where each sewer line (starting/head reach within a sewerage zone) is flushed at least once in a month.

Coverage of Low Income Settlements: There are 4 notified slum areas within the town limit. All these slum areas are partially provided with the sanitation facility. Therefore it is proposed to cover this locality by using Pay & Use type / Free / Low Cost Sanitation toilet facility under GoI & GoTN schemes.

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

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 regards to system malfunctions and promote effective maintenance.

Asset Management Plan: To address the condition assessment and the performance of the Sewerage assets, it is recommended that an asset management plan be prepared for the assets of 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 works is an important issue confronting the ULB, the present system is being implemented by TWAD Board and shall be transferred to the ULB for maintenance of Assets, 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.

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. The master plan shall also focus on provision of sewerage and sanitation facilities in the newly planned layouts and peripheral areas to ensure coordinated development.

9.3.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for underground sewerage during the project 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	Development of Sewerage System for Town		√	√	√	√
	Provision of Sewage Treatment Plant		√			
	Community toilet integration	√	√			
	Recycling Plant & Reuse system			√		
Sanitation Facility	Community toilets	√	√			

PROPOSALS

The projected demand for 2040 is compared with the Sewage generation to verify the adequacy and the need to augment the capacity of certain components.

Proposed Capital Works - UGSS
- Sewage collection system to uncovered areas;
- Sewage Treatment Plants; and
- Wastewater pumping and out-fall systems.

It is proposed to implement the UGSS by, (i) Creation of assets for Pumping Capacity by 2025, (ii) Ultimate stage Treatment Capacity of 2.27 MLD (Waste Stabilization Pond), and (iii) sewer network of approximately 33 km length and creation of new Sewer Zones.

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 Stakeholders:
- Sewage collection system - sewers, manholes, pump/lift stations, etc considering the ultimate stage peak flow (2010-2040);
- Sewage treatment plants designed to handle ultimate stage flow with installation on a modular basis (15-year design period); and
- Wastewater pumping and out-fall systems.

The above proposals are envisaged to initially cover the core areas within the town. However, the concept of design/implementation shall be similar to that adopted for core area, which can be implemented on a modular/zonal basis in the peripheral areas consistent with future development.

9.3.3 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 - Underground Sewerage Scheme
(Rs. in Lakhs)

Component	Activity	Investment
Sewerage Collection, Treatment & Management	Development of Sewerage System for Town	3248.39
	Provision of Sewage Treatment Plant	40.94
	Community toilet integration	90.17
	Recycling Plant & Reuse system	13.65
Sanitation Facility	Community toilets	48.09
Total		**3441.23**

Necessary clearances from concerned ministries or authorities need to be acquired by the ULB 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: Palacode Town Panchayat;
- Formulation/Implementation Agency: Palacode Town Panchayat;
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

9.4 STORM WATER DRAINS

- Development of drains appears to be performed as a joint activity with development/reconstruction of roads and not as an individual sector. This is specific to drains along major and minor roads. This is a critical deficiency area, since the existing network along major and minor roads serves as the primary conduit for conveying 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 focusing on areas such as projected growth of population and 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 to highlight the function of storm water drains, prevention of encroachment of storm water drain areas, prevention of dumping of solid waste and discharge of sewage/sullage from households and other related issues.

9.4.1 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 the strategies identified in 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. This shall be 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. In almost all the cases, strengthening of the drains and construction of leading drains will have to be taken up. A desilting exercise has to be taken up in all the natural and open drains.

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/connections between secondary and tertiary drains to primary drains have to be improved and strengthened. In addition, control of weed growth, limiting the dumping of solid and construction waste and controlling the growth of encroachments would be given top priority.

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

Improvement Works and Construction of Tertiary Drains: Construction of tertiary drains (pucca only) would be taken up on a priority basis as the town comprises of only 14.09 km. of tertiary drains covering 36% of the road length 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 for Sanathkumar channel and Thamarai Eri. Further, hydraulic capacity of these, channels and water bodies would be improved through widening and deepening and construction of side walls thereby limiting the risk of floods. Desilting 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).

Monitoring and Quality Control: Monitoring of water quality parameters need to be conducted on a regular basis. ULB need 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.

Therefore, the priority actions identified through discussions with stakeholders and the proposals evolved for improvement are specifically 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.

9.4.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents the priority actions and their implementation plan for storm water drainage during the project period (2007-2012):

Table 9.8: 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	√	√			
Construction of Drains	Provision of storm water along existing roads	√	√			
	Formation of new drains along proposed road network		√	√	√	√
	Treatment and re-use of storm water			√	√	

As specified earlier, priority actions identified by the stakeholders, discussed and finalized pertaining to development of the existing network of storm water major and minor drains including catchment, surface and area drains in Palacode 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.

PROPOSALS

The ULB should increase the Service levels in terms of coverage, to achieve coverage of 130 percent of Road Length, through Built Drains. The ULB is recommended to adopt the strategy for rejuvenation of Lakes and Ponds, to be used as sources for re-charging and as Summer Storage,

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.

and through networking of Water Bodies, to increase Water Sustainability.

Considering the requirements, capital investments in Drainage have to be planned to address issues focusing upon; (i) Improvement Works and Construction of Tertiary Drains. (ii) Drainage Rehabilitation works for low lying areas, through improvement of networking of Secondary and Tertiary Drains to Primary Drains; (iii) Improvement and Rehabilitation of Primary Drains through widening, deepening, construction of Side-Walls, Cross-Drainage Works and Diversion works at Critical locations; (iv) Rejuvenation and Rehabilitation works for Water Bodies, through de-silting, bunding works and Intersection and Diversion of Sewage wherever required.

The Project demand for 2011 is compared with the existing Storm Water Drainage Infrastructure, to verify the adequacy and need to augment the capacity of components. Proposed augmentation of required components of the system is indicated in Table 2.9 below.

Table 9.9: Demand, Supply and Required Augmentation of Drainage System for 2011

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2007		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Road Length	Kms	19.26	24.15	-	25.55	-
System Rehabilitation						
Strengthening of Open Pucca Drains	Kms	14.09	-	**(5.00)**	-	-
Strengthening of Closed Pucca Drains	Kms	-	-	-	-	-
Upgradation of Kutcha drains to Pucca drains	kms	24.43	-	**(24.43)**	-	-
Strengthening of Natural Drains	Kms	3.00	-	**(3.00)**	-	**-**
New Infrastructure						
Storm Water Drains - (@130% of road length)	Kms	19.26	31.39	**(12.13)**	33.23	**(13.97)**
Open Pucca Drains	Kms	14.09	25.11	**(11.02)**	26.57	**(12.48)**
Closed Pucca Drains	Kms	-	6.28	**(1.11)**	6.64	**(1.49)**
Kutcha drains	Kms	24.43	--	**--**	--	**--**

Source: Analysis

It is proposed to augment additional quantity, (i) Construction of additional length of approximately 5km of Open Pucca Drains to meet the current gap, (ii) Upgradation of additional length of approximately 24km of kutcha Drains to meet current gap, (iii) Strengthening, Desilting and Removal of encroachments of 3km of Natural Drains, and improve networking, and (vi) Provision of 14km length of storm water drains along the proposed road network during the short-term period.

Detailed list of works suggested by the stakeholders during the consultation workshop are enclosed in the Annexure - 9.

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 Stakeholders:

- Development of a storm water drain master plan;
- De-silting of existing storm water drains;
- Improvement measures to existing water bodies;
- Re-grading/re-surfacing of drains as required; and
- New drain network for uncovered areas.

9.4.3 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 9.10: Estimated Sectoral Investment - Storm Water Drains
(Rs. in Lakhs)

Component	Activity	Investment
Drains Rehabilitation	Rehabilitation of Major drains/channels	464.92
	Rehabilitation of Storm Water Drains	48.51
Construction of Drains	Provision of storm water along existing roads	436.59
	Formation of new drains along proposed road network	254.13
	Treatment and re-use of storm water	36.38
Total		**1240.53**

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

9.5 ROADS, TRAFFIC AND TRANSPORTATION

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

9.5.1 STRATEGIES FOR DEVELOPMENT

Strategies under Roads, Traffic and Transportation focus at improving town wide transportation network and linkages, and Provision of town and regional level transport facilities. Improvement of Core Town Areas is proposed in terms of Pedestrianisation, Signages and Strengthening.

Design Criteria:

- Strategy shall focus to have 100% coverage of surfaced roads including up-gradation of roads.
- Ensure free flow of traffic through junction improvement and providing sufficient off-street parking.
- Ensure free and safe movement of pedestrian providing footpaths and Side Protection Barriers.

Approach: The ULB need to increase the network, so as to achieve a full cover that will to cater to 100 percent of the population. Given the high density of population within the ULB area, and also limited area for development, it is proposed to emphasize on strengthening and widening measures for Roads, thus addressing the issues of congestion and incomplete network.

Preparation of Traffic Management Plan: This shall focus on 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 signs, markings, lighting, 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 aesthetic.

Road Planning and Demand: The newly developing areas and habitations of rural in nature requires establishment of new linkages. The road widening projects can provide success to a certain extent in increasing the area under roads, but are limited to certain commercial corridors and critical link roads only. Road planning shall also ensure that roads, parking and traffic infrastructure provision matches 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 cities. It is therefore necessary to provide better facilities for pedestrian movement in areas where pedestrian movement is predominant. Pedestrian facilities in terms of providing footpaths free of encroachment in all the bus route roads.

Building Pay & Park type Complexes: The phenomenal growth of vehicles has lead to increased demand for parking. Being an important commercial/market centre of the region there is a sudden increase of floating population during peak hours. The problem is further aggravated by the absence of adequate off street parking facility. Pay and Park complexes are to be built for a better parking and traffic management. Such complexes can be privatized.

Asset Rehabilitation: Upgrading shall be undertaken to extend, refurbish and enhance the roads. Plans would be phased so as to optimise the cost and surface condition and shall include upgrading earthen roads to Bituminous Topped Roads. This phased up-gradation would considerably reduce the costs on new formations.

The most critical issue is not only planning for such infrastructure, but also ensuring active and effective coordination across other departments such that development activities across each front, i.e., installation of sewer mains, water mains, street lights, storm water drains.

9.5.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for roads, traffic and transportation during the project period (2007-2012):

Table 9.11: Priority Actions and Implementation Plan - Roads, Traffic and Transportation

Component	Activity	Y1	Y2	Y3	Y4	Y5
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Strengthening existing roads	√	√			
	up gradation of important roads		√	√		
	Formation of new roads			√	√	
	Junction Improvements		√	√		
	Culverts	√				
	Bus Shelters	√				
	Signals	√				
	Signage and markings	√	√			
	Road divider & Medians	√	√			

Table 9.11: Priority Actions and Implementation Plan - Roads, Traffic and Transportation						
Component	**Activity**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
	Traffic Island	√	√			
	Parking Lots/ complexes		√			
	Bus Stand Improvement	√				
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disadvantaged	√	√			
	Pedestrian Crossings	√				
	Foot paths	√	√			

PROPOSALS

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 Stakeholders:

Proposed Capital Works - Roads, Traffic and Transportation

- Pavement Improvements to ULB maintained roads widening and improvement of HD maintained roads; and
- Studies on parking requirements and town-wide public transportation system.

The Project demand for Roads for 2011 is compared with the existing Road Infrastructure, to verify the adequacy and need to augment the capacity of components. The future trend of road network development is envisaged based on population growth and land use; efficient system of road network; segregation of traffic; designalizing of junction; and Upgradation, widening and strengthening of major junctions. Projected road demand, for town roads, for 2011 is indicated in Table 9.12.

The Road Length demand for 2011, (based on the road density of approximately 14 km per sq. km of area and Per Capita Road Length of approximately 1.10 m) is approximately 26.55 km, as against 19.26 km for 2007. Service level based on Road Surface type is maintained at 5 percent for CC Roads, 85 percent for BT Roads and 10 percent for WBM Roads. It is proposed to improve the condition of existing roads through Upgradation, Widening and Strengthening of up to 9 km of road length.

Table 9.12: Demand, Supply and Required Augmentation of Internal Roads (excluding SH, MDR's) for 2011

Project Sub-Component	Unit	Existing Status	Demand	
		Year 2007	Year 2011	
			Demand	Surplus/ (Deficit)
Road Length	Kms	**19.26**	**26.55**	**-**
Concrete Road	Kms	10.13	13.44	**-**
BT Road (Approved + Unapproved)	Kms	4.02	12.11	**-**
WBM Road	Kms	0.62	1.62	**-**
Earthen Road	Kms	4.49	-	**-**
System Rehabilitation – Upgradation of Internal Town Roads				
BT Roads to Concrete Roads	Kms	-	-	**(3.00)**
Restoration of BT Roads	Kms	-	-	**(2.00)**
WBM Roads to BT Roads	Kms	-	-	**-**
Earthen Roads to BT Roads	Kms	-	-	**(4.49)**
New Infrastructure – New Roads Formation				
Concrete Road	Kms	10.13	13.44	**(3.31)**
BT Road	Kms	4.02	12.11	**(8.09)**
WBM Road	Kms	0.62	1.62	**(1.00)**

Source: Analysis

Road Augmentation: It is proposed to augment additional quantity of road network by the following methods, (i) New Formation of additional length of 3.3 km of Cement Concrete Roads; (ii) New Formation of additional length of 8 km of Black Top Roads; (iii) New Formation of additional length of 0.50 km of WBM Roads, (iv) Strengthening of existing BT roads to a length of 2.0 km, (v) Upgradatiuon of BT to CC roads to a length of 3 km, and (vi) Upgradation of Earthen Road to BT road to a length of 4.49 km.

