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 Commissioner of Municipal Administration (CMA) in strengthening and improving the financial position of its Municipalities 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 CMA has started the process of capacity building in Municipalities through this process to enhance the vision of the ULBs in growth of their towns.

The TNUIFSL has appointed M/s. Community Consulting India Private Limited (CCI) to prepare City Corporate Cum Business Plan (CCBP) for **Sankarankovil Municipality**.

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 is 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 would be 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 would be both a process and a product and the focus would be 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 proposed approach is expected to involve four broad phases.

1. Framing the Process will provide the essential assessment of the readiness of the ULB to take forward this process and would identify stakeholders and come to consensus on how the CCBP preparation process will be managed, agreeing a structured programme

to take forward the process. This phase of the assignment will also draw out initial conclusions as to the chief concerns of the various stakeholders. This phase of the assignment would also provide 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 would include preparing the CCBP for the select ULB based on the template and integrate the findings of the phase with a more in-depth participative analysis of the situation. This will identify 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. This will require the collation and analysis of previous study findings, and may require some particular primary research. This phase will focus on coming to a consensus on the strategic options derived using the CCBP;

3. Strategic Consensus Phase would focus 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 will also provide inputs for refining the outputs of the CCBP if required along with identifying the sources of assistance. This will also address how the local and other national international partners can help the ULB to achieve its goals;

4. Initiating Implementation Phase would involve providing both onsite and back-office support to the ULBs for preparing the CCBP and advising 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 is to prepare consensus-based city corporate plan indicating policies, programmes, strategies and funding mechanisms to meet the development requirements. The corporate plan would be 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 Sankarankovil Municipality 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 Municipal Administration (CMA) 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”.
- This Draft Final Report has been prepared covering all the project tasks in consultation with CMA and Stakeholders were also performed for finalizing the priorities, 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 SANKARANKOVIL

2.1. REGIONAL SETTING

Sankarankovil, a Grade – I Municipal town located on the northern part of Tirunelveli District. Sankarankovil an important pilgrimage town of the South India is located along the state highways connecting Tirunelveli-Rajapalayam.

The town is the Taluk head quarters and is located at a distance of 52 kms north of Tirunelveli, the district head quarters and 45 kms south of Srivilliputhur,19 kms south of Kalugumalai and 14 kms east of Puliyangudi.

Sankarankovil is an agriculture based town in the region. The town is center for the agricultural products such as chilies and groundnuts grown in the region. Cottage industries such as Power loom and Beedi making are also found in the town. During the past years economic driver of the town was Agriculture & allied activities.

Table 2.1 Salient Features of the Town

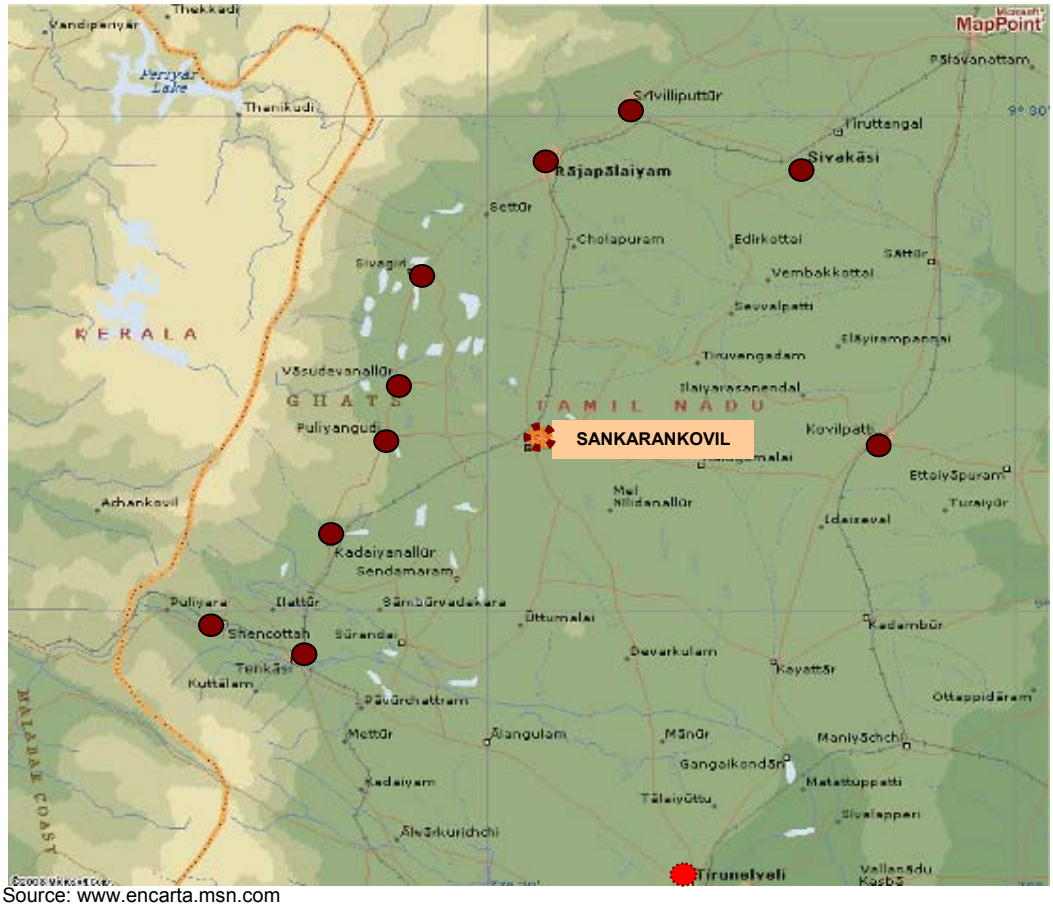
TOWN	**SANKARANKOVIL**
District	Tirunelveli
Area	12.37 sq. km.
Geographic Location	9°10'N 77°35'E; Elevation : 144 m above MSL
Census population	53,613 (year 2001)
Connectivity	**Road:** Frequent bus services connect the town with Tirunelveli, Madurai, Tenkasi, Srivilliputhur and other urban centres in the region. **Rail:** It has a Railway Junction with a Broad Gauge line connecting Madurai, Tenkasi and Punallur.
Climate	Tropical - Max. 33°C, Min. 24°C; Winter- Max. 30°C, Min. 23°C; Annual Precipitation: 800 mm.

Sankarankovil town spread across an area of 12.37 sq.kms and it is divided into 30 wards. Sankarankovil is well connected with Tirunelveli, Srivilliputhur, Puliyangudi, Sengottai, Virudunagar and Kollam towns by road and rail route.

2.2. LOCATION AND LINKAGES

Sankarankovil, a taluk head quarters town is 659 km away from Chennai, the State Capital in the southern direction and it is located at a distance of 52 km on the northern side of Tirunelveli (District Head quarters). Sankarankovil is surrounded by large number of agricultural villages, supporting the growth of the town as the nodal point in the region, besides the location of Arulmigu Sankara Narayanaswamy Temple within the town, attracts large number of pilgrims.

The State highway connecting Triunelveli – Rajapalayam passes through the town enhancing road connectivity of the town. The Major District Roads (MDR), Other District Roads (ODR) and local roads connects the town with the neighboring urban centres like Puliyangudi, Kadayanallur, Kalugumalai, Srivilliputhur, and Rajapalayam. Sankarankovil railway junction is located on the Broad gauge line connecting Madurai - Tenkasi – Punalur (Kerala State). All the trains which run to Kerala via Tenkasi, Madurai pass through the town.



Source: www.encarta.msn.com

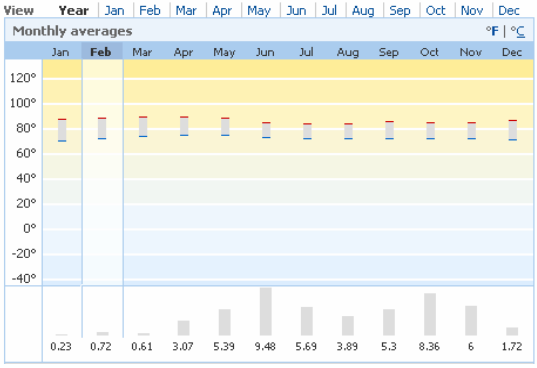
2.3 PHYSICAL CHARACTERISTICS

2.3.1 GEOGRAPHY

Sankarankovil, a temple town is located adjacent to the foothills of the Western Ghats and forms part of Triunelveli District. Sankarankovil lies in the coordinates of 9°10' N 77°21' E and the topography of the town is almost flat with a mild slope from northern to southern part of the town. It has an average elevation of 144 mts (472 ft) above MSL. The town is surrounded by large number of agricultural villages and agricultural lands are found in the

south eastern side of the town. PattaKulam, Thiruneelakandar Orani and Malayan Orani are the major water bodies in the town. These water bodies serve as the major irrigation sources of the town.

2.3.2 CLIMATE



Temperature

Monthly averages			°F | °C
January	Avg Low: 72°	Avg Hi: 90°	Avg Precip: 0.23 in
February	Avg Low: 74°	Avg Hi: 91°	Avg Precip: 0.72 in
March	Avg Low: 76°	Avg Hi: 92°	Avg Precip: 0.61 in
April	Avg Low: 77°	Avg Hi: 92°	Avg Precip: 3.07 in
May	Avg Low: 77°	Avg Hi: 91°	Avg Precip: 5.39 in
June	Avg Low: 75°	Avg Hi: 87°	Avg Precip: 9.48 in
July	Avg Low: 74°	Avg Hi: 86°	Avg Precip: 5.69 in
August	Avg Low: 74°	Avg Hi: 86°	Avg Precip: 3.89 in
September	Avg Low: 74°	Avg Hi: 88°	Avg Precip: 5.3 in
October	Avg Low: 74°	Avg Hi: 87°	Avg Precip: 8.36 in
November	Avg Low: 74°	Avg Hi: 87°	Avg Precip: 6 in
December	Avg Low: 73°	Avg Hi: 89°	Avg Precip: 1.72 in

Precipitation
In inches

T
he prevailing climate of this town is mostly humid and there is no significant variation between maximum and minimum temperatures. The temperature is about 33^0C for most of the months. The temperature is above 30^0C during September. Sankarankovil is benefited from both the North East Monsoon and the South West Monsoon. Sankarankovil receives an annual rainfall of 800mm from both North East and South West monsoon.

2.3.3 SOIL TYPE

Soil condition in the town is primarily black cotton (Karisal). Paddy, Cholam and Sugarcane are grown where tank or well irrigation is available in the town. Cotton, pulses, oilseeds and millets are the other crops that are grown in this region, which do not require much irrigation.

2.4 HISTORY AND GROWTH

History of Sankarankovil dates back to more than 900 years. The town beholds the 900 year old temple of Sankara Narayana Swamy, who is the combined manifestation of 'Hara' and 'Hari'. The place was called Sankara Narayana kovil, which is now commonly referred as Sankarankovil. Like any other temple town, growth of the settlement was around the temple. The bibliography of events relating to the origin of the temple and evolution of the town is explained in the following lines.

- The temple of Gomathi Amman, Sankaranarayanar is situated on 4.5 acre site in the heart of the town. It is one of the Pancha Bootha (five elements) Sthalas in the South Pandya country. With an imposing Rajagopuram, rising to a height of 135 feet with nine tiers, the temple essentially consists of three parts - the shrines of Siva, Gomathi Amman and Sankaranarayanar

- Legends say that Gomathi Amman, the consort of Siva wanted to see Hari and Hara as one and the same Murti. So, Amman went on doing penance on the earth at Pungavanakshetram for 9 days in the month of Adi to have the darsan of Hari and Hara in one form. On one full-moon day Lord Siva gave her darsan as

Sankaranarayana. In commemoration of this date the Adi Tapasu festival is performed every year near Pungavanakshetram.

- It is that Ugra Pandian, the Pandya ruling chief of the locality, used to go to Madura every day on an elephant for worship. One day the elephant on which he rode got into a pit and would not move. When the king was perplexed, a Harijan came running and informed him that a cobra was clinging to a Siva lingam beside an ant-hill in the jungle near-by. The king went to this place and witnessed the sight and afterwards constructed a temple around the Lingam, and this is the beginning of the present shrine of Sankaranarayana swami. During the later half of the 12th century, King Seramanpandian enlarged the temple.

- The general belief is that the Holy Sand "Puttruman" that you get from this temple is capable of curing all the diseases.

- Devotees believe that Sankarankovil's Nagasunai (sacred tank) have been dug by serpent kings named Paduman and Sangam which has a miraculous power to heal those who bathe there.

Thus the town grew around the temple, with more residences around the temple area. The village of Sankarankovil was surveyed in the end of the 19 the century and a village was formed in 1901.

Sankarankovil in recent times is a bustling I grade municipal town located in Tirunelveli District. In spite of the happenings and developments in the town, it has a rich flavor of the ancient heritage and sanity. The important festivals such as the Adi Pusa Thriuvizha, Theppa Thiruvizha attract large number of pilgrims and define the character of the town.

2.5 AREA AND POPULATION

The ULB is spread over an extent of 12.37 sq. km. and has 2001 census population of 53,613 persons and number of households. Of the total population in the town, are 26,884 (50.15% of the total population) males and are 26,772 (49.84% of the total population) females.

Table 2.2: Population and Growth Trend in Sankarankovil

Year	Population		Growth rate in %	
	Total population	Variation	Decadal	Annual
1951	21,904	--	--	--
1961	24,088	2,184	9.97	1.00
1971	32,994	8,906	36.97	3.70
1981	42,084	9,090	27.55	2.76
1991	48,846	6,655	15.81	1.58
2001	53,606	4,867	9.99	1.00

Source: Census of India 1961, 71, 81, 91 and 2001

Past census date of the ULB has been obtained from census of India and the ULB's Master Plan and population growth of the ULB is furnished in Table 2.2.Over the past decades, ULB has exhibited an increasing growth trend in population. It can be observed that the population growth rate has been significantly low during the last two decades. There are about 30 wards in the town. Ward wise population details of the town is given in the Table 2.3.

Table 2.3: Ward wise Population in Sankarankovil – 2001 Census

Ward	Total Households	Total Population	Male Population	Female Population	Gender Ratio
1	588	2757	1408	1349	958
2	618	2753	1403	1350	962

Ward	Total Households	Total Population	Male Population	Female Population	Gender Ratio
3	501	2060	1029	1031	1002
4	356	1672	848	824	972
5	374	1800	912	888	974
6	364	1590	820	770	939
7	282	1253	657	596	907
8	297	1453	732	721	985
9	415	1993	1012	981	969
10	362	1610	928	936	1009
11	319	1427	806	804	998
12	348	1666	700	727	1039
13	254	1176	827	839	1015
14	349	1805	605	571	944
15	721	3130	905	900	994
16	294	1678	1547	1583	1023
17	474	2052	867	811	935
18	367	1662	1003	1049	1046
19	452	1814	837	825	986
20	299	1342	871	943	1083
21	273	1121	604	738	1222
22	378	1563	556	565	1016
23	444	1759	784	779	994
24	381	1436	887	872	983
25	290	1247	689	741	1075
26	377	1579	641	606	945
27	329	1317	798	781	979
28	371	1412	644	673	1045
29	828	3622	709	702	990
30	588	2757	1855	1767	953
Total	**12121**	**53613**	**26884**	**26722**	**994 (avg.)**

Source: Census of India 2001

2.5.1 GENDER RATIO

Sankarankovil has an average gender ratio of 993 females to 1000 males. Of the total 30 wards, highest is in the fourteenth (14) ward and lowest is in second (2) ward, which are about 1,160 and 915 respectively.

Table 2.4 Gender Ratio –Sankarankovil

Year	Total Population	Male	Female	Females per Thousand Males
1991	48,739	24,532	24,314	991
2001	53,066	26,884	26,722	993

Source: Census of India 1991 and 2001

2.5.2 LITERACY RATE

Sankarankovil has an average literacy rate of 67.43%, much higher than the national average of 59.5%. Male literacy rate of the town is 56.47% of the total literate population and the female literacy rate is 43.53

Table 2.5: Literacy rate: Sankarankovil

Year	Parameters	Male	Female	Total
1991	Population	24,532	24,314	48,846
	Literate	17027	11355	28382
	% of Literate	59.99	40.01	58.11
2001	Population	26,884	26,722	53,066
	Literate	20,412	15,732	36,144
	% of Literate	56.47	43.53	67.43

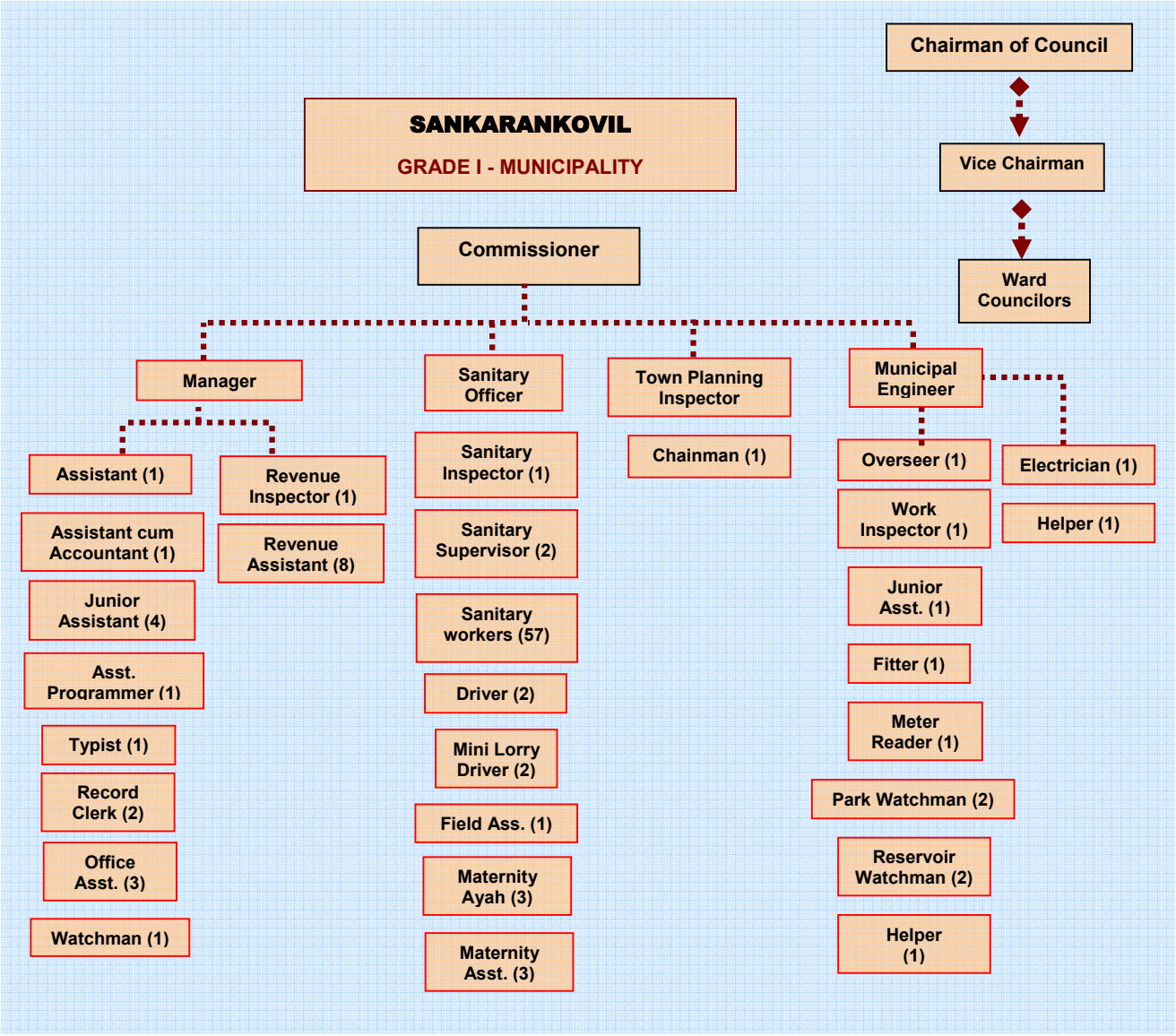
Source: Census of India 1991 and 2001.

2.6 TOWN MANAGEMENT AND GOVERNANCE

Sankarankovil was a Panchayat board up to the year 1964 and was upgraded as a Third grade municipality on 1.4.1964 and subsequently elevated as a Second grade Municipality on 31.11.1978. As per G.O.No.85 dated 22.05.1998, the town was further upgraded as First grade municipality. Total extent of area of the town is 12.37 sq.km.
Sankarankovil has been delineated into 30 administration wards. There are 30 ward members including chairperson. Out of the 30 wards, 10 wards are reserved for women and 6 wards reserved for schedule caste.

POLITICAL WING

In Municipal council, the Political arm of the Town consists of 30 elected councilors each representing a ward. The Chairperson heads Municipal council which performs its duties as per the provisions of the District Municipalities Act 1920. The Political wing provides direction to the Municipality and performs its functions through a set of committees constituted for different purposes.



EXECUTIVE WING

The Executive wing is responsible for day to day operations of the Municipality and is headed by the Municipal Commissioner. The Commissioner is the Administrative head of the Municipality and is supported by different departments in the operations. The Organizational structure comprises of six functional departments and is explained in the above chart.

FUNCTIONAL DEPARTMENTS

Sankarankovil Municipality consists of six functional departments. Each department consists of Head who reports to the Municipal Commissioner and functions as per the responsibilities prescribed in the Act and as delegated by the Commissioner. Departmental profile and responsibilities of the various functional departments are explained in brief in the following Table.

Department	Functions/ Duties/ Responsibilities	Headed by	Assisted By (In the Order indicated)
General Administration/ Personnel	Establishment, Accounts, Records, Correspondence, Treasury	Manager – General Administration	Accountant, Assistant Programmer, Junior Assistants, Record Clerk and Office Assistants
Revenue	Billing and collection of taxes, charges and fees	Revenue Inspectors (2 nos.)	Revenue Assistants/ Bill Collectors (10 nos.) and Office Assistants
Accounts	Control of financial matters, preparation of budgets and maintenance and management of accrual based accounting system of ULB	Accountant	-
Planning	Preparation of master plan, maintenance of land-use areas, licensing of plan approval, booking of unauthorized constructions, approval of lay out in the town limit, controlling and encroachment removal within municipal limits.	Town Planning Officer	Town Planning Inspector (2 nos.), Junior Assistants (3 nos.)
Engineering	Planning, Implementation, Operation and Maintenance of Urban Infrastructure. Sectors - Street lights, Roads, Buildings, Drainage, Parks, Water Supply and Municipal vehicles.	Municipal Engineer	Junior Engineer, D-man, Work Inspector, Elec. Supdt., Electrician, Helpers, Office Assistants, Drivers, Meter, and Fitter
Public Health	Prevention of Food Adulteration, Conservancy Work, Sweeping Streets, Maintenance of drainage, Control of epidemic diseases, License to D&O trades, Birth & Death Registration, Birth and Death Registration and Solid Waste Management	Municipal Health Officer	Sanitary Inspectors (5) - Sanitary Supervisors (7) - Drivers (4) & Conservancy Staff Medical Officer (Siddha) & Woman Medical Officer - Maternity Assistants (3)

Source: Official Website of ULB & Administrative Report

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 Sankarankovil is based on the following factors:

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

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 - 2008
- 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 been performed for the vision period exceeding 50 years (2008 - 2061).

3.2 METHODOLOGY AND EVALUATION OF PROJECTION METHODS

The methodology used to project growth of population for the Sankarankovil 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 (2008 - 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 3.1.

Table 3.1: Census Population (1961 - 2001) of Sankarankovil

Year	Area	Census population	Decadal growth rate	Density
	sq.km.	pers.	%	pers./sq.km.
1961	12.37	24,088	--	1,947
1971	12.37	32,994	36.97%	2,667
1981	12.37	42,084	27.55%	3,402
1991	12.37	48,739	15.81%	3,940
2001	12.37	53,606	9.99%	4,334

Source: Analysis based on the Data provided by Sankarankovil; 2008

3.3 PROJECTION OF FUTURE POPULATION

Based on the aforementioned methodology and evaluation performed, population has been projected for the Sankarankovil for the specified stages based on numerical and graphical methods. Details of the comparison of population projection by the aforementioned methods for the Sankarankovil and the evaluation of projection methods (pilot projection) are enclosed as Annexure – 1.

A comparison of results of population projection for Sankarankovil is shown below in Table 3.2.

Table 3.2: Population Projection for Sankarankovil – Comparison

Year	Census Information	Arithmetic Increase	Geometric Increase	Incremental Increase	Polynomial
1961	24,088				
1971	32,994				
1981	42,084				
1991	48,739				
2001	53,606				
2008		58,772	60,913	59,496	56,317
2010		60,248	63,178	61,288	56,964
2011		60,986	64,341	62,202	57,266
2021		68,365	77,227	72,015	59,451
2025		71,317	83,077	76,281	59,905
2031		75,745	92,693	83,045	60,135
2040		82,386	109,243	94,012	59,467
2041		83,124	111,256	95,292	59,318
2051		90,504	133,537	108,755	56,998
2057		94,931	148,993	117,417	54,885
2061		97,883	160,279	123,435	53,176

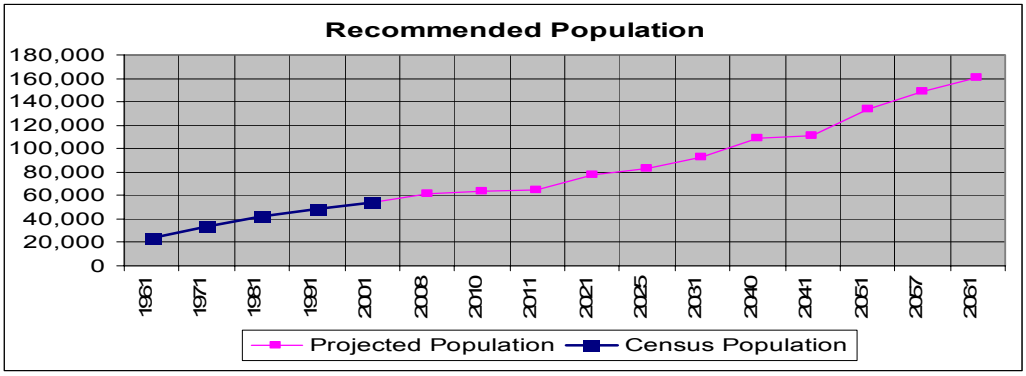
3.4 APPROVED PROJECTED POPULATION

The projection of future population has been performed for the Sankarankovil based on the pertinent factors, potential impacts, related aspects and the applicable methods. It can be observed that the projection of future population by 'Geometrical Increase Method and Polynomial Methods' is optimal projections for the purposes of planning for urban infrastructure projects.

Thus, it is recommended to select the higher projected value of the aforementioned methods, i.e. 'Geometric Increase Method' as the design population for the respective project design stages and vision period. The approved projected population is given in the table:

Table 3.3: Approved Projected Population

Year / Stage	Census Population	Recommended Projected Population
1961	24,088	
1971	32,994	
1981	42,084	
1991	48,739	
2001	53,606	
2008		60,913
2010		63,178
2011		64,341
2021		77,227
2025		83,077
2031		92,693
2040		109,243
2041		111,256
2051		133,537
2057		148,993
2061		160,279



3.5 PROJECTION FOR PROJECT FORMULATION/DETAILED DESIGN

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

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

4

AREAS OF DEVELOPMENT NEEDS

4.1 ASSESSMENT OF NEEDS

The Rapid Assessment report was discussed in detail about the key issues in each sector like water supply, drainage, social infrastructure, economic base, etc. The assessment was performed to evaluate the existing status of the town and to have a clear perspective of each sector. The report was reviewed by the Technical Review Committee comprising pertinent authorities and approved.

The mission areas and sectors are identified to achieve the vision which is far from the present scenario of each sector and the need of improvement across the identified mission areas and sectors is a lot. 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 ULB on the road to well planned development.

The objective of the Strategic Plan for Sankarankovil 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 an overview of the sectors including the prevailing issues is illustrated in the following sections.

4.2 PHYSICAL DEVELOPMENT

Services and utilities form the backbone of all development related activities that are planned for economic improvement of a town. Urban growth both spatially and population wise puts heavy pressure on infrastructure, particularly water supply, sewerage, solid waste, sanitation, road network, traffic and transportation etc., unless infrastructure facility is improved, quality of life suffers. Most importantly, it impacts economic development of the city and investment climate. The existing system of civic services and utilities in ULBs and its related issues

requires seamless integration of all development activities in tune with the availability of existing infrastructure and relevant co-development to ensure sustainability. This poses a complex situation to the City Managers who are directly responsible for provision of utilities to the normative level, addressing development issues, identification of key concerns and problems with the existing system and accordingly proposing necessary improvements. Analysis of existing utility systems based on field visits, discussion and related information furnished by the ULBs is outlined in the following sections. The sectors covered under this assignment are listed below:

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

4.2.1 LAND USE

OUTLINE OF MASTER PLAN

Under the provisions of Town and Country Planning Act,1971 a Master Plan was prepared for Sankarankovil Local Planning Area and the Government in their orders G.O.Ms.No:851, H & UD, department dated 27.07.1990 accorded approval under section 28 of the said act. According to the Section 32(2) (b) of the Act, once in every five years, Master Plan for Sankarankovil Local Planning Area was prepared covering the entire area of the Municipality (12.7 sq.kms.). Subsequently 10 Detailed Development Plans were prepared under the provisions of Town and Country Planning Act 1971, and also were approved under the section 29 of the Act. The 10 Detailed Development Plans cover 1015.92 hectares i.e. nearly 80% of the town area and the proposals for the rest of the area that is 224.07 hectares of land, the usual methodology for Master Plan has been adopted. Master Plan for the town was completed and approved in the year 1990. Since five years have been completed after the Sankarankovil Master Plan had come into operation, the review of Sankarankovil Master Plan had been taken up. The Modified Master plan has been consented vide G.O.Ms.No.315 H &UD Department dated 10.08.1998 under the section 245(2) of the Act 1971. According to this instruction the Master Plan is submitted for sanction vide resolution. No: 314 of Sankarankovil Local Planning Authority dated 29.10.2004.

LAND USE MANAGEMENT

EXITING LAND USE PATTERN:

In order to assess the land use break-up of the town a land use survey was conducted in August 1995.

