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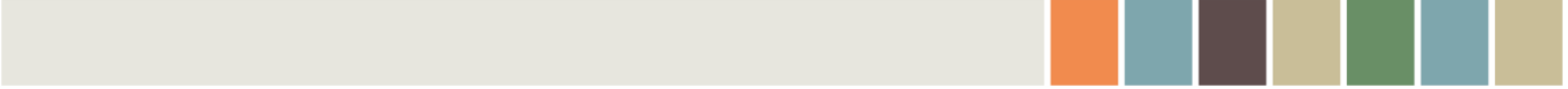


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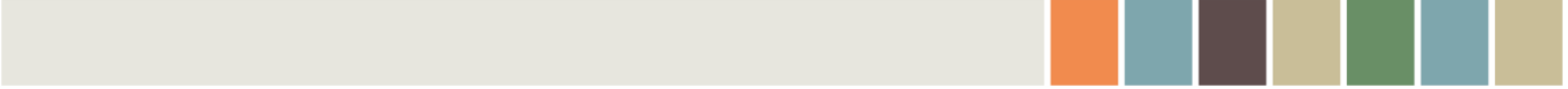
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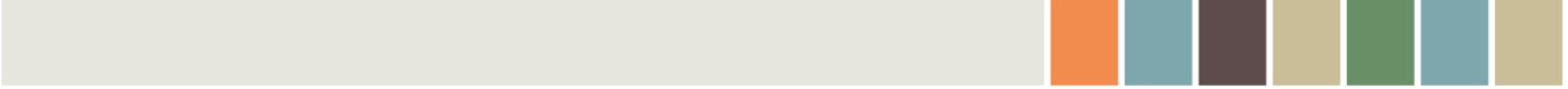


Abbreviations

| | |
|--------|--|
| ACHO | Assistant City Health Officers |
| AC | Assistant Commissioner |
| AEE | Assistant Executive Engineer |
| AMRUT | Atal Mission for Rejuvenation and Urban Transformation |
| AS | Administrative Sanctions |
| BMGF | Bill & Melinda Gates Foundation |
| BOQs | Bill of Quantities |
| CCDU | Communication and Capacity Development Unit |
| CE | City Engineer |
| CFC | Central Finance Commission |
| CHO | City Health Officer |
| CMA | Commissionerate of Municipal Administration |
| CMCDM | Chennai Mega City Development Mission |
| CMWSSB | Chennai Metropolitan Water Supply and Sewerage Board |
| CoC | Corporation of Chennai |
| CRRT | Chennai River Restoration Trust |
| DPH | Department of Public Health |
| DEWATS | Decentralised Wastewater Treatment Systems |
| DPRs | Detailed Project Reports |
| DTP | Directorate of Town Panchayats |
| EE | Executive Engineer |
| EIA | Environmental Impact Assessment |
| EPA | Environmental Protection Act |
| FSFC | Fourth State Finance Commission |
| GO | Government Order |
| GDP | Gross Domestic Product |
| GOI | Government of India |
| GoTN | Government of Tamil Nadu |
| HDFC | Housing Development Finance Corporation |

| | |
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| HHs | Households |
| HNEC | HRIDAY National Empowered Committee |
| HRIDAY | Heritage City Development and Augmentation Yojana |
| HUDCO | Housing and Urban Development Corporation Limited |
| HUPA | Ministry of Housing and Urban Poverty Alleviation |
| IHHL | Individual Household Latrine |
| IL & FS | Infrastructure Leasing & Financial Services Limited |
| IUDM | Integrated Urban Development Mission |
| IWK | Indah Water Consortium |
| JE | Junior Engineer |
| JICA | Japan International Cooperation Agency |
| JNNURM | Jawaharlal Nehru National Urban Renewal Mission |
| KfW | Kreditanstalt fur Wiederaufbau |
| MAWS | Municipal Administration and Water Supply Department |
| ME | Municipal Engineer |
| MO | Medical Officers |
| MoC | Memorandum of Cooperation |
| MOU | Memorandum of Understanding |
| MOUD | Ministry of Urban Development |
| NARC | National Advisory & Review Committee |
| NGO | Non-Governmental Organizations |
| NIUA | National Institute of Urban Affairs |
| NPMU | National Project Management Unit |
| NTADCL | New Tiruppur Area Development Corporation Limited |
| O&MGFF | Operation and Maintenance Gap Filling Fund |
| OD | Open Defecation |
| PDGF | Project Development Grant Fund |
| PMCs | Project Monitoring Consultants |
| PPP | Public-Private Partnerships |
| PSC | Public Sanitary Complexes |