Junction Improvement: Palacode Town is densely populated and is an important tourist destination, although the town's road system has many ill-designed road intersections, which lack in many characteristics such as road geometric features, channeling islands, parking lanes for turning vehicles, acceleration and deceleration lanes etc. To improve the town image and the carrying capacity of road junctions, it is proposed to provide grade separated pedestrian subways, Junction landscaping, and improvement at selected Intersections. Following junctions are proposed for the improvements on the basis of observation and with consultation.

- Bus Stand Junction;
- Near Town Panchayat Office; and
- Near BDO office.

Intersections must be designed and operated for simplicity and uniformity and the design must keep the capabilities and limitations of drivers, pedestrians and vehicles using intersections. All the traffic information on road signs and marking should be considered in the design stage prior to taking up construction work. Any location having merging, diverging or crossing maneuvers of two vehicles is a potential conflict point. The main objective of the intersection design should be minimize the conflict points. The improvement measures normally include:

- Proper channelisation for the free left turn
- Foot path on approaches of the junctions
- Planned pedestrian zebra crossing
- Shifting of electric poles and cutting of trees
- Land acquisition / removing structures
- No parking on the approaches of the junction for at least 50 m
- Adequate and safe turning radius
- Appropriate gradient of the road at the intersection

Bus Stand Improvement: As the town is proposed to be developed as a commercial centre and in order to fulfill the present and future expansion of existing bus stand requirements the number of bus bays are proposed to be increased with basic facilities.

Detailed list of improvement works suggested by the stakeholders during the consultation workshop are enclosed in the Annexure - 9.

It was noted that the land requirement for provision of new roads and other infrastructure in the newly developed areas that are within the development area has been identified and earmarked in the Comprehensive Development Plan. However, formation and development of such roads are not envisaged under the above proposals.

9.5.3 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 9.13: 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	24.26
	up gradation of important roads	190.83
	Formation of new roads	304.25
	Junction Improvements	36.38
	Culverts	6.06
	Bus Shelters	21.83
	Signals	36.38

Table 9.13: Estimated Sectoral Investment - Roads, Traffic and Transportation (Rs. in Lakhs)		
Component	**Activity**	**Investment**
	Signage and markings	18.19
	Road divider & Medians	30.32
	Traffic Island	12.13
	Parking Lots/ complexes	60.64
	Bus Stand Improvement	60.64
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disadvantaged	30.32
	Pedestrian Crossings	6.06
	Foot paths	72.77
Total		**874.67**

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: Palacode Town Panchayat.
- Formulation/Implementation Agency: Palacode Town Panchayat and Highways Department.

9.6 SOLID WASTE MANAGEMENT

9.6.1 STRATEGIES FOR DEVELOPMENT

While formulating strategies, the MSW (management & handling) rules 2000, serve as guideline. The rules came into existence under section 3, 6 and 25 of the Environment (Protection) Act, 1986 by Central Government. Strategies for solid waste management revolve around optimum use of manpower, equipping them with required gears and making the collection, transportation and disposal effective round the clock.

SEGREGATION AND STORAGE OF WASTE AT THE SOURCE OF GENERATION

Improvement measures should evolve effective strategies to mobilize the community and citizens towards synchronizing the system of waste storage at source with primary waste collection by the ULB and cooperate with the ULB to maintain clean streets and neighborhoods, in particular, and the town in general. The local inhabitants should be advised to keep two separate bins/bags for the purposes of segregation of waste at source and adopt appropriate mode of disposal of such waste from the source as outlined in the Manual on the Municipal Solid Waste Management.

ULB should direct all waste generators (households, institutions commercial establishments and floating population) not to throw any solid waste in the street, open spaces, and vacant plots or into drains by organizing public awareness programs and/or through public notification in leading local newspapers. Any violations in this regard should be penalized and the ULB staff should be empowered to do so.

PRIMARY COLLECTION OF SOLID WASTE

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

- Provide daily waste collection to all households and establishments for collection of organic bio-degradable waste from the doorstep by ensuring regular and reliable service so as to clear such waste within 24 hours of its generation;

- Dry and recyclable wastes to be collected on alternative days as these do not decay and need not be collected daily; and
- Domestic hazardous wastes produced occasionally may not be collected from doorstep but the people should be advised to deposit the same in special designated bins.

Accordingly, one of the key steps to be followed towards implementing the above initiatives would be to direct the street sanitary workers to collect the wet waste (organic and bio-degradable) door-to-door during the street sweeping process on a daily basis. Initially, some of the well developed residential areas of the town that can readily afford the cost involved may be covered through this process. This service shall gradually be extended to other areas of the town.

ULB can evaluate the option of enhancing promotion of NGOs and SHGs for collection of dry and recyclable wastes and domestic hazardous wastes from the doorstep on 'no payment on either side' basis.

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. The sweeping norms mentioned below are for cleaning streets in the first 4 hours of the working day. Roads/streets, which have a central median or divided section, should be considered as two roads. In such cases the length of the road allotted for sweeping should be reduced to half or alternatively separate sanitary worker may be engaged for sweeping two sides of the road. All above shall include the surface drains abutting the road having width less than 1 m. the sanitary workers should be assigned fixed individual beats and 'pinpoint' work according to the density of the area to be swept. Alternatively, the following guidelines may be considered while prescribing these norms:

- 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, it is recommended to implement "night-sweeping" arrangement in the town by the ULB.

TEMPORARY STORAGE OF WASTES

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 be flush with the border of the road (i.e. drains) to maintain hygienic conditions and 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 short distances of about 300 m.

These containers should also be kept on paved flooring and cleared daily. It is of paramount importance to ensure compatibility of the containers with the existing and proposed transportation fleet.

Another option that could be used 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 breading of flies and mosquitoes at the community storage points. Further, such an application of innocuous agents would facilitate maintaining hygienic and odorless environment at the community storage points. It may be noted that the proposed containerization of wastes would prevent littering and spreading of wastes at the community storage points by stray animals. Further, proposed training of rag pickers by NGOs would facilitate the rag pickers to collect recyclable wastes 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 OF WASTES

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 envisaged to 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 and based on the market surveys and situation analysis and discussion with the ULB, two types of vehicles are envisaged for the town:

- 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 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 while those approaching their economic life would be used as reserves and for pinpoint operations, 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.

[1] Manual on Municipal Solid Waste Management.

SOLID 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 Palacode and viability of the treatment technologies, aerobic composting is recommended as the techno-economically feasible process for further detailed investigation and 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: Since all areas under ULB are proposed to be brought under privatisation, it is considered that there would not be any further requirement to induct conservancy workers. The existing street sweeping operations in the ULB are satisfactory and 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 implements.

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 the general cleanliness is through imposition of administrative charges on erring citizens. When citizens do not throw solid waste on roads, the collection of solid waste will become efficient and easy.

9.6.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

As specified earlier, certain priority actions identified by the stakeholders are discussed and finalized pertaining to development of the solid waste management sector in Palacode and 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 project 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	√	√	√		
	Containerized Tri-Cycles		√	√		
	Equipment for Garbage Recovery Personnel		√	√		
	Equipment for Street Sweeping Personnel		√	√		
	Tipper Lorries - Used for Construction/Other Debris Collection			√		
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)		√	√	√	
	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)		√	√	√	
	Transfer Stations Modernisation			√		
Transportation	Dual Load Dumper Placer Vehicles		√	√	√	
	Mechanical Street Sweepers - Tractor Mounted			√		
Waste Processing & Disposal	Integrated Waste Treatment		√	√		
	Sanitary Landfill Facility		√	√		
	Scientific Closure of the abandoned dump sites		√	√		
Administration Complex	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
- Construction of landfill.

The total Solid Waste Generation in 2007 for a Per Capita Generation of approximately 100 grams/day is estimated at 2 MT, indicating a priority need for Scientific Disposal of Waste. Since, the Population Density of the ULB is high, the Waste generation has been considered at 210 grams/day (based on present generation), with a growth of 2 percent per year, against the generation and the demand for future is assessed. The total Solid Waste Generation for 2025 is estimated at 6.47 MT. The Present Disposal system is composting and Open Waste Dumping later is creating potential health and environment hazard considering the quantity of waste generation, location of disposal site and its environs, hence

further option for Scientific Waste Disposal can be explored on priority basis. The details of Service Levels for future are presented in Table 9.15.

Table 9.15: Design Criteria and Target Service Level

DESCRIPTION	UNIT	BASED ON CPHEEO NORMS
		2025
Population	In nos.	30,828
Per capita Waste Generation	Grams/day	210
Collection Type	-	Door-to-Door Collection and Segregation of Waste at Source
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	6.47

Source: Norms

Highest priority has to be accorded for segregation & storage at source irrespective of the area of generation so as to facilitate an organized and environmentally acceptable waste collection, processing and disposal. Source segregation of Recyclables and biodegradable (organic) waste will not only provide an efficient way for resource recovery, but will also substantially reduce the pressure and pollution in Landfill sites.

Approach for Primary Waste Collection and Street Sweeping: The following measures have been recommended for improving the primary collection practices of the ULB;

Implementation of 'Door-to-door collection' through 100 percent privatisation - In order to achieve the above objective, a 'Tow Bin system of Solid Waste Storage' at source is being recommended. As per this system, each of the households shall be directed to keep separate bins/ containers for biodegradable and non-biodegradable waste generated within their premises. The segregated waste so stored in these bins will have to be transferred to the dumper placer provided for each area. Details of Collection system and Specifications of segregated waste are summarized in Table 9.16 and Table 9.17 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

S. NO.	SOURCE	STORAGE OF SEGREGATED WASTE	
		BIO-DEGRADABLE	NON-BIO-DEGRADABLE
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

Source Segregation and Collection of Commercial Waste, through privatization; and Source Segregation and Collection of Hotels and Market Waste - 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. 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.

Street Sweeping and Mopping on Daily Basis - Since further areas and eventually the entire town is proposed to be brought under privatization, it is considered that there would not be any further requirement to induct conservancy workers. The existing street sweeping operations in Palacode are satisfactory and to ensure operational efficiency of the system, the following measures are suggested. (a) 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; (b) Sweepings shall be collected separately as degradable and non-biodegradable waste and deposit in containers kept at various locations and a separate crew equipped with appropriate implements may do de-silting of larger drains.

Community Participation and Enforcement of By-laws and Waste Collection and Handling Rules - It is recommended that the community be involved in primary collection through segregation at household level to minimize the number of waste handling operation. Non-biodegradable waste shall be collected separately from premises where door to door collections are organized. Present system of primary collection should be supplemented by introducing multi-bin carts (Push carts / Tricycles) covering the entire area of the town.

It is envisaged that 100 percent area of the ULB be brought under door-to-door collection and hence, no additional dust bins are proposed, except for slums and other areas. These are estimated to be about 20 to 25 percent in 2011. The rest of the 75 to 80 percent shall be privatized. In this scenario, the ULB shall overlook the collection and transportation activities. The existing dust bins shall be phased out in an organized manner according to the implementation of the system. This is proposed to be achieved by the year 2010-11. Based on these assumptions, the equipments for primary collection are estimated, to meet the future Waste Generation.

Approach for Waste Collection and Transportation: The following measures have been recommended for improving the waste collection and transportation practices of the ULB;

Secondary Collection system - It is recommended to retain all Tippers, for secondary collection purpose, in places where Dual Loaded Dumper Placers cannot be introduced.

Efficient Transportation System - 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 phased manner. The introduction of Dual Loaded Dumper Placers shall eliminate the need of the Secondary Collection Points. Instead of these collection points, in the end,

transfer stations with advanced segregation and recycling facilities may be introduced, in the future.

Presently, the Vehicle Capacity Adequacy Ratio is 50. This indicates an overall capacity deficiency of 2 tons by 2011 for achieving 100% collection efficiency and a deficiency of 5 Tons respectively by the year 2025.

System Demand: Additional 2 Dual Loaded Dumper Placers with 12 numbers of containers will be required for collection of approximately 6.47 tons of waste that will be generated in Palacode Town by the year 2025.