Review of the land use break up of the town shows that of the total area of 1240 hectares of land, only 299.74.00 hectares of land constitutes the developed area, which works out to be 24.14% of the total area. The undeveloped area accounts to 940.26 hectares which works out to be 75.86% of the total area.

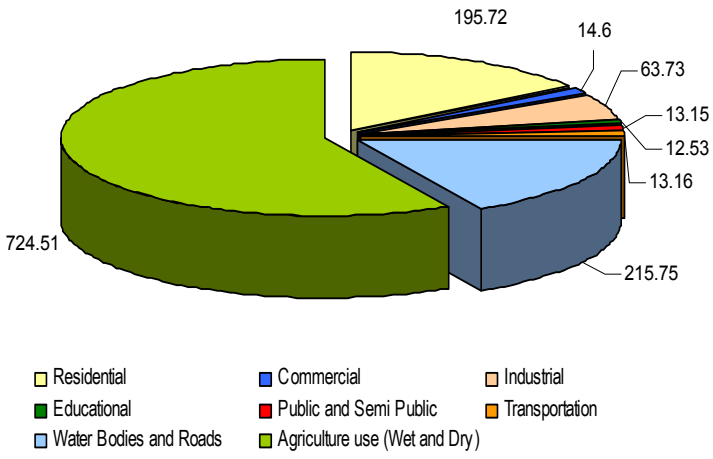
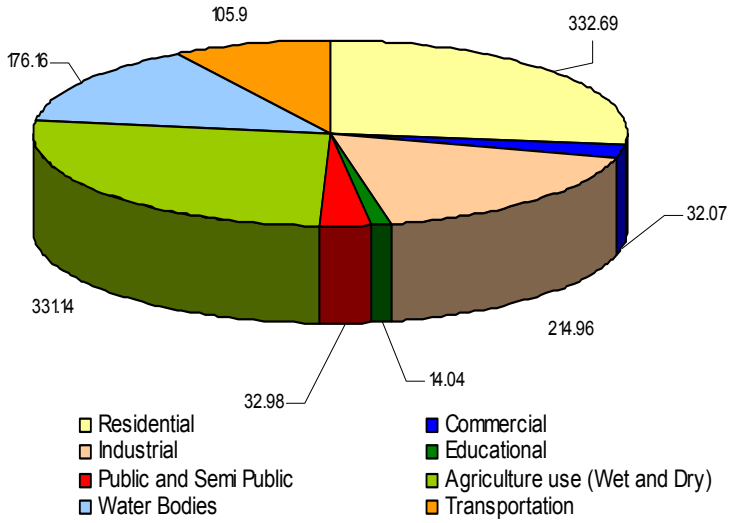


Table No. 4.1: Existing Land use Pattern in Sankarankovil LPA (Year 1995)

SL.NO.	LAND USE	DEVELOPED AREA IN HECTARES	% TO THE DEVELOPED AREA	% TO THE TOTAL AREA
1	Residential	195.72.00	65.30	15.78
2	Commercial	14.60.00	4.87	1.17
3	Industrial	63.73.00	21.26	5.13
4	Educational	12.53.50	4.18	1.00
5	Public and Semi Public	13.15.50	4.39	1.06
	Total	**299.74.00**		
Undeveloped Area				
6	Water Bodies and Roads	215.75.00	-	17.42
7	Agriculture use (Wet and Dry)	724.51.00	-	58.44
	Total	**1240.00.00**	**100.00**	**100.00**

Source: Master Plan for Sankarankovil, 1995.



Major part of the LPA is undeveloped and covered by agricultural fields, but scattered residential developments have occurred in all parts of the Local Planning Area. At present more than 60% of the developed area is under the residential use. Recent incidence of residential developments is found along the Rajapalayam road. New colonies such as Gomathi Nagar are found in this are of the town. Details of existing land-use pattern are shown in Table 4.1 for existing land use plan for Sankarankovil LPA.

PROPOSED LAND USE PATTERN:

Out of the total town area of 1240.00 hectares, about 1015.92 hectares of land has been covered by the detailed development plans and hence the master plan landuse proposals cover an area of 224.07 hectares.

Table No. 4.2: Proposed Land use Pattern in Sankarankovil town – Non detailed Development plan Area (Year 2011)

LAND USE	AREA IN HECTARES	% TO THE TOTAL MASTER PLAN AREA
Residential	106.31.94	47.36
Commercial	25.36.00	11.32
Industrial	49.01.50	21.88
Educational	00.22.50	0.18
Public and Semi Public	20.28.00	09.05
Water Bodies and Roads	08.50.00	3.57
Agriculture use (Wet and Dry)	14.37.50	6.64
Total	**224.07.44**	**100.00**

Source: Master Plan for Sankarankovil, 2011

Further the master plan area constitutes mainly the core area of the town, where residential and commercial land uses are found in higher concentration. The proposed land uses is

given in Map 3 and proposed land use breakup is given Table 4.2.The over all proposed land use pattern for the Sankarankoil for the town for the year 2011 is given in table 4.3

Table No. 4.3: Proposed Land use Pattern in Sankarankovil LPA (Year 2011)

Land Use	Area in Hectares	% to the Total Master Plan Area
Residential	332.69.60	26.83
Commercial	32.07.59	2.88
Industrial	214.96.95	17.33
Educational	14.04.50	1.13
Public and Semi Public	32.98.82	2.66
Agriculture use (Wet and Dry)	331.14.64	26.69
Water Bodies	176.16.99	14.20
Transportation	105.90.91	8.28
Total	**1240.00.00**	**100.00**

Source: Master Plan for Sankarankovil, 2011.

DEVELOPMENT PATTERN

GROWTH AREAS AND DIRECTIONS

Sankarankovil town showcases the affluent blend of the ancient cultural traits, rich divinity and the recent urban developments in the town. Sankarankovil is the second largest town in the district next to the district head quarters and is the Taluk head quarters. Historical monuments and evidences in the town reveal the existence of the town from time immemorial. The initial settlement of Sankarankovil had grown with the temple as the base.

The older settlements of the town are found in the central core area of the town, mainly in the enclosing car streets of the temple and the market streets of the town. Central core areas of the town have much higher density and the residences are closely placed within these streets. The bazaar area of the town has a large number of Wholesale shops and Mandies. These shops cater their services to the adjoining villages. All the agricultural products in the surrounding agricultural villages are brought into the town for further trade. Thus the central core area of the town is highly congested and shows the ancient cultural traits of the town.

Power loom units, the major economic drive of the town are found in the large number of the eastern part of the town. Most of these are small units and are commonly referred as cottage industries, thus the units and the residences are found mixed in the town. Agricultural lands both wet dry are found in south eastern part of town. These lands are fed mainly by the tank irrigation. Patta kulam, which forms south eastern boundary of the town, is the main source for agriculture in the town. Paddy, Maize and Chilies are the principal crops cultivated in the town. The whole sale trade of the chilies cultivated in the adjoining villages and is an important economic activity in the town. Sankarankovil is also an important exporter of the flowers grown in the region. Flowers such as Jasmine are grown extensively in the region.

The main road of the town, the Rajapalayam – Tirunelveli road runs as the spine guiding growth in the town. Recent fast paced developments are along this main road of the town. The bus stand and the market complex located adjoining this road. New Residential Developments are found in the northern periphery of the town. The region on the southern side of the town has shown greater influence of the residential growth over the recent years. The railway connecting Madurai – Tenkasi also runs in the northern part of the town. Western part of the town does not have proper connectivity and also the water bodies in this region limit the growth along this direction.

GROWTH CONSTRAINTS AND DEVELOPMENT POTENTIALS

GROWTH CONSTRAINTS: Location of the Patta kulam and agricultural lands on the southern side of the town is major factor limiting growth of the town along that direction. The railway line on the north western side of the town also stops growth of the town along that direction.

Uncontrolled fringe developments along the eastern and north eastern periphery of the town is a common threat for planned development and this phenomenon is also noticed in Sankarankovil and this results in pressure on provision of infrastructure.

High residential density pattern is observed in the town due to the presence of temple and its related floating population and the commercial establishments located in and around the core town area and this situation are aggravated due to traffic congestion since most of the roads in the temple and market areas are with a minimal scope for widening. Rapid mushrooming of the power loom industries and conversion of residence to mixed land use and lack of open spaces, adversely affects the sustainable development of Sankarankovil

There are no major industrial activities which provide employment to educated youths in the town. Because of inadequate support for the power loom industries people are migrating to different places.

POTENTIAL FOR DEVELOPMENT: The power loom and handloom weaving of Sarees, which are unique to the town is the major economic base of the town. Formation of the industrial estates and promoting the industries supporting the growth of these industries has to be planned to support and supplement the economic drive of the town. Also it has better linkages with rest of the towns through SH and Railway network. Development potential of the region is linked to its economic and agro-industrial base of the town.

As per Master Plan 1995, nearly 58% of lands are under agriculture (both Wet & Dry) use. Considering the demand of land for housing, commercial and industrial activities in the future the vacant lands other than wet agricultural and water bodies can be utilized in a planned manner. DDPs prepared by the Sankarankovil LPA need to be implemented with a view to attract economic activities in this town.

There is imminent need to capitalize on the Tourist growth potential nodes in the LPA, through transportation linkages especially to the town like Puliyangudi, nearby places of tourist interests and by forming heritage place for Sankarankovil protecting the temples and historical monuments, to increase the spatial growth potential of the town.

4.2.2 WATER SUPPLY – EXISTING STATUS

Sankarankovil is supplied with 3 protected water supply schemes implemented by TamilNadu Water Supply and Drainage Board. Sankarankovil – Puliyangudi CWSS at the source of Kottaimalaiyar was commissioned during 1964. Sankarankovil – Alangulam CWSS serving the way side villages also was commissioned during the year 1992. Sankarankovil – Manur CWSS with Thamirabharani River as the source was implemented during 2003 at a cost of 1036.85 lakhs serves as the major source of water supply to the town. The town receives a total of 6.20MLd of water daily from the scheme. ULB is paying an amount of Rs. 4.00 per every 1000 liters of water supplied to the town.

Sankarankovil – Puliyangudi CWSS: This combined water supply scheme was commissioned during the year 1964.The source of water under this scheme is Kottaimalayar River, which is located at a distance of 32 kms from the town. Rain water which flows from the hills is collected by a check dam constructed at the foothills. The water from the source is brought to the town by means of a gravity main for distance of 32 kms by means RCC pipes.

Sankarankovil – Alangakulam CWSS: This scheme was commissioned during the year 1992. Main source of water under this scheme is at Nanthanthattai along the Thamirabharani River. The source is located a distance of 62 kms from the town. There are 6 infiltration galleries constructed in the river banks. Water from the sump is pumped to a distance of 85 kms from the town. The scheme serves about 85 way side villages and Sankarankovil town is allocated with 25 LL of water. The town receives on an average of 10 LL from this scheme.

Sankarankovil – Manur CWSS: Scheme was commissioned during the year 2003. Main source of water under this scheme is Thamirabharani River at Palaqur. There are 6 infiltration galleries constructed on the river banks and water is pumped into a sump of 3 LL capacity. The source is located at a distance of 45 kms from the town. Pumping main of 200mm AC pipes for a distance of 3000 m and 75 MM OD PVC pipes for a distance of 350 m is used to pump water to the town.

An OHT of 8 LL capacity at Kalzugu malai is to be constructed by TWAD under this scheme. Other than the above mentioned sources, the town also has 183 nos of Hand Pumps, and 45 nos of Mini Power Pumps are also used to supply water to the town. Water table is got at a depth of 150ft in the town

Table No 4.4: OHT's location and Capacity

Location	Capacity in LL
Thriuvalluvar park OHT	8LL
Bus stand	7LL
Kakan Nagar	2LL

Source: ULB, 2008.

SERVICE RESERVOIRS: There are about 3 OHT's in the town with a total capacity of 17 LL. Location and capacity of the OHT's in the town are given in the Table no: 4.4.

DISTRIBUTION SYSTEM: The existing distribution system comprises of distribution network from the service reservoirs to the individual house service connections and public fountains/stand posts, which covers a distance of 42.684 kms in the town, i.e. ., 80% of the total road length of the town. The distribution network comprises of the C.I., A.C. and P.V.C. lines are laid under all three schemes.
At present ULB, is provided with 6688 nos of Water Supply Assessments, of them 6425 assessments are domestic, 57% of the connections are metered and 42% of the connections are unmetered. There are about 263 non domestic connections in the town. 80 lpcd of water is supplied on alternate days to the town. There are 110 public fountains in the town to provide water to the town.

WATER TARIFF: For the unmetered connections a flat rate of Rs. 50 and Rs. 100 is collected for the residential connections and Commercial connections per month respectively. The deposit amount collected for each of the service connections and connection charges on flat rate basis are provided in the Table. No: 4.5

Table No 4.5: Water Tariff and Connection Details

Type of Connections	Deposit (Rs)	Flat Rate (Rs.month)
Residential	9,000	50
Commercial	20,000	100

Source: ULB, 2008.

ADEQUACY OF SERVICES

Table 4.6 shows key service indicators of the existing water supply system

Table No. 4.6: Performance Indicators - Existing Water Supply System

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Daily per capita supply (2007/2008)	Litres	80	90
2.	Roads covered with distribution network	Percent	79.64	> 100
3.	Storage capacity with respect to supply	Percent	27	33
4.	Treatment capacity available with respect to supply	Percent	NA	100
5.	Property tax assessments covered by service connections	Percent		85
6.	Proportion of non-domestic service connections	percent	3.9	> 5.00
7.	Slum population per public stand post	persons	235	150

Source: Sankarankovil; 2008 and Analysis

KEY ISSUES

Discussions were held with officials and stakeholders of Sankarankovil to assess 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:

- Rehabilitation of Pumping Main: Old scheme which was commenced during the year 1964 requires immense rehabilitation works (both structural and mechanical) to improve the source sustainability and to meet growing future demand as the burst in the pumping mains has become a major problem affecting the distribution of the system;
- Low Supply Levels: Even though ULB supplies 80 lpcd some places in the north eastern fringe experiences low supply levels, because there are extended areas of the town and does not have a service reservoir in nearby location;
- Inadequate Storage Reservoir: The existing storage capacity of the town is only 27% against the norms of the 33% and also all there 3 OHT's are located in the core areas of the town. The extended areas such as Triuppur Kumaran Nagar, Mullai Nagar do not have any OHT's affecting the distribution system of the town. Hence it was felt that new service reservoirs need to be installed with sufficient capacity ensuring availability of adequate supply considering the future demand also;
- Inequitable Distribution: While the average rate of water supply in the town appears satisfactory, the distribution is not equitable at present water is supplied once in two days which need to be regularized to daily supply;
- Lack of a sustainable cost recovery approach to ensure sustainability of the system. At present service charges for water supply is levied at flat rate basis which need to be metered;
- Non-Revenue Water: The distribution network in the town is old and characterized by leaks through pipelines, faulty service connections and uncontrolled drawal from public stand posts.
- Treatment Capacity: Sankarankovil town does not have any treatment facility except chlorination. In respect of increasing demand in the future and alternate sources such as surface water, treatment facilities will have to be implemented;
- Inadequate Service Coverage: Only about 36 % of the PTAs are provided with water supply service connections. Existing demand for water supply has not taken into account the requirement of water supply to the expansion areas;
- Inadequate Summer Storage: Even though town receives moderate rainfall, as most of the water bodies like Thiruneelakanda Oorani and Oor Kulam are encroached, silted and used as sewage outfalls;
- Insufficient D-System: The existing d-system was laid during 1964 and the lines are of CI and AC pipes mainly in the Weekly market area and near the temple areas, which are to be replaced and also d-system coverage has to be expanded to the rest of uncovered areas. Although intermittent rehabilitation works have been carried out based on complaints received, the system needs a comprehensive rehabilitation measure based on detailed assessment.
- Heavy O&M Cost: Since the water supply scheme established in the town are runs through pumping from the source to service reservoir. ULB has to bear high electricity charges. 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

The objective of this study is to identify the potentials obtainable in the existing water supply system based on the study considering quality, quantity, coverage, capacity, demand and frequency of water supply service at different stages of supply system such as source, transmission, storage and distribution.

- 57% of total connections are metered and metering of all connections will help to identify non-revenue water supply and to collect water charges based on differential tariff.

- 3.9% are non-domestic connections having good scope for cost recovery
- Water supply system is supported by three reliable combined water supply systems from Thamirabarani and Kottamalaiar sources.
- Water source for the future demand can be taken from the Kottamalaiar and Keeriyar as ground water
- Continuous power supply in the booster stations of transmission line will ensure reliable water supply in the town.

4.2.3 SEWERAGE AND SANITATION

Underground Sewerage System: Sankarankovil town is not provided with Underground Sewerage System. Most households in the town uses septic tank with soak pits for treatment and disposal of sewage. In Sankarankovil, 8578 households have septic tanks and 1260 households with low cost sanitation facilities. There are 1817 households without any access to safe sanitation facilities in the town. However, the sullage from kitchen and bathing are disposed into the road side open drains and conveyed to open channels leading to the water bodies with in the town. The natural gradient of the town is north to the south eastern part, wherein the Patta Kulam is located. Open defecation and disposal into the street drains are common method of sewage disposal. At present consultants namely, Gheri eastern.Ltd.Mumbai have prepared a detailed project report for providing Under Ground Drainage Scheme to the town and the report has been submitted for approval.

Sanitation Facilities: ULB has constructed 26 public toilets in the Sankarankovil with a total seat of 128. ULB also constructed 9 toilets under VAMBAY scheme. The public convenience facilities in the Bus Stand, Vadakumadavedhi, Therukumadavedhi and Swamy Samadhi Theru are places with Pay & Use toilets facilities in the town. All the public convenience facilities in the town are maintained by the Self help group members.

Table No. 4.7: Key Performance Indicators

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Roads covered by UGSS network	percent	--	85
2.	Sewage treatment capacity with respect to water supplied	percent	--	80
3.	Water supply connection having access to UGSS	percent	--	85
4.	Assessment having access to UGSS facility	percent	--	70
5.	Population covered by UGSS (Year 2007/2008)	percent	--	85
6.	Assessment covered with septic tanks	percent	49	--
7.	Assessment covered with safe disposal facility - Total	percent	7	--
8.	Slum population per seat of public convenience	persons	199	--
9.	Seats under pay & use category	percent	--	--

Source: Sankarankovil; 2008 and Analysis

KEY ISSUES

Discussions were held with principal stakeholders of Sankarankovil to assess the key issues that surround the present sewerage system. The issues identified through discussions, field visits and service analysis are outlined below:

- The town is not provided with an underground sewerage scheme.
- Discharge of untreated sewage to Patta Kulam and Oor Kulam via storm water drains and to other low-lying areas and the resultant degradation of the environment and health risk was highlighted as a major hazard.
- Discharge of sewage to surface water sources and low-lying areas poses a significant threat to groundwater and surface water quality and is a public health hazard.
- Households in Sankarankovil were equipped only with septic tanks and soak pits. These

were cleaned on an infrequent basis and the collected sewage was disposed in 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 regarding safe sanitation is very poor.

POTENTIALS FOR DEVELOPMENT

The objective of this study is to identify the potentials based on the study considering quantity of waste water generated, planned capacity, treatment method in Under ground sewerage service and available number of seats, frequency of water supply, number of slums per seat in public toilets.

- 70% of the town is having provided with septic tank and 80% having safe sanitation facility
- Quality of life will improve after the completion of under ground sewerage system.
- The awareness about using the toilet facility is increasing among the stakeholder of the town.
- The proper disposal wastes generated in the town will increase the environmental quality of the existing water bodies.

4.2.4 STORM WATER DRAIN

Town has a natural slope from North Western to South Eastern side of the town. Highest contour on N direction is at 159 M RL in ward 1. While lowest contour that is located in SE direction at 147.0 M RL in wards 19, 21, 20, 22 and 23 S and SE boundary of the town. A network of drains connecting the water bodies, which are main source of irrigation in the town, is under threat due to the human interventions and man made activities in the town.

Table No. 4.8: Water Bodies and their Details

Name of the Tank	Area in sq.km	Capacity in M.C.M	Ownership
Vaniyar Oorani	0.004	0.00625	ULB
Kovindaperi Theppam	0.002	0.00235	ULB
Dabethar Oorani	0.002	0.00335	ULB
Thiruneelakanda Oorani	0.013	0.00198	ULB
Kamaraj Nagar Oorani	0.004	0.00585	ULB
DobiGana Oorani	0.009	0.00131	ULB
Oor Kulam	0.225	0.3375	Panchayat Union
Ayudaipoigai Theppam	0.007	0.001145	HR&CE
ThiruKovil Theppam	0.002	0.00408	HR&CE
Patta Kulam	0.426	0.6383	PWD

Source: ULB, 2008

The present condition of storm water drains is such that it carries the sullage and sewage water, which ultimately is carried to the Patta kulam. This pose a serious health and environmental hazard to the natural water system and need to be addressed through a proper treatment facility for the sewage water let into Patta kulam. This aspect requires immediate attention as the river water is also used by the wayside villages for agriculture purpose. Altogether the existing storm water drains characterized by the low

carrying capacity due to encroachments in the core area, which reduces the regular flow and add constraint to the existing drainage system.

The list of water bodies in the municipality and their details are furnished in the Table no: 4.8.These are rain fed tanks which receives water from road side drains and act as the flood moderators of the town. The drains bringing water to these water bodies are not properly protected leads to dumping place for garbage and also the disposal point for drainage water in the nearby areas, creating these natural resources as “Urban Sinks”.

Drains: Sankarankovil is provided with network of storm water drains up to the length of 24.62 km, which is only 45.93 % of the total road network of the town. Table 4.10 provides details regarding the types of storm water drains in the town. It is clearly indicated that nearly 54.07% of the roads are provided with storm water drainage facilities and the rest of 45.93% roads are not provided with drains, which are drained through available natural terrain condition. Storm water drainage facility in the town is inadequate and requires proper planning and designing, as majority of the drains are provided in bits and pieces without any integration between the drains. This is due to the presence of scattered development and the undulated terrain condition in Sankarankovil town.

Table No. 4.9: Existing Storm Water Drains

No.	Description	Length (km)	% of total
1.	Open Drains (Pucca)	24.62	100.00
2.	Open Drains(Kutcha)	0.00	0.00
	Total	*24.62*	*100.00*

Source: Sankarankovil; 2008

ADEQUACY OF SERVICES

Table No. 4.10: Key Performance Indicators - Storm Water Drains

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Road length covered with storm water drainage	percent	45.93	130
2.	Pucca Drains (Open & Closed)	percent	100	100
3.	Road length covered with Pucca drains	percent	45.93	130

Source: Sankarankovil; 2008 and Analysis

KEY ISSUES

Discussions were held with principal stakeholders of the Sankarankovil 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 Coverage: Drains cover only 45.93 % of the road length. Besides, the existing drains are not well defined, thus reducing the meaningful coverage of built up drains;
- Problem Areas: Brick work, Random Rubble Masonry, Plain cement concrete drains Damaged at many places are common within the town and drains are not properly networked causing Missing links in many places, Lack of proper disposal system;
- Due to faster growth of population and rapid increase in the land prices, habitation has extended to the low lying areas which do not have proper drainage outlets.
- Roads in the town have been badly affected and damaged at several locations during monsoons due to the inadequacy of storm water drainage networks. The monsoons have been witnessing, year after year, overflow of several secondary and primary drains as most stretches of these drains are silted and have not undergone desilting operations for years.
- Future population addition is expected to increase the pressure on the drainage system of the town thereby requiring the ULB to concentrate on the development of road networks along with that of storm water drains.
- Silting and Solid Waste Accumulation: Silting and uncontrolled garbage dumping cause blockage and stagnate water channels/wastewater runoff. Consequently, drains choke

and overflow into neighboring areas. Tanks around the town, which acted 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. Misuse of water bodies is also noticed in terms of uncontrolled solid waste dumping.

POTENTIAL FOR DEVELOPMENT

The objective of this study is to identify the potentials based on the gradient available, natural water bodies, network of the drains and coverage.

- There is no kutcha drains in the town and the percentage of open and closed drains are 100%.
- The town is having slope towards south and east which will ease the movement of storm water away from the town
- The drained water from the town can be effectively stored in the water bodies like Ur Kulam, Patta Kulam, Thiruneelakandar Urani, etc.

4.2.5 SOLID WASTE MANAGEMENT

The collection, transportation, treatment and disposal of municipal solid waste are an obligatory function of the ULB. The municipal solid waste mainly comprises waste from households, markets, commercial establishments, hotels, hospitals and to some extent, small-scale industries. All the 30 wards are governed under four sanitary divisions.

Table.No:4.11: Composition of Waste Collected -Sankarankovil

Waste Composition	Quantity (MT)	% to the Total Waste
Households, petty Shops and establishments	6	48
Vegetable, Fruit, Flower Market	4	32
Meat, Fish and Slaughter House	1.25	10
Construction	1.25	10
TOTAL	**12.5**	**100**

Source: Sankarankovil, 2008.

WASTE GENERATED: As per discussions with officials of the ULB, the town generates about 13.60 MT of waste every day at the rate of 244 grams per capita. The details of the waste generated in the town are given in the Table. No: 4.11.

Table.No:4.12: Ward wise Waste Collection –Sankarankovil

Sanitary Division	Wards Covered	Population Covered	Generation	Collection	% Of Collection
I	25,26,27,28,29,30	10616	2.14	1.54	71.96
II	1,2,3,4,5,6,7	13884	2.76	1.85	67.03
III	8,9,10,11,12,13,14	14392	5.25	5.25	100
IV	15,16,17,18,19,20,21,22,23,24	11187		1.36	57.87
	Total	**50079**	**12.5**	**10**	**80**

Source: Sankarankovil, 2008.

COLLECTION SYSTEM: The ULB is able to collect 94% of the total waste generated. Waste collection in the town is done by dividing the town into Four Sanitary Divisions. The ward wise generation and collection of solid waste in the town is given in the Table.No.4.12. Door to door collection of the wastes in 30 wards of the town is done by sanitary workers, using Pushcarts, Autos and Tractors.

The ULB also carries out weekly mass waste cleaning programme to clear the left out wastes by utilizing extra vehicles trips in the town. The list of vehicles used for waste collection is given in the Table.4.12. Bus stand and Main road areas of the town are swept daily which falls in the division III, 100 % waste collection is done, in the town.

Table No.4.13. Vehicles used for Waste Collection

Type of Vehicles	Number
Mini lorries	3
Tractors	1
Tipper Lorry	1
Auto	3
Push carts	63
Total	71

Source: Sankarankovil; 2008

DISPOSAL METHOD: At present the total waste collected form the town is transported in open Lorries and dumped in the land fill site of 8.1 acres along the Vasampallam in Kalzugumalai Road which is located 2 Kms away from the town. The land fill is only an open site where there is no systematic dumping (or) scientific method of waste disposal. The existing compost yard is not provided with adequate infrastructure facilities such as road, Waste Segregation platform and requires improvement of basic facilities. The ULB has currently purchased a land of 27.21 acres in Vadikottai Village at a distance of 5 kms from the town. Improvements works in the compost yard at an estimate cost of Rs.62.00 lakhs under IDSSMT Scheme 04-05.

ADEQUACY OF SERVICES

Table No. 4.14: Key Performance Indicators - Solid Waste Management

Sl. No.	Service Indicator	Unit	Current Status	Normative Standard
1.	Estimated waste generation per capita per day	grams	244	300
2.	Waste collected as estimated by ULB (w.r.t. waste generation)	percent	94	100
3.	Waste collected as per the available capacity (w.r.t. waste generation)	percent	19	--
4.	Road length per conservancy staff	metres	483	500

Source: Sankarankovil; 2008 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: The absence of the full fledged door-to-door solid waste collection system in the town is basically leading to unhealthy conditions in the town. The practice of throwing of the waste onto the streets is exaggerating the problem. Segregation of waste at source is not being practiced in the town. Source segregation and primary collection of waste through private participation, is under active consideration by the ULB;
- Inadequate Collection Vehicles & Dumper Bins: 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;
- Lack of Scientific Waste Disposal: As the scientific disposal of waste is not followed, the waste is being disposed through open dumping. The waste is disposed improperly forming heaps at the site, posing problem to environment and health of the local people. Though the data pertaining to the ground water quality around the site is not available, there is a probability of ground water contamination due to open dumping; 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 posing heath hazards.

POTENTIAL FOR DEVELOPMENT

The objective of this study is to identify the potentials based on the primary collection system, coverage, waste segregation, recycling of wastes, transportation and disposal methods.

- 94% of the waste generated is collected by the ULB
- Road length covered by per conservancy staff is 483 which is lesser than the normative standard.

- The town is having sufficient enough land for composting yard
- Implementation of compost yard will reduce the environmental pollution
- Segregated door to door collection of wastes will reduce the amount of waste and increase percentage of waste recycling.

4.2.6 ROADS, TRAFFIC AND TRANSPORTATION

OVERVIEW: The role of ULB regarding roads comprises construction of major roads and maintenance of all roads in its jurisdiction, except roads belonging to the National and State Highway Departments. The ULB is also responsible for implementing proposals from Master Plan with regards to new major roads and road widening activities.

Due to its connectivity to Tirunelveli, Courtallam, Rajapalayam, Kadayanallur and functioning of the new bus stand along Kalzugu malai road, would reduce the commuter movement in the core area of the town reducing the town's traffic congestion problems. It is estimated that in a day approximately 15,000 floating population is expected in Sankarankovil.

ULB is maintaining 42.998 km length of roads and remaining 5.40 km and 5.20 km length of roads falls under the category of State Highways and other major district roads respectively. With regards to the surface condition of municipal roads, about 90% of the total road length has surfaced roads (comprising BT, CC and WBM surfaces). Non-surface roads comprises of 10% of total road length in the town. Table 4.14 indicates typology and distribution of different types of roads within the town limits.