| | |
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| PSGF | Project Sustainability Grant Fund |
| RDMA | Regional Directors of Municipal Administration |
| SAAP | State Annual Action Plan |
| SBM–U | Swachh Bharat Mission–Urban |
| SC | Scheduled Caste |
| SHpsc | State level High Powered Steering Committee |
| SI | Sanitary Inspector |
| SMIF–TN | Sustainable Municipal Infrastructure Financing–Tamil Nadu |
| SO | Sanitary Officer |
| SOE | Statement of Expenditure |
| SPAN | Suruhanjaya Perkhidmatan Air Negara |
| SS | Sanitary Supervisors |
| ST | Scheduled Tribes |
| SWM | Solid Waste Management |
| TCC | Trichy City Corporation |
| TNUDF | Tamil Nadu Urban Development Fund |
| TNUIFSL | Tamil Nadu Urban Infrastructure Financial Services Limited |
| TNUSSP | Tamil Nadu Urban Sanitation Support Programme |
| TS | Technical Sanctions |
| TUFIDCO | Tamil Nadu Urban Finance and Infrastructure Development Corporation Ltd |
| TURIF | Tamil Nadu Urban Road Infrastructure Fund |
| TWAD | Tamil Nadu Water Supply and Drainage Board |
| TWIC | Tamil Nadu Water Investment Corporation |
| UC | Utilisation Certificate |
| UGSS | Underground Sewerage System |
| UIDSMT | Infrastructure Development Scheme for Small and Medium Towns |
| ULB | Urban Local Body |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UTs | Union Territories |
| WSPF | Water & Sanitation Pooled Fund |



Executive Summary

The report reviews the current status of legal framework, sector policies, institutional arrangements, State finances, fund flows, and schemes in existence for urban sanitation. Special emphasis has been placed on the assessment of existing on-site sanitation systems and their safe functioning through the sanitation value chain, which, for on-site systems consists of containment, emptying, transport, treatment and reuse/disposal. The Government of Tamil Nadu (GoTN) has been a pioneer in prioritising on-site systems and septage management, as is evident by the 2014 Septage Management Operative Guidelines. A review of the existing laws, policies, institutional arrangements and processes helps identify the key areas of improvement, and sets out a roadmap for the state to move forward with securing 100 per cent sanitation and public health outcomes across the full sanitation value chain, including network based and on-site systems.

i) Legal Framework

The Tamil Nadu Town and Country Planning Act, 1971 governs the master planning for all existing and new regional areas with provisioning of water-supply, drainage, sewerage and sewage disposal facilities. The Tamil Nadu District Municipality Building Rules, 1972 and building regulations under the Tamil Nadu District Municipalities Act, 1920 prescribe the standard sanitary facility requirements for all residential and commercial buildings. The Municipal Corporations Act for different corporations, Tamil Nadu District Municipalities Act, 1920 for all municipalities and town panchayats, and the Tamil Nadu Public Health Act, 1939, are the principal Acts governing the containment, emptying and transport components of the sanitation value chain. The Tamil Nadu District Municipalities Act, Municipal Corporation Act and Tamil Nadu Public Health Act put forth rules and bye-laws for the construction, operation and maintenance of latrines, sewer systems and septic tanks. Regulations for improper maintenance of sanitary structures, lack of required sanitary structures, injurious outflow of sewage, and soaking out of septage are violations that are appropriately penalised under the Acts. Finally, the treatment of sewage/ septage and their safe disposal/reuse is governed by the Tamil Nadu Pollution Control Board (TNPCB), which enforces the provisions of the Water (Prevention and Control of Pollution) Act, 1974 and the rules and orders made under the Environment (Protection) Act, 1986.

ii) Institutional Arrangements

The institutional and financial agencies in the State for governing various aspects of sanitation are summarised below.

- a) The Municipal Administration and Water Supply Department (MAWS) is the principal body in charge of water supply and sanitation in the State. It is the governing structure responsible for planning, coordinating, maintaining and executing measures among various agencies for the provision of drinking water in urban areas of the State.
- b) The Commissionerate of Municipal Administration (CMA) is the nodal department responsible for coordinating and supervising the functions of all urban local bodies (ULBs) in the State, which includes all Municipalities and Municipal Corporations except the Corporation of Chennai.