Table 9.18: System Demand for Solid Waste Management

Sl.No	Type	Required per Design and CPHEEO norms
Primary Collection		
1	Tri-Cycles	50
2	Push-carts	20
4	Tipper Lorries - Used for Construction/Other Debris Collection	2
Secondary Collection & Transportation		
1	Dumper Bins for Dual Dumper Placers (1.25 MT capacity)	10
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. Purpose) for MSW Landfill - Hydraulic Excavator & Front End Loader Combo - for loading, excavation, embankment construction 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

Approach and Design for Disposal of Waste: Based on Generation of Solid Waste it is recommended to develop a landfill site for safe disposal of Solid Waste of the ULB. Based on the successful implementation of the door-to-door collection and source segregation practices in the town, the options of waste to energy and composting projects can be developed. The disposal strategies for the ULB will do with.

Composting the organic fraction of the waste - Approximately 60% of the waste generated in Palacode is organic nature. In terms of the quantity, it is expected that approximately 4.5 tons of organic waste is to 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.

Sanitary land filling of inorganic fraction of waste and the compost rejects - Inorganic waste constitutes approximately 40 percent, quantifying to 1.5 ton, is proposed to be disposed through Sanitary landfill. The land requirement for Landfill facility is estimated at 2 acres. 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 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.

9.6.3 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	1.48
	Containerized Tri-Cycles	6.58
	Push Carts	1.21
	Equipment for Garbage Recovery Personnel	1.58
	Equipment for Street Sweeping Personnel	2.24
	Tipper Lorries - Used for Construction/Other Debris Collection	21.07
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)	5.94
	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)	1.19
	Transfer Stations Modernisation	95.15
Transportation	Dual Load Dumper Placer Vehicles	34.56
	Mechanical Street Sweepers - Tractor Mounted	14.55
Waste Processing & Disposal	Integrated Waste Treatment	280.02
	Sanitary Landfill Facility	47.47
	Scientific Closure of the abandoned dump sites	11.07
Administration Complex	Administration and Utilities Complex including HT Electrical Sub-station	30.32
Total		**554.42**

Necessary clearances from the concerned ministries or authorities need to be acquired by the ULB 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: Palacode Town Panchayat.
- Formulation/Implementation Agency: Palacode Town Panchayat.
- Monitoring Agency: State Pollution Control Board, GoTN, Palacode.

9.7 STREET LIGHTING

The principal issue in this sector is the present level of power consumption and measures to reduce energy charges in the future that is incurred through provision of adequate street lighting for the town roads.

9.7.1 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

As specified earlier, priority actions identified by the stakeholders, discussed and finalized pertaining to development of the street lighting sector in Palacode 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.
- New street lights shall be provided for uncovered areas.
- 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 project period (2007-2012):

Table 9.20: Priority Actions and Implementation Plan - Street Lighting

Component	Activity	Y1	Y2	Y3	Y4	Y5
Service 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

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 pertinent Mission Stakeholders:

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.

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

Proposed augmentation of required components of the system is indicated in Table 2.21 below.

Table 9.21: Demand, Supply and Required Augmentation of Street lighting for 2011

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2007		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)*
Street Lights	*Nos.*	679	808	**(130)**	1152	**(473)**
New Infrastructure						
Tube Light Fixtures	*Nos.*	571	644	**(73)**	921	**(350)**
High Power Fixtures	*Nos.*	107	161	**(54)**	230	**(123)**
High Mast Lights	*Nos.*	1	3	**(3)**	-	**-**

Source: Analysis

It is proposed to augment additional quantity, (i) Installation of 473 New Light Poles, (ii) Installation of New High Power Fixtures and Conversion of Tube Lights to High Power Fixtures, of 123 Nos., and (iii) Installation of 350 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.

9.7.2 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 9.22: Estimated Sectoral Investment - Street Lighting
(Rs. In Lakhs)

Component	Activity	Investment
Service Improvement	Proposed SV lamps in uncovered areas	22.38
	Proposed FL lamps in uncovered areas	42.82
	Proposed High Mast light in major junctions	63.67
	Proposed Timers for existing / new lights	15.77
	Proposed Sensor Lighting	7.58
	Proposed Solar Lights	15.16
	Proposed Power Saver (Capacitors)	0.21
	Proposed dedicated sub-station/transformers	15.16
	Proposed Tri-vector meters	9.70
Total		**192.44**

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: Palacode Town Panchayat.
- Formulation/Implementation Agency: Palacode Town Panchayat and TNEB.

9.8 BASIC SERVICES FOR THE URBAN POOR

9.8.1 GENERAL

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 CCP. With the growth of the town and addition of new areas, migration of people from rural areas to the town is imminent. However, the strategies under growth management shall arrest the extent of the migration. In the wake of the new developments being planned in the town, it is necessary that they are regulated in an integrated manner.

Various schemes introduced by the State and Central governments to improve the socio-economic status of slum dwellers need to be utilized in an effective manner. 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 prior chapter on Infrastructure.

9.8.2 BEST PRACTICES AND STRATEGIES

The ULB shall initiate community development activities within its administrative jurisdiction and integrate this aspect in its overall plan for the development of Palacode. 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 (CDSs) 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 up scaling 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 CDSs. The activities of the CDSs 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, SHGs 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: Strengthen efforts to involve people in the planning and decision-making at the community level that affect their lives and encourage the participation of community in physical as well as economic generation activities. Encourage government departments, schools, institutions and community-based organizations to provide opportunities for people's participation in discussions that shape decisions and effect proper coordination between the various actors in community development. The ULB has to identify NGOs/CBOs to develop appropriate linkages with town level authorities and community.

Others Policies: Following are some of the policy initiatives which 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.
- There needs to be a better convergence of urban poverty programmes of the centre, state and local governments. The Comprehensive Development Plan should be prepared with special attention to land tenure, basic services, housing and employment needs, including informal enterprises of the poor, of women and children. 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 shared facilities.

Therefore, the priority actions identified through discussions with stakeholders and the proposals evolved for improvement are specifically 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 recurrence.

9.8.5 PRIORITY ACTIONS AND PROPOSALS

As specified earlier, priority actions identified by the stakeholders, and discussed and finalized pertaining to development works related to slum upgrading and urban poor in Palacode are described below. The below listed 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.

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

- Comprehensive listing of slums.
- Notification of tenable/non-tenable slums and mapping within ULB area.
- 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.

IMPROVEMENT MEASURES

- 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.

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.

Following table presents priority actions and their implementation plan during the project 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					
5.	Explore the possibility of land acquisition for slums located on private lands					
II.	**Preparatory Activities**					
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	173.12
2.	Water Supply	17.31
3.	Sewerage and Sanitation	34.62
4.	Solid waste Management	25.97
5.	Roads and Pavements	41.55
6.	Street Lights	4.15
7.	Community Centers	24.26
8.	Open Spaces/Gardens	24.26
	Total Capital Cost (incl. contingencies, supervision, administration and consulting charges)	**345.24**

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: Palacode Town Panchayat.
- Formulation/Implementation Agency: Palacode Town Panchayat and TNSCB.

9.9 OTHER AMENITIES

Apart from the core infrastructure facilities other social amenities in the town are proposed for development in the short-term period. Following table presents priority actions and their implementation plan during the project 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)	√	√			
	Construction of Community Hall/Marriage hall near tomato market	√	√			
	Improvement of daily market	√	√			
	Improvement of weekly market	√	√			
	Construction of additional shops in bus stand		√	√	√	
	Improvement of tomato market with cold storage facility		√	√	√	
	construction of office complex in first floor of existing bank building		√	√	√	

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: Other Development Proposals

Rs. in Lakhs

Sl. No.	Particulars / Capital Investment Components	Investment
1.	Improvement to burial grounds (w/o gasifier)	63.53
2.	Construction of Community Hall/Marriage hall near tomato market	107.77
3.	Improvement of daily market	190.58
4.	Improvement of weekly market	182.95
5.	Construction of additional shops in bus stand	47.64
6.	Improvement of tomato market with cold storage facility	649.09
7.	construction of office complex in first floor of existing bank building	23.82
	Total Capital Cost (incl. contingencies, supervision, administration and consulting charges)	**1265.38**

9.10 ENVIRONMENTAL IMPROVEMENT

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.

9.10.1 ENVIRONMENTAL MANAGEMENT - 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.

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.

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

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.

POLLUTION ABATEMENT

Industrial effluent shall be treated separately and shall not be mixed with domestic sewage. Industry shall be encouraged to take up clean technology initiatives. This is particularly applicable for small and medium enterprises. Apart from these specific measures, certain industrial units will need to be shifted to designated areas for prevention of mixing of effluents into storm water drains.

Issues - Water Pollution
- Health risks;
- Contamination of groundwater;
- Encroachments of lakes and channels; and
- Lack of coordination and unclear responsibilities among agencies.

MONITORING AND QUALITY CONTROL

Monitoring of water quality parameters is being conducted by the SPCB and an Environmental Management Plan has been released as a guideline for protecting the overall environment. However, 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.

9.10.2 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.

9.10.3 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 updated and validated to maintain information on the identification of sources of generation, per capita generation, physical and chemical characteristics of the waste.

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

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.

9.10.4 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 aim is to restore the green cover to its original glory that was lamentably lost during the earlier devastating

cyclone. 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. The tasks to be carried out like daily cleaning, watering, weeding, trimming, raising new plantations, etc. need to be clearly spelled out in a contract document. Resident associations can contribute minimum amounts towards maintenance, while the balance can be borne by the ULB.

9.10.5 PRIORITY ACTIONS

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

Table 9.27: Priority Actions and Implementation Plan – Environmental Improvement

Component	Activity	Y1	Y2	Y3	Y4	Y5
Service Improvement	Rehabilitation and Improvement of Water Bodies	√	√			
	Creation of new park at Market Society land	√	√			
	Greening / Avenue Development		√	√		

9.10.6 ESTIMATED 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 9.28: Estimated Sectoral Investment – Parks & Greening Development

Rs. in Lakhs

Sl. No.	Sector / Component Description	Investment
1.	Rehabilitation and Improvement of Water Bodies	472.40
2.	Creation of new park at Market Society land	24.05
3.	Greening / Avenue Development	7.09
	Total Capital Cost (incl. contingencies, supervision, administration and consulting charges)	**503.54**

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: Palacode Town Panchayat.
- Formulation/Implementation Agency: Palacode 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.

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, Rs. 1.42 crores have been estimated for this purpose 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 & PRIORITIZATION

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

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

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.

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:

- Analysed 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 prioritisation and strategising 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 utilisation 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 modernisation, 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 universalise 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 Palacode 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 Palacode by the year 2040 is Rs. 9,496.90 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 Underground Sewerage Project

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
1	Water Supply System	1,268.55	13.36
2	Underground Sewerage & Sanitation	3,110.06	32.75
3	Roads, Traffic and Transportation	874.67	9.21
4	Storm Water Drains	1,240.53	13.06
5	Street Lighting	192.44	2.03
6	Solid Waste Management	554.42	5.84
7	Environment Improvement	503.54	5.30
8	Other Development Proposals	1,265.38	13.32
9	Slum Upgrading	345.24	3.64
10	Urban Governance	142.07	1.50
	Total Capital Investment	**9,496.90**	**100.00**

The above table describes the sector wise capital investment proposed for the infrastructure development of Palacode Town Panchayat. Out of all the basic amenities, Underground Sewerage Scheme accounts to 3,110 lakhs which is about 32 percent of total capital investment estimated. It is then followed by Water supply improvement and other development proposals with a share of 13 percent each. Provision of storm water drain accounts to a share of 13 percent of capital investment proposed.

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	1,268.55	19.37
2	Sanitation & Interceptor Drain	161.10	2.46
3	Roads, Traffic and Transportation	874.67	13.36
4	Storm Water Drains	1,240.53	18.95
5	Street Lighting	192.44	2.94
6	Solid Waste Management	554.42	8.47
7	Environment Improvement	503.54	7.69

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
8	Other Development Proposals	1,265.38	19.32
9	Slum Upgrading	345.24	5.27
10	Urban Governance	142.07	2.17
	Total Capital Investment	**6,547.94**	**100.00**

Out of all the basic amenities, water supply improvement accounts to 1,268 lakhs which is about 19.37 percent of total capital investment estimated. It is then followed by other development proposals with a share of 19.32 percent. Provision of storm water drain accounts to a share of 18 percent of capital investment proposed.

The above identified investments are phased to meet the priorities in the next five years considering the borrowing and investment capacity of the ULB. The phasing of expenditure based on demand is given in the following sections of this report.