Table No. 4.15: Typology and Distribution of Roads in Sankarankovil Town

Sl. No.	Road Typology	Length (in km)	Distribution (Percentage)
A.	**Municipal Roads**		
1.	Surfaced Roads		
	- Cement Concrete	*10.425*	19.45%
	- Blacktop/Asphalted	*28.247*	52.70%
	- WBM	*4.326*	8.07%
	Sub Total (Surfaced Roads)	*42.998*	80.22%
2.	Non-Surfaced Roads		
	- Earthen	--	
	Sub Total (Non-Surfaced Roads)	--	
	Sub Total (Municipal Roads)	**42.998**	**80.22%**
B.	**Roads Maintained by Other Departments**		
1	State Highways	5.400	5.99%
2	Other Major Roads	5.200	14.97%
	Total (All Roads)	**53.598**	**100.00%**

Source: Sankarankovil; 2008 and Analysis

Road Network / Traffic Pattern: The travel pattern in the town is guided by the road network and land use pattern in the town. The existing road system comprises of Rajapalayam – Tirunelveli State Highway as the main road, which runs as the spine in the middle of the town. Apart from these regional roads, various Major District Roads (MDR) & Other District Roads (ODR) and other local roads maintained by state govt. and ULB connects Sankarankovil town with surrounding rural habitations and other parts of the region.

Total road length is approximately 53.598 km 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. The roads provide linkages for the tourists and devotees visiting the temple form the neighboring villages and other parts of the State.

Almost all the roads in the core areas of the town are having inadequate carriage way width especially in the temple area. Sankarankovil town has the following major traffic conflict areas:

- Junction in Swamy Sanadhi Theru (Junction of SH – 208 & the main road leading to the temple);
- Thriuvenkagadam salai (Junction of SH and Thiruvenkadam salai)

Apart from the aforementioned junctions the town experiences traffic congestion in the market areas, the Anna bus stand area. There is no designated parking space in the town. Taxi and autos are parked along the Rajapalayam road in front of Bus stand also causes traffic congestion. 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.

Sankarankovil Bus stand is situated in the enroute of Rajapalayam – Sankarankovil – Tirunelveli. The bus stand is C class bus stand with 28 bus bays. Nearly 350 Buses are plying from here not only to local villages in Sankarankovil Taluk, but also to the various urban centers of Tamil Nadu. There is a new bus stand constructed in the Thiruvenkadam salai which is not in use now. All the buses do not pass through this new B class bus stand as the traffic routing in the town requires to be reorganized to make the bus stop function. On functioning, it would solve traffic congestion problems in the town.

ADEQUACY OF SERVICES

Table No. 4.16: Performance of Key Road related Service Indicators in Sankarankovil

Sl. No.	Service Indicator	Unit	Current Status
1.	Road density	km/sq. km	4.33
2.	Per capita road length	metres	0.19
3.	Proportion of surfaced municipal roads	percent	90

Source: Sankarankovil; 2008 and Analysis

The density of roads in the town is 4.33 km/sq. km. The per-capita road length maintained by the ULB is 0.19 m, which is less than the standard of 1.75 m. The conditions of major roads are good. However, minor roads and roads within individual residential colonies are in bad condition. Footpaths and parking facilities were found lacking along the streets within town limits.

KEY ISSUES

Discussions were held with principal stakeholders of the roads, traffic and transportation and officials of the ULB 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:

- Absence of a ring road has compelled the vehicular traffic to pass through the town. Due to this, there is tremendous traffic congestion on important roads of the town, primarily in Rajapalayam – Tirunelveli Main Road.
- Heterogeneous traffic – Animal carts are commonly used for carrying goods within the town. This obstructs the traffic flow and causes congestion on major traffic corridors.
- Absence of road hierarchy and traffic carrying corridors. Most of the internal town roads are single lane. Rapid growth in vehicles and population (both permanent as well as floating) has far exceeded the carrying capacity on the road network.
- Presence of blind curves along the major road leads to frequent accidents.

- Inadequate Coverage: There is only 0.19 m per capita road coverage as compared to a norm of 1.75 m per capita coverage, attributed to the high population density. Inadequate coverage is noticed in the newly developed layouts, and extension areas;
- High Density and Congested Lanes: Roads in the central areas and surroundings of temple areas and mandies 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;
- Except for a few major intersections in the town, the rest lack cohesion with road geometry, necessitating an integrated traffic and transport system. Lack of lane separators and unabated parking on the main roads and intersections aggregate the problem.
- The capacity of many intersections has been saturated. Many areas mainly the core areas (around temple) of the town are experiencing parking problems, low-speed travel, and increased congestion.
- 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. With no 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 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

The objective of this study is to identify the potentials considering road density, road width, condition of road surface, bus & rail facility, road network, junction, traffic volume.

- 90% of the roads of the ULB are falls under surfaced category
- Proportion of cement concrete road of the total ULB maintained roads is 20% which is higher than the standard.
- Completion of by-pass road will ensure the ease traffic movements in the town.
- The main road is having adequate width and the eviction of encroachments in the main road will ensure the usability.
- The town is connected with important towns by rail way network

4.2.7 STREET LIGHTING

Street lighting: There are about 1549 street lights installed in the town. In this, 1389 are 40W tube lights, 117 are 250 W Sodium Vapor Lamps and 43 are 70W Sodium Vapor Lamps. In an average lighting fixtures are placed at a distance of 37 m interval approximately. ULB has engaged a private agency called Dasban Industries for a contract period of 3 years in the town. Almost all the lights are in working condition. The compositions of street lights are given in the adjacent table:

Table No. 4.17: Existing Street lights

Type of Fixtures	Nos
Fluorescent (Tube Lights)	1389
Sodium Vapor Lamps	160
Total	1549

Source: Sankarankovil; 2008

ADEQUACY OF SERVICES

Table No. 4.18: Performance of Key Street Lighting Service Indicators

Sl. No.	Service indicator	Unit	Current status	Normative standards
1.	Spacing between lamp posts	metres	37	30
2.	Proportion of fluorescent lamps (tube lights) w.r.t. total fixtures	percent	89	60
3.	Proportion of high power fixtures w.r.t. total fixtures	percent	11	40

Source: Sankarankovil; 2008 and Analysis

KEY ISSUES

Key issues in street lighting are shifting of poles along the kerb-side of the road and inadequate street lighting since spacing of street lights in this town is maintained as 37 m which is more than the standard spacing of 30 m. One of major issues in this sector is absence high power fixtures (High Mast Light) in major road junction. Hence need of new street lights in the newly formed extension areas and major junctions are required.

POTENTIAL FOR DEVELOPMENT

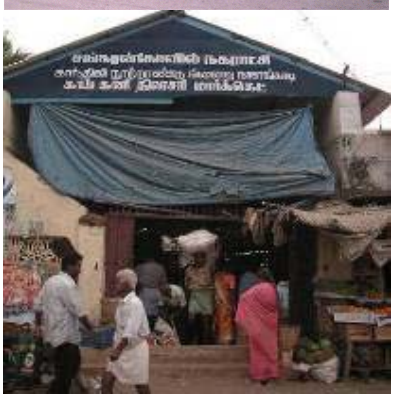
The objective of this study is to demarcate the major potentials in the town considering the coverage, spacing, effectiveness in energy consumption, maintenance.

- The town privatised the street lighting maintenance and most of the complaints are resolved
- Most of the street lights are in the working condition
- Use of lights consuming less energy helps the municipality to control expenditure
- Proportion of fluorescent lamps are more than 90%

4.3 SOCIAL DEVELOPMENT

- The town has the following Educations Institutions:
  - Govt. Hr.Sec. School : 2
  - Govt. High School : 2
  - Govt. Middle School : 8
  - Govt. Primary School : 11
  - Private Primary School : 15

However there is only one College is at Melaneelathanallur, which is at a distance of 15 km on South Direction, which caters to the need of this Town.



- The Government Head quarter's hospital with 92 beds is located in the town. There are 2 maternity centres operated by the Municipality. There are also 12 private hospitals located in this town.
- Sankarankovil Municipality has own Daily Market located near the Municipal office. There are 19 nos of shops in the Market.
- Sankarankovil Anna Bus stand is situated in the center of the town at an extent of 1.5 acre. It is recognized as 'C' grade bus stand with 28 bays, 350 buses fly daily. Bus entry fee at the rate of Rs. 12/- per bus per day is collected. There is another B Class Bus stand in Thiruvenkadam Salai, which is not in operation currently.
- There is a park in Gomathi Nagar area of the town. Improvements works are being carried on by the Municipality for the town.
- Sankarankovil has a slaughter house adjacent to the dumping yard, which requires to be modernized.
- There are 3 Cinema Theaters found in operation in the town.

KEY ISSUES

The key issues identified through discussions, field visits and service analysis are outlined below:
Education: In Government schools, teacher: student ratio is very high which affects the quality of education. The infrastructure facilities in the schools are very poor and in a dilapidated condition. Lack of sanitation and water supply facilities in most of the schools were highlighted by the stakeholders. Existing schools are operated in tiled/thatched roof which requires up gradation to RCC roof. All the Schools lack playground facility. There are no adequate higher educational and professional institutions in this region. Colleges like polytechnic, training institutes, arts and science colleges can be instituted in this town.

Health: Maintenance works in Sankarankovil Government Hospital has to be done and it lacks basic infrastructure facilities and number of doctors available is not sufficient to meet the growing demand. Present facilities are not sufficient to handle out patients only. Even though sufficient land is available in the hospital premises number of beds in the hospital is not been increased.

Daily Market: Daily Market shops were constructed during the year 1961 and buildings are in damaged condition. Number of shops in the market is not sufficient when compared with the number of vendors which resulted in encroachment along road margins by vendors. The existing numbers of shops in the market are not adequate. Market also lacks water supply and sanitation facility. The entry and exit points of the markets are also narrow and the require widening.

Burial Ground: Burial ground lacks access roads, water supply facility, lighting, compound wall, prayer hall, burning shed etc.

Information cum reservation centre: To book the rail way tickets for the local people and tourists who are all visiting the Sankaranarayanan Temple Railway reservation cum information centre has to be constructed.
As seen above, the existing situation of infrastructure provision, service and delivery has been discussed. Key issues and the problems that confront the efficient provision of services are discussed and to finalized in the following stages. Strategies to mitigate and/or eliminate the identified problems/issues and proposals for improvement of the existing system shall be recommended in the strategic plan report pursuant to detailed demand-gap analysis, region specific issues and consultations with the pertinent stakeholders comprising government and non-government entities.

4.4 SLUM IMPROVEMENT

AN OVERVIEW

Owing to rapid urbanization in and around the town, large influx of the migrants from economically weaker sections has been observed, which has resulted in formation of slums. The town presents a wide range of activities in various household industrial, commercial and tourism sectors. Growth in such activities, possibilities of absorption in various service sectors, scope of employment in trade and business activities, hawking, retailing etc. could have attracted rural poor to the town. The ULB is the agency responsible for provision of services to urban poor settlements within town limits.

As per the Census 2001 and data available from the ULB, Sankarankovil town has 15 notified slums in which there are approximately 4,094houses with a population of 25,897 (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 problem area in slums is inadequate provision of drains and sanitation facilities.

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 RCC is very less. Majority of households reside in houses with built area less than 100 sq. ft. It was noticed that residential status of most of the unapproved slum households was temporary, where settlement have developed within the last 10 years due to growing migration in the town as increasing demand for workers.

Infrastructure Services: As per the discussion with the officials of the ULB, the overall view about the existing infrastructure in the slums is understood and presented below. To improve the condition of slums and to make slum dwellers self-dependent, government is initiating various programs, which has been described in the following section:

- Water Supply: The main source of water supply in slums is met through open wells, hand pumps and public stand posts (PSPs). The ULB has provided 110 units of water taps covering all the slums. Dependency on the PSPs in an average is approximately 253 persons per PSP against the standard norm of 75 persons per PSP.
- Sanitation: Most of the slums do not have access to sanitation facility. Safe sanitation facilities comprise of public conveniences and ISPs. Public toilets are provided at 14 locations with total seats of 64 nos. Some people in the slums resort to open defecation on vacant lands, which is a cause of serious health concern. Dependency on public convenience seat and urinals are significant, on an average each public convenience seat serves approximately 199 persons, against prescribed norms of 30 to 50 persons per public convenience seat/urinal.
- Solid Waste Management: Per discussions held with ULB officials, it was indicated that there are no designated solid waste collection points or waste bins provided in slums. Also wastes from this place are collected 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 6.620 km length of surfaced roads within the slums. The per capita road maintained by the ULB in slums works out to be 0.12 m that is less than the total roads maintained by the ULB on town level.
- Storm Water Drains: Slum settlements in the town are not provided with a proper storm water drain network. Earthen drains were mostly damaged or clogged due to solid waste dumping and silting. New formation of drains along existing roads and new roads is essential.
- Streetlights: Overall, streetlight spacing in the town is about 37 m, and in slums 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.

Key Indicators and Issues: Following are a set of indicators, for which the current situation and the desired values are presented. The desired values can be used as benchmarks by the ULB to check its performance annually/ periodically and set targets for itself to be achieved in the next financial year. The details of performance indicators are furnished in the table below.

Table No. 4.19: Performance Indicators for Slums in the Sankarankovil

Sl. No.	Service Indicators	Unit	Current Situation	Benchmark/ Standards
1.	Proportion of slum population to total city population (2007/2008)	percent	48.30	< 10
2.	Household size in slums (per HH)	persons	4094	--
3.	Distribution network reach (against road length in slums) in slums	percent	45.89	> 100
4.	Slum population per public stand post	persons	235	75
5.	Slum population per seat of public convenience/ ISP Complex	persons	199	60
6.	Road length (per capita road length)	metres	0.12	0.25 - 0.51

Source: Sankarankovil; 2008 and Analysis

KEY ISSUES:

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

- Slums are densely populated and not provided with adequate infrastructure;
- Poor water supply and sanitation is a major concern. The 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; 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

The potential for the slum development is based on the coverage of facility like water supply, roads, solid waste management, storm water drainage, street lights & housing and affordability of the people to avail the facility provided.

- Slum population and the municipality having interest in the inclusive development of the town
- Schemes like IHSDP and UIDSSMT are helpful in upgrading the slum population.

4.5 ECONOMIC DEVELOPMENT

4.5.1 ECONOMIC BASE

Economy of the town, Sankarankovil is based on the Power loom and its allied sectors such as dyeing units, trade, commerce and other household industries. Only sarees are woven in the town. Sarees produced here are exported to all the parts of the state. Large numbers of agriculture based villages are also found adjacent to the town. Town acts as the agricultural market of the region.

The predominant occupation of the people in the town is power looms and its allied industries. There are about 20,000 power loom units in operation in the town. This particular industry has shown tremendous growth over the past two to three decades. These industries are small units, with 4 -7 looms in a single unit. More than 6-10 workers are dependent on each unit. There are also individual looms found in the households. Apart for the power looms, a significant proportion of people more than 1000 families are also involved in handloom industries. Raw material for the industry is obtained from near by town of Aruppukottai. Smaller dyeing units supporting the power loom industries are found in the town. About 20 dyeing units are found in the town. There are also 2 bleaching units in the town.

Sankarankovil is surrounded by a large extent of agricultural lands and the villages in immediate vicinity to the town are agricultural based villages. The major agricultural crops cultivated in these villages are Paddy, Maize, Sunflower, groundnuts, etc. The agricultural produce of all these adjoining villages are brought in to the town for sales, thus the town is

the market town of these villages. Apart from the other agricultural produce of the surrounding villages chillies in huge quantities are purchased and stored in the mandies and are exported outside.

Core area of the town has separate market area for the wholesale trade of the agricultural produce from the adjoining villages. In general, wholesale shops, mandies and retail shops are found in the town. This state of affairs adds on to the congestion problems of the town.

Sankarankovil is a renowned Pilgrimage town of the region and a large number of shops are found around the temple, about 100 shops are found in the streets surrounding the temple. The people of the surrounding villages, who visit the temple during Fridays, procure their requirements form wholesale and retail shops surrounding the temple.

KEY ISSUES:

During the stakeholders consultation it was discussed that government has to give much importance by providing additional loans and subsidies for the power loom industries, which is the major drive in the economic development of the town. With the new roads and connectivity Industrial developments like Textile parks, IT parks can be established in this town.

4.5.2 OCCUPATIONAL PATTERN

The total workers in the town as per 2001 census are 23,340. The total workforce constitutes about 43.53% of the total population with a gender based distribution of Male – 57% and Female – 29%.

Table 4.20: Occupation Pattern: Sankarankovil- 1991 & 2001

Year	Total Population	Total Workers		Primary Sector		Secondary Sector		Tertiary Sector	
		No. of Worker	% of Workers	No. of Workers	% of Workers	No. of Workers	% of Workers	No. of Workers	% of Workers
1991	48846	18661	38.20	2956	15.84	1912	10.25	13793	73.91
2001	53606	23340	43.53	2024	8.67	3811	16.33	17505	75.00

Source: Census of India 2001 & ULB Master Plan – Census Data of 1991

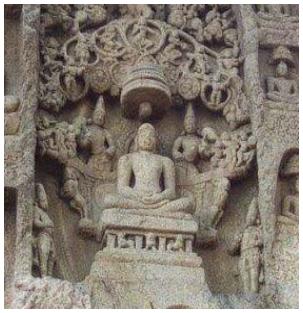
It can be observed that although the ratio of workers to the total population has steadily increased from nearly 38% in 1991 to 43% in 2001, there has been a palpable shift in the sector concentration. Essentially, primary sector such as agriculture, livestock, has witness a further decrease pointing to urbanization. Secondary sector such as manufacturing has witnessed only a nominal level of decrease of about 10.25% in a decade. The tertiary sector has grown strong in the ULB with the workforce concentration growing to 75% (+2% over 1991). Tertiary sector includes sub-sectors such as ginning mills, trade and commerce, transport, storage and communication and related services which support the spurt in growth trend in the respective sectors in the ULB during recent years.

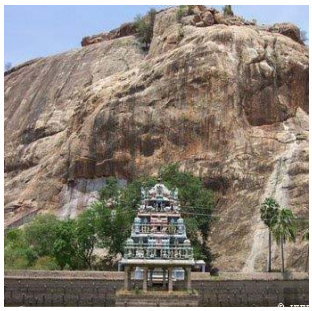
4.5.3 TOURISM IMPORTANCE

As far as the tourist attraction is concerned this town is a famous and renowned pilgrimage place in the region. Sankaranaryanaswamy Temple the main focal point growth in the town is a very ancient and magnificent. The temple building has been constructed in such a way so as to

maximize the concentration of positive, sacred and peaceful energies. The main deity of the temple, Lord Sankaranaryanaswamy is the combined manifestation of Lord Siva and Lord Vishnu. The famous Adi –Thapasu festival is celebrated during the month of July for 12 days with gaiety. The festival attracts large number of devotees from all the parts of the country.

Kalugumalai is one among the interesting tourist places in Tamil Nadu is located at a distance of 20kms from the town. This place is famous for the Jain cave temple and Jain architecture. There is also a Murugan Temple called Kalugasalamoorthy Kovil which belongs to the 18th century. Our Lady of Lourdes, (1906) is very famous church and popular in Palayamkottai Diocese.





There are large numbers of places with tourist interest such as Kalugumalai, Thalaiannai, and Poolithevan Samadhi in immediate vicinity of 10-15 kms from the town.

5

STAKEHOLDER CONSULTATIONS

5.1 IDENTIFICATION OF STAKEHOLDERS

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

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

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

5.2 CONSULTATION PROCESS

5.2.1 GENERAL

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

In Phase II stage of this assignment, detailed consultations were also held with the elected representatives and other non-governmental entities at the ULB level to obtain necessary feedback and development requirements. In this Phase vision of the town was also formulated through consultation process. Subsequently, development strategies, proposals, projects, estimated capital investment plan and scheduling have been formulated and included in this Interim Report.

The Draft Final Report for the town was submitted under Phase III of the assignment. The report was submitted subsequent to the meeting with the ULB Council & Client to finalize the identified projects, their priorities and capital investments. The Draft Final Report submitted was also reviewed by the Review Committee and accorded the approval to submit Final City Corporate cum Business Plan for Sankarankovil Municipality. This **Final City Corporate cum Business Plan** submitted towards this assignment addresses the findings and recommendations of the study.

5.2.2 FORMATION OF OWG

Operational Working Group (OWG) was formed involving Chairperson, Commissioner, Municipal Engineer, Town Planning Inspector and Sanitary Inspector of Sankarankovil Municipality. Prior to the Phase II stage of the assignment, findings of the Rapid Assessment Report were discussed in detail with the members of the OWG.

The recommendations of Working Group have been consolidated to evolve a vision for the town. After the meetings held from time to time, working group has come out with various recommendations in their respective sectors. Minutes of the working group discussion are enclosed in Annexure - 4.

5.2.3 INDIVIDUAL / SECTOR-SPECIFIC DISCUSSIONS

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

5.2.4 CONSULTATION WORKSHOPS AND REVIEW MEETINGS

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

The First Workshop (Workshop 1) was organized on February 5, 2008 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 Sankarankovil Municipality and attended by Commissioner and other Officials of Sankarankovil Municipality, representatives from other key stake holding departments and service providing agencies.

Subsequent to the submission of Rapid Assessment Report a review meeting was held on March 5, 2008 in the office of TNUIFSL. Aforementioned report was reviewed by the Technical Review Committee comprising the TNUIFSL, CMA and executive and elected representatives from the ULB and the same had been approved.

Followed by a review meeting, a Second Workshop was organized on June 5, 2008 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. Subsequently, the study team prepared the Strategic Plan and Interim Report for the town highlighting the vision evolved during the consultation workshop, development proposals, projects identified and proposed capital investment. These deliverables were then reviewed by the Technical Review Committee members on July 7th and 8th, 2008 and approved the same.

In continuation to the Review Meeting, the study team performed wide range of stakeholder consultation (workshop 3) in order to prioritize the identified capital investments. During the consultation process, projects identified during the rapid assessment stage were briefed to the participants and ranking of sectors based on their need/demand was performed considering short-term and long-term plan period. The prioritized sector wise investment for the town is elaborated in the following sections of this report.

The sector wise priority recommended by the stakeholders has been incorporated in the Draft Final report and submitted for approval. Review meeting was held in the office of TNUIFSL on September 23rd & 24th, 2008. The meeting was attended by officials of TNUIFSL and CMA, elected representatives and officials of respective ULBs. During the Review Meeting, the study team presented the Draft Final Report and committee raised few points for clarification.

Subsequently, the study team submitted the Annexure to Draft Final Report by addressing the review comments and related. Technical Review Committee reviewed the Annexure to

DFR and accorded the approval of Draft Final Report and recommended to submit Final City Corporate Plan with Council approval.

On approval of the Draft Final Report, the same was then presented to the ULB council and for finalization of CCBP covering identified investment requirements and the priority & phasing of the identified projects for the short term and long term periods. In continuation to the stakeholders meeting, this Final City Corporate cum Business Plan was submitted with council's resolution.

Minutes of the consultations workshops and review meetings held are enclosed as Annexure – 2,3,4,5,7, 8, 9 and 10.

5.3 CITY OPINION SURVEY

The objective of the City Opinion survey is to understand the perceptions of the citizens of Sankarankovil regarding the overall image of ULB and the services rendered by the ULB. This survey also sought the willingness of citizens to pay user charges for existing and improved civic services and their willingness for community participation for managing the civic/municipal services. The output of the above survey was an important input to the CCP as these were considered as perceptions of the citizens.

This survey also highlighted the key concern areas of citizens and thereby helped the ULB to focus its attention on such issues. Finally, the survey also provided key reference points for determining the strategies to achieve the vision. It may be noted that all the information captured and the inferences drawn from this section are based on perceptions of the respondents.

Broad Objectives

- Assess existing standards of service delivery
- Determine need for higher standards
- Priorities and preferences
- Assess willingness to pay for services and higher standards of service delivery
- Assess willingness to associate to self-manage certain urban services
- Bring out inequities across space and across category of respondents

5.3.1 SURVEY METHODOLOGY

The survey was conducted in areas/pockets located within the administrative jurisdiction of the ULB. The survey covered various aspects on provision and delivery of urban/civic services, aspects related to citizen representation such as presence of citizen associations, involvement of citizens in managing urban services, etc. The survey also gathered socio-economic data relating to the respondents in order to draw suitable conclusions regarding different categories of respondents. Various aspects covered under the surveys are given in the box above.

Aspects/Sectors Covered in Demand Assessment Surveys

- Water supply
- Sewerage and drainage
- Solid waste management
- Road network and transportation
- Parking facilities
- Street lighting
- Social infrastructure / community facilities
- Public opinion

The sample size for the survey was selected based on the geographical coverage of the town and various income groups. Broadly, the samples are categorized as follows:

- Households;
- Urban Poor (Slum Dwellers);
- Small Commercial Establishments; and
- Large Commercial Establishments.

Questionnaire was designed to perform the City Opinion Survey. A copy of the above questionnaire is given as Annexure - 6. The methodology adopted for selection of samples and sample size for each of the categories is given in the table below:

Table 5.1: Sample Selection Methodology and Sample Size

Sl.	Category	Rationale	*Size (Nos.)*
1.	Households	▪ Sampling based on electoral rolls, using systematic random sampling method; ▪ Selection of about 25 pockets with about 2 interviews per pocket; ▪ Pockets distributed across the wards. More pockets in high density wards; ▪ Pockets preferably covered areas with known inequities in service provision; ▪ Monitoring socio-economic categories in pocket interviews during fieldwork & conducting booster interviews (purposive) to achieve shortfall (if any) in a particular category to arrive at a quota of about 50 in each of the four categories; ▪ Booster interviews (purposive), covered at least one-third of women respondents; ▪ Conduct 1 household interview per every 25 buildings (skip 25 buildings for the next interview).	*50*
2.	Urban Poor (Slum Dwellers)	▪ Slums categorized into 4 categories by population and about 5 slums selected for ensuring geographical spread as well as coverage across slum settlements of different sizes; ▪ Number of interviews conducted per slum is proportional to the population of the slum - depending upon the size, 2-4 interviews conducted per slum; and ▪ Cluster sampling followed to conduct interviews in each slum - each slum is divided into 3-4 clusters (that ensures geographical coverage within the slum settlement) and 2-3 interviews conducted in each cluster.	*20*
3.	Small Commercial Establishments	▪ Purposive sampling followed; ▪ Geographical coverage is ensured while selecting establishments - interviews conducted in different areas across the town; ▪ Covered areas/establishments located outside municipal limits (but within urban agglomeration), which are functionally connected to the city (if required); and ▪ Owner / Manager of the establishment interviewed.	*15*
4.	Large Commercial and Trading Establishments	▪ Purposive sampling followed; ▪ Geographical coverage is ensured while selecting establishments - interviews conducted in different areas across the town; ▪ Covered areas/establishments located outside municipal limits (but within urban agglomeration), which are functionally connected to the town (if required); and ▪ More than one person within an establishment is interviewed for eliciting correct response to all the questions.	*15*
		All Categories of Representation	***100***

Note: In all categories, about two-third of total sample size were selected on random basis as per above suggested methodology, while remaining one-third of the sample size were covered through purposive booster interviews to achieve balance of different types of respondents within each category.

The surveyors were provided with on-field training for conducting the survey and the supervisors were made responsible for maintaining the desired level of quality of the survey. Pilot test was carried out before the commencement of the survey to ascertain: a) whether the identified/specified respondent is able to answer the questions, b) whether the questions were properly understood by the respondents and all appropriate responses were listed, and c) whether any key aspects had been left out of the questionnaire. The pilot tests were successful.

5.3.2 ANALYTICAL FRAMEWORK

The City Opinion Survey analysis was carried out separately for each category viz., households, urban poor, small commercial establishments and large commercial establishments. Apart from the category-wise analysis, certain results have been analyzed across all categories of consumers to highlight the key findings for Sankarankovil as a whole. The broad framework adopted for the analysis is given below:

- Coverage: Analysis of the coverage has been done separately for each customer category to ascertain category-specific issues. Finally, a cumulative analysis was carried out across all categories to have an overall picture.
- Public Opinion/Public Awareness: Two aspects relating to public opinion/awareness were analyzed as part of the survey:
  - Awareness of various aspects relating to ULB service delivery, citizens perception of a good city, vision of citizens.

  - Overall rating of municipal services on a categorical scale reflecting the satisfaction level of the citizens. Citizens were also questioned about the most important service that needs to be improved. This input was required to prioritize the action plans of the ULB.
- Cross-Tabulations: Each question typically captures responses to one variable or a particular category. Cross-tabulation is a method that helps highlight findings in one variable and further analyze of the responses. In one category, cross-tabulation primarily involves tabulating responses to a dependent variable vis-à-vis an independent variable.
- Conclusions: The conclusions and implications of the survey findings have been drawn at both levels, viz. for operational decisions and for strategic/policy decisions. Both have been taken into account as inputs for CCP preparation.

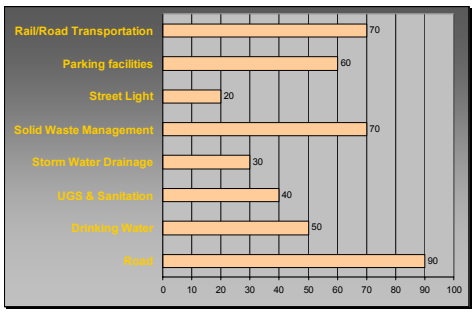
5.3.3 SURVEY RESULTS, ANALYSIS AND INFERENCES

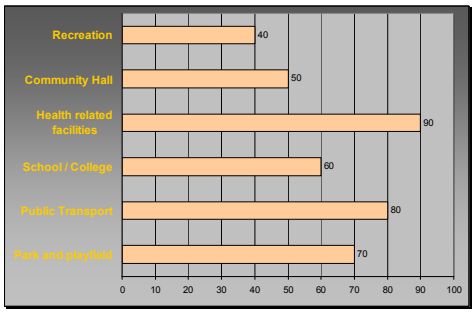
The respondents expressed their interest in the provision of an improved level of civic services. The survey, evaluated the perception of citizens on services presently provided by the ULB. Analysis of the data collected through the City Opinion Survey on several aspects of the identified Focus Areas is presented in the following sections.