- c) The Corporation of Chennai (CoC) is the oldest urban local body in the State, and governs the Chennai metropolitan area according to the Chennai City Municipal Corporation Act, 1919.
- d) Directorate of Town Panchayats (DTP) is the Directorate for all Town Panchayats in the State, and is involved in the provision of basic amenities, collection of taxes, issuing of different taxes and licenses, and the implementation of projects at the town panchayat level.
- e) Tamil Nadu Water Supply and Drainage Board (TWAD Board) is a statutory body formed by the GoTN for implementing all water supply and sewerage schemes outside the Chennai metropolitan area.
- f) Similarly, the Chennai Water Supply and Sewerage Board (CMWSSB, or 'Metro water') caters to improving the water supply and sewerage services in the Chennai Metropolitan area.
- g) Tamil Nadu Urban Finance and Infrastructure Development Corporation Ltd (TUFIDCO) is a financing institution dealing with grants from the Centre and the State Governments, and its main objective is the provision of financial assistance and guidance to ULBs Corporations, Boards, Authorities and parastatal agencies for their infrastructure projects and development schemes.
- h) Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) is a public limited company working in project management, financial structuring, loan management, fund management and policy advisory services inter alia.

Apart from the above, there are a number of special purpose agencies that carry out specific mandates. These include the Chennai River Restoration Trust (CRRT), the Tamil Nadu Water Investment Company Limited, the New Tiruppur Area Development Corporation Limited (NTADCL), etc.

The local administration at the ULB level is classified based on population, revenue and geographical area. For administrative purposes, the ULBs are classified into Corporations, Municipalities and Town Panchayats. In large City Corporations, the administrative head is the Commissioner. He is assisted by Assistant Commissioners, City Engineers and City Health Officers. In Municipalities, the administrative head is the Municipal Commissioner and he is assisted by Assistant Commissioners, Municipal Engineers, Revenue Officers, Accounts Managers and Health Officers. At the Town Panchayat level, the Executive Officer is the administrative head and is assisted by the Head Clerk, Junior Assistant, Bill Collector, and Typist.

As per the 74th Amendment of the Constitution, the ULBs are responsible for safe sanitation in the State. The administrative heads of the ULBs focus on the managerial policies and administration of sanitation programmes in the cities. The Public Health Department and the Engineering Department have major roles in executing and monitoring these policies, and the Town planning is concerned with proper planning and construction as per laws and buildings rules.

The municipal cadres assigned for various ULBs are designated through various government regulations, rules and orders. The Public Health cadre consisting of medical officers, health officers, sanitary inspectors and sanitary workers inter alia are appointed through the provisions of the Tamil Nadu Municipal Public Health Service Regulations, 1970 and The Tamil Nadu Municipal (non-centralised regular) Public Health Establishment Regulations,

1976. The Engineering cadre involving various levels of engineers for drainage works, water works etc., are delegated through the Municipal Engineering Service Rules, 1970 and Tamil Nadu Municipal Engineering Service Rules, 1997. In addition to the above, there are municipal town planning cadres and other services rules like the Tamil Nadu Municipal General Service Rules, 1970, Tamil Nadu Medical Service Rules 1970 and Tamil Nadu Municipal Commissioner Services.

iii) Financing Sanitation

The major sources of finances for the ULBs include state budgets, state finance commission grants, state plan grants, central finance commission grants, centrally sponsored schemes grants, own revenue, assigned revenue, and loans from multilaterals.

The capital outlay and revenue expenditure for water supply and sanitation in the State in 2015–16 was budgeted at Rs. 1,61,867 lakhs and Rs. 61,446 lakhs respectively. The revised budget estimates for capital outlay and revenue expenditure was Rs.1,65,414 lakhs and Rs. 77,473 lakhs respectively during 2014–15.

The Fourth State Finance Commission (SFC) recommended devolving 10 per cent of the State's own tax revenue to the local bodies, and this fund has increased to Rs. 3,926.32 crores for ULBs in the budget estimates 2015–2016 which included water supply and sanitation schemes. In the 14th Central Finance Commissions (CFC), the total release of grants to Tamil Nadu from the Centre for the period of 2015–2020 was Rs. 6585.85 crore of basic grant and Rs. 1646.46 crore of performance grant.