10.4.2 PRIORITIZATION AND PHASING

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 Palacode, 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 4.3 outlines the overall priority ranking based on an assessment of need and as evinced by the stakeholders. Water Supply, Solid Waste Management, Storm Water Drain, and Remunerative Projects predominate the priority requirement for Palacode 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	2	
4	Storm Water Drains		6
5	Street Lighting		7
6	Solid Waste Management		8
7	Environment Improvement		9
8	Remunerative Projects	4	
9	Slum Upgrading	3	
10	Urban Governance		10

- 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, Panjapalli is the only major source which supplies protected water to Palacode with a daily supply of 7 LL per day on an average.
- The present source is not adequate to meet the existing and future demand. Frequent repairs in the pump machineries lead to less supply rate.
- Identification of alternate source, either in the proximity or through long-distance transmission will have to be evaluated in addition to ensuring that the identified sources are sustainable as the cost of abstraction, treatment, transmission and storage will attract a higher investment.
- Next to Water Supply, Road, Traffic & Transportation sector takes the 2nd rank. In consultation with stakeholders, it was observed that growing population and development of commercial establishments put immense pressure on the transportation facility in the town.
- Slum upgradation is ranked as No. 3 the town has 4 notified slums. These slums are densely populated and not provided with adequate infrastructure facilities.
- Implementation of remunerative projects was ranked as no. 4 by the stakeholders. Remunerative projects like construction of community hall near Tomato market, Improvement of daily and weekly market, construction of additional shops in bus stand, Improvement of office complex in first floor of existing bank building etc.
- Sewerage and Sanitation is ranked as No. 5 since the town is not provided with safe sewage and sullage disposal facility all the wastes are carried by the drains in the town causes environmental thread. Street drains in the town carry sullage and sewage waste and finally dispose into Sanathkumar Channel and Thamarai Eri.
- Sub-Sectoral priority identified during stakeholders 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 Added areas	1
	Construction of additional Storage reservoirs	-
	Development of Distribution network for added areas	-
	Rainwater Harvesting Measures	3
	Re-cycle and Re-use treated water	4
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	5
	Redistribution/Re-zoning of D-system in existing areas	-
	Expansion of House Service Coverage	-
	Installation of Meters	-
	Construction of summer storage tank	-
	Upgradation and Improvement of Distribution System	2
	Rehabilitation of Existing Service Reservoirs	-
Underground Sewerage Scheme and Sanitation		
Component	**Activity**	**Priority**
Sewerage Collection, Treatment & Management	Development of Sewerage System for Town	2
	Provision of Sewage Treatment Plant	5
	Community toilet integration	4
	Recycling Plant & Reuse system	1
Sanitation Facility	Community toilets	3
Roads, Traffic and Transportation		
Component	**Activity**	**Priority**
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Strengthening existing roads	1
	up gradation of important roads	3
	Formation of new roads	4
	Junction Improvements	-
	Culverts	5
	Bus Shelters	-
	Signals	-

	Signage and markings	-
	Road divider & Medians	-
	Traffic Island	-
	Parking Lots/ complexes	-
	Bus Stand Improvement	2
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disadvantaged	2
	Pedestrian Crossings	3
	Foot paths	1

Storm Water Drains		
Component	**Activity**	**Priority**
Drains Rehabilitation	Rehabilitation of Major drains/channels	4
	Rehabilitation of Storm Water Drains	1
Construction of Drains	Provision of storm water along existing roads	2
	Formation of new drains along proposed road network	3
	Treatment and re-use of storm water	-

Street Lighting		
Component	**Activity**	**Priority**
Service Improvement	Proposed SV lamps in uncovered areas	-
	Proposed FL lamps in uncovered areas	1
	Proposed High Mast light in major junctions	-
	Proposed Timers for existing / new lights	3
	Proposed Sensor Lighting	-
	Proposed Solar Lights	-
	Proposed Power Saver (Capacitors)	2
	Proposed dedicated sub-station/transformers	-
	Proposed Tri-vector meters	-

Solid Waste Management		
Component	**Activity**	**Priority**
Primary Collection	Providing bins for Door-Door Collection	1
	Containerized Tri-Cycles	-
	Push Carts	-
	Equipment for Garbage Recovery Personnel	-
	Equipment for Street Sweeping Personnel	-
	Tipper Lorries - Used for Construction/Other Debris Collection	2
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)	-
	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)	3
	Transfer Stations Modernisation	-
Transportation	Dual Load Dumper Placer Vehicles	-
	Mechanical Street Sweepers - Tractor Mounted	1
Waste Processing & Disposal	Integrated Waste Treatment	-
	Sanitary Landfill Facility	-
	Scientific Closure of the abandoned dump sites	1
Administration Complex	Administration and Utilities Complex including HT Electrical Sub-station	-

Environmental Improvement		
Component	**Activity**	**Priority**
Service Improvement	Rehabilitation and Improvement of Water Bodies	-
	Creation of new park	-
	Greening / Avenue Development	1

Other Development Proposals

Component	Activity	Priority
Service Improvement	Improvement to burial grounds (w/o gasifier)	-
	Construction of Community Hall/Marriage hall near tomato market	-
	Improvement of daily market	-
	Improvement of weekly market	1
	Construction of additional shops in bus stand	-
	Improvement of tomato market with cold storage facility	2
	construction of office complex in first floor of existing bank building	3
Slum Upgradation		
Component	**Activity**	**Priority**
Service Improvement	Dwelling Units	2
	Water Supply	1
	Sewerage and Sanitation	-
	Solid waste Management	3
	Roads and Pavements	4
	Street Lights	-
	Community Centers	-
	Open Spaces/Gardens	-

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 10.5: Borrowing & Investment Capacity of ULB

(Rs. In lakhs)

Details	2008-09	2009-10	2010-11	2011-12	2012-13
Borrowing Capacity	0.00	0.00	0.00	0.00	817.17
Investment Capacity	0.00	0.00	0.00	0.00	1257.18

From the above table, borrowing capacity of the town is estimated as Rs. 817.17 lakhs and the investment capacity of the ULB is estimated as Rs. 1257.18 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. 1257.18 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**

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

THEIR BORROWING CAPACITY for a short-term period. There is also a possibility of increasing the borrowing / investment capacity of the ULB. Certain projects have been identified for implementation with Public Private Participation (PPP) or BOT basis as an optimal way of implementation. A list of such projects and their suggestive costs are given as follows:

S.NO.	PROJECTS	DESCRIPTION	AMOUNT (RS. IN LAKHS)	REMARKS
1	Community Toilets		40.00	This can be executed with the help of NGOs and SHGs on a revenue model. The model used under TNUDP II for developing ISPs across the State can be followed. Alternatively, privatize construction and maintenance, who will collect fee for paying him towards his annuity. Any gap funding required other than tolls can be funded by the ULB, which is possible with the present set of finance. This practice is being tried by Chennai Corporation.
2	Roads	Strengthening existing roads, up-gradation of roads, formation of new roads, widening of roads	874.67	Government periodically announces grant programs for development or up-gradation of roads. This particular project identified can be posed under these grant projects, in phases, as UIDSSMT does not support individual projects, but takes an integrated approach. Alternatively, the ULB can prioritize the roads and take up minimum roads to meet the expenditure by themselves and pose the balance major portion to the Government announcements
3	Storm water drains	Provision of Storm water along existing roads, Formation of new drains	1240.53	Same as above
4	Street Lighting		192.44	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 Palacode TP, through the advice of CTP
5	Solid Waste Management	Primary, Secondary collection, transportation and disposal	528.20	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 Palacode TP shall follow the same principle, so that there is a better efficiency in service, and does 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, Palacode TP, which is located in the vicinity of Dharmapuri district HQ, can always be one among the cluster, and the project could be implemented through this mechanism.

6	Other Development Proposals	Proposed Community Centers / marriage halls	84.83	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. Alternatively, the ULB shall construct, and allow on rental basis and fix rentals such that it covers the annuity for the community and marriage halls. The rentals should be fixed upfront.
7		Improvement of weekly and daily market	294.00	There are two ways of doing this project – i.) 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 touching the balance sheet.
8		Construction of office complex in first floor of existing bank building	18.75	This can be done in a PPP mode by allowing BOT operator to invest, construct, operate and transfer. In this process, Palacode TP can also expect rental income on a monthly / annual basis from the BOT operator. This will be a source to augment revenues
9		Improvement of tomato market with cold storage facility	510.89	This can also be executed in similar lines mentioned above, so that it is neither an initial investment nor a maintenance cost to the ULB
10		Construction of additional shops in bus stand	37.50	Additional shops can be developed by the ULB and designs shown to the potential bidders. However, with the help of upfront rentals collected from the bidders, the ULB can start construction. This will help in going in for further loans.

As specified earlier, although the sectors have been ranked for prioritization, it is recommended that the Palacode 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.

Considering the borrowing and investment capacity of the ULB, projects to a worth of Rs. 1257.18 lakhs are proposed to be implemented under short-term period. In the prioritization only water supply projects are suggested for implementation considering the priority of ULB and CTP. Since the current borrowing capacity would not support the ULB to implement all the CCBP projects. Remunerative Projects like construction of community hall near Tomato market, Improvement of daily and weekly market, construction of additional shops in bus stand, Improvement of office complex in first floor of existing bank building are not considered since these projects requires major loan funding and hence the study team suggested the ULB to go for various funding options suggested in the section 12.4.

After the successful implementation of the abovementioned projects, the ULB shall implement the service projects identified in the CCBP through ULB self-generated revenue or through financial assistance from FIs.

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 Palacode.

Streamlining and Strengthening of

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

The assessment of investment sustenance concludes that though the current finances of Palacode 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 FINANCIAL 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 items are compiled under advances, investments and deposits. These items are temporary in nature and are essentially adjustments for the purpose of recoveries and

Table 11.1: Summary of Finances of the Palacode Town Panchayat

All figures in Rs. Lakhs

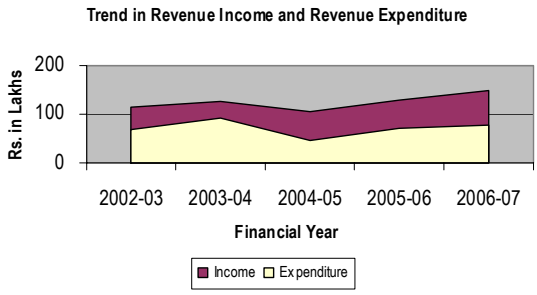
Sl. No.	Account Head	Summary Statement (All figures in Rs. Lakhs)					
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
REVENUE ACCOUNT							
1	Income	114.98	125.38	106.18	127.76	148.50	153.99
2	Expenditure	69.73	92.66	46.50	71.78	77.82	106.23
3	Status (Surplus/Deficit)	45.25	32.72	59.68	55.98	70.68	47.76
CAPITAL ACCOUNT							
1	Income	8.92	11.32	51.18	51.00	84.50	104.00
2	Expenditure	19.48	30.74	68.71	88.68	91.05	199.30
3	Status (Surplus/Deficit)	(10.56)	(19.42)	(17.53)	(37.68)	(6.55)	(95.30)
OVERALL STATUS							
1	Income	123.9	136.7	157.36	178.76	233	257.99
2	Expenditure	89.21	123.4	115.21	160.46	168.87	305.53
3	Status (Surplus/Deficit)	34.69	13.3	42.15	18.3	64.13	-47.54

Source: Palacode Town Panchayat; 2007

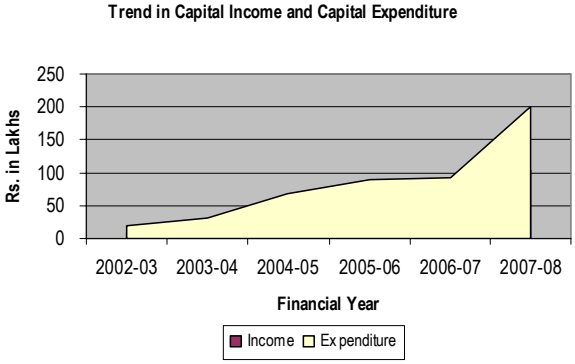
payments. Items under this head include income tax deductions, investments/realization, pension payments, provident fund, payment and recoveries of advances to employees and contractors, etc.