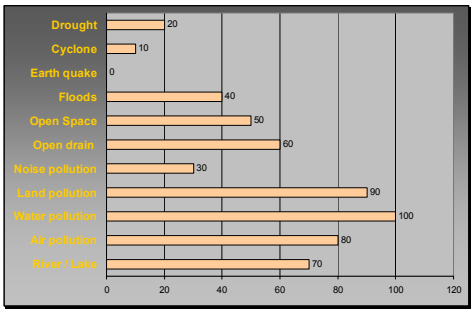
- Most of the respondents reflected the need of economic development activities like setting up of industries estates like SIPCOT, SIDCO, Special Economic Zones for power looms industries (SEZs), Textile Mills etc.
- Establishment of the Tourist circuit connecting the Sankaranarayan temple, Kazhgumalai temple, and all other pilgrimage centers for improving the tourist potential of the town.
- In basic amenities, water supply was highlighted as a key sector requires improvement and rehabilitation works.
- It is followed by implementation of underground sewerage scheme and by-pass / Ring road to decongest traffic in the town.
- Establishment of Railway line network connecting Virudhunagar and Kollam will reduce the distance of travel.
- To support the agro activities in the region common need was establishment of cold, Dairy farms, godowns etc.,
- Majority of respondents reflected the need of a cold storage facility for the flower market.
- Protection of eco system like wet agricultural lands, water bodies was mentioned by majority of respondents.
- Provision of recreational facilities like Park, Swimming pool was highlighted during stake holder's consultation.
- Need of higher education facilities especially Government Engineering and Medical College in the region were also stressed by the majority of the respondents.
- Migration to neighboring urban centers due to lack of employment opportunities in the town was expressed by most of the stakeholders.

Analysis of the information collected through the City Opinion Survey (COS) on several aspects of the identified Focus Areas is presented in the following sections:

Perception of Public







Priority of Public

	Sector	Priority Rank
Infrastructure	Road	2
	Drinking Water	1
	Under Ground Drainage & Sanitation	5
	Storm Water Drainage	6
	Solid Waste Management	7
	Street Light	3
	Parking facilities	8
	Rail/Road Transportation	4

	Sector	Priority Rank
Public Facilities	Park and playfield	3
	Public Transport	2
	School / College	4
	Health related facilities	1
	Community Hall	6
	Recreation	

	Sector	Priority Rank
Public Facilities	River / Lake	4
	Air pollution	3
	Water pollution	1
	Land pollution	2
	Noise pollution	8
	Open drain	5
	Open Space	6
	Floods	7
	Earth quake	11
	Cyclone	10
	Drought	9

6

VISION AND STRATEGIC PLANNING

6.1 VISION OF SANKARANKOVIL TOWN

The vision statement of the 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 Sankarankovil, have been perceived around the following core ideas.

- Expand Sankarankovil's regional identity and encourage developments as a important tourist destination of the region by identifying the areas of core competencies of the town.
- To preserve the pleasant environment of the town by planning sustainable development plan.
- To ensure safe, healthy, attractive and sustainable destination for the people to reside in.
- Inspire and strive for excellence, innovation and achievement of better living conditions for the people. and
- To enhance the participation of people in decision making and administration activities by making administration participative and responsive to people's need.

Vision Statement For Sankarankovil

Sankarankovil as a heritage and temple town supported with adequate infrastrutural facilities for better economic and living conditions for improved quality of life of the residents of the town

The overall vision for the town 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.

6.1.1 SECTOR SPECIFIC VISION STATEMENTS

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

Table 6.1: Focus Areas and Vision Statements

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

The CCP process of Sankarankovil has undergone extensive consultative process with its key stakeholders in prioritizing the key sectors for development. The list of stakeholders consulted and the outcome of such consultations are enclosed in Annexures 2,4,5, 8 and 10. 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".

6.2 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.

6.2.1 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.

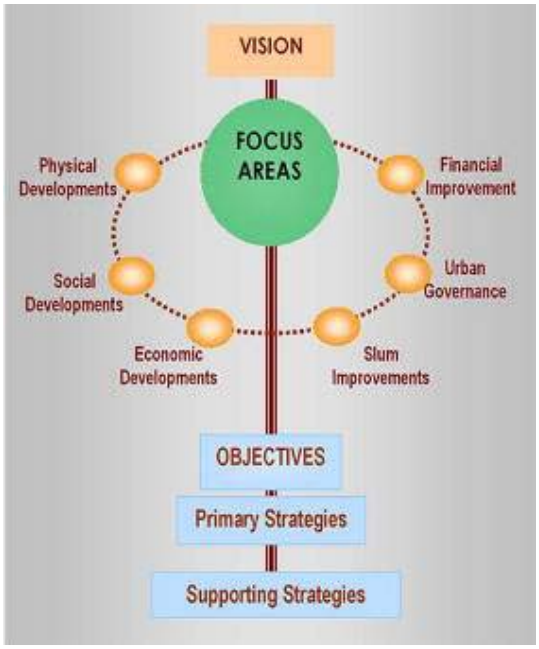
The strategic framework proposed for Sankarankovil is comprised of three focus areas, for each focus areas an objective is arrived to achieve the vision of the town by means of formulating primary and supporting strategies. The Implementation Matrix summarizes these strategies in a series of proposed 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 Municipality. 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 ULB as the prime service provider.
- Traffic & Transportation-- Road widening, dedicated bus lanes, cycle tracks and improvement of the public transport system in the short run; exploring the possibility of regional linkages in the long run.
- Urban Environment-- Conservation of rivers, water bodies, and natural environment of the town; making environment an integral part of every decision-making process.
- Urban Poor-- Affordable housing,



tenure security, integrated service provision, access to basic infrastructure needs and social amenities

- Culture & Heritage– Preservation of heritage structures, promotion and facilitation of cultural activities, and encouragement of tourism appropriate to the town environs.
- Economic Development-- Improving infrastructure, service delivery and governance by attracting public private partnerships (PPP), creating coordination for implementing economic policies in the urban region, developing collaborations between industries and institutions to further establish Sankarankovil as a dynamic town of the Region.
- Urban Governance-- Redefining the roles of administration, making it accountable and transparent and empowering and involving citizens.

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

Table 6.2: Strategic Framework for Identification of Actions – Sankarankovil

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
PHYSICAL DEVELOPMENT			
Land use Management			
1	To Decongest the core area.	1. To regulate and organize the activities such as commercial and parking facilities around the temple. 2. Prevent/regulate further construction of high-rise buildings in old town around the temple with adequate development control measures. 3. Develop available open spaces as organized parking lots to decongest narrow roads.	1. Identification of potential areas for residential development through implementation of DDPs identified in the Master Plan. 2. Expansion of the present administrative boundary of the ULB by merging neighboring villages. 3. Develop tourism related activities. 4. Provision of urban open spaces and higher order facilities within the LPA. 5. Implementation of Scheme roads as per Master Plan Proposal. 6. Protection of wet land and agricultural land by implementing Development Control Regulation (DCR). 7. Zoning of land uses specifically for Industrial purposes to attract economic activities within the LPA. 8. In order to meet the space requirement for future, commercial and mixed residential zoning shall be earmarked within the LPA. 9. Assessment of feasibility of establishment of regional linkages like high ways. 10. Resolving conflicting land uses with reference to Master Plan Proposal. 11. Promotion of activities in the peripheral/outskirts in a phased manner. 12. Removal of encroachments and widening of roads wherever feasible/ required.
2	To achieve Optimum Utilization of land	1. Channelizing the developments considering the policies and programmes of the government.	
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. Identification of individual water supply scheme to fulfill the future demand. 3. Impose regulation for the use of ground water by means of erecting deep bore wells. 4. Rehabilitation of irrigation channel for Patta Kulam 5. Implementing the continuous system of water supply. 6. Developing efficient operation and management of water
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.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		2. Creation of public awareness.	supply systems.
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.	7. Provision of generator facility in all booster stations and head works. 8. Rehabilitation of existing sources to increase the present supply rate. 9. Improvement of Pumping station 10. Redistribution/re-zoning of distribution system in existing areas. 11. Rehabilitation of existing service reservoirs if applicable. 12. Construction of additional service reservoirs / sumps if applicable. 13. Proposed distribution system in uncovered / extension areas. 14. Rehabilitation and upgrading of pump / booster stations and transmission systems. 15. Provision of generator facility in booster stations. 16. Maximizing of cost recovery from system beneficiaries/users of the services. 17. Drive against illegal connection. 18. Promote individual House Service Connections (HSCs) in slum locations and discourage Public Stand Posts (PSPs) as a policy measure and to increase accountability. 19. Developing technically feasible and financially viable projects for implementation. 20. Prepare an asset inventory and map the water supply systems for effective monitoring. 21. Capacity Building of the ULB staff to undertake efficient management and administrative decisions. 22. Creating Public Awareness with regards water conservation activities. 23. 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. Prepare a comprehensive UGS master plan to explore the possibility of the decentralization of the system of operations for effective service delivery. 2. Sewage collection and conveyance system for unsewered areas considering ultimate stage sewage generation. 3. Ensure 100% coverage. 4. Plan the UGS system and ensure the location of STPs in
2	To provide proper sewage disposal facility	1. Treatment of sewage - decentralized advanced systems. 2. Development of waste water treatment and re-use systems.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
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 proposed UGSS.	unobjectionable location. 5. Improve and ensure access to sanitary facilities for the urban poor and slum dwellers. 6. Encourage pay & use category of public conveniences with community involvement in the maintenance of the same. 7. Performance monitoring - energy audit, quality, etc. 8. Assessment of possibilities of recycle and reuse of sewage water. 9. De-silting of existing water bodies and development of the bed lining. 10. Re-development of tank/lake bunds through slab lining. 11. Re-development of perimeter area - paved walkway, area lighting, compound wall/fencing, access control and landscaping; 12. Water treatment and recirculation including passive aeration systems; 13. Reconstruction and restoration of drains leading into and out of the water bodies including by-pass and flood control; 14. Installation of water quality monitoring stations. 15. Mosquito and fly control measures to have better living environment for the citizens. 16. Settling tank facility for slaughter house. 17. Assessment of gaps and investment needs in the urban poor/ slum locations.
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.	
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. Improve drainage network on a priority basis in flood-prone areas. 3. De-silting of existing storm water drains. 4. Perimeter protection of major drains. 5. Re-grading/re-surfacing of drains as required. 6. New drain network for uncovered areas. 7. Construction of new roads integrated with construction of drains. 8. Exploring Rain water harvesting to recharge ground water. 9. Assessment of gaps and investment needs in the urban poor/ slum locations. 10. Rainwater harvesting system needs to be developed to conserve/ recharge underground water by making
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.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
			rainwater harvesting structures, construction of ponds and lakes, and plantation etc. and making it mandatory for the big commercial and institutional establishments.
Solid Waste Management			
1	To comply with MSW handing rules, 2000	1. Scientific approach for Sweeping. 2. Minimization of generation of Solid Waste. 3. Source segregation of municipal solid waste. 4. Augmentation and expansion of primary collection of waste. 5. Modernization and expansion of existing waste transportation system. 6. Municipal solid waste treatment and disposal. 7. Regulation of recyclable wastes handling and re-use. 8. Proper handling and disposal of slaughter house and other categories of wastes.	1. Phased implementation of 'Door to Door collection System' through community organisations by mobilising, facilitating, organising and supporting community activities with the help of local NGOs. 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 and commercial areas. 6. Ensure optimum utilization of existing fleet. 7. Develop integrated waste processing and disposal facility in a scientific, eco-friendly manner – for different types of material by combining two or three towns. 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. Expanding the 'Voluntary Garbage Disposal Scheme' for more number of restaurants/hotels and commercial establishments and collecting user charges. 11. Increase present staff strength based on CPHEEO norms. 12. Persuading the hospitals to be part of the existing bio-medical waste management facility.
2	To ensure effective processing of waste through composting.	1. Increase the ambit of Solid Waste Management to include "recycling" and to facilitate and regulate the sector accordingly. 2. Encouraging local level aerobic vermin composting. 3. Compost the organic fraction of the waste. 4. Sanitary land filling of inorganic fraction of waste and the compost rejects. 5. Ensuring cost recovery/return from compost processing. 6. Implementation through PPP mode.	
3	To achieve Human resource development goals	1. Work shops and training program to educate staff 2. Entrusting responsibilities to the authorities to hold them accountable for any non conformation. 3. Encourage performance based incentives to enhance efficiency and output.	
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 - up gradation of existing earthen / gravel road to BT / CC roads based on the incidental traffic volume count. 3. Departmental roads - widening of major roads to 2/4/6 lanes with provision of service road (pedestrians, two- and three-wheelers) within town limit.
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.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		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	4. Upgradation of State Highway to National Highway and linking with other existing National Highways in the town to achieve better linkages. 5. Construction of flyovers/ROB/FOB and pedestrian subways at major intersections including widening of the embankment and ramp landing (access and main) areas. 6. Provision of bus shelters at the appropriate locations. 7. Provision of signals, pedestrian crossings, median, traffic island, roundabout and signage's. 8. Pedestrian Footpaths to be provided in all the major roads for better movement. 9. Construction of By-pass Road to ease traffic congestion.
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/updation 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. Establishment of wind mills at the appropriate place to utilize alternate energy sources. 7. Identification of possibilities of underground cabling. 8. Encouraging private operators for O&M.
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. Establishment of community hall / Marriage hall under PPP mode. 6. Improvement of infrastructure facilities in Burial grounds. 7. Provision of parks, play fields and community facilities based on the demand.
2	To achieve universal access to social facilities	1. Increasing private sector and NGO participation.	
SLUM IMPROVEMENT			
1	To ensure all poor will have access to qualitative and affordable basic services	1. Development of Comprehensive data base. 2. Community empowerment. 3. Institutional Strengthening and Capacity Building.	1. Comprehensive listing of slums. 2. Preparation of a database on socio-economic characteristics of all slum dwellers in the listed slums.

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		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.	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 tourism 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. Promotion of handloom / power loom industries 3. Creating infrastructure to facilitate development of SIDCO or SIPCOT like economic zones. 4. Making available serviced land for industries, and real estate development. 5. Promote windmill facility in the region to utilize renewable energy resources. 6. Establishment of hotel and lodging facility under PPP. 7. Creating amusement parks and other entertainment facilities especially for local citizens and tourists. 8. Encourage private sector to develop shopping complexes and multiplexes to meet the growing demands of the expanding middle class in the region. 9. Promote non-polluting small scale and cottage industries. 10. Establishment of ware house / godown facility for agro and vegetable products. 11. Encourage development and growth of housing complexes
2	To encourage setting up of IT and ITES	1. Allocation of land for setting up of IT Parks. 2. Provision of road linkages and basic infrastructure facilities considering the future demand.	
3	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	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		through enhanced supplier and customer relationships and reduced operating costs.	in the private sector or joint venture. 12. Creating infrastructure including making availability of land to attract educational and research institutes. 13. Encourage small scale and house hold industries by means of offering training programs. 14. Encourage formation of SHGs by means of conducting women self employment / training programs. 15. Relaxation of polices and procedures in order to attract investors. 16. 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. 11. Monitoring of government activities by coalitions of organizations. 12. Rigorous accounting procedures 13. Clear guidelines on conduct for leaders and officials that are enforced 14. Open procurement and contracting systems 15. Ensuring transparency in financial arrangements. 16. Disclosure of information. 17. Fair and predictable regulatory frameworks. 18. Independent and accessible complaints procedures. 19. Regular flow of information on key issues. 20. Regular and structured consultation with representative bodies from all sectors of society including individuals in the decision making processes. 21. Access to government by all individuals and organizations.
2	Efficient urban management	1. Establishment of town-wide framework for planning and governance 2. Functional Restructuring. 3. Proposal to develop the GIS as a tool for development planning. 4. Exposure to innovative practices of service delivery followed across the country. 5. Establishing a Project Monitoring Unit. 6. Tax Reforms. 7. Credit enhancement options other than state guarantees need to be adopted.	
3	Accountability/ Transparency/ Accessibility	1. Formation of Standing Co-ordination Committee. 2. Private Sector Participation. 3. Specific code of conduct for municipal executives and elected representatives.	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		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. Modern and transparent budgeting, accounting, financial management system for all urban services and governance functions.	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. 24. Implementation of GIS technology in the fields of asset management, land administration, assessment of property taxes etc., 25. Preparation of annual Environmental Status Report through a multi-stakeholder consultation process.
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 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.
2	Reforms.	1. Innovations both at policy and project levels to speed up the urban reform process. 2. Accounting reforms - shifting from single entry cash based accounting system to accrual based double entry accounting system. 3. Reforms to have in-built mechanism of participation and commitment. 4. Institutional strengthening and financial capacity building to be an integral part of the reform measures. 5. Establishment of financially self-sustaining agency for urban governance service delivery through reforms.	
3	Privatization Initiatives.	1. Exploring areas of privatization. 2. Formulation of framework for attracting private investors.	
4	Resource Mobilization Initiatives.	1. Collection of arrears through innovative ideas and approaches using tools for community participation and fast track litigation methods. 2. Strengthen the fiscal powers of ULB to fix tax rates, fee structure and user charges through specific guidelines and notifications, which should find a place in the Municipal Rules. Prepare model guidelines for the city to allow greater flexibility in levying taxes, fees and user charges, borrowing funds and incurring	

No.	Sector Specific Objective	Primary Strategies	Supporting Strategies / Actions
		expenditures;	14. Controlling growth of expenditure.
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.	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. 20. Capacity building to strategically position the ULB to employ highly qualified personnel based on need. 21. Assessment of fund requirement and resource persons to tackle the training needs of all personnel.

7

INFRASTRUCTURE & FINANCIAL IMPROVEMENT NEEDS

7.1 INTRODUCTION

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

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

The identified stakeholders may be broadly categorized as under:

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

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

7.2 CONSULTATION PROCESS

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

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

- Individual/sector specific discussions;
- Workshops.

Consultations were held in three stages as follows:

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

7.3 MISSION AREAS

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

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

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

Sector-Specific Analytical Instruments:

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

Sl. No.	Study Component	Analysis / Coverage
6.	Education, Health and Community Facilities	Number and location of various education, health, leisure and community facilities, O&M aspects, coverage, adequacy with respect to normative standards, catchment, etc.
7.	Deficiency Analysis	Identification of criteria for deciding deficiency for various services; • Based on study of existing situation and criteria identified, assessment of deficiencies in existing service levels; • Identification of priorities and technical alternatives; and • Estimation of unit costs for providing minimum level of services based on certain norms.

7.4 PRIORITY ACTIONS – INFRASTRUCTURE IMPROVEMENT

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

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

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

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

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

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

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

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

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

7.5 PRIORITY ACTIONS – FINANCIAL IMPROVEMENT

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

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

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

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

PROPERTY TAX
- Bringing transparency and uniformity in taxation policies.
- Tax policy and operational procedures should be simple and clear.

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

ACCOUNTING AND AUDITING

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

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT

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

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

URBAN ENVIRONMENTAL MANAGEMENT

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

ACCESS OF URBAN SERVICES TO THE POOR

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

TRANSPARENCY AND CIVIC ENGAGEMENT IN MUNICIPAL MANAGEMENT

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

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

CAPACITY BUILDING OF THE ULB

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

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

TECHNOLOGY INTERVENTIONS THROUGH COMPUTERIZATION

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

HUMAN RESOURCE DEVELOPMENT

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

CITIZEN ORIENTATION AND INTERFACE

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

- Innovative citizen complaint redressal system including e-Governance.
- Augment and strengthen new initiatives on citizen interface and orientation.
- Regular interface with citizen associations/forum to understand public needs.

7.6 PROBABLE CAPITAL INVESTMENT NEEDS

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

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

Transportation System Improvements - Tfr & Trans Vehicles
Proposed Transfer Stations
MSW Composting Plant & Miscellaneous Works
ENVIRONMENT IMPROVEMENT
Improvements to Water Bodies
Park Development Existing/Proposed
Greening / Avenue Development
Environmental Monitoring Station
SLUM UPGRADING
Construction of housing
Water Supply
Sewerage & Sanitation
Solid Waste Management
Roads & Pavements
Streetlights
Community Centers
Open Spaces/Gardens
REMUNERATIVE PROJECTS
Construction of Shopping Complexes
Construction of Marriage hall
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

8 DEVELOPMENT PROPOSALS

8.1 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 State Capital. Rapid assessment performed provides for cognitive navigation through the analysis and recommendations in various phases in the preparation of the City Corporate Plan for the town. The sectors covered in this chapter are given in the adjacent box.

Sectors covered

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

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.

8.2 LAND USE

The land use structure has been worked out based on Master Plan prepared for the town and the activity centers present. The structure would help in limiting congestion of certain areas through a conscious and judicious development of core town and the peripheral wards, which have the maximum potential to grow in future. Considering the existing land use and the potential for development, a growth management policy has been formulated. The policy is 'to allow growth of the town for a sustainable future through dispersal of economic, commercial and developmental activities'. Accordingly the following strategies have been evolved.

8.2.1 RESIDENTIAL

The residential land use breakup of existing land use is of 15.78% of total area and 65.30% of developed area of the town and the residential development in the town is picking up recent past. The proposed residential land use in the master plan is satisfactory which is having a breakup of 47.36% of total area and 65.12% of developed area of the town. However, the development showing the pattern of typical densified core with ribbon extensions. Certain wards nearby temple, bus stand and market have experienced tremendous growth resulting in saturation of densities and in such cases the proposal is to redistribute the densities in the different wards. Though it is impractical to limit residential developments, the policies shall be formulated in such a way that a regulated FSI and non conversion of residential to mixed or commercial land use would relieve the pressure on residential land uses in future.

The expected population in the future has to be accommodated within the optimum distance from the core, in the peripherals of the town. The proportion of the residential land use is increased sufficiently from 15.78% to 47.36% and further development in the southern direction is not possible, because of the water body. Hence the strategy would be to increase the FAR in peripheral wards. This should also be supplemented through development control regulations and guidelines that avoid conversion of residential use into mixed and commercial uses in such residential zones. There are other constraints such as low lying areas and slums in others resulting in lesser development in few wards.

8.2.2 COMMERCIAL

The proportion of commercial land use is at 1.17% of total area and 4.87% of developed area of the town. Commercial areas are in the linear type SH – 41 (i.e. Rajapalayam to Tirunelveli road), and in the Kovilpatti road. As the town has evolved in the midst of the Sankararnaryana Temple, most of the commercial area is concentrated around the temple, along the main road (SH- 41). New commercial land uses are proposed in the Kovilpatti Road and the break up of commercial land use is increased from 1.17 to 2.88 percentages.

The town shall promote two types of formal commercial activities

- ***Local Business Districts***
- ***Central Business District***

The town shall promote Local Business Districts and Central Business District as the formal commercial centers in identified areas considering its limiting growth in future. The market forces and the convenience of the walking distance of 5 min for the local population will essentially decide the quantum of such spaces. But these activities have to be planned in such a way that they shall not pose potential bottlenecks in future and they shall act as neighborhood nodes. Currently, the existing land use structure has not explicitly characterized developments in this way and hence, these areas have to be carved out of the existing and potential developable areas.

Local Business Districts: These are second order formal commercial centres planned in the fast developing areas of the town. These essentially would relieve the pressure from the Central Business District. A well balanced structure of local business districts (LBD) shall help in reducing the quantum of linearly developed commercial mixed uses which is mainly due to the absence of a well-balanced structure of LBD and this also explains the growth of southern periphery areas.

Central Business District: The Central Business District forms the prime formal commercial centre for the town. It shall also have a large number of cultural and social facilities to cater to the region as a whole. Currently, the stretch along SH- 41 can be called as CBD for Sankarankovil. Most of the commercial developments are concentrated in this road and other commercial areas are dispersed inside the settlements. Hence, active and sustained decongestion initiatives shall be adopted by means of certain market friendly development mechanisms.

Areas identified for Formal Commercial Activities: In line with the above analogy and considering the future potentials and prospects, the following areas are identified as formal commercial areas. They are the stretch along SH – 41 (i.e Rajapalayam to Tirunelveli road) in front of the temple, and in the Kovilpatti road.

Formal Commercial Areas
- ***Stretch along SH – 41 in front of the temple***
- ***Kovilpatti road***

8.2.3 MIXED COMMERCIAL

The growth of mixed use cannot be avoided. However policies have to be chalked out to limit the growth of this use in congested areas. Though mixed land use or residential with shop-line have a good role to play in the town in terms of convenience, it has to be complimented with wide roads to avoid travel congestion. It is not preferable to encourage mixed land use on lesser width of roads with higher plot sizes and high coverage. This creates higher traffic generation and more stress on street parking.

The CBD as it exists today has mixed commercial and residential use with more residential use. Towards developing the CBD and decongesting the core town, mixed land use with more commercial and institutional use has to be promoted. However, it is essential that the major arteries shall be of a minimum 15m wide. Though the widths for major arterials are clearly earmarked, they have been encroached/ occupied by the developments thus reducing the road widths. In the long run it is however necessary to limit the mixed land use and declare areas enumerated above as formal commercial areas.

8.2.4 PLACES OF PUBLIC DOMAIN

The two main components of public domain are the public & semi-public areas and roads. The major institutional areas in the town are the government buildings, markets etc all located mostly in southern side of the town and nearby the CBD area. With the percentage under public & semi-public is about 13 ha which is 1.06% of total area of the town and 4.39% of the developed area. Public facilities like community centres, exhibition grounds, recreation areas, open spaces etc are not available in the town. Such need to be provided for a better quality of life and land requirement for that has to be proactively allotted.

Public Domain
- ***Increase area under Institutional Use***
- ***Provision of Additional Public facilities & Spaces***

Open Spaces: Currently, the quantity of open space is very limited excluding the area under water bodies. Considering a per capita recreational requirement of 4 Sq.mt and there is no such exclusive open spaces for parks and play grounds in the town.

However, qualitatively the role of open spaces shall be further enhanced taking advantage of the environmental resources such as natural tanks and agricultural wet lands are available in the town. These environmental resources including, flora and fauna, are valuable to the town in terms of their resource value and have to be conserved to enhance the sustainability of the same. This would mean that considerable open-spaces have to be generated for its meaningful role in conserving the regional natural resources & biodiversity and this would also add value to recreational activities.

In addition, networking of water bodies is being propagated to rejuvenate these resources and to integrate them with town wide developments.

Transportation: The major issue confronting the town is integration of land use with the transport system. With inadequate road space and widths, the town lacks an efficient circulation pattern. This shall be alleviated by developing a hierarchy of widened road network to

- ***Integrate Land use with Transport system***
- ***Mobility Plan for Developing areas on South***

decongest the core town and other commercial areas.

The current developments and the analysis on the potential for development indicate the wards on the periphery of the town towards north along the railway line are likely to experience a high growth in future. Hence, it is necessary to provide a sustainable mobility plan for these areas in the form of connecting links.

8.2.5 STRATEGIES

Decongesting Core Town Area: Decongesting the core area shall be taken up in the right earnest. Large extent of land is available in the immediate periphery of the existing development. To utilse the available land optimally, detailed development plan has to be prepared for those areas.

Growth Management Strategies

- ***Decongestion of Core Town Area***
- ***Development of Potential Wards***
- ***Revitalising Commercial and Mixed Land uses***
- ***Improvements to Public domain areas and Open spaces***

Development of Potential Areas: This strategy aims to allow future developments based on the current densities, constraints such as ecologically sensitive areas which shall not be disturbed. Considering the above, the total areas in the town are categorised into saturated areas, Constraint areas and Potential areas.

Saturated Areas

These areas are classified based on the densities, present and in future. As the densities are reaching the saturation limit, newer developments, especially commercial developments shall be limited or shall not be allowed. Accordingly, the areas nearby temple, Car Street and area bound by main road and the market & bus stand areas are classified in this category.

Saturated Areas

- ***Saturated due to high densities***
- ***Area near by temple***
- ***Area bound by main road and Bus Stand***

Constraint Areas

These areas are classified based on the constraints available for development which are having potential agricultural areas. The developments in these areas would destruct the economic base and hence shall be avoided. The areas classified under this category include; Gandhi Nagar, Kamaraj Nagar, Sankar Nagar, Sangu Puram. The developments in these areas shall be allowed after careful consideration of the impacts.

Constraint Areas

- ***Constraint for development due to presence of agricultural areas***
- ***Gandhi Nagar, Kamaraj Nagar, Sankar Nagar, Sangu Puram***

Potential Areas

These are areas that have exhibited the potential to grow in future as the developments in these areas are catching up. These areas also do not contain any determinants in terms of their growth and hence can satisfy the future growth requirements. The areas classified under this category include Gomathiyapuram, Lakhshmiyapuram. Institutional lands are also available in these areas which hence make them potential for developments to come up.

Potential Areas

- ***Potential due to availability of vacant lands, new development proposals etc***
- ***Gomathiyapuram, Lakhshmiyapuram***

Revitalising Commercial and Mixed Land uses: The assessment with respect to the current land use indicates that there is still scope for commercial activity but shall be dispersed and balanced.

Accordingly, land use policy shall consider development of formal commercial structures at places indicated. This is to help an immediate decongestion from the core town areas. These shall be connected by the widened main road (SH-41), Ilavamkulam road, Thiruvengadam road. The specific strategies include:

- Addition of commercial areas in the potential areas supplemented by formal land uses in the saturated and constraint areas to minimise demand for commercial activity in these areas.
- Encourage mixed land use with less residential use in the core areas and discourage mixed land use activity based on minimum road widths in the inner areas.

Improvements to Public Domain Areas – Road Space and Institutions:

- Improving more road open space on the identified arterial road structure to improve the traffic flow.
- Decongest the CBD through expanding the administrative boundary and shifting commercial activities to extension areas.

Revitalise the unidentified open spaces, and Water bodies exists in the town

Revitalisation of Open Spaces / Water Bodies: The area under the open spaces category needs to be increased through identification of such potential areas. There are a number of unidentified open spaces in the town and water bodies in the town. While there are already some efforts they need supplemented efforts to enhance the community open spaces. In addition, efforts need to be initiated to conserve water bodies, open spaces and other sensitive resources. The specific strategies include:

- Appropriate guidelines be followed in issuing building permissions to match with the road width to generate adequate open spaces at the community dwelling level
- Conservation of environmental resources such as uranis and odais, in terms of pollution abatement and monitoring to recreational activities.
- Use of market friendly mechanisms like accommodation and reservation to generate more urban land and to further generate open space.
- Formulating a water bodies' networking programme to supply Integrated open spaces to support physical and economic infrastructure.

The policies along with the strategies for growth management within the town are enumerated in Table 8.1.