iv) Programmes and Schemes

1. Atal Mission for Rejuvenation and Urban Transformation (AMRUT) had been initiated to provide basic services (e.g. water supply, sewerage, urban transport) to households and build amenities in cities to improve overall quality of life. The scheme covers 33 urban areas in the State.
2. Swachh Bharat Mission–Urban (SBM–U) aims to improve the overall sanitation situation in the country through various initiatives such as building of toilets, elimination of open defecation, solid waste management and pushing healthy sanitary practices. At present, SBM–U is being implemented in all ULBs in the State.
3. Integrated Urban Development Mission (IUDM) was launched by the Tamil Nadu State Government in 2011 to provide basic infrastructure facilities in all corporations (except Chennai), municipalities and town panchayats.
4. Heritage City Development and Augmentation Yojana (HRIDAY) was inaugurated to improve Indian Heritage cities with efficient infrastructure facilities such as water supply, sanitation, roads, etc. and basic amenities like toilets, signage and street lights. In Tamil Nadu, Kancheepuram and Velankanni are the two cities selected under the HRIDAY program

v) Process Flow at ULB Level

Under this review, a rapid assessment was conducted in Trichy City Corporation (TCC) to analyse the process flow for projects and capture the institutional setup functional in Corporations. The different stages of the project process flow starting from project concept /

demand, detailed project report preparation, sanctions and approvals, financial closure, procurement of works, project monitoring and project completion have been presented in the report.

vi) Key Issues and the Road Map for Institutional and Governance Improvements for Urban Sanitation in Tamil Nadu

On the basis of the sanitation policies and programmes enacted in the State, the statement of intents and political commitment of the GoTN in prioritising and addressing the issues of urban sanitation are commendable. However, there are some drawbacks preventing successful implementation which include:

Legal and Institutional Issues

- Need to update Acts and Rules: The adequacy of Acts, bye-laws and Rules related to sanitation need to be strengthened. The Septage Management Operative Guidelines are good examples that the GoTN has pioneered. This, and related regulations need to be updated and strengthened. This will also need to address penalties and enforcement capacity issues.
- More work is needed in generating practical options for remediation of situations on the ground, including techno-managerial solutions for deficits in elements across the sanitation value chain.
- The existence of multifarious laws fragmented across the purview of different departments sometimes leads to overlaps and confusion. These need to be resolved.

Governance Issues

The absence of a dedicated central sanitation institution solely governing on-site systems is a major drawback. The relevant functions are currently divided across multiple agencies hindering proper planning, implementation and enforcement. The scope for public-private partnerships is also yet to be fully developed and institutionalised.

Financial Issues

The policy of the government until 2014 has historically promoted sewerage as a feasible option with little attention to on-site sanitation systems. A greater balance will be desirable between off-site and on-site systems in terms of investments, in order to achieve 100 per cent sanitation outcomes for cities.

A summary of the of different stakeholders responsible for the various components along the sanitation value chain is presented in the Table below. The Acts and regulations governing the different components are presented along with the gaps and constraints faced in the functioning of these components. Proposed actions plans have also been formulated.

| Urban Sanitation in Tamil Nadu: Responsible Stakeholders, Current Gaps/Constraints and Proposed Actions | | | | |
|--|---|--|---|---|
| Components | Stakeholders | Laws/Regulation | Constraints/Gaps | Proposed Actions |
| Containment | ULBs, HHs, SBM (OD), Private Sector (Pvt) | <ul style="list-style-type: none"> Tamil Nadu District Municipalities Act 1920 Tamil Nadu Corporation Act Public Health Act 1939 Tamil Nadu Municipalities Building Rules 1972 Tamil Nadu Town and Country Planning Act 1972 | Violation of laws, low penalties, lack of adequate bye-laws, improperly constructed sanitary structures | Monitoring agencies, mason training, revision of penalties, bye-laws for septage management |
| Conveyance | ULB, Private Players, TUFIDCO, TWAD | <ul style="list-style-type: none"> Tamil Nadu District Municipalities Act 1920 Tamil Nadu Corporation Act | Unregulated sector, unsafe disposal, manual scavenging | Regulating sludge operators, occupational safety standards for sanitary workers |
| Treatment | NGO, TUFIDCO, ULB, TWAD, Pvt, HHs | <ul style="list-style-type: none"> Tamil Nadu Public Health Act 1939 Water (Prevention and Control of Pollution) Act 1974 Environmental Protection Act 1986 Environmental Protection Rules 1986 Water Quality Assessment Order 2001 | Indiscriminate disposal, insufficient treatment plants | Developing new technologies for treatment, setting up new treatment plants, formulation re-use option plans |
| Re-use/Safe Disposal | CMWSSB, ULB | | | |

The key intervention areas to be addressed to achieve 100 per cent sanitation for urban Tamil Nadu, include:

- Augmenting treatment plant capacity both conventional as well as fecal sludge treatment;
- Promoting safe and regulated de-sludging;
- Strict enforcement of regulations for households, and training of masons, etc.;
- Involvement of private players as viable stakeholders for construction and maintenance of treatment plants and operation of de-sludging trucks; and

- e. New innovations for treatment of fecal sludge through private players with government support needs to be developed. Simultaneously a market for new technologies also needs to be created.