11.2.2 FINANCIAL STATUS

Financial assessment of the Palacode 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. Revenue income of the ULB has grown to a level of Rs. 148 lakhs in FY 2007-08 from Rs. 114 lakhs in FY 2002-03, at a compounded annual growth rate (CAGR) of 8 percent. However, the revenue expenditure has shown a CAGR of 15 percent during this period. Palacode has maintained an overall surplus in all FYs 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 for road improvement projects from GoI. 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	15.17	15.49	15.48	15.60	15.81	17.00
2	Other Taxes						
	a. Profession Tax	3.59	3.99	4.70	4.90	4.91	5.00
	b. Others	0.00	0.00	0.00	0.00	0.00	0.00
3	Assigned Revenue	12.22	16.39	7.68	9.11	5.39	10.50
4	Devolution Fund	17.87	35.20	29.17	23.79	37.86	25.00
5	Service Charges and Fees						
	a. Water Charges	4.42	5.86	5.86	7.52	8.81	15.00
	b. Service Charges and Fees (excluding Water Charges)	3.40	4.49	4.83	28.63	6.97	8.90
6	Sale and Hire Charges	0.00	0.00	0.00	0.00	0.00	0.00
7	Other Income	58.31	43.97	38.46	38.21	68.76	72.59
SECTORAL CONTRIBUTION TO TOTAL REVENUE							
1	Property Tax	13.19	12.35	14.58	11.79	10.57	6.59
2	Other Taxes						
	a. Profession Tax	3.12	3.18	4.43	3.70	3.28	1.94
	b. Others	0.00	0.00	0.00	0.00	0.00	0.00
3	Assigned Revenue	10.62	13.07	7.23	6.89	3.60	4.07
4	Devolution Fund	15.55	28.07	27.47	17.97	25.33	9.69
5	Service Charges and Fees						
	a. Water Charges	3.85	4.67	5.51	5.68	5.89	5.81
	b. Service Charges and Fees (excluding Water Charges)	2.96	3.58	4.54	21.63	4.66	3.45
6	Sale and Hire Charges	0.00	0.00	0.00	0.00	0.00	0.00
7	Other Income	50.71	35.07	36.22	28.87	46.00	28.14
GROWTH TRENDS IN %							
1	Property Tax	--	2.12	(0.02)	0.76	1.31	7.55
2	Other Taxes						
	a. Profession Tax	--	11.02	17.92	4.23	0.11	1.87
	b. Others	--	--	--	--	--	--
3	Assigned Revenue	--	34.17	(53.15)	18.69	(40.89)	94.93
4	Devolution Fund	--	96.90	(17.11)	(18.47)	59.18	(33.97)
5	Service Charges and Fees		0.00	0.00	0.00	0.00	0.00
	a. Water Charges	--	32.35	0.00	28.48	17.04	70.36
	b. Service Charges and Fees (excluding Water Charges)		32.03	7.49	493.28	(75.66)	27.72
6	Sale and Hire Charges	--	--	--	--	--	--
7	Other Income	--	(24.59)	(12.53)	(0.66)	79.97	5.57

Source: Palacode 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.

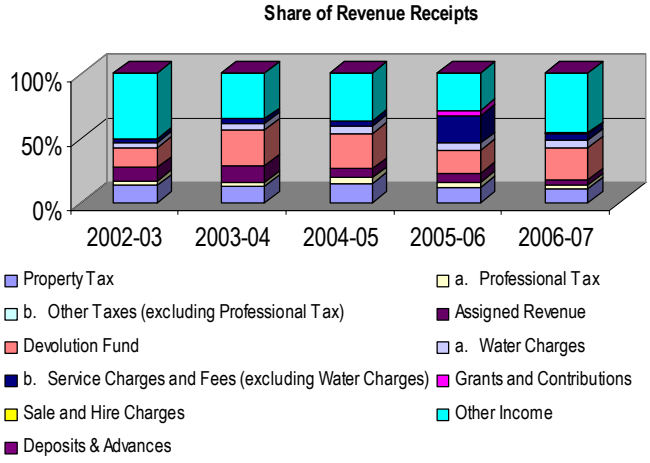
Major source of revenue income is in the form of Property Tax, Assigned Revenue and Devolutions, which contributes to about three-fourth of the revenue income on average. As a whole, revenue income has registered an annual growth of about 8 percent on average during the assessment period.

Details	Composition (%)
Own tax revenues	15.02
Non-tax revenues	48.44
Assigned revenues	7.66
Devolution funds	21.04

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 Palacode TP, the major contributors are the income from properties which is roughly 38% of the total income. Devolution funds and assigned revenues together take approximately 28% share, and property tax constitute 11.69%. The

composition of income during the last five years is graphically represented as follows-

Even though the analysis indicates a higher revenue generation by way of own tax revenues and own non-tax revenues, the absolute numbers are not buoyant in case of the main income namely property tax. The main own source income comes from other income. However going into details of the head "Other income" from the books, it is seen that the major income is from rent from shopping complex and market fees. All other income like fees etc. which are categorized under this head does not form a major source.



Even though there is a steady income arising out of income from shopping complex, consultants feel that this may not be a sustainable income, as it depends on the occupancy ratio of the shopping complex, which is fragile. Income from fees is another head of income which shows a major income. Upon scrutinizing the balance sheet it is found that the water charges are categorized as Income from fees, which forms atleast 90% of income under this head.

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.

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	5475	5610	5777	5969	6210
Growth in Assessments (%)	--	2.47	2.98	3.32	4.04
Demand (Rs. in lakhs)					
Arrear	11.74	15.49	21.19	16.74	0.00
Current	13.96	15.17	15.48	17.06	17.42
Total	25.70	30.66	36.67	33.80	41.43
Collection (Rs. in lakhs)					
Arrear	4.18	5.98	9.83	5.32	5.61
Current	6.03	3.49	6.38	4.47	1.91
Total	10.21	9.47	16.21	9.79	7.52
Balance (Rs. in lakhs)					
Arrear	7.56	9.51	11.36	11.42	18.40
Current	7.93	11.68	9.10	12.59	15.51
Total	15.49	21.19	20.46	24.01	33.91
Collection Performance (Percentage)					
Arrear	35.60	38.61	46.39	31.78	0.00
Current	43.19	23.01	41.21	26.20	10.96
Total	39.73	30.89	44.21	28.96	18.15

Source: Palacode Town Panchayat; 2007

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.

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 (quinquinennial revision).

The property tax collection has reduced from Rs. 10.21 lakhs in FY 2001-02 to Rs. 7.52 lakhs in FY 2005-06. This significant decrease in property tax collection impacts the revenue surplus of the ULB over the assessment period. As a whole, the property tax component has registered a negative trend during the assessment period.

[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.

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 4 percent per annum. Average property tax per property works out to Rs. 240 while average ARV of the property works out to Rs. 2338 during the assessment period. About 17 percent of the total assessments are commercial properties.

Similar growth trends are also observed in current property tax demand, which has increased from Rs. 13.96 lakhs in FY 2001-02 to Rs. 17.42 lakhs in FY 2005-06. During the same assessment period, the arrear demand has also increased from Rs. 11.74 lakhs in FY 2001-02 to Rs. 16.74 lakhs in FY 2004-05. On average, about 55 percent of the total demand constitutes the arrears. The collection performance shows fluctuating trend during the assessment period. The overall collection performance was about 39 percent during FY 2001-02, which has decreased to 28 percent during FY 2004-05. Similarly, collection performance of current tax has also decreased from 43 percent (in FY 2001-02) to 26 percent (in FY 2004-05) and that of the arrear collection has improved from 35 percent to 46 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 3.5 percent of the total tax revenue. The other taxes contributed about 8 percent of the total own sources on average during the assessment period.

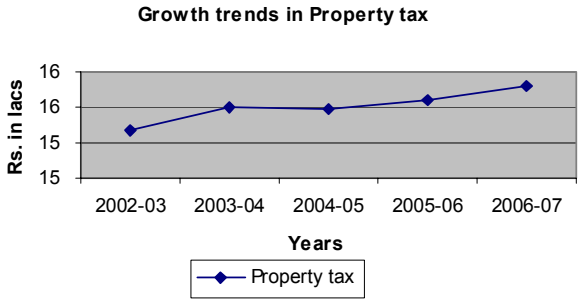
Assigned Revenues: Assigned revenues include revenues transferred to the ULB by the GoTN under specific acts. This source of revenue income comprises duty on transfer of properties, entertainment tax / public resort and other assigned revenues. Income through assigned revenue contributes to about 4 to 13 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 in the table above. As a whole, the assigned revenue has shown inconsistent growth rate during the assessment period.

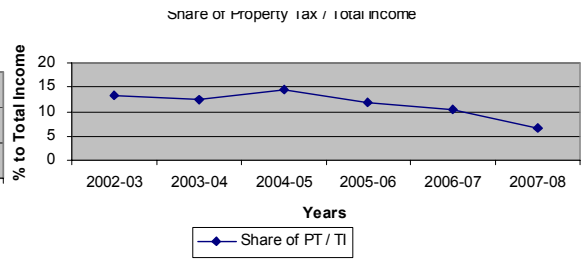
Devolution: Based on the Second State Finance Commission recommendations, GoTN transfers 8% of its state revenue to the local governments. It is the one of the single largest source of revenue to the ULB, it accounts to 23% of total revenue over the assessment period.

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 40 percent on average, about Rs. 40 lakhs per annum on average during the assessment period.

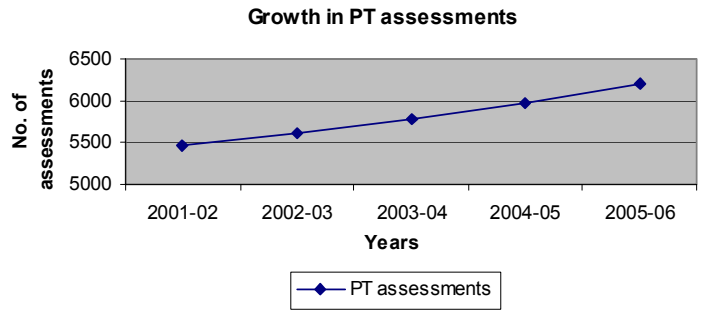
GROWTH PATTERN OF REVENUE INCOME:

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 consistently around 12-15% over the last five years which is indicated in the graph below. 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.

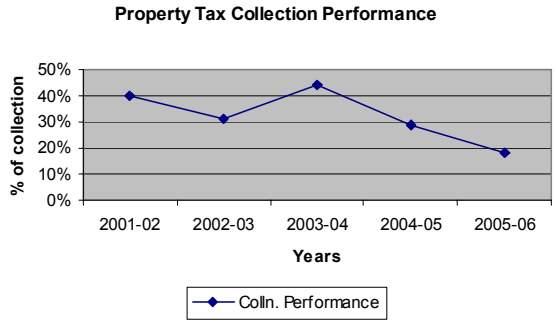


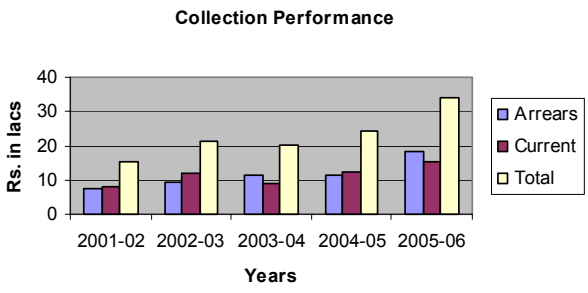


The graphical representation indicates that growth in the number of assessments is definitely higher than the property tax collections. The graph shown below indicates that the collection performance has been lacking and is even lesser than 50%. Speeding up of collections could possibly increase the income from properties. If we look at the growth in no. of assessments as shown in graph it is increasing gradually. Therefore, it is inferred that the local body has to take steps in identifying under assessed and un-assessed properties.



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 graphs we can see that the share is fluctuating inspite of increase in PT assessments. 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:

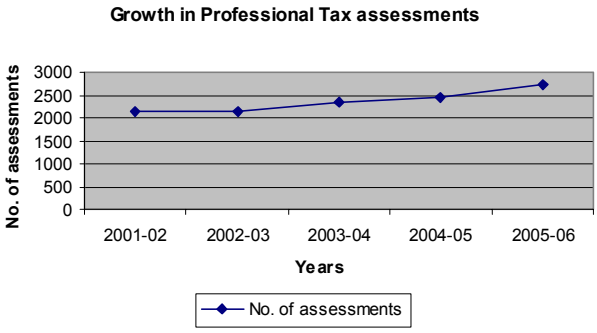




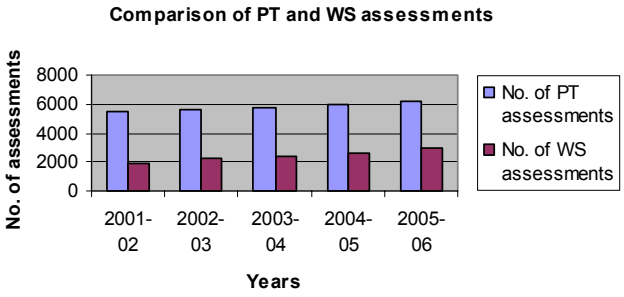
Professional Tax:

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 3.33%, which is less in composition compared to other heads of income. The no. of assessments has been more or less at the same level over the last five years.

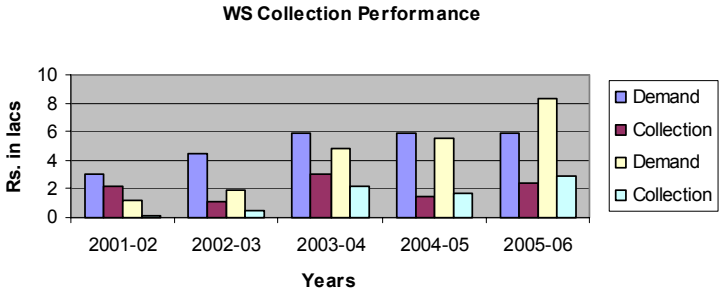
Water Charges:



Income from water is normally said to be a major source of income. But in case of Palacode TP, income from water charges forms just 3.29% 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. On an average, only 18% of property tax assessments have got connected to water system. The graphical representation of total no. of assesses is as follows-



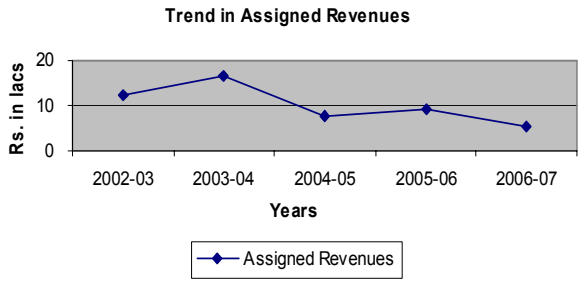
From the graph below, it can be seen that as against the demand raised for water charges, collection has been around 42%, which has lot of scope for increase. So, the conclusion is that there is a need to increase water supply connections. As part of the CIP, the consultants have proposed certain measures to augment water sources and also to construct the collection system for water supply in the town.