Table 8.1 – Policies and Strategies for Growth Management

Policy	Strategy	Guidelines
Decongestive Policy	Decongesting Core Town Area	• Mixed use with more commercial and less residential use in the CBD to facilitate shifting of residential uses to outer areas. • Expansion of administrative boundary by merging neighboring villages. • Facilitate relocation of institutional areas like the markets in the CBD to the identified potential areas.
Supply of Public Domain Areas	Road widening Strategy	• Roads identified in the Arterial Road Structure shall be widened to 12 mt. This will generate additional roads area. All the other roads also need to be widened on either side.
Redistribution Policy	Limiting Densities and Population	• Population limitations on wards type basis i.e., Saturated, Constraint and Potential o Average Gross density for Saturated wards-35,000 persons/ Sq.km o Average Gross density for Constraint wards-15,000 persons/ Sq.km o Average Gross density for Potential wards-20,000 persons/ Sq.km
Open Space Policy	Water Bodies' Networking	• Creating Arterial Green Networks by Identifying the uranis and odais and establishing appropriate linkages.

8.2.6 PROPOSED ARTERIAL STRUCTURE

Effective connecting of the potential development areas with sufficient road widths allowing core decongestion forms the Arterial Structure for Sankarankovil

The potential development areas in the peripheral areas need to be linked through an efficient arterial structure within/outside the town. Provision of the bypass road for the SH would provide alternatives to these areas bypassing the core of the town resulting in decongesting the core. The arterial structure is proposed in such a way to take care of future vehicular growth and hence the municipality shall undertake an exercise to widen these roads and connect the missing links.

8.2.7 BUILDING USE, REGULATIONS AND CONTROLS

Building use regulations are the supporting control mechanisms to achieve a well balanced growth structure for the town. These rules help in controlling densities, contributing to the structured urban form for the different types of land uses and also contribute to the quality of the environment. However it has its limitation in conserving sensitive lands and limiting encroachments if the proper land uses are not planned.

They should be formulated keeping in mind the provision of services including transportation networks. Since these services depend on the density of population, adequate quantum has to be proportionately allotted based on the density of population. For eg- Higher Density of Population require wider roads and taller Structures. The coverage aspect of structure in a particular plot is directly related to the total plinth area and open space generated. The lesser the coverage allowed the more open space it will generate. Some key relationships in the building use regulations include;

- Width of Road, Plot Size vs Land use Type, FSI, Building Height & Setbacks
- Parking Space vs Land use, FSI& Coverage

Since the core town is being proposed as an active CBD with more commercial use, the building rules and regulations need to support this through more FSI assigned to these areas. This is also needed since the core areas are already saturated and the additional population and hence the higher densities would mandate vertical development.

In addition, certain areas along main road have seen an increase in development activities and hence climb in the FSI and these areas are also where certain formal commercial areas are being proposed. Hence limited increase in FSI for the commercial use in these areas is necessary to see that the land use pattern doesn't turn into mixed uses. Considering the proposed arterial structure, it is proposed to accommodate higher densities with a medium rise in structure in these areas.

Building Regulations & Controls shall be clearly outlines in the Master Plan and focus on

- ***Commercial and Mixed Building Norms***
- ***FSI***
- ***Parking Norms***
- ***Specific regulations on Accommodations and Reservations***

The building use policies shall be framed in such a way to encourage the decongestion of the core and include the following components:

- Commercial and Mixed Building Norms.
- FSI Norms & Incentives
- Parking Norms
- Specific Regulations-Accommodation and Reservation

8.3 WATER SUPPLY

8.3.1 WATER DEMAND

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 8.2: Estimated Future Water Demand

No.	Description / Parameter	Present Stage (2010)	Intermediate Stage (2025)	Ultimate Stage (2040)
1.	Projected Population	63178	83077	109243
2.	Per capita supply* (lpcd)	135	135	135
3.	Installed Capacity of source (MLD)	6.20	6.20	6.20
4.	Estimated Future Demand (MLD)	8.53	11.22	14.75

* Per capita supply is considered as 135 litres per day on an average. Since implementation of Underground sewerage scheme is under proposal by the ULB, to achieve self-cleansing velocity in the system aforementioned Per capita supply rate is suggested as per CPHEEO guidelines.

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 through its present available sources till the year 2010 (assumed based on projected population). Hence considering the increasing water demand through its present available sources till the year 2040 (assumed based on projected population) augmentation measures need to be identified considering the utilization plan of the existing sources (Thamirabharani River and Kottamalaiyar). Existing systems should be utilized only to the presently installed capacity and should not be overloaded because of low supply level in the aforementioned 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.

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.

8.3.2 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 11.22 MLD for 83,077 people which is less than the quantum of water supplied at present considering the daily supply rate of 135 LPCD. The distribution network is expected to cover additional 2400 households by individual water tap connection. Distribution losses due to leakages would be brought to 10% from the exiting estimated losses of 25%. Daily water supply will be affected from the present intermittent supply. 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 during ultimate stage; (ii) Increase in the storage and distribution of existing facilities to meet 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, 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 Sankarankovil town. Perennial sources need to be identified and tapped effectively. Although raw water intake systems can be installed to meet future demand, the Kottamalaiyar and Thamirabharani schemes needs to be evaluated and modified, if necessary, since the MWL during summer months in the abovementioned schemes may not yield adequate water. For future augmentation of water supply from Thamirabharani River, 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).

In the case of Kottamalaiar Scheme, augmentation works like improvement of check dam by increasing MWL (i.e. increasing height of dam and desilting/deepening) by increase the capacity of the storage reservoir.

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 Keeriyar, Kottamalair and Thamiraparani River. 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 sources is likely to decrease. The aforementioned discussion is indicative of the future requirement for the Sankarankovil 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 Sankarankovil town.

Consumer Metering System: The ULB need to initiate metering system in the town. For the projected population, there shall be about 7600 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 realise 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.

8.3.3 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for water supply during the Short-term period (2008-2012):

Table 8.3: 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		√	√		
	Up gradation 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 extension 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 8.4: Demand, Supply and Required Augmentation of Water Supply System for 2025

Component	Unit	Supply Status	Demand					
			Current Year 2008		Short-term Year 2010		Long-term Year 2040	
			Demand	Surplus (Deficit)	Demand	Surplus (Deficit)	Demand	Surplus (Deficit)
Water Intake Pumping	MLD	4.87	8.2	**(3.33)**	8.53	**(3.66)**	14.75	**(9.88)**
Water Treatment Plant (if Surface water Used)	MLD	-	-		-		-	
Service Storage	ML	1.5	2.73	**(1.23)**	2.84	**(1.34)**	4.91	**(3.42)**
Distribution System	Km	42.68	106.60	**(63.92)**	110.56	**(67.88)**	191.18	**(148.50)**

Source: Analysis

As reported by the ULB the average drawal of water from the existing sources is worked out to be 4.87 MLD. The total requirement of water is calculated as 8.53 MLD for the short-term period (2010) and 14.75 MLD for the long-term period (2040). Deducting the existing quantum of water availabilities, the net requirement of water for short-term period is 3.33 MLD and 9.88 MLD for long-term period. Distribution systems are not sufficient to meet the short-term demand. The storage system is also not sufficient enough to store the water which has to be supplied. From the above table, it is confirmed that additional distribution mains of 63.92 km length needs to be established for the current demand, for short term it is required 67.88 and for long term it is required another 148.50 km length of road to fulfill the present demand and additional storage reservoirs of 1.23ML would be required to meet the short term demand and 3.42 ML for the long term period.

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

- All the Booster stations require a DC generator facility, since frequent power problem in the system lead to a fluctuation in supply;
- Replacement of d-system was stressed at certain locations in the town;
- New distribution system to an approximate length of 15km is essential;
- In order to meet the water demand during summer months local bore well source need to be established at suitable locations; and
- Kottamalaiyar can be utilized to serve the water supply need of the town in long-term period. This is located at a distance of 32 km from the town. ULB need to examine the feasibility of the project.

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.

8.3.4 ESTIMATED SECTORAL INVESTMENT

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

Table 8.5: Estimated Sectoral Investment - Water Supply (Rs. in Lakhs)

Component	Activity	Investment
Water Resource Management	Water Supply Improvement Scheme to Added areas	171.32
	Construction of additional Storage reservoirs	117.58
	Development of Distribution network for added areas	135.25
	Rainwater Harvesting Measures	60.11
	Re-cycle and Re-use treated water	18.03
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	232.23
	Redistribution/Re-zoning of D-system in existing areas	135.25
	Expansion of House Service Coverage	57.71
	Installation of Meters	567.88
	Construction of summer storage tank	36.07
	Upgradation and Improvement of Distribution System	440.32
	Rehabilitation of Existing Service Reservoirs	13.83
Total		**1985.59**

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

- Nodal Agency: Sankarankovil Municipality;
- Formulation/Implementation Agency: Sankarankovil Municipality;
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

8.4 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 8.6: Demand, Supply and Required Augmentation of UGS System for 2040

Project Sub-Component	Unit	Existing Status Year 2008	Demand					
			Base Year 2010		Intermediate Year 2025		Ultimate Year 2040	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Population	*In nos.*	60913	63178	-	83077	**-**	109243	**-**
Sewage Generation	*MLD*	3.90	6.82	-	8.98	**-**	11.80	**-**
New Infrastructure								
Sewage Pumping	*MLD*	-	6.82	**(6.82)**	8.98	**(8.98)**	11.80	**(11.80)**
Sewage Treatment Plant	*MLD*	-	6.82	**(6.82)**	8.98	**(8.98)**	11.80	**(11.80)**
Sewer Network	*Km*	-	110.56	**(110.56)**	145.38	**(145.38)**	191.18	**(191.18)**
Estimate of Requirement of Land for Sewage Treatment Alternatives								
Waste Stabilization Pond @ 4 acres / MLD	Acres/ MLD	-	27.28	**(27.28)**	35.92	**(35.92)**	47.20	**(47.20)**
Activated Sludge Process @ 0.25 acres / MLD	Acres/ MLD	-	1.71	**(1.71)**	(2.25)	**(2.25)**	2.95	**(2.95)**

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.

8.4.1 STRATEGIES FOR DEVELOPMENT

It is envisaged that during the year 2040, 95% population will be covered and sewage generation of 11.80 MLD from net water supply of 114 LPCD (80% of 135 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.
- 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 with a capacity of 11.80 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 scientific method of treatment such as Activated Sludge Process (ASP) is the best suitable treatment method in order to reduce the land requirement and to reduce health nuisance.

Before implementing the UGS scheme, ULB should achieve 100% water supply service connection (except slum areas) by expanding their coverage and augmenting the water supply system to ensure an average per capita water supply rate of 135 litres per day for the efficient operation of the proposed sewer system and willingness of the public to avail UGS connection by paying deposits and user charges.

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 Sankarankovil, 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 Sankarankovil 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 15 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 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.

8.4.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for underground sewerage during the project period (2008-2012):

Table 8.7: 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

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

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. It is proposed to implement the UGSS by, (i) Creation of assets for Pumping Capacity by 2025, (ii) Ultimate stage Treatment Capacity of 11.80 MLD (Activated Sludge Process), and (iii) sewer network of approximately 110.56 km length and creation of new Sewer Zones.

8.4.3 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 8.8: Estimated Sectoral Investment - Underground Sewerage Scheme
(Rs. in Lakhs)

Component	Activity	Investment
Sewerage Collection, Treatment & Management	Development of Sewerage System for Town	2298.85
	Provision of Sewage Treatment Plant	324.61
	Community toilet integration	180.34
	Recycling Plant & Reuse system	9.02
Sanitation Facility	Community toilets	9.62
Total		**7069.42**

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: Sankarankovil Municipality;
- Formulation/Implementation Agency: Sankarankovil Municipality;
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

8.5 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.

8.5.1 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.

- Watershed Planning: Watershed planning is required with respect to major basins (i.e. Patta Kulam) primarily to handle storm water. Such planning will enable the authorities to construct and maintain other man made drainage system within the town.

- 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 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 41 km of tertiary drains. It is proposed to construct pucca drains to all the major arterials and important roads to increase the pucca drain coverage to facilitate proper draining of storm water into natural drains.

- 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.

Principles to Strive for in Storm Water Management

These four principles provide a helpful framework for looking at storm water plans:

Control: Control measures can be broken down into two categories: source control and runoff control. Source control measures focus on pollution prevention. Their objective is to avoid or limit the generation of pollutants. Typical source control Measures include proper containment measures; spill prevention and cleanup, waste reduction, public education, illicit connection control, and reduced use of fertilizers and pesticides. Runoff control measures focus on minimizing runoff from new developments, and siting infrastructure to discourage development in environmentally sensitive areas. These controls are cost-effective if implemented in the site-planning phase of new development projects. Examples of these controls at the municipal planning level include zoning ordinances, subdivision regulations, buffers, and setback requirements. Runoff control measures also include techniques for slowing down runoff.

Collection: Capture and storage of runoff for more timely release is a vital component of most storm water management systems Retention basins are areas designed to hold the storm water permanently until it infiltrates into the ground. Detention basins are meant to slow and hold storm water before releasing it.

Conveyance: Conveyance systems are used to drain and direct the flow of runoff generated on a site. This is often done with catch basins feeding into storm sewers. More natural systems, using vegetated depressions and swales which look and function much like the natural drainage system, should be used whenever possible.

Cleansing: Control, conveyance, and collection of runoff mean little without provisions for cleansing. Cleansing is commonly accomplished through techniques that promote filtration and settling of pollutants and their natural processing by vegetation and soil. Filtering devices include engineered structures like sediment basins and porous pavement, but also include natural systems like stream buffers and vegetated filter strips. Depending on their design, many collection systems like ponds and constructed wetlands also serve to clean water.

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.

8.5.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents the priority actions and their implementation plan for storm water drainage during the project period (2008-2012):

Table 8.9: Priority Actions and Implementation Plan - Storm Water Drains

Component	Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Drains Rehabilitation	Rehabilitation of Major drains/channels		√	√	√	
	Rehabilitation of Storm Water Drains	√	√			
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 Sankarankovil 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.

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.

PROPOSALS

The ULB should increase the Service levels in terms of coverage, to achieve coverage of 130 percent of Road Length, through Pucca Built-up Drains. The ULB is recommended to adopt the strategy for rejuvenation of water bodies, to be used as sources for re-charging and as Summer Storage, 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 8.10 below.

Table 8.10: Demand, Supply and Required Augmentation of Drainage System for 2011

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2008		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Road Length	**Kms**	43.00	106.60	-	112.60	-
System Rehabilitation						
Strengthening of Open Pucca Drains	**Kms**	24.62	-	**(3.69)**	-	-
Strengthening of Closed Pucca Drains	**Kms**	-	-	-	-	-
Upgradation of Kutcha drains to Pucca drains	**kms**	-	-	**(7.00)**	-	-
Strengthening of Natural Drains	**Kms**	2.00	-	**(2.00)**	-	**-**
New Infrastructure						
Storm Water Drains - (@130% of road length)	**Kms**	24.62	138.58	**(114.06)**	146.38	**(121.76)**
Open Pucca Drains	**Kms**	24.62	104.01	(79.39)	109.85	(85.17)
Closed Pucca Drains	**Kms**	-	37.10	(37.10)	39.60	(39.60)
Kutcha drains	**Kms**	-	-	**-**	-	**-**

Source: Analysis

It is proposed to augment additional quantity, (i) Strengthening of approximately 3.69 km of Open Pucca Drains to meet the current gap, (ii), Strengthening of approximately 7.00 km of Open Kutcha Drains to meet the current gap, (iii) Strengthening, Desilting and Removal of encroachments of 2.0 km of Natural Drains (i.e. the drains to Ur kulam and Thiruneelakandar Urani) and improve networking, (iv) Construction of closed drains to a length of 79.39 km along SHs, and other main roads of the town and (v) Provision of 37.10 km length of storm water drains along the proposed road network during the short-term period.

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.

8.5.3 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 8.11: Estimated Sectoral Investment - Storm Water Drains
(Rs. in Lakhs)

Component	Activity	Investment
Drains Rehabilitation	Rehabilitation of Major drains/channels	492.47
	Rehabilitation of Storm Water Drains	103.71
Construction of Drains	Provision of storm water along existing roads	194.46
	Formation of new drains along proposed road network	2073.80
	Treatment and re-use of storm water	18.19
Total		**3003.92**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality & Public Works Department, Tamil Nadu.
- Monitoring Agency: State Pollution Control Board, Tamil Nadu.

8.6 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.

8.6.1 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.

Bus Stand facility: To make the new bus stand start functioning for the benefit of the people and also to decongest the activities in the core area are the prime requirement of the town.

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.

8.6.2 PRIORITY ACTIONS AND PROPOSALS

PRIORITY ACTIONS

Following table presents priority actions and their implementation plan for roads, traffic and transportation during the project period (2008-2012):

Table 8.12: 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	√	√			
	Traffic Island	√	√			
	Parking Lots/ complexes		√			
	Bus Stand Improvement	√				
	Ring Road Formation		√	√	√	
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 8.6.

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 1.75 m is approximately 112.60 km, as against 43.00 km for 2008. Service level based on Road Surface type is maintained at 5 percent for CC Roads, 65 percent for BT Roads and 30 percent for WBM Roads. It is proposed to improve the condition of existing roads through Upgradation, Widening and Strengthening of up to 5 km of road length.

Table 8.13: Demand, Supply and Required Augmentation of Internal Roads (excluding NH, SH, MDR's) for 2011

Project Sub-Component	Unit	Existing Status	Demand	
		Year 2008	Year 2011	
			Demand	Surplus/ (Deficit)
Road Length	Kms	**43.00**	**112.60**	**(69.60)**
Concrete Road	Kms	10.43	27.31	(16.88)
BT Road (Approved + Unapproved)	Kms	28.25	73.96	(45.71)
WBM Road	Kms	4.33	11.34	(7.01)
Earthen Road	Kms	-	-	**-**
System Rehabilitation – Upgradation of Internal Town Roads				
Repair of Concrete Roads	Kms	-	-	**(5.00)**
BT Roads to Concrete Roads	Kms	-	-	**(16.88)**
Restoration of BT Roads	Kms	-	-	**(0.00)**
WBM Roads to BT Roads	Kms	-	-	**(4.33)**

Project Sub-Component	Unit	Existing Status	Demand	
		Year 2008	Year 2011	
			Demand	Surplus/ (Deficit)
Earthen Roads to BT Roads	Kms	-	-	**(0.00)**
New Infrastructure – New Roads Formation				
Concrete Road	Kms	--	-	**(0.00)**
BT Road	Kms	--	-	**(58.26)**
WBM Road	Kms	--	-	**(7.01)**

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 58.26 km of Black Top Roads; (ii) Upgradation of BT to CC roads to a length of 16.88 km and (iii) New Formation of additional length of 7.01 km of WBM Roads.

Junction Improvement: Sankarankovil Town is densely populated, although the town's road system has as 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 foot over bridges, Junction landscaping, and improvement at selected Intersections.

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 is to 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

By-pass road: bypass road has to be constructed for SH- 41 (Rajapalayam – Tirunelveli road) to avoid the unnecessary traffic in to the town.

New Bus Stand: The newly constructed bus stand is not yet opened and it has to be opened for the operation. For the convenience of the people shuttle busses can be operated between old and new bus stand. Possibility of connecting the bypass road with the constructed bus stand has to be studied in detail by the ULB.

Implementation of Scheme Roads: In order to provide better circulation pattern for the future development of Sankarankovil town, roads identified under master plan need to be implemented under phased manner.

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.

8.6.3 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 8.14: 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	212.23
	up gradation of important roads	200.10
	Formation of new roads	615.47
	Widening of Major roads	1061.16
	Parallel Roads, New Link Roads	224.36
	Junction Improvements	24.26
	Culvert	3.64
	Signals	12.13
	Signage and markings	24.26
	Road divider & Medians	15.16
	Traffic Island	6.06
	Parking Lots/ complexes	60.64
	Bus shelters	21.83
	Bus Stand Improvement	90.96
	New ring road	3235.01
Improved Pedestrian Facilities, comfort and safety	Accessibility to the disadvantaged	30.32
	Pedestrian Crossings	6.06
	Foot paths	101.87
Total		**5945.51**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality and Highways Department.

8.7 SOLID WASTE MANAGEMENT

8.7.1 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

[1] Manual on Municipal Solid Waste Management.

undertake 3 trips per day with total waste carrying capacity of 9 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 1.25 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.

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 Sankarankovil 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 privatization, 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.

8.7.2 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 Sankarankovil 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 wastes 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 (2008-2012):

Table 8.15: 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)		√	√	√	
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 2008 for a Per Capita Generation of approximately 244 grams/day is estimated at 13.6 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 244 grams/day (based on present generation), against the generation and the demand for future is assessed.

The total Solid Waste Generation for 2025 is estimated at 20.35 MT. The Present Disposal system is Open Waste Dumping, creating potential health and environment hazard considering the quantity of waste generation, location of disposal site and its environs, hence further option for Scientific Regional Waste Disposal (i.e. Integrated Facility) can be explored on priority basis. The details of Service Levels for future are presented in Table 8.16.

Table 8.16: Design Criteria and Target Service Level

Description	Unit	Based On CPHEEO Norms
		2025
Population	In nos.	83077
Per capita Waste Generation	Grams/day	245
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	20.35

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 bio-degradable (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 privatization - 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 8.17 and Table 8.18 respectively.

Table 8.17 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 8.18: Details of Specification of Segregated Waste

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

Tricycles shall be used for door-to-door collection. The collected wastes are then conveyed to the dumper bins of capacity 1.25 MT. The available push carts and auto's shall be exclusively earmarked for areas having narrow streets/lanes where dumper placer cannot enter and where dumper bins cannot be placed. It is recommended to phase out waste collection through pushcarts and auto's.

The collected garbage is transported to the waste processing site by dumper placers of 2.5 MT - 3 MT capacity. Dumper placers have to collect the dumper bins and unload the wastes at inspection yard. Inspection yard at dumping site are constructed with tipping platform arrangement to unload the garbage from the dumper bins to perform screening of wastes. Demolition wastes / debris can be collected through existing Tippers or by lorries. Based on the recommendations above the following Table 8.19 gives the details of the vehicles and other infrastructure to be purchased to implement this new approach.

Table 8.19: Vehicle Requirement for Primary and Secondary collection

Sl. No.	Equipment	Primary Collection	Secondary Collection
		Tricycle	Dual Load Dumper Placers
1	Pay load or waste per trip (MT)	0.175	2.0 (1MT* 2 Nos)
2	Collectable quantity (MT)	20.35	20.35
3	No of trips per vehicle	--	3
4	No of vehicles required	146	5
5	Total Requirement with 25 % allowance	182	7
6	To be purchased	182	7

- Assumptions: 80% of the capacity is taken for the purpose of calculation of number of tricycles and number of dumper bins.

Table 8.20: Bin Requirement for Primary and Secondary collection

Particulars	Primary Collection	Secondary Collection
	Household Bins	Dumper Bins
Total Requirement	18880	32
Number of bins available	--	--
To be purchased	18880	32

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 Sankarankovil 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.

The factors that are considered in preparing plan for street sweeping in ULB are population and building density, road surface, pedestrian traffic, sand accumulation, and topography. In preparing a sweeping plan for ULB, the streets and public spaces are classified as residential streets, market areas, and open spaces, streets having no residential areas or having less density of habitation. The details of sanitary workers are presented in Table 8.21 after taking the above factors into consideration.

Table 8.21: Details of Sanitary Workers Requirement

S.No.	Classification of Roads	Length of Roads (km)	Number of Sweepers per km	Total No. of Sanitary Workers
1	**Highways**			
	National highway	5.4	4	22
	State highway	5.2	4	21
2	**ULB Maintained**			
a.	B.T.Road	28.25	2.5	71
b.	C.C. Road	10.43	2.5	27
c.	WBM Road	4.33	1.5	7
d.	Earthen Road	0.00	1.5	0
Total				148
Add 10 % for common places				15
Grand Total				**163**

In conclusion it is suggested to have good sweeping plan and to cover the entire Sankarankovil area including lanes, by-lanes and open spaces it is necessary to work out the “Beats”, after taking in to consideration the following requirements:

- Each sanitary worker has to do the sweeping and the cleaning of the tertiary and road side drains and transfer the sweepings in to the bins in the sweeper’s cart and deposit biodegradable and non-biodegradable separately in the containers/ bins kept at the intersection of sweeping routes.
- Separate crew equipped with appropriate implements may do De-silting of larger drains. Removal of floating debris and blockages should be the responsibility of sweepers.
- Part of the street sweeping can be outsourced to women SHGs or other agencies through a transparent process
- The ULB should publish notification inviting general public to complain and bring it to the notice of municipality in case their area is not cleared.
- Sanitary services should not suffer due to absence of any sanitation worker. In order to assure this, alternate arrangements must be made to ensure that all sanitary services are provided even when any sanitary worker is on leave or absent.

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 30. This indicates an overall capacity deficiency of 3 tons by 2011 for achieving 100% collection efficiency and a deficiency of 6 MT respectively by the year 2025.

System Demand: 7 Dual Loaded Dumper Placers with 32 numbers of containers will be required for collection of approximately 20.35 MT of waste generated in Sankarankovil at present.

Table 8.22: System Demand for Solid Waste Management

Sl.No	Type	Required per Design and CPHEEO norms
Primary Collection		
1	Tri-Cycles	223
2	Push-carts*	
4	Tipper Lorries - Used for Construction/Other Debris Collection	
5	Autos*	
Secondary Collection & Transportation		
1	Dumper Bins for Dual Dumper Placers (1.25 MT capacity)	32
2	Dual Dumper Placer Vehicles (2.5 to 3 MT cap.)	7
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.,	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

* Existing Fleet would be used in congested streets and lanes

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 70% of the waste generated in Sankarankovil is organic nature. In terms of the quantity, it is expected that approximately 9.52 tons of organic waste is to be generated which can be taken up for Composting. The land requirement for compost facility is estimated at 6 acres, 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 30 percent, quantifying to 4.08 ton, is proposed to be disposed through Sanitary landfill. The land requirement for Landfill facility is estimated at 4 acres. The Sanitary landfill is proposed for a volumetric capacity of 1.00 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 wastes which are being dumped in the dump yard are recommended to be ceased by scientific closure through implementation of an engineered landfill facility. The land shall then be reclaimed by creating green space over the earth cover by forming grass land and by placing adequate soil cover.

The study team suggested the ULB to utilize regional landfill facility (combining Tirunelveli Corporation & other ULBs in the region) which is under preparation by TNUIFSL to dispose inert waste and compost rejects.

The wastes which are being dumped in the dump yard are proposed to shut down by constructing the scientific closure by means of engineered landfill facility. The land shall then be reclaimed by creating green space over the earth cover by forming grass land and by planting trees.

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.

8.7.3 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 8.23: Estimated Sectoral Investment - Solid Waste Management

(Rs. In Lakhs)

Component	Activity	Investment
Primary Collection	Providing bins for Door-Door Collection	5.69
	Containerized Tri-Cycles	13.16

Table 8.23: Estimated Sectoral Investment - Solid Waste Management (Rs. In Lakhs)		
Component	**Activity**	**Investment**
	Tri-Cycle / Push Carts	0.30
	Equipment for Garbage Recovery Personnel	2.43
	Equipment for Street Sweeping Personnel	4.17
	Tipper Lorries - Used for Construction/Other Debris Collection	10.53
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)	1.78
Transportation	Dual Load Dumper Placer Vehicles	34.56
Waste Processing & Disposal	Integrated Waste Treatment	280.02
	Sanitary Landfill Facility	110.77
	Scientific Closure of the abandoned dump sites	77.46
Administration Complex	Administration and Utilities Complex	36.38
Total		**583.21**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality.
- Monitoring Agency: State Pollution Control Board, GoTN, Sankarankovil.

8.8 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.

8.8.1 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 Sankarankovil 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 (2008-2012):

Table 8.24: 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	√				

Table 8.24: Priority Actions and Implementation Plan - Street Lighting						
Component	**Activity**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
	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 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.
- Implementation of underground cabling along major roads.

Proposed augmentation of required components of the system is indicated in Table 8.25 below.

Table 8.25: Demand, Supply and Required Augmentation of Street lighting for 2011

Project Sub-Component	Unit	Existing Status	Demand			
			Year 2008		Year 2011	
			Demand	Surplus/ (Deficit)	Demand	Surplus/ (Deficit)
Street Lights	*Nos.*	1529	3513	**(1984)**	4315	**(2786)**
New Infrastructure						
Tube Light Fixtures	*Nos.*	1389	2810	**(1421)**	3452	**(2063)**
High Power Fixtures	*Nos.*	160	702	**(542)**	863	**(733)**
High Mast Lights	*Nos.*	1	1	**(0)**	1	**(0)**

Source: Analysis

It is proposed to augment additional quantity, (i) Installation of 2786 New Light Poles, (ii) Installation of New High Power Fixtures and Conversion of Tube Lights to High Power Fixtures, of 733 Nos., and (iii) Installation of 2063 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.

8.8.2 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 8.26: Estimated Sectoral Investment - Street Lighting (Rs. In Lakhs)		
Component	**Activity**	**Investment**
Service Improvement	Proposed SV lamps in uncovered areas	7.28
	Proposed FL lamps in uncovered areas	122.33
	Proposed High Mast light in major junctions	21.22

Table 8.26: Estimated Sectoral Investment - Street Lighting (Rs. In Lakhs)		
Component	**Activity**	**Investment**
	Proposed Timers for existing / new lights	63.06
	Proposed Sensor Lighting	60.64
	Proposed Solar Lights	30.32
	Proposed Power Saver (Capacitors)	0.06
	Proposed dedicated sub-station/transformers	1.52
	Proposed Tri-vector meters	0.97
Total		**307.40**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality and TNEB.

8.9 SLUM UPGRADING

8.9.1 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.

8.9.2 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 Sankarankovil. Hence, various Central & State Government programmes shall converge into the overall development plan.

8.9.3 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 upscaling 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.

8.9.4 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.

8.9.5 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 Sankarankovil 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.

Proposed Capital Works - Slum Upgrading
- Land Acquisition/purchase;
- 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.

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.
- 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.

Following table presents priority actions and their implementation plan during the project period (2008-2012):

Table 8.27 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			▬		

Table 8.27 Priority Actions and Implementation Plan - Slum Upgrading						
Sl. No.	**Activity**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
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					

8.9.6 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 8.28: Estimated Sectoral Investment - Slum Upgrading *(Rs. in Lakhs)*

Sl. No.	Particulars / Capital Investment Components	Investment
1.	Dwelling Units	224.18
2.	Water Supply	22.42
3.	Sewerage and Sanitation	44.84
4.	Solid waste Management	33.63
5.	Roads and Pavements	53.80
6.	Street Lights	5.38
7.	Community Centers	24.26
8.	Open Spaces/Gardens	24.26
	Total Capital Cost	**432.73**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality and TNSCB.