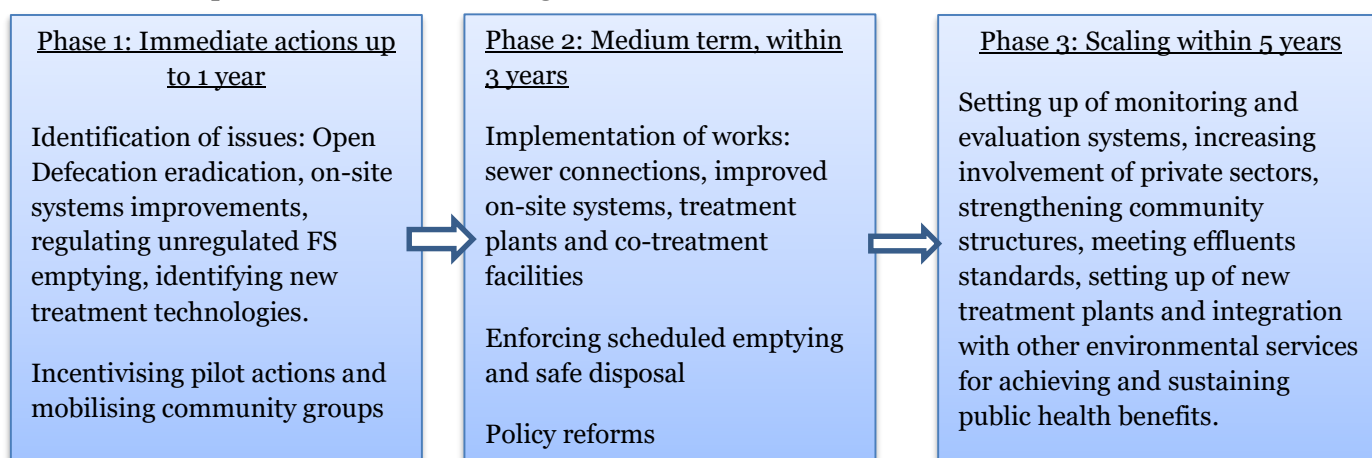
vii) Phasing Options for the Roadmap

Three approaches to address urban sanitation issues are:

Phased regional approach: Prioritisation of a region-wise augmentation of the treatment plant capacity and corresponding regulation of de-sludging operators in the region could be done.

Phased all-out approach: This approach is a time-phased approach to be based on Tamil Nadu's septage operative guidelines. In Phase 1 of the approach, the utilisation levels of existing treatment plants that are not at 100 per cent of their capacity, need to be augmented to full utilisation and necessary funds for the same needs to be provided. In Phase 2, proposals for new treatment plant options are to be developed.

Phased equitable approach: Since different regions benefit differently based on environmental conditions, a customised approach should be adopted based on environmental conditions. The roadmap is summarised in the Figure below.



viii) Report Outline

This report draws mainly from available secondary literature as well as data from the Government and other public sources. The first section of the report presents an introduction to the sanitation situation in India and the need for improved septage management by developing efficient legal and institutional systems. Section 2 elaborates the legal provisions in the various Acts, Rules and bye-laws for enforcing the full sanitation chain in urban Tamil Nadu. In Section 3, the Institutional Arrangements in the States for governing sanitation at the State and ULB level along with their powers and responsibilities is delineated. The rules and regulations regulating the municipal cadres and their list is also provided. Section 4 studies the budgets and fund flows for sanitation from various sources including State budgets, State Finance Commissions and Central Finance Commissions. Section 5 presents an overview of the central and state sanitation schemes. Section 6 presents a special case study of the Trichy Corporation and its institutional arrangements, process and fund flow patterns for all projects. Section 7 draws out the key issues analysed, and draws up a road map for improvement over the years.