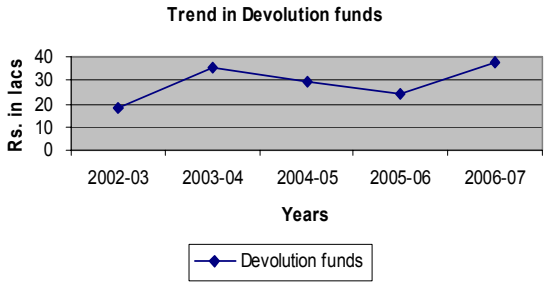


The other main source of own income for this town is from the head 'other income'. However the main income under this head is rent from shopping complex, which forms roughly 73% of other income. However maintenance of the shopping complex for sustainable income, and revenue generation by creating more complexes like this could be explored. Other than this, the next major income under this head comes from market fees. As reported, there is no major income apart from these two components. The ULB should try to exploit the potential of markets and create more such avenues for raising resources, which also results in infrastructure development. There is a need for augmenting own sources of revenues.

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 8% of the total income. The revenues under this head seem to be fluctuating. There is no specific trend in this case. The growth in no. of PT assessments is proportional to the assigned revenues. The figure below gives the trend-





Devolutions:

The income from devolution funds is fluctuating. The devolution forms an average of 21% approx. of the total income of the TP. The trend increase in devolution funds is given in adjacent graph.

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 40 to 60 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 operating expenses, which accounts for about 25 percent of the revenue expenditure on average.

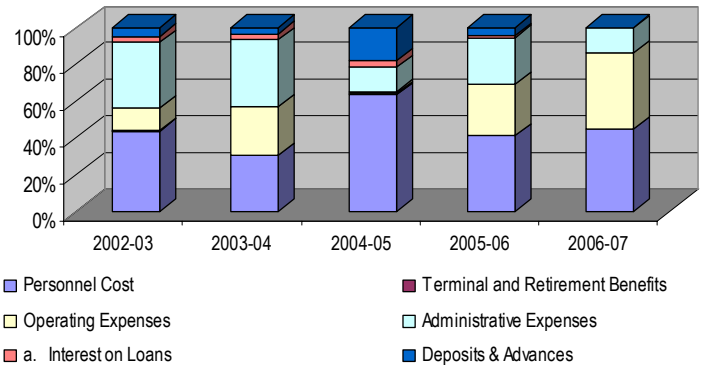
During the assessment period, revenue expenditure has indicated an average growth of about 15 percent per annum while the corresponding growth in revenue income was 8 percent, indicating a mismatch. A sector-wise break up of costs is shown graphically.

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	30.34	28.15	29.46	29.37	34.70	34.98
2	Terminal and Retirement Benefits	0.18	0.13	0.18	0.18	0.13	20.00
3	Operating Expenses	8.49	24.32	0.61	19.97	32.23	18.80
4	Administrative Expenses	25.01	33.87	6.20	18.20	10.76	28.45
5	Finance Expenses						
	a. Interest on Loans	2.25	2.88	1.58	0.92	0.00	1.00
SECTORAL CONTRIBUTION TO TOTAL EXPENDITURE							
1	Personnel Cost	39.70	27.74	61.76	36.15	39.09	11.45
2	Terminal and Retirement Benefits	0.24	0.12	0.39	0.22	0.15	6.55
3	Operating Expenses	11.11	23.96	1.28	24.57	36.31	6.15
4	Administrative Expenses	32.73	33.37	13.00	22.40	12.12	9.31
5	Finance Expenses						
	a. Interest on Loans	2.94	2.84	3.32	1.13	0.00	0.33
GROWTH TRENDS IN %							
1	Personnel Cost	--	(7.20)	4.66	(0.32)	18.15	0.81
2	Terminal and Retirement Benefits	--	(32.14)	47.37	(3.57)	(25.31)	14926.30
3	Operating Expenses	--	186.46	(97.50)	3177.51	61.41	(41.66)
4	Administrative Expenses	--	35.41	(81.69)	193.40	(40.88)	164.45
5	Finance Expenses						
	a. Interest on Loans	--	28.06	(45.08)	(42.12)	(100.00)	--

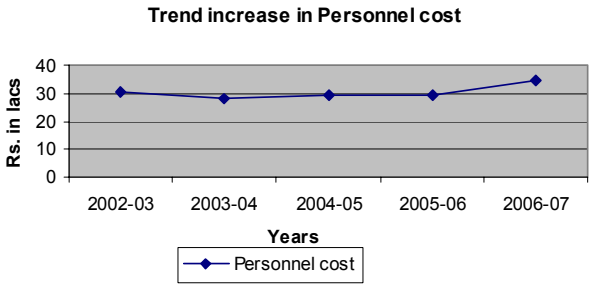
Source: Palacode Town Panchayat; 2007

Share of Revenue Expenditure



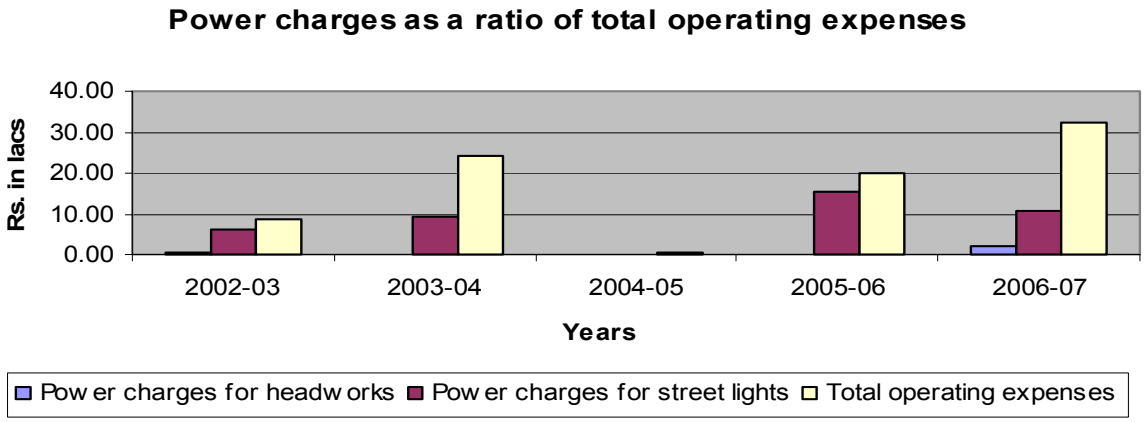
Personnel cost & terminal benefits to employees:

This include salaries and other related payments to employees. The expense has been more or less steadily increasing, and is the maximum in the year 2006-07. The personnel cost has been gradually increasing and sounds alarming. 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. The growth trend of personnel expenses is as follows-

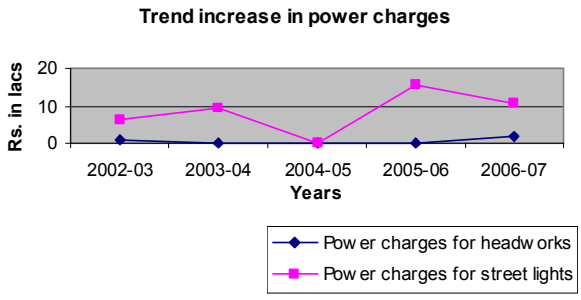


Operating Expenses:

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 55% of the total expenditure under this head. This excludes power charges pertaining to sewerage system and includes only water works. Power charges towards street lighting consume 33% of the operating expenses and that of head works consume around 14%. There is a need for reduction in expenses. The composition of power charges as part of the total operating expenses is represented as follows-



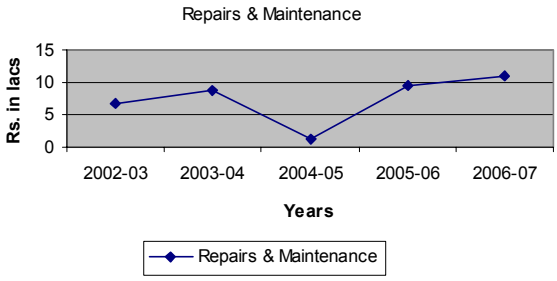
From the numbers and the graph, it is seen that power charges consumes the majority portion. The account books do not provide any numbers during the year 2004-05. This is a bad trend because, as mentioned earlier, the revenues generated from water supply are very less as against which the expenditure is alarmingly high. The TP may conduct a separate study to analyze the defects in the water supply system. There is also a need to find out the age of pumps need to be checked for replacement. There could also be energy efficient pumps, which the TP could seek for.



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. It is to be noted that the ULB has been incurring expenses only with respect to light vehicles maintenance and there has not been any huge maintenance expenses. However, in their budget for the year 2007-08, they have provided for huge expenses with respect to road maintenance, drainage and culverts maintenance. However this could be a wrong accounting as huge expenses which are of capital nature cannot be accounted in the revenue expenses.



Administrative expenses:

As far as Palacode TP is concerned, Administrative expenses constitute roughly 20% 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 outstanding liabilities of Rs. 21.56 lakhs as on March 31, 2006. Considering the current property tax demand (FY 2007-08) of Rs. 41 lakhs, the ULB can leverage debt to finance its projects to an extent of Rs. 80 - 120 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. However, based on the revenue receipts and revenue expenditure during the assessment period, the ULB would be in a position to draw loans[6] to an extent of about Rs. 33 lakhs 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.

Table 11.5: Break-up of Capital Receipts/Income

Head	2002-03	2003-04	2004-05	2005-06
Grants in aid from State Government				
M.P.L.A.P	0.00	5.00	0.00	0.00
M.L.A.L.A.P.	2.25	0.00	0.00	0.00
Flood Relief	0.00	0.00	5.00	2.60
Drought Relief	0.00	2.70	5.50	1.00
Road improvement	0.00	0.00	25.00	0.00
Others	3.97	2.62	45.68	50.00
Total Grants from State Govt. (A).	**6.22**	**10.32**	**81.18**	**53.60**
Grants from Central Government				
National Slum Development Programme	2.70	1.00	0.00	0.00
Total Grants from Central Govt. (B)	**2.70**	**1.00**	**0.00**	**0.00**
Total Capital Income (A+B+C)	**8.92**	**11.32**	**81.18**	**53.60**

Source: Palacode Town Panchayat; 2007

It is noteworthy that the ULB has received capital grants of Rs. 53 lakhs during the FY 2005-

[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.

06 through the various grants from GoTN. 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 foot paths development projects during the assessment period. The ULB has spent about Rs. 73 lakhs during the FY 2005-06.