8.10 REMUNERATIVE PROPOSALS

Apart from the core infrastructure facilities the following remunerative proposals are also identified for Sankarankovil in consultation with the stakeholders for development in the

short-term period.

1. Improvements and expansion of market complex: During the stakeholders consultation it was stressed that the present daily market site is located near the bus stand causes hindrances to traffic hence the market has to expanded and additional shops are to be constructed.
2. Construction of Lodging & shopping Complex at Site opposite to Mookudhi Amman Koil: During Stakeholders consultation it was suggested to construct lodging and a shopping complex at a carpet area of 6,000 sq.ft in land opposite to Mookudhiamman kovil.
3. Provision of Market with godowns and storage Unit: The town is the market town for the agricultural produce from the neighboring villages, but there is no adequate facilities are available for storing and marketing the products. Hence it was suggested to setup the following facilities in the existing market.
4. Development of Perfume factories: Since large amount of the Flowers are grown in the adjacent villages of the town, a perfume /scent factory can be constructed in a PPP, BOT mode in the town.
5. Providing boating Facility in Thiruneelakandaoorani: Development of a park with boating facility can be done in the town, which would a major recreational activity for the people in the town and also for who visit the town.

Following table presents priority actions and their implementation plan during the project period (2008-2012):

Table 8.29: Priority Actions and Implementation Plan – Remunerative Proposals

Component	Activity	Y1	Y2	Y3	Y4	Y5
Service Improvement	Improvements and expansion of market complex	√	√			
	Construction of Lodging & shopping Complex at Site opposite to Mookudhi Amman Koil:	√	√			
	Provision of Market with godowns and storage Unit	√	√			
	Providing boating Facility in Thiruneelakandaoorani		√	√	√	
	Development of Perfume factories		√	√	√	

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

Table 8.30: Remunerative Proposals *(Rs. in Lakhs)*

Sl. No.	Particulars / Capital Investment Components	Investment
1.	Improvements and expansion of market complex	19.06
2.	Construction of Lodging & shopping Complex at Site opposite to Mookuthi Amman Koil	40.02
3.	Provision of Market with godowns and storage Unit	16.68
4.	Providing boating Facility in Thiruneelakandaoorani	8.58
5.	Development of Perfume factories	14.29
6.	Construction of shopping Complex at Site near to Muppdhathi Amman Koil	35.73
7.	Shopping Complex at Thiruvankadam Salai	19.06
8.	Constrution of Shops at Ramaswamyapuram	24.39
Total Capital Cost		**177.81**

8.11 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.

8.11.1 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.

Proposed Capital Works - Conservation of Water Bodies

- De-silting of existing water bodies;
- Rehabilitation of sidewalls and bed of water bodies;
- Development of perimeter area; and
- Water treatment and recirculation systems.

Rehabilitation of ecosystems: Efforts need to be made to develop an integrated catchment management plan for water bodies existing in the town. Further hydraulic capacity of these river 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.
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:

- De-silting of existing water bodies and development of the bed lining;
- Re-development of tank/lake bunds through slab lining;
- Re-development of perimeter area - paved walkway, area lighting, compound wall/fencing, access control and landscaping;
- Water treatment and recirculation including passive aeration systems;
- Reconstruction and restoration of drains leading into and out of the water bodies including by-pass and flood control; and
- Installation of water quality monitoring stations.

8.11.2 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.

8.11.3 RAIN WATER HARVESTING

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

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

PROTECTION OF ENVIRONMENTAL RESOURCES

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

SLUM NETWORKING PROGRAM

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

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.

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

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.

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.

8.11.4 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.

8.11.5 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.

8.11.6 PRIORITY ACTIONS

Following table presents priority actions and their implementation plan during the project period (2008-2012):

Table 8.31: Priority Actions and Implementation Plan – Parks & Greening Development

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

8.11.7 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 8.32: Estimated Sectoral Investment – Parks & Greening Development *Rs. in Lakhs*

Sl. No.	Sector / Component Description	Investment
1.	Rehabilitation and Improvement of Water Bodies	1755.29
2.	Creation of new park	60.11
3.	Greening / Avenue Development	10.64
	Total Capital Cost (incl. contingencies, supervision, administration and consulting charges)	**1826.04**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality and Forest Department.

8.12 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.

8.12.1 POLICY FRAMEWORK AND PRIORITY ACTIONS

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

STRATEGY

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

PROPERTY TAX

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

ACCOUNTING AND AUDITING

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

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT

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

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

URBAN ENVIRONMENTAL MANAGEMENT

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

ACCESS OF URBAN SERVICES TO THE POOR

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

In addition to the above, the GoI has formulated a Reform Agenda under JNNURM. Adherence to this Reform Agenda and Timeline is mandatory for accessing funds under the proposed UIDSSMT. Good governance in the municipal context stands on two broad principles, viz. transparency and civic engagement and capacity building measures. Following sections highlight key elements of the above two principles of good governance specific to the ULB.

TRANSPARENCY AND CIVIC ENGAGEMENT IN MUNICIPAL MANAGEMENT

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

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

CAPACITY BUILDING OF THE ULB

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

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

of the training programmes.
- Capacity building to better position the urban local body to employ highly qualified staff and seek superior quality of out-sourced services.

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

TECHNOLOGY INTERVENTIONS THROUGH COMPUTERIZATION

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

HUMAN RESOURCE DEVELOPMENT

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

CITIZEN ORIENTATION AND INTERFACE

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

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

8.12.2 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. 2.00 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.

8.13 SOCIAL AMENITIES

This section pertains to the proposed development initiatives and specific improvements that are recommended to upgrade the existing social amenities and supporting infrastructure.

8.13.1 EDUCATION

Existing school buildings needs to improve the Tiled / Thatched roof to Pucca RCC structure with improved basic infrastructure facilities like protected water supply, sanitation facility, lighting facility etc. improvement of facilities in Noon Meal Centres were also highlighted by the stakeholders during consultation workshop.

Apart from the aforementioned basic amenities, provision of computer facility, furniture / other accessories, sports equipments are also included in the capital investment estimate for Sankarankovil town.

8.13.2 HEALTH

Government Hospital in the town requires improvement facilities like water supply, sanitation facility, waiting area / seating arrangements for out patients, lighting facility, modernized medical care facilities, additional buildings for maternity ward, facilities for in-patients etc.

8.13.3 BURIAL AND BURNING GROUNDS

Burial grounds in the town requires improvement facilities like pavement, access roads, compound hall / fencing, water supply facility, gasifier facility, burning shed, lighting facility including solar lights, sanitation facility including bathing, prayer hall, landscaping, tree plantation etc.

8.13.4 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 8.33: Estimated Sectoral Investment – Social Amenities *Rs. in Lakhs*

Sl. No.	Sector / Component Description	Investment
1.	Improvement of Education facility	212.23
2.	Improvement of Health facility	242.55
3.	Improvement of Burial Grounds	272.87
	Total Capital Cost (incl. contingencies, supervision, administration and consulting charges)	**727.65**

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: Sankarankovil Municipality.
- Formulation/Implementation Agency: Sankarankovil Municipality, Education Department and Health Department.

9

CAPITAL INVESTMENT PLAN & PROJECT PRIORITIZATION

9.1 CAPITAL INVESTMENT PLAN

The Capital 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

9.1.1 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.

9.1.2 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.

9.1.3 INSTITUTIONALISING THE CIP PROCESS

The Capital 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 parastatals 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.

9.1.4 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.

9.2 CAPITAL FACILITIES, INVESTMENT PHASING AND IMPLEMENTATION

The Capital 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 Capital 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 Sankarankovil Local Planning Area.

9.3 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 2008-2009 rates of implementation;
- Requisite cost escalation for contracts over 12-month implementation period; and
- Requisite provision for unforeseen items of work and physical contingencies.

9.4 SUMMARY OF INVESTMENTS

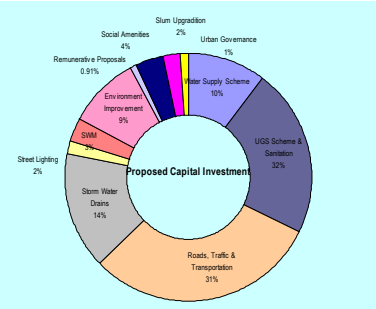
The total estimated capital investment required for providing efficient services to the present population and future population of ULB by the year 2040 is Rs. 19,466 lakhs. The planning horizon for the projects identified in sectors of urban poor slum improvements, land use development planning and 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.

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.

Table 9.1 Summary of Sector-wise Total Investment Proposed

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
1	Water Supply System	1,985.59	11.02
2	Underground Sewerage Scheme	2,822.43	15.67
3	Roads, Traffic and Transportation	5,945.51	33.01
4	Storm Water Drains	3,003.92	16.68
5	Street Lighting	307.40	1.71
6	Solid Waste Management	583.21	3.24
7	Environment Improvement	1,826.04	10.14
8	Remunerative Proposals	177.81	0.99
9	Social Amenities	727.65	4.04
10	Slum Upgrading	432.75	2.40
11	Urban Governance	200.18	1.11
	Total Capital Investment	**18,012.48**	**100.00**



The above table describes the sector wise capital investment proposed for the infrastructure development of Sankarankovil town. Out of all the basic amenities, Road, Traffic & Transportation sector accounts to 5946 lakhs which is about 33 percent of total capital investment estimated each. It is then followed by Storm water improvement and Underground sewerage scheme measures with a share of 17% and 16% respectively. Improvement of water Supply accounts to a share of 11 percent of capital investment proposed.

9.4.1 SUMMARY OF INVESTMENTS – IMPLEMENTATION BY ULB

From the discussion with Technical Review Committee and stakeholders of the ULB projects which are under the implementation of ULB only considered for further evaluation and appraisal. Sector wise projects developed for the implementation of ULB are given below for reference purposes.

Table 9.2 Summary of Sector-wise Total Investment Proposed – Implementation by ULB

Sl.No	Sectors	Estimated Investment (Rs. In Lakhs)	% to Total
1	Water Supply Scheme	1,899.03	13.49
2	Underground Sewerage Scheme & Sanitation	2,822.43	20.05
3	Roads, Traffic & Transportation	2,710.50	19.25
4	Storm Water Drains	2,390.17	16.98
5	Street Lighting	307.40	2.18
6	Solid Waste Management	583.21	4.14
7	Environment Improvement	1,826.04	12.97
8	Remunerative Proposals	177.81	1.26
9	Social Amenities	727.65	5.17
10	Slum Upgradition	432.75	3.07
11	Urban Governance	200.18	1.42
	Total Capital Investment	**14,077.16**	**100.00**

Out of all the basic amenities, Underground Sewerage Scheme & Sanitation accounts to Rs.2822 lakhs which is about 20 percent of total capital investment estimated. It is then followed by Roads, Traffic & Transportation with a share of 19 percent. Storm water improvements accounts to a share of 17 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.

9.5 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 Sankarankovil, 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 9.3 outlines the overall priority ranking based on an assessment of need and as evinced by the stakeholders.

Table 9.3: Sector wise Ranking of Priority

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

Water Supply, Roads, Traffic & Transportation, Solid Waste Management and Underground Sewerage Scheme are dominating the priority requirement for Sankarankovil due to the following factors:

- Improvement to the Roads, Traffic & Transportation takes the 1st rank. Since the town is not provided with proper road facility leads to congestion in the core area of the town. Formation of new ring road will ease the considerable traffic in the town.
- Moreover the encroached narrow roads in the main road causing congestion and need to be improved. Absence of road hierarchy and Presence of blind curves along the major road leads to frequent accidents.
- Sewerage and Sanitation is ranked as No. 2 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. Further, open drains convey sullage and sewage to adjacent water bodies and/or low-lying areas like PattaKulam, Thiruneelakandar Orani and Malayan Orani resulting in unhygienic conditions posing a significant health risk.
- Remunerative proposals are given with 3rd priority to improve the municipality income and create reliable services for the town. Since it is a developing town, social amenities are the need of the hour and it is ranked no. 3.
- Water Supply and Distribution System is ranked as No.4 since the town experiences low supply level in some wards, even though the system is supported by Puliangudi, Alangulam, Manur Rivers CWS schemes.
- Due to continuous exploitation of groundwater, water table has significantly reduced, resulting in significant reduction in yield. There are no sustainable potential sources of groundwater in the region which can meet the increasing future demand.
- Next to Water Supply, Solid Waste Management is ranked as No. 5. In consultation with stakeholders, it was observed that growing population and development of commercial establishments put immense pressure on the service delivery of ULB especially in the Solid Waste Management sector.
- Sub-Sectoral priority identified during stakeholders consultation is given in the Table 9.4.

Table 9.4: Sub-Sectoral Priority

Water Supply		
Component	**Activity**	**Priority**
Water Resource Management	Water Supply Improvement Scheme to Added areas	4
	Construction of additional Storage reservoirs	3
	Development of Distribution network for added areas	1
	Rainwater Harvesting Measures	2
	Re-cycle and Re-use treated water	5
Augmentation of Water Supply System	Source Augmentation / Treatment Plant	1
	Redistribution/Re-zoning of D-system in existing areas	2
	Expansion of House Service Coverage	3
	Installation of Meters	4
	Construction of summer storage tank	7

	Upgradation and Improvement of Distribution System	5
	Rehabilitation of Existing Service Reservoirs	6
Underground Sewerage Scheme and Sanitation		
Component	**Activity**	**Priority**
Sewerage Collection, Treatment & Management	Development of Sewerage System for Town	1
	Provision of Sewage Treatment Plant	2
	Recycling Plant & Reuse system	3
Sanitation Facility	Community toilets	4
Roads, Traffic and Transportation		
Component	**Activity**	**Priority**
Improved Safety, Service delivery and Customer Satisfaction by providing better infrastructure	Strengthening existing roads	4
	up gradation of important roads	3
	Formation of new roads	10
	Widening of major roads	5
	Parallel roads, New link roads	9
	Junction Improvements	11
	Culverts	15
	Bus Shelters	13
	Signals	6
	Signage and markings	7
	Road divider & Medians	8
	Traffic Island	14
	Parking Lots/ complexes	12
	Bus Stand Improvement	1
	New ring road	2
Improved Pedestrian Facilities	Accessibility to the disadvantaged	3
	Pedestrian Crossings	2
	Foot paths	1
Storm Water Drains		
Component	**Activity**	**Priority**
Drains Rehabilitation	Rehabilitation of Major drains/channels	2
	Rehabilitation of Storm Water Drains	1
	Formation of Interceptor/ Diverter Channels	3
Construction of Drains	Provision of storm water along existing roads	1
	Formation of new drains along proposed road network	2
	Treatment and re-use of storm water	3
Street Lighting		
Component	**Activity**	**Priority**
Service Improvement	Proposed SV lamps in uncovered areas	2
	Proposed FL lamps in uncovered areas	1
	Proposed High Mast light in major junctions	3
	Proposed Timers for existing / new lights	4
	Proposed Sensor Lighting	8
	Proposed Solar Lights	7
	Proposed Power Saver (Capacitors)	5
	Proposed dedicated sub-station/transformers	6
	Proposed Tri-vector meters	9
Solid Waste Management		
Component	**Activity**	**Priority**
Primary Collection	Providing bins for Door-Door Collection	2
	Containerized Tri-Cycles	3
	Push Carts	4
	Equipment for Garbage Recovery Personnel	5
	Equipment for Street Sweeping Personnel	6
	Tipper Lorries - Used for Construction/Other Debris Collection	1
Secondary Collection	Container Bins for Residential Areas (1.25 MT Capacity)	1

	Container Bins for Market, Bus Stand, Commercial, Railway Station etc., (1.25 MT Capacity)	2
	Transfer Stations Modernisation	3
Transportation	Dual Load Dumper Placer Vehicles	1
	Mechanical Street Sweepers - Tractor Mounted	2
Waste Processing & Disposal	Integrated Waste Treatment	3
	Sanitary Landfill Facility	4
	Scientific Closure of the abandoned dump sites	5
Administration Complex	Administration and Utilities Complex including HT Electrical Sub-station	1
Environmental Improvement		
Component	**Activity**	**Priority**
Service Improvement	Rehabilitation and Improvement of Water Bodies	1
	Creation of new park	2
	Greening / Avenue Development	3
Remunerative Proposals		
Component	**Activity**	**Priority**
Service Improvement	Improvements and expansion of market complex	1
	Construction of Lodging & shopping Complex	2
	Provision of Market with godowns and storage Unit	5
	Providing boating Facility in Thiruneelakandar oorani	3
	Development of Perfume factories	4
Slum Upgradation		
Component	**Activity**	**Priority**
Service Improvement	Dwelling Units	6
	Water Supply	1
	Sewerage and Sanitation	5
	Solid waste Management	4
	Roads and Pavements	2
	Street Lights	3
	Community Centers	7
	Open Spaces/Gardens	8

BORROWING CAPACITY OF THE TOWN CONSIDERING 30% DSR

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

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

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

Table 9.5: Borrowing & Investment Capacity of ULB (*Rs. In lakhs)*

Details	2008-09	2009-10	2010-11	2011-12	2012-13	Total
Borrowing Capacity	744.31	447.95	291.25	312.65	0.00	**1796.17**
Investment Capacity	827.01	497.72	323.61	347.39	0.00	**1995.74**

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

From the above table, borrowing capacity of the town is estimated as Rs. 1,796.17 lakhs and the investment capacity of the ULB is estimated as Rs. 1,995.74 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 CMA, TNUIFSL, ULB and other stakeholders. It was then finalized that the projects within the borrowing capacity (i.e. Rs. 1,796.17 lakhs) of the ULB would be taken up for implementation. Taking into consideration the present policies and priorities of CMA and other stakeholders, the study team suggested the ULB to implement the **CCBP IDENTIFIED PROJECTS WITHIN THEIR BORROWING CAPACITY** for a short-term period.

As specified earlier, although the sectors have been ranked for prioritization, it is recommended that the Sankarankovil Municipality 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. Sector wise prioritized investment needs based on the borrowing and investment capacity of the ULB are given in the following Tables.

Table 9.6: Phasing of Proposed Capital Investment – Short-term Period

Sl.No	Sectors	2008-09	2009-10	2010-11	2011-12	2012-13	Total
1	ROADS, TRAFFIC AND TRANSPORTATION	827.01	497.72	323.61	347.39	0.00	1995.74
	Total	827.01	497.72	323.61	347.39	0.00	1995.74

Considering the borrowing capacity of the ULB, the sector wise breakup of projects and their investment requirement are phased for short-term and long-term implementation in consultation with the stakeholders of ULB and CMA.

Table 9.7: Priority Based Phasing of Proposed Capital Investment – Sector wise (Rs. in lakhs)

Sl. No	Sectors	Short-Term Period					Total	Long-Term Period	Cost (Rs. in lakhs)
		2008-09	2009-10	2010-11	2011-12	2012-13			
A.	ROADS, TRAFFIC AND TRANSPORTATION								
1	Provision of Bus Shelters		21.83				21.83	0.00	21.83
2	Strengthening existing roads	150.00	62.23				212.23	0.00	212.23
3	up gradation of important roads	100.00		100.10			200.10	0.00	200.10
4	Formation of new roads	61.79	150.00	100.00	150.00		461.79	153.68	615.47
5	Widening of Major roads	300.00	150.00	100.00	150.00		700.00	361.16	1061.16
6	Parallel Roads, New Link Roads	100.00	83.66	23.51			207.17	17.19	224.36
7	Junction Improvements	24.26					24.26	0.01	24.26
8	Culvert						0.00	3.64	3.64
9	Signals						0.00	12.13	12.13
10	Signage and markings						0.00	24.26	24.26
11	Road divider & Medians						0.00	15.16	15.16
12	Traffic Island						0.00	6.06	6.06
13	Parking Lots/ complexes				47.39		47.39	13.25	60.64
14	Bus Stand Improvement	90.96					90.96	0.00	90.96
15	Accessibility to the disadvantaged						0.00	30.32	30.32
16	Pedestrian crossings						0.00	6.06	6.06
17	Foot paths		30.00				30.00	71.87	101.87
	GRAND TOTAL	827.01	497.72	323.61	347.39	0.00	1995.73	714.77	2710.50

In the prioritization, projects such as Improvements and expansion of market complex, Construction of Lodging & shopping Complex at Site opposite to Mookuthi Amman Koil, Provision of Market with godowns and storage Unit, Providing boating Facility in

Thiruneelakanda oorani, Development of Perfume factories, Construction of shopping Complex at Site near to Muppidathi Amman Koil, Shopping Complex at Thiruvenkadan Salai and Construction of Shops at Ramaswamiyapuram are not considered since these projects requires major loan funding and hence the study team suggested ULB to go for various funding options suggested in the section 11.4 of Final Report.

10 MUNICIPAL FINANCIAL STATUS

10.1 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.

10.1.1 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.

Table 10.1: Summary of Finances of Sankarankovil

SUMMARY STATEMENT							
Sl. No.	Account Head	(All figures in Rs. Lakhs)					
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
REVENUE ACCOUNT							
1	Income	385.61	341.12	343.06	456.40	449.89	500.19
2	Expenditure	342.11	351.74	377.39	288.72	337.11	306.93
3	Status (Surplus/Deficit)	43.50	(10.62)	(34.33)	167.68	112.78	193.26
CAPITAL ACCOUNT							
1	Income	138.50	143.78	193.50	261.09	129.83	179.47
2	Expenditure	45.37	75.63	111.50	89.64	173.59	71.90
3	Status (Surplus/Deficit)	93.13	68.15	82.00	171.45	(43.76)	107.57
OVERALL STATUS							
1	Income	524.11	484.90	536.56	717.49	579.72	679.66
2	Expenditure	387.48	427.37	488.89	378.36	510.70	378.83
3	Status (Surplus/Deficit)	136.63	57.53	47.67	339.13	69.02	300.83

Source: Sankarankovil; 2008

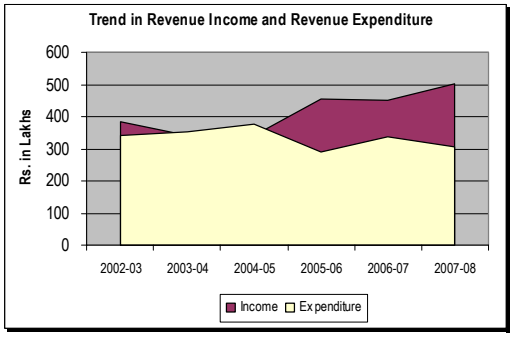
For the purposes of analysis, all the account items are broadly categorized under the following major heads:

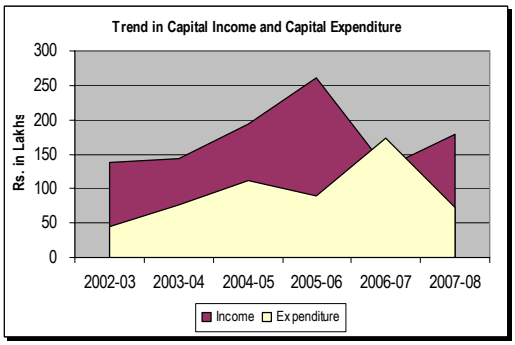
- Revenue Account: All recurring items of income and expenditure are included under this head. These include taxes, charges, salaries, maintenance expenses, debt servicing, etc.
- Capital Account: Income and expenditure items under this account are primarily non-recurring in nature. Income items include 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 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.

10.1.2 FINANCIAL STATUS

Financial assessment of the Sankarankovil Municipality has been carried out based on the financial information collected for six financial years, i.e. FY 2002-03 to FY 2007-08. without considering the FY 2002-03 revenue income of the ULB steadily increasing from the levels of Rs.341.12 lakhs in FY 2003-04 and Rs. 500.19 lakhs in FY 2007-08, at a compounded annual growth rate (CAGR) of 4.62 percent. However, the revenue expenditure has shown a negative CAGR of 0.99 percent which is lesser than the growth rate of revenue income during this period. Sankarankovil has maintained an overall surplus throughout the assessment period of past 6 years except FY 2003-04 and FY 2004-05. 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.

10.1.3 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. Property tax is the major source of tax revenue while other taxes include

DETAILS	COMPOSITION (%)
Own Tax revenues	27.24
Own Non-tax revenues	31.37
Assigned Revenues	06.00
Devolution Fund	35.38

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.

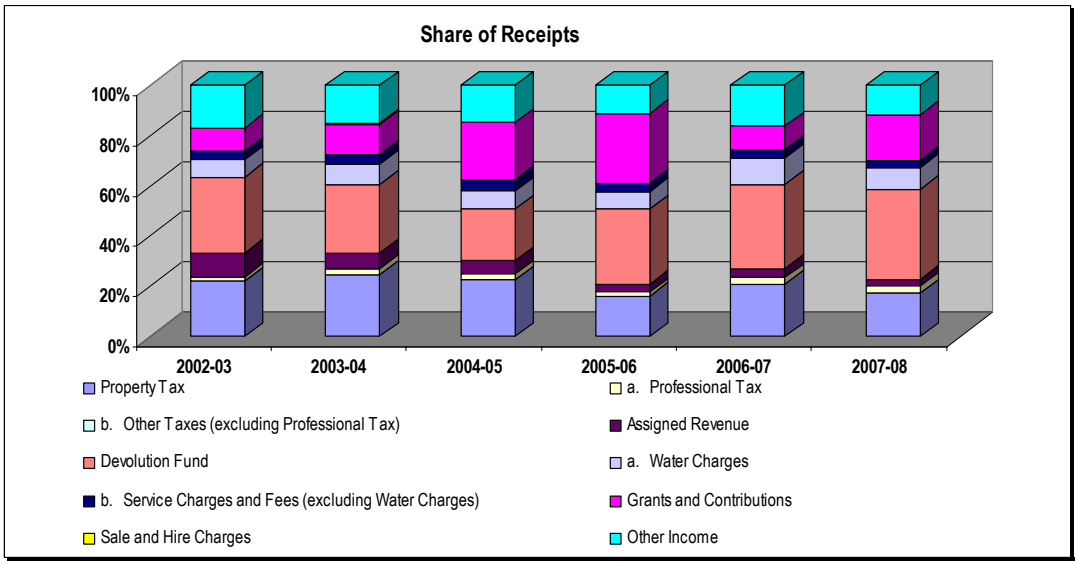
Major source of revenue income is in the form of Assigned Revenue and Devolutions, which contributes to about half of the revenue income on average. As a whole, revenue income has registered an annual growth of 4.62 percent on average during the assessment period.

Table 10.2: 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	93.56	95.30	100.19	100.33	102.93	105.57
2	Other Taxes						
	a. Profession Tax	7.51	8.66	10.31	11.55	13.50	17.38
	b. Others	0.00	0.00	0.00	0.00	0.00	0.00
3	Assigned Revenue	41.08	25.00	23.69	19.45	17.55	15.31
4	Devolution Fund	127.17	104.68	91.43	188.94	166.29	220.69
5	Service Charges and Fees						
	a. Water Charges	29.95	31.60	31.92	42.88	52.89	52.73
	b. Service Charges and Fees (excluding Water Charges)	14.43	15.41	19.90	22.19	15.78	17.59
6	Sale and Hire Charges	0.00	1.97	0.00	0.00	0.03	0.00
7	Other Income	71.91	58.51	65.62	71.06	80.92	70.92
SECTORAL CONTRIBUTION TO TOTAL REVENUE							
1	Property Tax	17.85	19.65	18.67	13.98	17.76	15.53
2	Other Taxes						
	a. Profession Tax	1.43	1.79	1.92	1.61	2.33	2.56
	b. Others	0.00	0.00	0.00	0.00	0.00	0.00
3	Assigned Revenue	7.84	5.16	4.42	2.71	3.03	2.25
4	Devolution Fund	24.26	21.59	17.04	26.33	28.69	32.47
5	Service Charges and Fees						
	a. Water Charges	5.71	6.52	5.95	5.98	9.12	7.76
	b. Service Charges and Fees (excluding Water Charges)	2.75	3.18	3.71	3.09	2.72	2.59
6	Sale and Hire Charges	0.00	0.41	0.00	0.00	0.01	0.00
7	Other Income	13.72	12.07	12.23	9.90	13.96	10.43
GROWTH TRENDS IN %							
1	Property Tax		1.86	5.13	0.15	2.59	2.56
2	Other Taxes		0.00	0.00	0.00	0.00	0.00
	a. Profession Tax		15.34	19.08	11.99	16.91	28.72
	b. Others		--	--	--	--	--
3	Assigned Revenue		(39.16)	(5.23)	(17.92)	(9.77)	(12.72)
4	Devolution Fund		(17.68)	(12.66)	106.65	(11.99)	32.71
5	Service Charges and Fees		0.00	0.00	0.00	0.00	0.00
	a. Water Charges		5.50	1.01	34.36	23.34	(0.32)
	b. Service Charges and Fees (excluding Water Charges)		6.76	29.19	11.47	(28.90)	11.53
6	Sale and Hire Charges		--	(100.00)	--	900.00	(100.00)
7	Other Income		(18.64)	12.15	8.29	13.88	(12.37)

Source: Sankarankovil; 2008

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 devolution funds is higher, it means that the local body's dependence on devolutions and grants are much higher and hence they are need to generate more own revenues. As for the composition of income of Sankarankovil Municipality, the major contributors are Devolution Fund which constitutes around 35% of total income, followed by Own Non-taxes with 31% and own tax revenues take approximately 27% of the share. The composition of income during the last five years is graphically represented as follows-

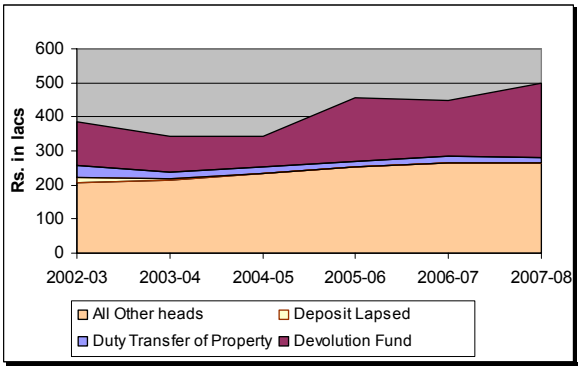


The analysis indicates that a higher revenue generation is by way of Assigned Revenue and Devolutions from GoTN and GoI which is roughly to the extent of 41%. It is interesting to note that major income under this head comes from the "Devolutions". This forms 35% of the total income. It is followed by Own non-tax Revenue of 31% to total income. This is a very good indicator of the growth of the town.