1 Introduction

Tamil Nadu is the most urbanised state (amongst the large states¹) in the country, with an urban population share of 49 per cent. The urban population is spatially dispersed and there are variations in urbanisation levels across districts and regions of the state. Unlike most other states where a significant proportion of the urban population is in and around two or three primate cities (e.g. Mumbai and Pune in Maharashtra, Bangalore and Mysore in Karnataka), urban centres are more dispersed in Tamil Nadu. There are corridors of urban concentrations (Sivaramakrishnan & Singh, 2005) namely Chennai-Krishnagiri-Hosur (estimated to account for 43 per cent of the state's urban population by 2021), Coimbatore-Erode-Salem-Krishnagiri (estimated to account for 19 per cent of the state's urban population by 2021), the corridor of Tiruchi-Madurai-Tirunelveli, the coastal corridor of Chennai-Puducherry-Cuddalore-Thanjavur-Karaikudi (anticipated to be seven per cent of the state's urban population by 2021), and in a lesser way, the corridor of Tuticorin-Nagarcoil (anticipated to account for 4 per cent of the state's urban population by 2021).

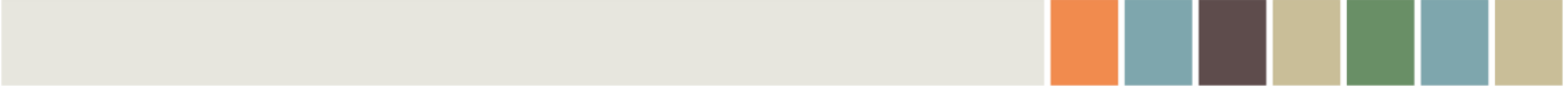
The state has 33 districts for administrative purposes. Of these, the district of Chennai is wholly urban. Apart from Chennai, there are six districts that have an urbanisation share of more than 60 per cent. There are 14 districts that display urbanisation levels less than 30 per cent. The districts with lower urbanisation levels are mostly situated on the coast and the state's central parts. The statutory urban units (ULBs and Cantonment Boards) exhibit a fair amount of dispersion, with significant numbers existing in about 60 per cent of districts. This has been a demographic and development feature of the state and is evidenced in the 2001 Census. The urban areas of Tamil Nadu are organised into 12 Corporations, 124 Municipalities, 528 Town Panchayats and two Cantonment Boards. The 2011 Census additionally reports 376 Census Towns.

1.1 Urban Sanitation in Tamil Nadu

Tamil Nadu has a population of 7,21,47,030 and 49 per cent of the population resides in urban areas as per census 2011 (CoI, 2011). The National Commission on Population (RGI, 2006) projected that 75 per cent of the state's population (5,37,00,000) will reside in urban areas by 2026.

In urban Tamil Nadu, about 75 per cent of households have toilets within their premises, 9 per cent use public toilets, and 16 per cent resort to open defecation. About 66 per cent of the household toilets are reported to have water closets (Census of India, 2011a). About 27 per cent of the toilets (40 per cent of those with water closets) are connected to sewer systems, and 38 per cent of the household toilets (40 per cent of those with water closets) are connected to septic tanks (Census of India, 2011a). In Class 1 cities, the coverage of household toilets connected to sewers is as high as 50 per cent; smaller cities, hence, have a higher prevalence of septic tanks. About 7 per cent of the state's urban households report having improved pit latrines. Of the households not having a latrine within their premises, a significant proportion (42 per cent) of these households, reside in Town Panchayats, 25 per cent in Municipalities and about 16 per cent in Municipal Corporations. Census Towns account for 17 per cent of the urban households without latrines.

¹ Delhi, Goa and Mizoram have a higher proportion of urban population in their state.



While on-site sanitation systems are the most predominant household arrangements across the state, there has hitherto been limited attention paid to the safe collection and treatment of human excreta from septic tanks. Septage/fecal sludge from these on-site structures is generally emptied using vehicle-mounted vacuum tanks (cess-pool vehicle). However, limited data is available on the number and coverage of these vehicles, as these are mostly operated by the informal sector. The sludge collected from septic tanks is commonly disposed into either natural storm water drainage systems or nearby surface water bodies in the absence of any treatment systems.

Thus, many urban settlements are grappling with the challenge of severe deficits along the ‘Sanitation Value Chain’². These deficits in the sanitation chain can critically impact the environment, public health and therefore the economic productivity of the region.