Table11.6: Break-up of Capital Expenditure

Particulars	2002-03	2003-04	2004-05	2005-06
Roads	4.65	7.07	12.34	25.00
Culverts	0.00	0.00	0.00	0.70
Storm Water Drains	0.00	0.00	0.00	5.00
Solid Waste Management	0.00	0.00	0.00	5.00
Community Hall	0.00	0.00	0.00	0.50
Market Improvement	0.00	0.00	48.00	0.00
Others	14.83	23.67	8.37	37.68
Total Capital Expenditure	**19.48**	**30.74**	**68.71**	**73.88**

Source: Palacode Town Panchayat; 2007

11.3 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 11.7: Performance of Key Financial Indicators in Palacode 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)	48.91	72.78	131.26	182.34	243.08	195.54
2	Operating Ratio (Rev. Expen./Rev. Inc.)	0.66	0.81	0.45	0.61	0.59	1.18
3	Debt Servicing - % of Income	1.96	2.30	1.49	0.69	0.00	0.39

Source: Palacode Town Panchayat; 2007

Performance of Palacode Town Panchayat

	Minimum	Maximum	Average	Desirable Benchmark
Existing (2000-01 to 2005-06)				
OR (Ratio)	0.45	1.05	0.70	Less than 1.00
DSR (%)	0.00	2.30	1.07	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 enclosed in Table 12.1:

Table 12.1: Basic Assumptions for the FOP

No.	Particulars	Assumption for Forecast
A.	**REVENUE INCOME**	
1.	**Taxes**	
	Property Tax	
	- ARV Revision	30% during FY 2008-09 and FY 2013-14
	- Growth in Assessments	Ceiling 7% Gradually stabilize at 4-5%
	- Collection Performance	Arrear demand - 75% Current demand - 85%
	Other Taxes	5% annual growth
2.	**Water Supply**	
	Water Tariff Revision	30% 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 - 65% Current demand - 75%
3.	**Sewerage**	
	Sewer Charges Revision	30% 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
	Collection Performance	Arrear demand - 70% Current demand - 75%
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	Community Toilets		40.00	This can be executed with the help of NGOs and SHGs on a revenue model. The model used under TNUDP II for developing ISPs across the State can be followed. Alternatively, privatize construction and maintenance, who will collect fee for paying him towards his annuity. Any gap funding required other than tolls can be funded by the ULB, which is possible with the present set of finance. This practice is being tried by Chennai Corporation.
2	Roads	Strengthening existing roads, upgradation of roads, formation of new roads, widening of roads	874.67	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 JnNURM does not support individual projects, but takes an integrated approach. Alternatively, the ULB can prioritize the roads and take up minimum roads to meet the expenditure by

S.NO.	PROJECTS	DESCRIPTION	AMOUNT	REMARKS
				themselves and pose the balance major portion to the Government announcements
3	Storm water drains	Provision of Storm water along existing roads, Formation of new drains	1240.53	Same as above
4	Street Lighting		192.44	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 Palacode TP, through the advice of CTP
5	Solid Waste Management	Primary, Secondary collection, transportation and disposal	528.20	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 Palacode TP shall follow the same principle, so that there is a better efficiency in service, and does 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, Palacode TP, which is located in the vicinity of Dharmapuri district HQ, can always be one among the cluster, and the project could be implemented through this mechanism.
6	Other Development Proposals	Proposed Community Centers / marriage halls	84.83	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. Alternatively, the ULB shall construct, and allow on rental basis and fix rentals such that it covers the annuity for the community and marriage halls. The rentals should be fixed upfront.
7		Improvement of weekly and daily market	294.00	There are two ways of doing this project – i.) 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 touching the balance sheet.
8		Construction of office complex in first floor of existing bank building	18.75	This can be done in a PPP mode by allowing BOT operator to invest, construct, operate and transfer. In this process, Palacode TP can also expect rental income on a monthly / annual basis from the BOT operator. This will be a source to augment revenues

S.NO.	PROJECTS	DESCRIPTION	AMOUNT	REMARKS
9		Improvement of tomato market with cold storage facility	510.89	This can also be executed in similar lines mentioned above, so that it is neither an initial investment nor a maintenance cost to the ULB
10		Construction of additional shops in bus stand	37.50	Additional shops can be developed by the ULB and designs shown to the potential bidders. However, with the help of upfront rentals collected from the bidders, the ULB can start construction. This will help in going in for further loans.

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 FOPs are worked out under each cases. The results of the FOP under the abovementioned cases are given in Annexure– 10, 11, 12 and 13.

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	817.17
Investment Capacity	0.00	0.00	0.00	0.00	1257.18

From the above table it is found that ULB does not have a sufficient 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 4.1 within a period of 2 years and then go in for further capital investments.

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.

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, 40% of the proposed investment is funded through grant support from GoI and GoTN under various schemes, and remaining 60% 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. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

Table 12.3: 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	502.87
Annuities	0.00	0.00	0.00	0.00	61.47
Cumulative annuities		0.00	0.00	0.00	0.00
Total annuities for the year	0.00	0.00	0.00	0.00	61.47

Table 12.4: Summary of Sustainable Scenario (Under Case 1)

(Rs. In lakhs)

Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	211.79	183.15	150.25	110.24	68.29
Revenue Receipts	309.99	339.21	368.93	407.50	650.49
Revenue Expenditure	337.56	371.03	407.86	448.38	497.98
Operating Ratio	1.09	1.09	1.11	1.10	0.77
Debt Servicing Ratio	0.01	0.01	0.01	0.01	0.02
Operating Deficit/Revenue Grant Requirement	27.57	31.82	38.93	40.88	0.00
Closing Balance	183.15	150.25	110.24	68.29	(161.54)
Capital Grants	0.00	0.00	0.00	0.00	377.15
ULB Contribution - Transfers from Revenue Surplus	0.00	0.00	0.00	0.00	377.15
Loans / Borrowings of ULB	0.00	0.00	0.00	0.00	502.87

It can be observed that there is an operational deficit in all the FY during the short-term period and a marginal surplus is available in all the years, in spite of the huge investments made. This is also due to income assumptions made on certain projects like Water Supply where user charges are collected. However, based on assumptions, the capital components of the assumed investments are the loans and the own contributions 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. It is seen from the results that the ULB generates a surplus even after meeting the ULB contribution. However the figures given above are indicative as these are based on certain assumptions. The actual working / financial structuring can be done only when the project takes off.

Short Term (Upto 2012-13)	Maximum	Minimum
Borrowing Capacity (Rs. in lakhs)	817.17	0.00
Investment Capacity (Rs. in lakhs)	1257.18	0.00
Long-Term (Upto 2027-28)	**Maximum**	**Minimum**
Borrowing Capacity (Rs. in lakhs)	3857.99	0.00
Investment Capacity (Rs. in lakhs)	5935.37	0.00

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. Long-term projects like improvement of water bodies and PWD owned channels which are implemented by other departments are not considered for FOP iteration. Sector wise capital investments considered are given in the following table.

Table 12.5: 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	1,268.55	22.81
2	Sanitation & Interceptor Drain	161.10	2.90
3	Roads, Traffic and Transportation	874.67	15.73
4	Storm Water Drains	727.10	13.07
5	Street Lighting	192.44	3.46
6	Solid Waste Management	554.42	9.97
7	Environment Improvement	31.14	0.56
8	Other Development Proposals	1,265.38	22.75
9	Slum Upgrading	345.24	6.21
10	Urban Governance	142.07	2.55
	Total Capital Investment	**5,562.10**	**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 12.6: 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 12.7: 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%

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)	0.45	1.18	0.72
DSR (%)	0.00	2.30	1.14
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.76	1.11	1.03
DSR (%)	0.96	97.02	54.10
Category			**3**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.75	1.11	0.88
DSR (%)	0.04	97.02	33.99
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.5,562.10 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit of Rs. 956.41 Lakhs by the year 2012-13 (Short term Period). In Long-term period ULB still in a deficit position of Rs.1369.12 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. 3212.55 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. 2224.84 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.124.71 Lakhs during this period. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

Table 12.8: 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	211.79	183.15	29.53	(285.54)	(720.18)
Revenue Receipts	309.99	339.21	368.93	407.50	650.49
Revenue Expenditure	337.56	371.03	407.86	448.38	492.96
Operating Ratio	1.09	1.09	1.11	1.10	0.76
Debt Servicing Ratio	0.96	36.43	75.31	97.02	60.76
Operating Deficit/Revenue Grant Requirement	27.57	31.82	38.93	40.88	0.00
Closing Balance	183.15	29.53	(285.54)	(720.18)	(956.41)
Capital Grant – GoI	0.00	329.19	420.91	320.74	28.86
Capital Grant – GoTN	0.00	329.19	420.91	320.74	28.86
ULB Contribution - Transfers from Revenue Surplus	0.00	0.00	0.00	0.00	86.59
ULB Contribution - Loan/Borrowings	0.00	987.58	1262.74	962.23	0.00

It can be observed that there is an operational deficit in all the FYs during the short-term period, and a deficit in a closing balance in FY2010-11 to FY2012-13, 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. 3215.55 lakhs) and the own contributions (Rs. 124.71 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 improvement of water bodies and PWD owned channels etc are not considered. Sector wise capital investments considered are given in the following table.

Table 12.9: 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	1,268.55	14.90
2	Underground Sewerage Scheme	3,110.06	36.54
3	Roads, Traffic and Transportation	874.67	10.28
4	Storm Water Drains	727.10	8.54
5	Street Lighting	192.44	2.26
6	Solid Waste Management	554.42	6.51
7	Environment Improvement	31.14	0.37
8	Other Development Proposals	1,265.38	14.87
9	Slum Upgrading	345.24	4.06
10	Urban Governance	142.07	1.67
	Total Capital Investment	**8,511.06**	**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. Recent trends on O&M have been adopted for making these assumptions.

Table 12.10: 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%**

Table12.11: 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%

Table 12.12: 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%	10.69	8.40	6.10	0.18	0.00
Underground Sewerage Scheme	2%	0.81	0.52	1.72	0.18	0.00
Roads, Traffic and Transportation	1.50%	3.17	4.04	5.92	0.00	0.00
Storm Water Drains	1.50%	3.27	4.23	1.23	1.23	0.95
Street Lighting	1%	1.66	0.21	0.06	0.00	0.00
Solid Waste Management	2%	0.01	4.48	6.42	0.18	0.00
Environment Improvement	2%	0.14	0.37	0.11	0.00	0.00
Other Development Proposals	1%	3.81	6.68	2.16	0.00	0.00
Slum Upgrading	2%	1.04	2.81	3.05	0.00	0.00
Urban Governance	1%	0.36	0.36	0.36	0.36	0.00
Total		**24.95**	**32.10**	**27.12**	**2.12**	**0.95**
Cumulative O&M		**24.95**	**57.04**	**84.16**	**86.28**	**87.23**

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 3)

Existing (2002-03 to 2007-08)	Minimum	Maximum	Average
OR (Ratio)	0.45	1.18	0.72
DSR (%)	0.00	2.30	1.14
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.68	1.11	1.01
DSR (%)	0.96	126.64	69.81
Category			**3**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.63	1.11	0.83
DSR (%)	0.03	126.64	42.97
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.8511.06 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit of Rs. 1280.06 Lakhs by the year 2012-13 (Short term Period). In Long-term period ULB still in a deficit of Rs.1539.03 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. 4488.85 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. 3404.42 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.267.92 Lakhs during this period. Public contribution in the form of deposits collected for UGS to the tune of Rs. 349.86 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 12.13: 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	211.79	183.15	(11.42)	(405.85)	(961.17)
Revenue Receipts	309.99	339.21	368.93	407.50	723.84
Revenue Expenditure	337.56	371.03	407.86	448.38	492.96
Operating Ratio	1.09	1.09	1.11	1.10	0.68
Debt Servicing Ratio	0.96	48.50	96.82	126.64	76.16
Operating Deficit/Revenue Grant Requirement	27.57	31.82	38.93	40.88	0.00
Closing Balance	183.15	(11.42)	(405.85)	(961.17)	(1280.06)
Capital Grant - GoI	0.00	473.25	583.98	459.35	172.92
Capital Grant - GoTN	0.00	473.25	583.98	459.35	172.92
ULB Contribution - Transfers from Revenue Surplus	0.00	0.00	0.00	0.00	229.80
ULB Contribution - Loan/Borrowings	0.00	1322.57	1577.00	1300.31	288.97
Public Contribution – UGS Deposits	0.00	97.18	174.93	77.75	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 in FY2009-10 to FY2012-13, 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. 4488.85 lakhs) and the own contributions (Rs. 267.92 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 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	0.00
Investment Capacity	0.00	0.00	0.00	0.00	0.00

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. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

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	0.00
Annuities	0.00	0.00	0.00	0.00	0.00
Cumulative annuities	0.00	0.00	0.00	0.00	0.00
Total annuities for the year	0.00	0.00	0.00	0.00	0.00

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)	817.17	0.00
Investment Capacity (Rs. in lakhs)	1257.18	0.00
Long-Term (Upto 2027-28)	**Maximum**	**Minimum**
Borrowing Capacity (Rs. in lakhs)	3857.99	0.00
Investment Capacity (Rs. in lakhs)	5935.37	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.

Recommendations on Capital Investment Plan

- It is recommended that the ULB plan for utilizing capital investment within their Investment Capacity (i.e. Rs. 1257.18 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. 3,441.23 lakhs. Under this scheme ULB need to borrow a loan amount of Rs. 1,548.55 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 and help, guide policymaking of 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 as:

"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 - 14.

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

Municipal 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 (AMPs) following infrastructure and land assets are identified in the Palacode Town Panchayat:

Infrastructure Assets covers 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 Palacode Town Panchayat is given in the following section.