Even though there is a income arising out of income from weekly market, consultants feel that this may not be a sustainable income, as it depends on the occupancy ratio of the stalls, 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 showing consistent growth in the current collection and the arrear demand is decreasing in the assessment period.

Heads of Revenue Income	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Duty Transfer of Property	37.37	18.26	19.69	15.82	16.90	15.31
Devolution Fund	127.17	104.68	91.43	188.94	166.29	220.69
Deposit Lapsed	15.99	2.14	0.00	0.00	0.00	0.00
All Other heads	205.08	216.04	231.94	251.64	266.70	264.18
Total Revenue Income	**385.61**	**341.12**	**343.06**	**456.40**	**449.89**	**500.19**

The revenue income is consistently increasing after FY 2003-04 as a whole. Income is decreasing from a level of 385.61 lakhs in FY 2002-03 to 341.12 lakhs in FY 2003-04. These two different trends are the result of fluctuations in the Duty transfer of property (Assigned Revenue) and Devolution funds. These two revenue sources are not being in command of ULB and income statement is shown in the following chart. Further the income gained through deposits lapsed became nil after FY 2004-05 as shown in the above table. With out considering the fluctuations in the assigned revenue, devolution fund and deposits lapsed, the revenue income is steadily increasing.



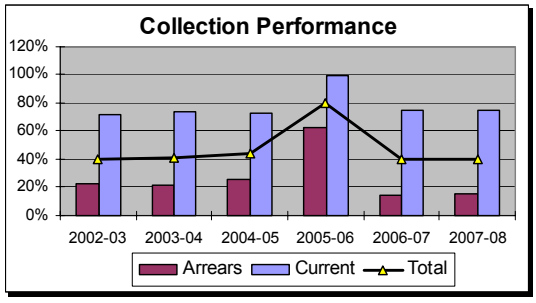
Property Tax: The most important category in the own sources of income is the property tax[5]. This tax is imposed on land and buildings depending on their nature of use. Property tax component comprises holding tax, latrine / drainage tax and lighting tax. Property tax is based on the Annual Rental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

Table 10.3: Demand-Collection-Balance (DCB) Statement for Property Tax (Rs.

Particulars	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Total Number of Assessments	15053	15342	15425	15630	17353	17351
Growth in Assessments	--	1.92	0.54	1.33	11.02	-0.01
Demand						
1. Arrears	77.55	71.55	67.31	83.41	0.00	66.85
2. Current	41.48	42.33	45.20	73.06	46.56	47.74
3. Total	119.03	113.88	112.51	156.46	111.42	114.59
Collection						
1. Arrears	17.62	15.46	16.92	52.44	9.61	10.22
2. Current	29.94	31.12	32.72	73.06	35.04	35.76
3. Total	47.55	46.57	49.64	125.50	44.65	45.98
Balance						
1. Arrears	59.93	56.10	50.39	30.97	55.25	56.64
2. Current	11.54	11.21	12.48	0.00	11.52	11.98
3. Total	71.48	67.31	62.86	30.97	66.77	68.62
Collection Analysis						
1. Arrears	22.72	21.60	25.14	62.87	0.00	15.28
2. Current	72.17	73.51	72.40	100.00	75.26	74.90
3. Total	39.95	40.90	44.13	80.21	40.08	40.12

Source: Sankarankovil; 2008

The ARV is calculated based on the plinth area, building and land cost. The present tax rate is 20.00 percent of the ARV, which comprises 6 percent of ARV on general purpose tax, 7 percent on water tax, 1.5 percent on latrine/ drainage tax, 1.5 percent on lighting tax, 1.5 percent on scavenging tax and 2.5 percent on education tax. ULB is empowered to revise the property tax at least once in five years (quinquennial revision).



The property tax current demand has steadily increased from Rs. 41.48 lakhs in FY 2002-03 to Rs. 47.74 lakhs in FY 2007-08. This significant increase has been due to the proactive efforts of the ULB to bring in more assessments into the tax net and improve collection performance as there was no tax revision earlier during this period. The arrear demand is consistently decreasing and as a whole, the property tax component has registered an average annual growth rate of 2.46 percent during the assessment period.

Property tax demand-collection-balance (DCB) statement analysis indicates a uniform increase in number of property tax assessments during the last six financial years with an average increase of over 2.96 percent per annum. Average property tax per property works out to Rs. 618 while average ARV of the property works out to Rs.1341 during the assessment period. Similar growth trends are also observed in current property tax demand, which has increased from Rs. 41.48 lakhs in FY 2002-03 to Rs. 47.74 lakhs in FY 2007-08. During the same assessment period, the arrear demand has decreasing from Rs. 77.55 lakhs in FY 2002-03 to 66.85 in FY 2007-08. On average, about 50 percent of the total demand constitutes the arrears. The overall collection performance was about 48 percent on average 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 2.74 percent of the total tax revenue. Professional tax has considerably

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.

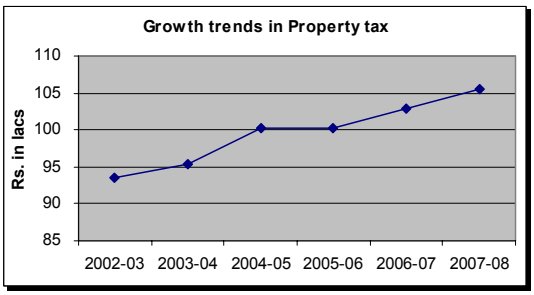
grown over the assessment period, from 7.51 lakhs in FY 2002-03 to the level of 17.38 lakhs in FY 2007-08 with an average annual growth rate of 4.02 percent. The other taxes contributed is nil for this municipality average during the assessment period.

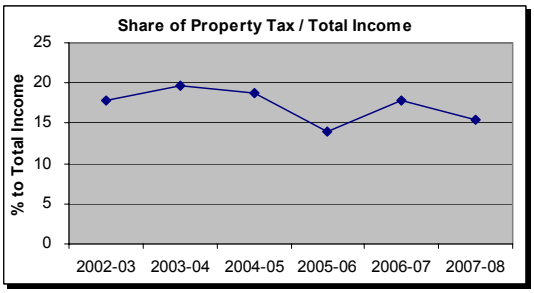
Assigned Revenues: Assigned revenues include revenues transferred to the ULB by the GoTN under specific acts. This source of revenue income comprises duty on transfer of properties, entertainment tax / public resort and other assigned revenues. Income through assigned revenue contributes to about 6 percent of revenue income, the growth of which however has been inconsistent. Other sources of assigned revenue include duty on transfer of properties, entertainment tax/public resort, and others and these sources have not contributed during the last three financial years of the assessment period as indicated. As a whole, the assigned revenue has shown inconsistent growth rate during the assessment period.

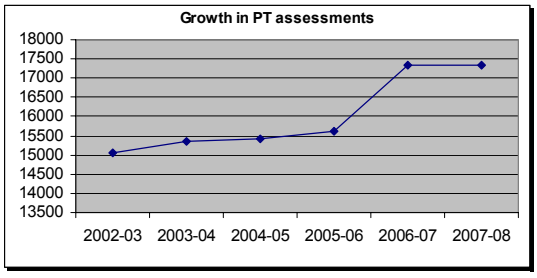
Devolution: Based on the Second State Finance Commission recommendations, GoTN transfers 8% of its state revenue to the local governments. It is the one of the single largest source of revenue to the ULB, it accounts to 35.38% of total revenue over the assessment period.

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. Daily market fees properties is the major contributor among non-tax revenue items, which contributes about 5.27 percent on average, about Rs. 21 lakhs per annum on average during the assessment period.

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



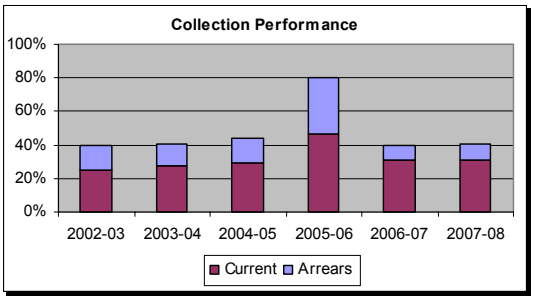




The above graph represents growth in property tax is gradual but steady. However if we look at the share of property tax to the total income it has been fluctuating between 14 to 20% over the last six years which is indicated in the above graph. There are two reasons for such low composition, (i) due to lack of collections, (ii) lack of growth of no. of assessments. Analysis of growth of no. of assessments reveal that the growth in assessments has been steeply increasing over the past 6 years. The collection performance from the figures in the DCB statement indicates that collections have fluctuated between 40% in FY 2006-07 and 80% in FY 2005-06. Therefore, the low composition of property tax to total income could require an entire relook of the properties in the town,

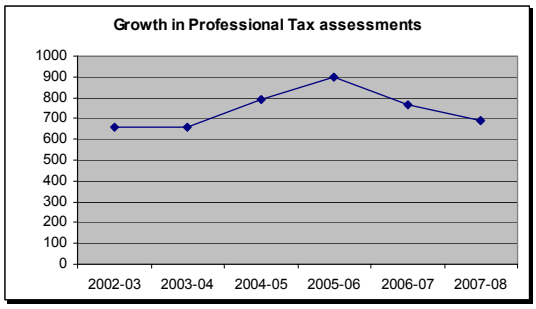
resurvey the entire property with its present value by which unassessed and under assessed property could be roped into the tax stream.

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



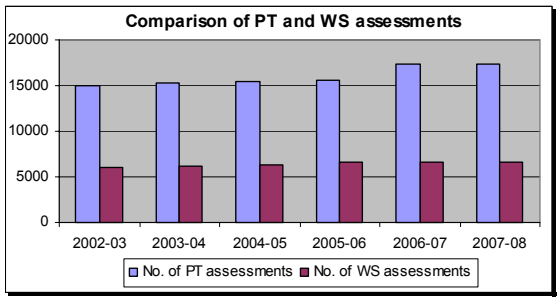
The collection performance indicated in the graph is self-explanatory and provides the reason for the decreased share of PT to the Total Income. Breaking this further, the graph below indicates the arrears and current collection performance.

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 six years is 2.74%, which is less in composition compared to other heads of income. The no. of assessments has been gradually increasing over the last five years.



However the collection performance of professional tax has been consistently increasing, which is encouraging. The average collections over the last year are around 65%.

Water Charges: Income from water charges is normally said to be a major source of income. But in case of Sankarankovil Municipality, income from water charges was forming around 10% 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 households. The analysis reveals that the average water supply assessments are in the range of 40% over the last six years, of the total property tax assessments. However, chapter of this report contains details of investments required to be made in order to have a full-fledged water supply system.

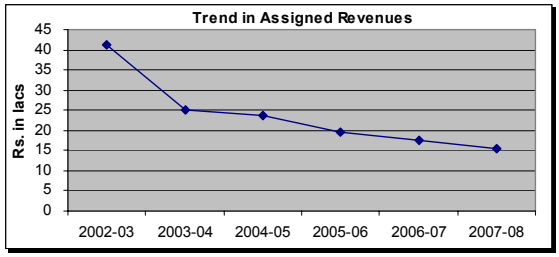
It can be seen that as against the demand raised for water charges, collection has been an average of 48%. The result of the analysis is that there is requirement of increasing the water supply connections to the house holds, and as may be the demand, source needs to be augmented. As part of the CIP, 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 major source of own income for this town is being raised by other income, being the main head. However the major income under this head is rent from market fees, which forms 5.27% 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 weekly market and create more such avenues for raising resources, which also results in infrastructure development.

Assigned Revenue: This includes Stamp duties and entertainment tax. The major income under this head is only from duty on transfer of property (stamp duty), and there is no income from entertainment tax. Assigned revenue constitutes approximately 6% of the total income. The revenues under this head seem to be gradually decreasing in the past few years.



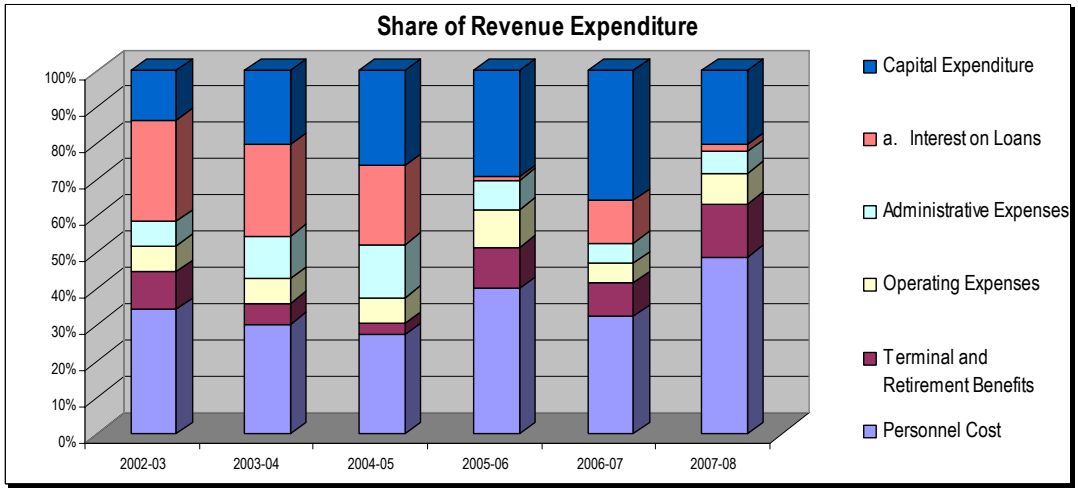
It is not known if it is because of reduced no. of land transactions over a period of years, or if it is due to non-transfer of funds from the Govt. However, on a thumb rule basis, if PT assessment increases, there should be an increase in this revenue also, which hasn't happened in this case.

Devolutions: There has been a consistent and substantial income from the devolutions. The devolution forms an average of 35% approx. of the total income of the ULB. The devolution of fund has been fluctuating between Rs.91.43 lakhs in FY 2004-05 and Rs.220.69 lakhs during the FY 2007-08. This revenue has been acting as a supplement for the total income. It should also be mentioned that Sankarankovil depending mainly on this source of revenue for meeting its recurring expenditure, from the balance sheet.

Revenue Expenditure:

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

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



Application of funds by each sector and head-wise utilization of the revenue expenditure is presented in the table and charts. It may be observed that the personnel cost accounts for about 33 percent of total expenditure on average during the assessment period. In

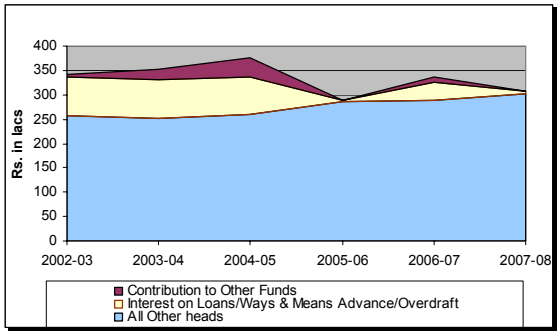
comparison with revenue income, around 31 percent is utilized for payment of salaries. The other major sector having higher utilization is the repair and maintenance, which accounts for about 13 percent of the revenue expenditure on average during the assessment period. Revenue expenditure has indicated an average negative growth of about 1 percent per annum and the corresponding growth in revenue income was 4.62 percent, which greater than the revenue expenditure. A sector-wise break up of costs is shown above graphically.

Table 10.4: 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	114.26	111.92	116.24	122.85	156.97	171.51
2	Terminal and Retirement Benefits	34.34	21.62	13.22	35.03	45.06	51.23
3	Operating Expenses	24.18	24.99	29.78	31.92	26.25	29.83
4	Administrative Expenses	22.25	43.76	62.81	24.61	27.48	21.50
5	Finance Expenses						
	a. Interest on Loans	93.02	93.47	92.07	3.35	57.24	6.29
SECTORAL CONTRIBUTION TO TOTAL EXPENDITURE							
1	Personnel Cost	29.49	26.19	23.78	32.47	30.74	45.28
2	Terminal and Retirement Benefits	8.86	5.06	2.71	9.26	8.82	13.52
3	Operating Expenses	6.24	5.85	6.09	8.44	5.14	7.87
4	Administrative Expenses	5.74	10.24	12.85	6.50	5.38	5.68
5	Finance Expenses						
	a. Interest on Loans	24.01	21.87	18.83	0.88	11.21	1.66
GROWTH TRENDS IN %							
1	Personnel Cost	--	(2.04)	3.86	5.68	27.78	9.26
2	Terminal and Retirement Benefits	--	(37.02)	(38.84)	164.85	28.65	13.69
3	Operating Expenses	--	3.36	19.16	7.21	(17.76)	13.64
4	Administrative Expenses	--	96.69	43.51	(60.82)	11.65	(21.75)
5	Finance Expenses						
	a. Interest on Loans	--	0.48	(1.50)	(96.36)	1609.96	(89.01)

Source: Sankarankovil; 2008

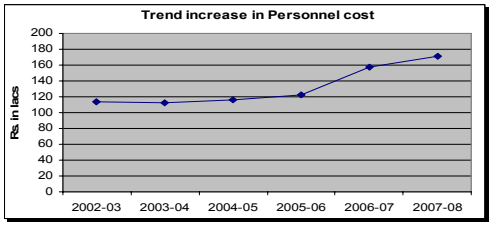
Heads of Revenue Expenditure	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Contribution to Other Funds	6.06	21.11	41.98	0.00	10.09	0.00
Interest on Loans/Ways & Means Advance/Overdraft	79.78	78.53	77.08	1.95	38.41	5.68
All Other heads	256.27	252.11	258.34	286.77	288.61	301.25
Total Revenue Expenditure	**342.11**	**351.74**	**377.39**	**288.72**	**337.11**	**306.93**

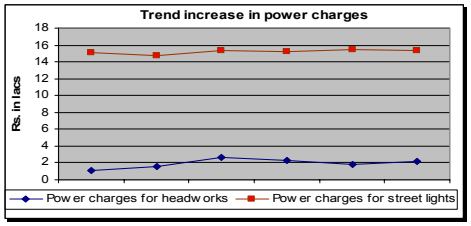


Revenue expenditure is slowly decreasing as a whole, during the assessment period from a level of 342.11 lakhs in FY 2002-03 to al level of 306.93 lakhs in FY 2007-08. Contribution to other funds is the amount transferred from the general fund to the capital works which depends on the capital works and the available operating and/or opening balances in respective financial years. The expenditure under The Interest on Loans/Ways & Means Advance/Overdraft was not reached in FY 2005-06, FY 2006-07 & 2007-08 as much as in FY 2002-03, FY 2003-04 & FY 2004-05. It is interesting to note that, without considering these two heads the Revenue Expenditure is consistently increasing during the assessment period. The expenditure statement is shown in the above chart.

Personnel cost & terminal benefits to employees: This include salaries and other related payments to employees and contributes 33.47 percent of the total expenditure. The expense has been inconsistently increasing; it reaches the maximum of Rs. 171.51 lakhs in the year 2007-08. The growth trend of personnel expenses is shown in chart.

The personnel cost has been gradually increasing but not in a great pace. The ULB shall try to outsource certain activities like solid waste management, and street light maintenance. Many of such activities would help in reducing the personnel cost.

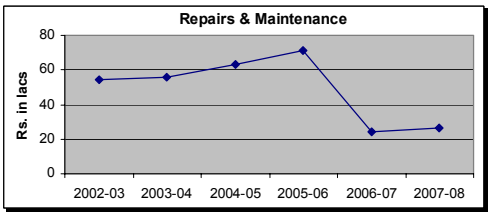




Operating Expenses: This head of expenditure include power charges, maintenance expenses of gardens, parks hospitals, removal of debris, purchase of scavenging materials, etc. The major item under this head is power charges for the streetlight which constitutes roughly 3.85% of the total expenditure and over 54% of the total expenditure under this head. Apart from power charges for streetlight, streetlight maintenance constitutes 1.28% of the total expenditure. The composition of power charges as part of the total operating expenses is given in the above graph.

From the numbers and the graph, it is seen that power charges consumes the majority portion. The ULB shall focus its attention on reducing the costs incurred under this head by privatizing the entire street lighting, to the Energy Service Companies. This is the model which is being tried by many local bodies. This applies to both street lighting and water supply. It is to be noted that the above analysis does not include sewerage systems. If sewerage systems are proposed, the ULB cannot sustain the expenditure in their balance sheet. Energy efficiency measures can be attempted by the ULB in a small scale.

Repairs & Maintenance: This is the major head of expenditure and includes repairs and maintenance of assets like drainage, bridges, roads, etc. The bigger item of expenditure under this head is TWAD & metro water maintenance which constitutes 9.67%. The heavy vehicle maintenance expenditure constitutes a minor ratio of 1.00%. With proper water supply systems in place, this could be reduced. Moreover, the ULB shall also do a leak detection study, upon implementation of which the maintenance costs of water supply could be less. Reportedly, the other major expenditure is the heavy vehicle maintenance. In absolute terms, it does not appear to be huge.



10.1.4 DEBT SERVICING

As on March 31, 2007 ULB has a loan obligations/debt liability of Rs. 67.67 lakhs. Considering the current property tax demand (FY 2007-08) of Rs. 47.74 lakhs, the ULB can leverage debt to finance its projects to an extent of Rs. 96 - 143 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. 92 lakhs on average.

10.1.5 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.

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.

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 10.5: Break-up of Capital Receipts/Income *(Rs in Lakhs)*

Head	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Total Grants from State Govt. (A).	35.76	28.77	86.86	163.37	179.52	310.62
Total Grants from Central Govt.(B)	7.34	16.62	14.70	11.37	33.11	22.00
Total Capital Income (A+B)	**43.10**	**45.39**	**101.56**	**174.74**	**212.63**	**332.62**

Source: Sankarankovil Municipality; 2008

It is noteworthy that the ULB has received capital grants of Rs.310 lakhs during the FY 2007-08 through various State Govt schemes.

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 about 11% of total capital expenses on Roads and buildings each during the assessment period. The ULB has spent about Rs.173 lakhs during the FY 2006-07.

Table 10.6: Break-up of Capital Expenditure *(Rs in Lakhs)*

S.No	Capital Expenditure	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
1	**Roads**	2.13	7.10	10.17	20.24	157.13	18.45
2	**S.W.D**	11.82	20.90	10.69	4.97	-	17.19
3	**Water Supply**	17.53	-	22.63	-	4.28	-
4	**Sewerage**						
5	**Street lighting**	0.16	-	-	0.37	-	11.99
6	**Public health & sanitation**	2.91	-	-	-	-	-
7	**Purchase of vehicles**	-	-	0.61	4.84	-	5.53
8	**Buildings**	10.82	47.63	65.92	56.19	12.18	18.74
9	**Computer**	-	-	0.17	2.15	-	-
10	**Furniture**	-	-	1.31	0.88	-	-
	Total	**45.37**	**75.63**	**111.50**	**89.64**	**173.59**	**71.90**

Source: Sankarankovil Municipality; 2008

10.1.6 REVIEW OF FINANCE

Highlights of the finance of Sankarankovil Municipality under different heads are listed below.

		Minimum	Maximum	Average	Unit
A.	**Resource Mobilization Indicators - General**				
1	Share of Property Tax Component	13.98	19.65	17.24	percent
2	Share of Other Taxes (including Professional Tax)	1.43	2.56	1.94	percent
3	Share of Assigned Revenue	2.25	7.84	4.23	percent
4	Share of Devolution Funds	17.04	32.47	25.06	percent
5	Share of Service Charges and Fees	8.47	11.85	9.85	percent
6	Share of Grants and Contributions	7.65	24.35	14.12	percent
7	Share of Sale and Hire Charges	0.00	0.41	0.07	percent
8	Share of Other Income	9.90	13.96	12.05	percent
9	Per Capita Income -Year 2006-07			1115.78	Rupees
10	Growth in Property Tax Component	0.15	5.13	2.46	percent
11	Growth in Other Taxes (including Professional Tax)	11.99	28.72	18.41	percent
12	Growth in Assigned Revenue	(39.16)	(5.23)	(16.96)	percent
13	Growth in Devolution Funds	(17.68)	106.65	19.41	percent

		Minimum	Maximum	Average	Unit
14	Growth in Service Charges and Fees (including Water Charges)	2.41	25.57	9.93	percent
15	Growth in Service Charges and Fees (excluding Water Charges)	(28.90)	29.19	6.01	percent
16	Growth in Grants and Contributions	(73.45)	141.28	55.37	percent
17	Growth in Other Income	(18.64)	13.88	0.66	percent
18	Growth in Total Receipts	(19.20)	33.72	6.99	percent
B.	**Resource Mobilization Indicators - Property Tax**				
1	No. of Assessments as on 2006/2007			17353	Nos.
2	Growth in Assessments	0.54	11.02	4.94	percent
3	Current Tax Rate			20	percent
4	ARV per Property - 2006/2007			1341	Rupees
5	Tax Per Property (Average)			618	Rupees
6	Collection Performance				
	a. Arrear Demand	0.00	62.87	26.47	percent
	b. Current Demand	72.17	100.00	78.67	percent
	c. Total Demand	39.95	80.21	49.05	percent
C.	**Resource Mobilization Indicators - Profession Tax**				
1	No. of Assessments as on 2006/2007			688	Nos.
2	Growth in Assessments	(15.13)	20.36	2.97	percent
3	Current Tax Rate			25	percent
4	Tax Per Assessment (Average)			1356	Rupees
5	Collection Performance				
	a. Arrear Demand	8.15	62.48	27.10	percent
	b. Current Demand	76.33	100.00	87.07	percent
	c. Total Demand	43.64	94.29	66.30	percent
D.	**Resource Mobilization Indicators - Water Charges**				
1	No. of Connections as on 2006/2007			6688	Nos.
2	Growth in Connections	0.72	5.61	3.71	percent
3	Share of Water Tax in Property Tax Component			35.00	percent
4	Collection Performance				
	a. Arrear Demand	16.23	37.86	25.80	percent
	b. Current Demand	72.08	78.52	74.37	percent
	c. Total Demand	41.78	71.85	48.93	percent
E.	**Expenditure Management**				
1	Share of Personnel Cost (Establishment)	23.78	45.28	31.32	percent
2	Share of Terminal and Retirement Benefits	2.71	13.52	8.04	percent
3	Share of Operating Expenses	5.14	8.44	6.60	percent
6	Share of Administrative Expenses	5.38	12.85	7.73	percent
7	Share of Finance Expenses	0.88	0.88	13.08	percent
8	Share of Deposits & Advances	11.71	17.70	21.48	percent
9	Per Capita Expenditure - 2006-2007			838.41	Rupees
10	Growth in Personnel Cost (Establishment)	(2.04)	27.78	8.91	percent
11	Growth in Terminal and Retirement Benefits	(38.84)	164.85	26.27	percent
12	Growth in Operating Expenses	(17.76)	19.16	5.12	percent
15	Growth in Administrative Expenses	(60.82)	96.69	13.86	percent
16	Growth in Finance Expenses	(96.36)	1609.96	284.71	percent
17	Share of Deposits & Advances	(58.58)	93.65	25.92	percent
18	Share of Debt Servicing Expenditure	0.88	24.01	13.08	percent
19	Operating Ratio	0.67	1.10	0.87	Ratio
20	Growth in Debt Servicing Expenditure	(97.47)	1869.88	442.25	percent
21	Growth in Total Expenditure	(25.82)	34.98	2.25	percent
F.	**Debt and Liability Management**				

		Minimum	Maximum	Average	Unit
1	Agencywise Outstanding Loan Amount				
	a. Government of Tamil Nadu			54.08	Rs. Lakhs
	b. MUDF/TNUDF			13.59	Rs. Lakhs
	c. Other Financial Institutions			0.00	Rs. Lakhs
	Total			67.67	Rs. Lakhs
2	Outstanding Loan Per Capita			111.10	Rupees
3	Ratio of Outstanding Loan to Property Tax Demand			0.93	Ratio
4	DS/TR (Debt Service/Total Revenue)	4.13	27.40	18.27	percent

10.1.7 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 10.7: Performance of Key Financial Indicators in Sankarankovil Municipality

Sl. No	Account Head	Summary Statement					
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
		Actuals					Budget
1	Revenue Account Status (Incl. OB) Rs. Lakhs	187.22	171.32	105.15	247.35	409.70	416.88
2	Operating Ratio (Rev. Expen./Rev. Inc.)	0.90	1.03	1.10	0.67	0.83	0.71
3	Debt Servicing - % of Income	25.25	27.40	27.30	4.13	20.62	4.90

Source: Sankarankovil Municipality; 2007

Performance of Sankarankovil Municipality

	Minimum	Maximum	Average	Desirable Benchmark
Existing (2002-03 to 2007-08)				
OR (Ratio)	0.67	1.10	0.87	Less than 1.00
DSR (%)	4.13	27.40	18.27	Less than 30 percent
Category			1	

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

11 FINANCIAL OPERATING PLAN

11.1 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.

11.2 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 (quinquennial 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.

11.3 KEY ASSUMPTIONS

In forecasting income and expenditure, key assumptions and guiding principles adopted are indicated in Table 11.1 below:

Table 11.1: 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
3.	ULB as Counterpart Contribution	10% of capital expenditure To be transferred from revenue surplus (primary operational surplus)

No.	Particulars	Assumption for Forecast
		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.