The Government of Tamil Nadu (hereafter referred to as GoTN) in 2011 formulated a two-pronged strategy for the urban sanitation sector which included the total elimination of open defecation as well as the coverage of all towns with underground sewerage systems (UGSS) by 2015 (Government of Tamil Nadu & Commission, 2015). During 2012–2014, significant construction of public toilets was undertaken in the ULBs to reduce open defecation, and a total of 8,943 public toilets were constructed by the end of 2014. Of the total number of public toilets located in ULBs, 2,113 were in the Corporations, 3,457 in the Municipalities and 3,373 in the Town Panchayats (GoTN, 2011). The Swachh Bharat Mission–Urban was initiated by the Government of India (GoI) in 2014 adding to the push to end open defecation.

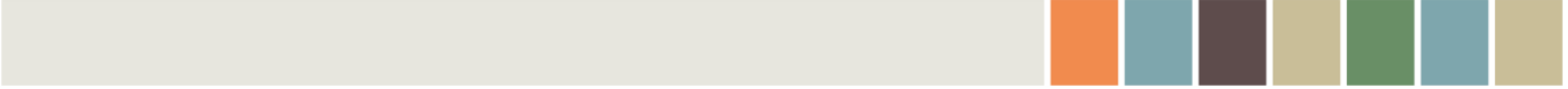
With respect to UGSS, the government has framed a comprehensive program for providing a sewerage network in Chennai city and all district headquarters with sustainable financing and user charges for sewerage connections. In addition, the state has introduced two major missions—the Chennai Mega City Development Mission (CMCDM) for Chennai and suburban areas, and the Integrated Urban Development Mission (IUDM) for all other Corporations, Municipalities and Town Panchayats which dovetail all existing schemes to improve the standards of basic infrastructure including sewerage and sanitation, storm water drains and solid waste management in an integrated manner (GoTN, 2011).

1.2 Status of Septage Management

A World Bank Report (2006) titled ‘India Water and Sanitation: Bridging the gap between infrastructure and service’ states that by 2017, nearly 148 million urban people will use septic tanks and 78 million will use pit latrines. Census 2011 for Tamil Nadu clearly states that 37.9 per cent and 6.9 per cent of urban households are connected to septic tanks and pit latrines respectively (Melrose, Perroy, & Careas, 2015). However, public systems in India have historically hailed sewerage as the sole solution for urban households, when it is a fact that nearly two-thirds of urban households depend on on-site systems, i.e. septic tanks and pit latrines (Census of India, 2011a).

Septic tanks and pit latrines are the primary sources of septage generation as they require de-sludging at regular intervals in accordance with their design and capacity, failing which there are insanitary outflows. These outflows contaminate nearby water-bodies or land surfaces

The “Sanitation Value Chain” covers all aspects of sanitation starting from containment which includes access to Toilets and capture for on-site and network systems, collection and transport of the fecal waste, treatment of the collected sewage/septage and their safe disposal or re-use post treatment.



causing pollution of the surface soil, eutrophication to the surface water and further pollution to groundwater in cases of sludge percolation. Also, people and animals who come in contact with these contaminated areas are susceptible to water-borne diseases and infections. The facilities for collection, transportation, treatment and disposal of septage from septic tanks and pit latrines is inadequate in most ULBs in India. Thereby, there still exists a need for manual de-sludge workers and private operators who do not transport and dispose of septage in the designated disposal sites; they instead dump it in drains, waterways, open land, and agricultural fields without adhering to any safety regulations (CSE, 2013).

According to a study conducted by CSE, such outflows and unsafe disposal methods have contaminated 75 per cent of all surface water bodies across India, which will have serious impacts on health, economy and environment. These negative impacts have also been quantified in a World Bank study which states that inadequate sanitation costs Rs 2.44 trillion per year which is equivalent to 6.4 per cent of India's GDP in 2006 (CSE, 2013). To add to this, nearly 4.5 lakh people die every year on account of unsafe water and lack of sanitation. Of these, a majority (4,05,000) are children under five years of age (14th, n.d.). Hence, adequate attention needs to be paid to the comprehensive management of human excreta, whether sewage or septage, if the deficits in urban sanitation are to be addressed.

1.3 The Bill & Melinda Gates Foundation Project

The Bill & Melinda Gates Foundation (BMGF) has come forward to assist the GoTN in developing and implementing sustainable sanitation solutions for urban Tamil Nadu. The objectives of the Tamil Nadu Sanitation Mission include elimination of open defecation; safe containment, treatment, and disposal of human excreta, so that public health, hygiene and dignity can be achieved for urban households and urban areas in the state. The BMGF signed a Memorandum of Cooperation (MoC) with GoTN for the same, in August, 2015.