Water Supply:

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 list of water supply and other assets that exists in the town:

Type of Assets	Quantity (Nos.)	Remarks
Local Bore well source – backside of BDO office	1	5 hp pump & 0.6 LL capacity OHT
Local Bore well source @ Anna Nagar	1	5 hp pump & 0.1 LL capacity OHT
Local Bore well source along Hosur road	1	5 hp pump & 0.14 LL capacity OHT
Thennpannai Head Works		
Infiltration wells	3	12 m dia. & 7 m depth
Pumps at Head Works	6	7.5 hp
Pumping main	A.C Pipe – 300 mm diameter	35 km
Break pressure tank	1	0.6 LL
GLR	10	0.2 LL each
Over Head Tank	3	2.00 LL to 0.30 LL
Bore Well with pump sets	36	1.25 hp pump with mini tank of 0.1 LL
Distribution System	PVC Pipe – 3" diameter	36 km
Hand pumps	70	-
Public Fountains	96	-
House Service Connections	1447	-

Sanitation:

Type of Assets	Quantity (Nos.)	Remarks
Pay & Use Toilets	1	10 seats each
Public Conveniences	4	6 seats each

Roads:

Sl. No.	Road Typology	Length (in km)
1.	Surfaced Roads	
	- Cement Concrete	10.130
	- Blacktop/Asphalted	4.023
	- WBM	0.625
	Total (Surfaced Roads)	***14.778***
2.	Non-Surfaced Roads	
	- Earthen	4.485
	Total (Non-Surfaced Roads)	*4.485*
	Total (Municipal Roads)	**19.263**

Storm Water Drains:

Sl. No.	Description	Length (km)
1.	Open Drains (Pucca)	14.09
2.	Open Drains (Kutcha)	24.48
	Total	***38.52***

Solid Waste Management:

SL. NO.	DESCRIPTION	QUANTITY (NOS.)
1.	Mini Lorry	1
2.	Tractor	1
3.	Trolley	30

Street Lights:

SL.No.	Type of Fixtures	No.
1.	Fluorescent (Tube Lights)	571
2.	Sodium Vapor Lamps	107
3.	High mast light	1
	Total	**679**

Land Assets includes both productive and un-productive assets. Productive assets include land under commercial uses such as market, shopping complex, marriage hall, community hall, lodges, hotels, cinema halls, bus stand, cycle stand, parking areas and other uses which gain considerable revenue to the local body daily, monthly or yearly. These assets can be rented or leased for a considerable period of time. 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.

Table 13.1: Land Asset Details Palacode Town Panchayat

Sl.No.	Survey No.	Location (Ward wise)	Owner	Present status of the land	Extent (area in sq.m)	Rate per sq.m. Rs.	Total value Rs.
1	924-1	7	ULB	Tomato Market	12657.80	604.50	7651640.10
2	920-2, 920-3	7	ULB	Encroachment	4102.53	604.50	2479979.30
3	903-1A	5	ULB	Bus stand	950.59	919.75	874305.15
4	903-1B	5	ULB	Bus stand	1350.83	919.75	1242425.80
5	906-1A,1B,293	5	ULB	Bus stand	4452.74	919.75	4095407.60

Sl.No.	Survey No.	Location (Ward wise)	Owner	Present status of the land	Extent (area in sq.m)	Rate per sq.m. Rs.	Total value Rs.
6	956-1B2	14	Natham	Sweepers quarters	7004.31	331.50	2321928.70
7	985-1	15	Natham	Sengeliamman Kovil	1500.93	334.75	502436.31
8	996-1A2	18	ULB	Town Panchayat office	1050.64	1485.25	1560463.00

Table 13.2: Building Asset Details Palacode Town Panchayat

Sl. No.	Location	Value at the time of construction (Rs.)	Year of construction	Depreciation year	Net value (Rs.)
1	Office Building	12,19,500	1983	24	4,60,134
2	Gandhi statue	75,500	1983	24	28,486
3	Ashoka Pillar	35,000	2001	6	33,250
4	Bus stand Back	6,37,673	1990	17	3,44,534
5	Bus stand Shops	8,63,665	1990	17	4,66,638
6	Bus stand Hotel	2,34,192	1979	28	71,967
7	Old Bus stand	1,29,314	1978	28	39,738
8	Toilet Bus stand	72,775	1979	28	22,364
9	Bus stand flower shops	77,199	1995	12	53,908
10	W.M. compound	2,37,000	2000	7	2,13,892
11	Burial ground compound	2,05,000	2000	7	1,85,012
12	Old Bus stand weighting shed	2,26,792	1979	28	69,693
13	Toilet at Mandiri gounder st.	1,14,800	1980	27	37,137
14	O.H.T. compound wall	89,900	1986	21	19,292
15	O.H.T. Pump Room	16,400	1989	18	8,418

* Net Value is estimated at a depreciation rate of 5% per year based on the original construction cost.

13.4 CRITICAL REVIEW OF LAND ASSETS

Strategic use of assets can greatly enhance the ability of a local government to provide better services and engage the participation of residents to achieve the goal of a shared vision. Land based fixed assets are particularly important for the delivery of economic, social and environmental services that people are willing to pay, either through systems of taxation, or special user fees. Some of the productive land assets in the town panchayat have been taken for critical review and the findings of the same are given in the following table.

Table 13.3: Review of Remunerative Asset of Palacode Town Panchayat

Assets	No.	Current Annual Revenue (Rs.)	Land Area In Sq. ft	Land Value (Rs.)	Building Cost* (Rs.)	Total Asset value (Rs.) (5+6)	Interest Rate @ 8% of (7) (Rs.)	Remarks (comparison of 1 & 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Weekly Market	150	3,05,000	47,928	4,095,408	0	4,095,408	327,633	Requires Improvement
Daily Market / Tomato Market	200	1,903,000	136,238	7,651,640	13,623,800	21,275,440	1,702,035	Good
Shopping Complex near Sub-register Office	15	350,000	1,614	138,003	807,000	945,003	75,600	Good
Bus stand								
Bus stand fee	1	400,000						
Revenue from shops in Bus Stand	37	1,115,555	24,756	2,116,730	827,050	4,095,408	327,633	Good
Total		1,515,555						

* Building cost is estimated at a depreciation value of 5% per year based on the original construction cost.

It is clear from the above table that existing fixed assets in the town need to be utilized in a better manner to fetch more revenue to the local body. Alternate revenue mobilizing mechanism needs to be identified in consultation with the stakeholders. Following priority actions are suggested for the revenue enhancement of the local body in consultation with the stakeholders.

13.5 PLAN FOR LAND ASSET MANAGEMENT

The vision statement formulated as part of CCP reveals that the stakeholders envisage Palacode town to become a Commercial center. To achieve this vision, investments need to be routed at appropriate projects. As the vision statement is not directly linked to a specific project concerted efforts are to be made to achieve the vision. City Corporate Plan is one such platform to identify projects for development and later get then implemented under PPP, BOT and BOOT mode. The Corporate Plan looks at the local body as a resource center rather than only service provider and tries to emulate projects that are feasible to attract private investments.

The following are the list of projects that are considered under the Corporate Plan for the optimum utilization of land assets of the local body which in turn enhance the town as a tourist town while keeping in mind achieving the quality of life of the people in the town.

- Construction of Community Hall/Marriage hall at vacant land near tomato market
- Improvement of Daily market with better infrastructure facilities in G+1 floor at present site.
- Improvement of Weekly market with basic facilities.
- Construction of additional shops in bus stand.
- Improvement of tomato market with cold storage facility, lodging facility, parking facility etc.
- Construction of office complex in first floor of existing bank building

The aforementioned projects are identified by the study team based on the consultation with the stakeholders and are proposed after had the reconnaissance survey of the project sites. The identified projects are as basic services and specialized service for the improvement of the quality of life of the people of Palacode town. The details of the above said projects are presented in the subsequent sections of this report.

13.6 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 town panchayat has been performed through wide range of stakeholder’s consultation 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

13.6.1 CURRENT O&M EXPENDITURE

Table 13.4: O&M Details of Palacode Town Panchayat

A	Operation and Maintenance	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
1	General Administration						
i	Office Management	324.00	176.00	281.00	396.00	324.00	531.00
ii	Others (Contributions)	299.00	154.00	461.00	118.00	190.00	400.00
2	Water Supply						
i	Power Charges	203.00	180.00	201.00	600.00	570.00	100.00
ii	Materials	513.00	365.00	327.00	872.00	1200.00	925.00
iii	Others(P.P.Repairs)	11.00	18.00	173.00	9.00	17.00	64.00
3	Public Health (Sanitation)						
i	Chemicals	64.00	84.00	106.00	116.00	124.00	77.00
ii	Mosquito menace	46.00	48.00	54.00	62.00	67.00	31.00
iii	Others	65.00	81.00	82.00	101.00	114.00	77.00
4	Conservancy						
i	Fuel Charges	200.00	182.00	161.00	266.00	308.00	265.00
ii	Others	204.00	150.00	140.00	160.00	200.00	461.00
5	Roads						
i	Materials / labour	224.00	-	-	312.00	282.00	260.00
ii	Others	216.00	83.00	91.00	29.00	34.00	26.00
6	Storm water Drains						
i	Materials / labour	247.00	51.00	-	28.00	12.00	-
Ii	Others	134.00	80.00	-	50.00	63.00	32.00
7	Street Lighting						
i	Materials	69.00	68.00	92.00	87.00	96.00	61.00
ii	Electricity Charges	99.00	192.00	414.00	343.00	391.00	187.00
iii	Others						
8	Discretionary services						
i	Park and play Grounds	1.00	-	-	-	-	-
ii	Library & Reading Room	-	-	-	-	-	-
iii	Markets / Bus Stand	124.00	-	-	-	-	-
iv	Building and Properties	-	-	-	-	-	-
9	Others	429.00	-	-	-	-	-
	Total	**3043.00**	**1912.00**	**2583.00**	**3549.00**	**3992.00**	**3497.00**

13.6.2 OPERATIONAL & MAINTENANCE PLANNING

Town Panchayat has to monitor the condition and performance of assets, and investigate 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
- Analysing 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.

Operate assets in accordance with current operating procedures:

- Inspect assets on at least a monthly basis
- Provide appropriate supervision for installation of connections and other similar work.
- Inspect and report on condition when working on the systems.

Minimise 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.

13.6.3 MAINTENANCE STRATEGY

The short-term maintenance strategy 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

- 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

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 sizes identified in Management plans and checked by design and 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.

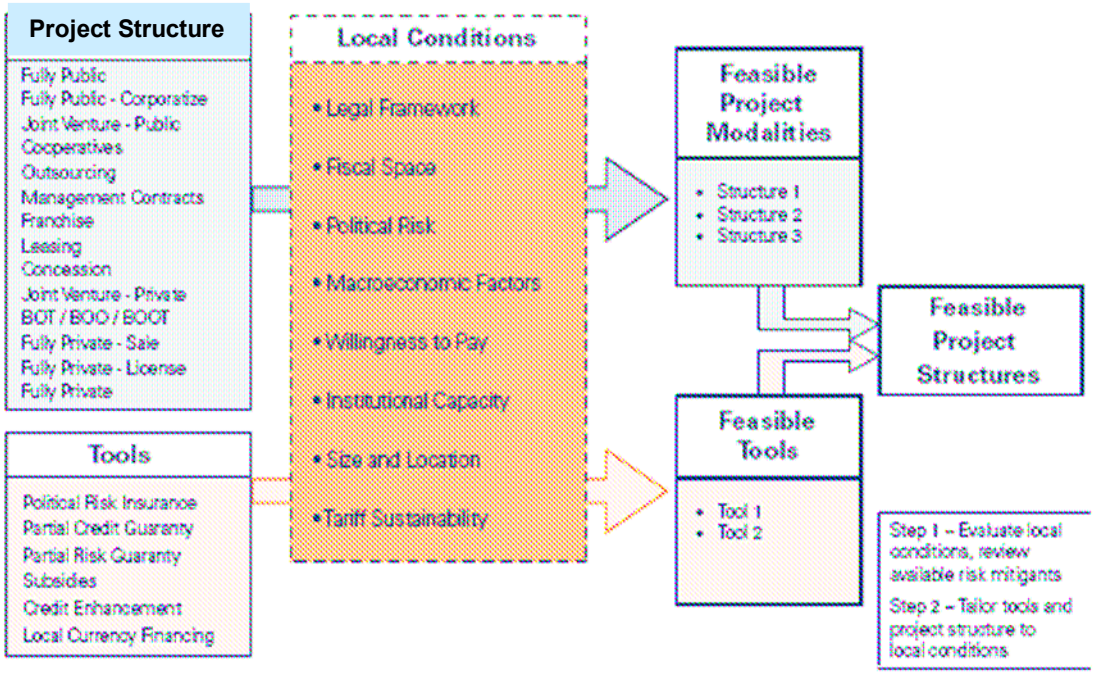
Maintenance work is aimed at ensuring the system functions properly. Many of the maintenance activities are similar and follow comparable methodologies despite occurring in different locations. Other beneficial effects also occur as a result of the maintenance e.g. clearing of refuse and debris from 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 measure 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 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, and conveying mains, erection of pumping stations, treatment plants 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 is 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 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.

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

Palacode is a town with a projected population of 27,000 in 2021. In addition, it is anticipated that another 10,000 will form the floating population component in the town. Re-organisation of institution, improvement and capacity building programs are required to meet the needs of managing Palacode 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 Palacode;

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 and Palacode is no exception. 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 is 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 been thus 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 stakeholder'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 action.

Table 15.1: Suggestive Timeline for the Reform Agenda

Sl.	Particulars/Items	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-2015
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	2014-2015
	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	2014-2015
	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	2014-2015
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 CTP, 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 CTP/ 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 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.

Sl. No.	Name of the Department/ Institution	Responsibilities and Functions
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
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.