11.4 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 CMA 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	Roads	Strengthening existing roads	212.23	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. Further, the ULB does not have surplus financials to meet the expenditure by themselves
		Upgradation of important roads	200.10	-do-
		Formation of new roads	615.47	-do-
2	Storm Water Drains		2390.17	As said above, this can also be included in Govt. sponsored programs as part of the road project.
3	Street lighting		307.40	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

S.no.	Projects	Description	Amount	Remarks
				street light system for a particular concession period. This initiative can be taken up by Sankarankovil, through the advice of CMA
4	Solid Waste management		583.32	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 Sankarankovil 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, Sankarankovil, which is located in the vicinity of Tirunelveli Corporation, can always be one among the cluster, and the project could be implemented through this mechanism.
5	Remunerative Proposals	Improvements and expansion of market complex	19.06	This can be done in a PPP mode by allowing BOT operator to invest, construct, operate and transfer. In this process, Sankarankovil can also expect rental income on a monthly / annual basis from the BOT operator. This will be a source to augment revenues. Alternatively, ULB can also build and allow private operators to maintain. However, in this case, there will be an initial investment by the ULB. Moreover, private operators have imaginative way of constructing in order to attract business, which is not the objective of any ULB. Therefore, it is better to go in for a BOT option.
		Construction of Lodging & shopping Complex	40.02	-do-
		Provision of Market with godowns and storage Unit	16.68	Privatization could be thought of in this case also
		Providing boating Facility	8.58	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
		Development of Perfume factories	14.29	Privatization could be thought of in this case also

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 case. The results of the FOP under the abovementioned cases are given in Annexure–11, 12, 13 and 14.

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 11.2: Borrowing & Investment Capacity of Sustainable Case Scenario

(Rs. In lakhs)

Details	2008-09	2009-10	2010-11	2011-12	2012-13	Total
Borrowing Capacity	744.31	447.95	291.25	312.65	0.00	**1796.17**
Investment Capacity	1240.52	746.58	485.41	521.09	0.00	**2993.61**

Therefore FOP for the revised investment estimates was worked out. It is quite obvious that, 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 4% on the overall investment. The summary of the results of the sustainable scenario under this case is as follows:

Under this scenario, 30% of the proposed investment is funded through grant support from GoI and GoTN under various schemes, and remaining 70% 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 11.3: 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	9.00%	9.00%	9.00%	9.00%	9.00%
Loan Amount	744.31	447.95	291.25	312.65	0.00

Table 11.4: Summary of Sustainable Scenario (Under Case 1)

(Rs. In lakhs)

Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	456.91	418.51	427.42	413.41	453.80
Revenue Receipts	503.44	574.91	650.38	802.84	930.78
Revenue Expenditure	541.85	566.00	664.40	762.45	887.42
Operating Ratio	1.08	0.98	1.02	0.95	0.95
Debt Servicing Ratio (%)	15.72	20.67	29.83	30.76	27.78
Operating Deficit/Revenue Grant Requirement	38.40	0.00	14.01	0.00	0.00
Closing Balance	418.51	427.42	413.41	453.80	497.17
Capital Grants	372.16	223.98	145.62	156.33	0.00
ULB Contribution - Transfers from Revenue Surplus	124.05	74.66	48.54	52.11	0.00
Loans / Borrowings of ULB	744.31	447.95	291.25	312.65	0.00

It can be observed that there is an operational deficit in FY 2008-09 and FY2010-11 during the short-term period. This is due to debt servicing of new projects. During the short-term period average Operating Ratio (OR) would be 1.00 and average Debt Service Ratio (DSR) would be 24.95%.

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 revenue 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.

Case 2: Capital Investment Considered under the Base Case – Optimum Scenario: This scenario assumes the capital investment estimate and the phasing as per the 'Optimum Scenario'. The FOP has been generated assuming **full CIPs excluding underground sewerage project** under the 'Optimum Scenario'.

Capital Investment Considered for FOP Generation (Case 2: FOP without UGSS): In order to formulate FOP, projects that are directly implementable and having the impact over the finance of ULB are considered. In this case UGS scheme to the town is not considered since implementation of this scheme requires heavy capital investment. Also in this case, projects which are implemented by other departments like Rehabilitation of Oor Kulam, Ayudaipoigai Theppam, ThiruKovil Theppam, Patta Kulam, Construction of ring road etc., are not considered for FOP iteration.

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 of 2 years is considered on a conservative side. The O&M is assumed based on sectors. The following table summarizes the outcome of the FOP under the 'Base Case - Optimum Scenario' against select key indicators.

Table 11.5: Assumptions on Means of Finance

Fund Option	2008-09	2009-10	2010-11	2011-12	2012-13
Loan	60%	60%	60%	60%	60%
Grant	30%	30%	30%	30%	30%
Own	10%	10%	10%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 11.6: 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	9.00%	9.00%	9.00%	9.00%	9.00%

FINANCIAL OPERATING PLAN - Base Case: Optimum Scenario

	Minimum	Maximum	Average
Existing (2002-03 to 2007-08)			
OR (Ratio)	0.67	1.10	0.87
DSR (%)	4.13	27.40	18.27
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.70	1.47	1.19
DSR (%)	2.42	83.44	56.74
Category			**3**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.58	1.47	1.02
DSR (%)	0.00	83.44	37.49
Category			**3**

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

Under the above scenario ('Base Case - Optimum Scenario'), if the full investment of Rs.11,273.36 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit position of Rs. 323.11 Lakhs by the year 2012-13 (Short term Period). In Long-term period ULB reaches a surplus position of Rs. 4,388.45 Lakhs by the year 2027-28.

Further, in order to meet resource requirements of its own contribution, the ULB would need to take loan of Rs. 5,317.35 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. 4,509.35 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.1,446.67 Lakhs during this period. The summary of results from 2008-09 to 2012-13 (short-term) is provided as follows:

Table 11.7: Summary of Base Case – Optimum Scenario (Under Case 2)

(Rs. In lakhs)

S.No	Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
1	Opening Balance	456.91	609.55	557.49	255.00	(75.49)
2	Revenue Receipts	503.44	574.91	650.38	802.84	930.78
3	Revenue Expenditure	350.81	626.97	952.87	1133.33	1178.40
4	Operating Ratio	0.70	1.09	1.47	1.41	1.27
5	Debt Servicing Ratio (%)	2.42	44.26	81.65	83.44	71.91
6	Operating Deficit/Revenue Grant Requirement	0.00	52.06	302.49	330.49	247.62
7	Closing Balance	609.55	557.49	255.00	(75.49)	(323.11)
8	Capital Grant - GoI	0.00	716.37	817.40	484.58	132.63
9	Capital Grant - GoTN	0.00	716.37	817.40	484.58	132.63
10	ULB Contribution - Transfers from Revenue Surplus	0.00	190.88	217.66	329.17	397.89
11	ULB Contribution - Loan/Borrowings	0.00	1958.24	2234.55	1124.56	0.00

It can be observed that there is an operational deficit in all the FYs during the short-term period except in the FY 2008-09, and the closing balance is surplus in the 1st three years of the short term period. Due to higher loan dependency for the projects identified under CCBP revenue surplus is very minimal. However, based on assumptions, the capital components of the assumed investments are the loans (Rs. 5,317.35 Lakhs) and the grants contributes (Rs. 4,509.35 Lakhs) to be made by the ULBs.

The interest portion is taken for calculation of the revenue surplus; the principal repayment is taken as revenue expenditure. Debt Service Coverage Ratio during the short-term period is around 56.74% in an average which is higher than 30% (permissible limit). The marginal 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. In this case UGS scheme to the town is not considered since implementation of this scheme requires heavy capital investment. Also in this case, projects which are implemented by other departments like Rehabilitation of Oor Kulam, Ayudaipoigai Theppam, ThiruKovil Theppam, Patta Kulam, Construction of ring road etc., are not considered for FOP iteration.

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

Table 11.8: Assumptions on Means of Finance

Fund Option	2008-09	2009-10	2010-11	2011-12	2012-13
Loan	60%	60%	60%	60%	60%
Grant	30%	30%	30%	30%	30%
Own	10%	10%	10%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

of 2 years is 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 11.9: 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	9.00%	9.00%	9.00%	9.00%	9.00%

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

	Minimum	Maximum	Average
Existing (2002-03 to 2007-08)			
OR (Ratio)	0.67	1.10	0.87
DSR (%)	4.13	27.40	18.27
Category			**1**
Short-Term (2008-09 to 2012-13)			
OR (Ratio)	0.70	1.52	1.18
DSR (%)	2.42	90.39	58.25
Category			**3**
Long-Term (2008-09 to 2027-28)			
OR (Ratio)	0.55	1.52	0.98
DSR (%)	0.00	90.39	37.81
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.14,077.16 Lakhs is assumed for ULB and the FOP is forecast based on the above assumptions, the ULB will be in a deficit position of Rs. 289.41 Lakhs by the year 2012-13 (Short term Period) and it would reaches a surplus position in the Long-term period to the tune of Rs.6,441.51 Lakhs by the year 2027-28 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. 5,889.90 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. 5,630.86 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.1,668.47 Lakhs during this period. Public contribution in the form of deposits collected for UGS to the tune of Rs. 887.92 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 11.10: Summary of Base Case – Optimum Scenario (Under Case 3)

(Rs. In lakhs)

S.No	Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
1	Opening Balance	456.91	609.55	544.12	207.86	(178.40)
2	Revenue Receipts	503.44	574.91	650.38	802.84	1138.42
3	Revenue Expenditure	350.81	640.34	986.65	1189.10	1249.43
4	Operating Ratio	0.70	1.11	1.52	1.48	1.10
5	Debt Servicing Ratio (%)	2.42	46.59	86.85	90.39	65.03
6	Operating Deficit/Revenue Grant Requirement	0.00	65.43	336.27	386.26	111.01
7	Closing Balance	609.55	544.12	207.86	(178.40)	(289.41)
8	Capital Grant - GoI	0.00	831.31	1018.91	613.95	247.57

S.No	Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
9	Capital Grant - GoTN	0.00	831.31	1018.91	613.95	247.57
10	ULB Contribution - Transfers from Revenue Surplus	0.00	190.88	217.66	329.17	619.68
11	ULB Contribution - Loan/Borrowings	0.00	2066.00	2399.06	1301.81	123.03
12	Public Contribution – UGS Deposits	0.00	237.07	440.00	210.86	0.00

It can be observed that is an operational deficit in all the FYs during the short-term except in the FY 2008-09. Due to higher loan dependency for the projects identified under CCBP, revenue surplus is very minimal in the remaining FY of short term period. However, based on assumptions, the capital components of the assumed investments are the loans (Rs. 5,889.90 Lakhs) and the own contributions (Rs. 1,668.87 Lakhs) to be made by the ULBs. The interest portion is taken for calculation of the revenue surplus; the principal repayment is taken as revenue expenditure. Debt Service Coverage Ratio during the short-term period is around 58.25% in an average which is higher than 30% (permissible limit). The marginal 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 11.11: Borrowing & Investment Capacity of Sustainable Case Scenario *(Rs. In lakhs)*

Details	2008-09	2009-10	2010-11	2011-12	2012-13	Total
Borrowing Capacity	744.31	447.95	291.25	312.65	0.00	**1796.17**
Investment Capacity	827.01	497.72	323.61	347.39	0.00	**1995.74**

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 4% 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

Table 11.12: 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	9.00%	9.00%	9.00%	9.00%	9.00%
Loan Amount	744.31	447.95	291.25	312.65	0.00

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 11.13: Summary of Sustainable Scenario – Zero Grant (Under Case 4)

(Rs. In lakhs)

Summary Statement	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	456.91	459.86	493.66	495.83	553.59
Revenue Receipts	503.44	574.91	650.38	802.84	930.78
Revenue Expenditure	500.50	541.11	648.22	745.08	847.50
Operating Ratio	0.99	0.94	1.00	0.93	0.91
Debt Servicing Ratio (%)	15.72	20.67	29.83	30.76	27.78
Operating Deficit/Revenue Grant Requirement	0.00	0.00	0.00	0.00	0.00
Closing Balance	459.86	493.66	495.83	553.59	636.87
Capital Grants	0.00	0.00	0.00	0.00	0.00
ULB Contribution - Transfers from Revenue Surplus	82.70	49.77	32.36	34.74	0.00
Loans / Borrowings of ULB	744.31	447.95	291.25	312.65	0.00

It can be observed that there is operational surplus in all the FY during the short-term period and a 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. During the short-term period average Operating Ratio (OR) would be 0.95 and average Debt Service Ratio (DSR) would be 24.95%.

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.

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. 1,995.74 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.

11.5 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. 4247.27 lakhs. Under this scheme ULB need to borrow a loan amount of Rs. 1911.27 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. 5,000 and Rs. 8,000 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.

12

PRIORITY ASSET MANAGEMENT PLAN

12.1 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. Brief about the Asset Management Process (AMPs) is enclosed in Annexure 15.

12.2 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

An 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

12.2.1 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.

12.2.2 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.

12.3 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 Sankarankovil town.

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 management equipments, vehicles and communication system etc., Sector wise assets of Sankarankovil Municipality 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 Municipality. The following table highlights list of water supply and other assets that exists in the town:

Type of Assets	Quantity (Nos.)	Remarks
Pumping main	200 mm AC and 75 mm PVC pipes	350 m
Over Head Tank	3	17 LL (2+7+8LL)
Distribution System	AC, CI and PVC Pipe – 80mm to 350mm diameter	42.68 km
Hand pumps	182	-
Mini power pumps	45	-
Public Fountains	110	-
House Service Connections	6688	-

Sanitation:

Type of Assets	Quantity (Nos.)	Remarks
Public Conveniences	17	84 seats
VAMBAY	9	44 seats

Roads:

Sl. No.	Road Typology	Length (in km)
1.	Surfaced Roads	
	- Cement Concrete	10.43
	- Blacktop/Asphalted	28.25
	- WBM	4.33
	Total (Municipal Roads)	**43.00**

Storm Water Drains:

Sl. No.	Description	Length (km)
1.	Open Drains (Pucca)	24.62
2.	Open Drains (Kutcha)	0.00
	Total	***24.62***

Solid Waste Management:

Sl. No.	Description	Quantity (Nos.)
1.	Tipper	1
2.	Auto	3
3.	Push Cart	63
4.	Mini lorry	3
5.	Tractors	1

Street Lights:

SL.No.	Type of Fixtures	No.
1.	Fluorescent (Tube Lights)	1389
2.	Sodium Vapor Lamps	160
	Total	**1549**

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 12.1: Land Asset Details Sankarankovil Municipality

S. No	Survey no.	Location	Extent (cents)	Present use	Present value
1	368/2A1	Ward no. 24, Athisankaravinayakar kovil	16	School	60064
2	279/6	Ward no. 2, Barathiyar street	101	Public	500
3	363/3	Ward no. 14, weekly market street	54	Court	2035802
4	2921	Ward no. 16, Gandhi Nagar east, IV street	248	Vacant	30000
5	293	Ward no. 16, Gandhi Nagar east, IV street	486	Vacant	30000
6	294	Ward no. 16, Gandhi Nagar east, IV street	330	Vacant	30000
7	295	Ward no. 16, Gandhi Nagar east, IV street	358	Vacant	30000
8	321	Ward no. 16, Gandhi Nagar east, IV street	234	Vacant	30000
9	322	Ward no. 16, Gandhi Nagar east, IV street	1136	Vacant	30000
10	33-A	Ward no. 16, Gandhi Nagar east, IV street	36	Vacant	30000
11	368/19AF	Ward no. 8, Balasubramania Salai	32		
12	368/19AF	Ward no. 8, Balasubramania Salai	45		
13	368/19AV	Ward no. 8, Balasubramania Salai	117		

14	368/19AK	Ward no. 8, Balasubramania Salai	107		
15	368/19AK	Ward no. 8, Balasubramania Salai	40		
16	329-A	Ward no. 16, Kalugumalai Road	43		
17	315/1E	Ward no. 13, Ambethkar Nagar	6		165
18	161/3	Ward no. 30, A.V.R.M colony	10637		60000
19	162/2/163/113 /174/176/177/ 11/11/179	A.V.R.M colony			
20	19612	Ward no. 30, Loyoit	1804 Sq. M	Park	80000
21	268/15	Ward no. 3	285 Sq. M	Park	100000
22	265/2	Ward no. 1	1416 Sq. M	Open&	30000
23	267/2	Gomathi Nagar Colony		Park	
24	297/pt	Ward No. 16, Kakkan Nagar	172	Play	60000
25	332 A/1A, 2B	Ward No.16, Kalugumalai Road	8611 Sq. M	Play	350000

12.4 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 Municipality have been taken for critical review and the findings of the same are given in the following table.

Table 12.2: Review of Remunerative Assets of Sankarankovil Municipality

Name of the Assets	Area in Sq.M.	Land Value	Year of Construction	Net value	Total Asset Value	Revenue Generated	Remarks
Daily Market		Alienated	1990		185584.1	2,151,000	Good
Shops	241.20			124033.65		2,151,000	
hotel	212.40			61550.45			
Old Bus Stand	2003.61	Alienated	1980		598315.9	1,620,433	Requires improvement
Shops	543.6			26830.7		930,064	
Passenger shed	1398.6			333984.3		445,635	
Toilets	61.41			237500.9		244,734	
Slaughter House	178.35	2035	1982	130556.4	130556.4	11,171	Requires to be improved to greater extent
Other Buildings	200	3000	1992	109575	112575	100,180	Requires to be improved to greater extent

* 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.

12.5 PLAN FOR LAND ASSET MANAGEMENT

The vision statement formulated as part of CCP reveals that the stakeholders envisage Sankarankovil 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, 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.

Improvements and expansion of market complex
Construction of Lodging & shopping Complex at Site opposite to Mookudhi Amman Kovil:
Provision of Market with godowns and storage Unit
Providing boating Facility in Thiruneelakandaoorani
Development of Perfume factories

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 Sankarankovil town. The details of the above said projects are presented in the subsequent sections of this report.

12.6 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 Municipality 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

12.6.1 OPERATIONAL & MAINTENANCE PLANNING

ULB 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.

12.6.2 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.

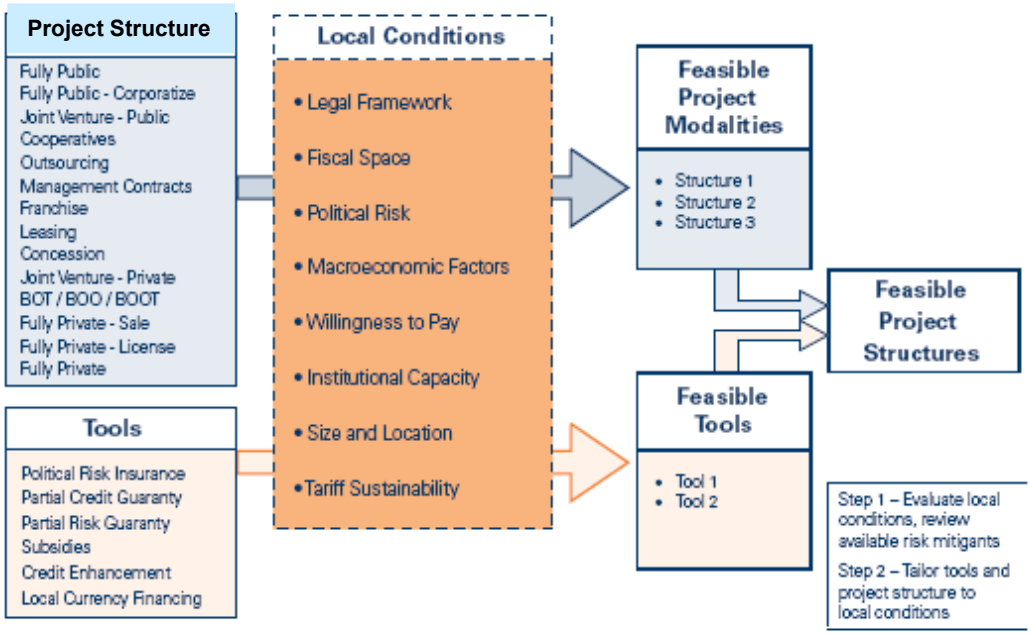
Maintenance work is aimed at ensuring the system functions properly. Many of the maintenance activities are similar and follow comparable methodologies despite occurring in different locations. Other beneficial effects also occur as a result of the maintenance e.g. clearing of refuse and debris from the watercourses and outfalls has aesthetic benefits and prevents ongoing gross contamination of the waterway.

13

PROJECT RISKS, ENVIRONMENTAL AND SOCIAL IMPACTS

13.1 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:



13.2 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.

13.2.1 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, conveying mains, pumping stations, treatment plant etc. The following environmental impacts need to be given attention while undertaking aforementioned activities:

DEVELOPMENT AND DESIGN PHASE

Potential Impacts	Action to be taken
Clearances	▪ All clearances required for Environmental aspects during construction shall be ensured and made available before start of work.
Disposal of construction debris and excavated materials	▪ The contractor shall identify the sites for debris disposal and should be finalized prior to the start of earthwork excavation; taking into account the following: ▪ The dumping does not impact natural drainage courses. ▪ Avoid disposal on productive land
Tree cutting	▪ Try saving trees by changing the alignment ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Planning Temporary Traffic Arrangements	▪ Adequate actions to direct and regulate traffic shall be taken in consultation with the PIA, Dept. of Police to prevent jamming of roads during construction. While planning alternative routes, care to be taken to minimize congestion and negative impacts at sensitive receptors such as schools & hospitals.
Disposal of waste water	▪ The wastewater shall comply with the standards of TNPCB to let out into the stream/nallah/open land/irrigation purposes, and necessary permission to be obtained from the concerned department. ▪ Ensure efficient working condition of the treatment plant.
Storage of materials	▪ The contractor shall identify the site for temporary use of land for construction sites/storage of construction materials, etc.

CONSTRUCTION AND OPERATION PHASE

Systems/ Impacts	Action to be taken
Construction of Pumping / Lifting Stations	
Locating of vents on sewer system, low cost sanitation and sewage pumping stations	▪ While placing the vent shafts, precautions should be taken to minimize odour nuisance.
Disposal of silt/sludge	▪ A suitable site should be identified for the safe disposal of silt/ sludge generated at the Pumping / Lifting station sites, which should be away from the water bodies, residential & sensitive areas, agricultural areas and etc., and got approved by the Engineer.
Construction of Sewerage Treatment Plant	
Contamination of ground water quality	▪ Ground water quality may get contaminated due to leaching of waste water. So, the treated water quality shall comply with the standards laid down by the PCB for disposal onto land, water body or for irrigation use. ▪ Regular monitoring is required for the treated sewage quality and also the ground water quality in the near by areas and ensure compliance with PCB standards.
Impact on surrounding areas	▪ To avoid problems of foul smell polluted air, insects, noise pollution and other problems buffer zones to be provided in the form of Green Belt around the STP site.
Disposal of treated waste water	▪ The treated water quality shall comply with the standards of TNPCB before letting out into the stream/nallah/open land/irrigation purposes, and necessary permission to be obtained from the concerned department. ▪ Ensure efficient working condition of the treatment plant ▪ Prevent the pollution of stream water and other water bodies receiving STP discharge.
Disposal of Sludge	▪ A suitable site should be identified for the safe disposal of sludge generated at the WTP site and got approved by the Engineer. Prepare a sludge disposal plan that adheres to the same.

C. SOLID WASTE MANAGEMENT (LANDFILL AND COMPOSTING)

These projects may include developing land fill, compost yards with washing facilities, compound walls, purchase of vehicles for transporting the garbage, etc.,

PUBLIC HEALTH, OCCUPATIONAL HEALTH & SAFETY

Public health may be affected by the project activities by noise and dust pollution during the construction phase especially during landscaping, provision of access road and site preparation. The activities that affect public health during operation and its closure are given below:

Operation phase & Closure Phase

Emission of bio-gas, high noise levels during loading and unloading and high dust level affect public health, waste dispersion, bad odour and spreading of infectious diseases are other factors that affect public health during the operation and closure phase of the projects.

SOCIO-ECONOMIC CONDITIONS

The socio-economic impacts of the proposed projects within the local area are given below:

During the Construction phase, employment and visual issues are the two major impacts. The share of local employment needs to be considered carefully during all construction activities. The Visual impacts will result from disposal of debris and dispersion of solid waste generated from the workers.

Impact on the i) Employment and ii) prosperity in Business are the major socio-economic impacts known to occur during the Operation phase. The locals are concerned about sharing the job opportunities with others during this phase. This issue should be given more attention with regard to training. As far as Business prosperity is concerned, the supply of spare parts and consumable from local market is expected to enhance local life quality.

Rehabilitation of landfill, Electricity generation and Treated leachate may be the other impacts during project closure period. A program for designing a final landscape and site restoration should be provided as far as rehabilitation of land fill is concerned. The electricity generated from the biogas will be supplied to the locals. The treated leachate may be reused for irrigation purpose.

FLORA AND FAUNA

The proposed activities that affect Flora and Fauna species during construction and operation phase are given below:

During the Construction Phase, Flora and Fauna species may be affected by high dust pollution and direct damage especially during landscaping, provision of access road, site preparation and removal of soil cover.

During the Operation Phase, high dust level and dispersion of solid waste affect the flora and fauna species during the project activities such as construction of new cells, loading, unloading and transportation of solid waste.

WATER RESOURCES

The proposed activities that affect water resources during construction and operation phase are given below:

Water resources may be affected due to the demand of water for soil compaction and pollution of ground water during Construction phase. Ground water may be contaminated due to the maintenance of machineries and resulting domestic waste water from workers.

Hazardous waste dumping and leachate leakages are the two major activities that affect the water resources during Operation phase. Leachate treatment unit need to be installed on a paved area to prevent ground water contamination and also a proper reuse and recycle mechanism to be considered for the treated leachate.

ARCHEOLOGY

Unseen archeological remains (if any) might be affected during landscaping and site preparation.

MITIGATION MEASURES AND MONITORING PROGRAM

Following are the mitigation measures that need to be implemented in order to reduce the potential negative impacts:

- Dust level need to be controlled during construction activities and transportation of materials.
- Proper handling of dispersed solid waste during transportation and storage.
- Proper handling and taking safety requirements for collection and storage of the solid waste to prevent odour generation.
- Taking restrict control on animals and insects (vector diseases) like dogs, cats, rats etc.
- Applying continuous cover over the cell during the operation to prevent odor impact.
- Control the existence of the scavengers at the solid waste landfill site to prevent firing and dispersion of the wastes.
- Noise levels need to be controlled during the construction and operation activities.
- Monitoring programs need to be implemented covering monitoring of noise levels and ambient air quality.
- Implementation of safety procedures and availability of safety equipment for workers.

- Training and awareness programs for drivers and workers on proper handling of waste and personal protective equipments. Conducting routine medical exams for workers.
- Training of employees to identify hazardous waste and proper safety procedure on handling and reporting such items.
- The domestic wastewater resulting during construction and operation phases need to be collected and managed in safe manner.
- The endogenous trees or plants should be used when rehabilitant the site.
- Restrict activities as much as possible to the project site and allocate track roads for construction.
- Hunting and collection of wildlife, especially residents and migratory raptures should be strictly forbidden.

D. ROAD IMPROVEMENTS

Activities	Management Measures
Pre-Construction Stage	
Land Acquisition R&R	▪ The acquisition of land and private properties will be carried out in accordance with the RAP and entitlement framework for the project. ▪ It should be ensured that all R& R activities are to be completed before the construction activity starts, on any sub-section of the project.
Tree Cutting	▪ Trees will be removed from the Corridor of Impact (CoI) and construction sites before commencement of construction with prior intimation to the Forest Department. Prior permission will be obtained from the District Collector. ▪ Try saving trees by changing the alignment ▪ Provide adequate tree protection (Tree guards) ▪ Identify the number of trees that will be affected with girth size & species type. ▪ Undertake afforestation in the nearby areas ▪ Compensatory re-plantation of trees of at least twice the number of trees cut to be carried out in the project area.
Utility Relocation	▪ Identify the common utilities to be affected such as: electric cables, electric poles, telephone cables, water pipelines, public water taps etc. ▪ Affected utilities shall be relocated with prior approval of the concerned agencies before commencement of construction activities.
Replacement of common amenities	▪ All common amenities such as community sources of water, bus shelters etc., will be relocated wherever necessary. The relocation site identification will be in accordance with the choice of the community and completed before the construction starts

Activities	Management Measures
Construction Stage	
Clearance and grubbing	▪ Vegetation will be removed from the RoW before the commencement of construction and will be carried out such that the damage or disruption to flora is minimum. ▪ Only ground cover / shrubs that impinge directly on the permanent works or necessary temporary works will be removed with prior approval from the engineer. The contractors, under any circumstances will not damage trees (in addition to those already identified and felled with prior permission from the forest department)
Excavations	▪ All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized. ▪ The excavation shall conform to the lines, grades, side slopes and levels shown in the drawing or as directed by the Engineer. ▪ The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures and water bodies.
Earth fill	▪ Embankment and other fill areas, unless and other wise permitted by the Engineer, be constructed evenly over their full width and the contractor will control and direct movement of construction vehicles and machinery over them.
Dust	▪ All earth work will be protected in a manner acceptable to the engineer to minimize 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.

13.2.2 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.

14 POLICY INTERVENTIONS

14.1 INTRODUCTION

Sankarankovil is a town with a projected population of 77,227 in 2021. In addition, it is anticipated that another 30,000 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 Sankarankovil 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.

14.2 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 Sankarankovil;

14.3 REFORMS

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

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

A brief description on the above reform initiatives and their current stage are given in the following sections of this report.

14.3.1 POLICY FRAMEWORK AND PRIORITY ACTIONS

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

STRATEGY

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

PROPERTY TAX

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

ACCOUNTING AND AUDITING

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

RESOURCE MOBILIZATION AND REVENUE ENHANCEMENT

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

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

URBAN ENVIRONMENTAL MANAGEMENT

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

ACCESS OF URBAN SERVICES TO THE POOR

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

14.4 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

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.

14.5 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.

14.5.1 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)

14.5.2 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.

14.5.3 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 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 14.1.

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 refinement through consultation.

Table 14.1: Suggestive Timeline for the Reform Agenda

Sl.	Particulars/Items	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
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**							

15 TECHNICAL ASSISTANCE

15.1 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.

15.2 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 CMA, 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 CMA/ 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.

15.3 IMPLEMENTATION ARRANGEMENTS

First step towards implementing the projects, ULB may have to establish a tri party agreement with CMA and TNUDF. A Draft Memorandum of Agreement (MoA) is enclosed in the Annexure – 16 and 17 for review.

ULB shall be the Executing Agency for the TA, and is responsible for overall coordination with the TNUDF and CMA. A central-level steering committee and a Project Monitoring Unit (PMU) need to be established within CMA, and a state-level steering committee and PMU / Project Implementation Unit (PIU) is to be established. CMA 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 – 18 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 CMA. The implementation framework for the identified projects is given in the following sections of this report.

16 IMPLEMENTATION FRAMEWORK

16.1 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

16.2 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.

16.3 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.