1.4 Need for Legal and Institutional Review

In recent times, the importance of on-site sanitation has been gaining recognition in India as has been highlighted in India's National Urban Sanitation Policy (MoUD, 2008), the draft advisory and policy on Septage Management issued by the MoUD. At the state level, the Tamil Nadu Government has also issued the Septage Management Operative Guidelines in 2014. However, the physical infrastructure for fecal sludge management and awareness on the same is absent in most ULBs. The legal policies governing sanitation are also fragmented across various departments. For example, pollution control laws enacted by the central government; municipal laws; laws governing parastatal bodies; public health laws; and building and sanitation bye-laws enacted at the state or local levels. There is no comprehensive law regulating urban sanitation with respect to septage management. In addition, the delegation of roles and responsibilities between state agencies for water, sanitation and public health are ambiguous and poorly coordinated. Finally, the exclusive funding for septage management as a separate component is deficient as it depends to a large extent on other components of sanitation such as sewerage and toilets construction (Melrose et al., 2015).

1.5 International Best Practices

1.5.1 Malaysia

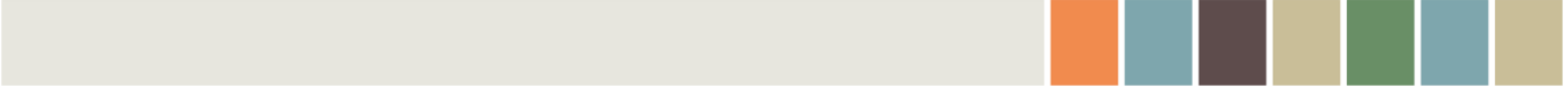
The Malaysian government has set the standards for developing an improved sanitation system inclusive of fecal sludge management. It has initiated major institutional changes which have created an enabling environment to solve sanitation issues. An independent agency Indah Water Consortium (IWK) was established to build necessary infrastructure, develop collection and transport services, and increase acceptance for scheduled FS collection and wastewater fees. In the year 2000, IWK was incorporated with the Ministry of Finance facilitating greater financial empowerment (Bassan, 2014).

The country also enforced a sewerage services act to regulate the construction and maintenance of septic tanks and treatment systems, and for collection and transport services within the country which were jointly handled by IWK and other private operators. Subsequently in 2008, the Suruhanjaya Perkhidmatan Air Negara (SPAN) was constituted under the Ministry of Energy to frame sanitation strategies and manage water and wastewater infrastructure. In the same year, management of water resources starting from source to disposal was covered under Water Service Industry Act, which also allowed the government to partner with all water and wastewater companies for efficient implementation. These institutional changes and regulatory improvements have resulted in scheduled collection of fecal sludge from 27 per cent of the on-site system connected households while the remaining 73 per cent of the households benefit from sewer networks (Bassan, 2014).

1.5.2 Japan

Japan has on-site wastewater treatment systems known as Johkasou for treatment of both black and grey water. Japan faced sanitation problems when it started becoming highly industrialised with a high population density in urban areas. As a result, a Johkasou law was established in 1983 for areas with high population density and areas that didn't have sewers. The Johkasou law is responsible for the regulation of manufacture, installation, maintenance and desludging of Johkasou, in addition to the registration of Johkasou installers and maintenance operators and the license of Johkasou desludging vendors. Under the Johkasou law, the Ministry of Environment oversees the functions of Johkasou maintenance and desludging, annual water quality examinations, maintenance operators and license of desludging vendors. Similarly, the Ministry of Land, Infrastructure and Transport is responsible for overseeing the installation and manufacture of Johkasou, Johkasou installers, registration of Johkasou installers and effluent requirements under the Law (Gaulke, 2006).

The assigned Ministries oversee the overall functioning and the respective private owners were directly responsible for the installation of Johkasou, its maintenance and desludging and annual water quality examinations. They were allowed to additionally hire maintenance operators. The Johkasou law promotes the installation of Johkasou by ensuring that the local municipalities provide a subsidy of 27 per cent, and the federal government provides a subsidy of 13 per cent to the private owners. This national subsidy aimed at reducing the Johkasou cost for homeowners was also more cost effective to the government than building new sewers. To further facilitate the working, separate agencies were employed for Johkasou maintenance and desludging and maintenance operatives were engaged to carry out Johkasou monitoring regularly throughout the year. Likewise, there were inspection agencies responsible for annual water quality examinations (Gaulke, 2006).

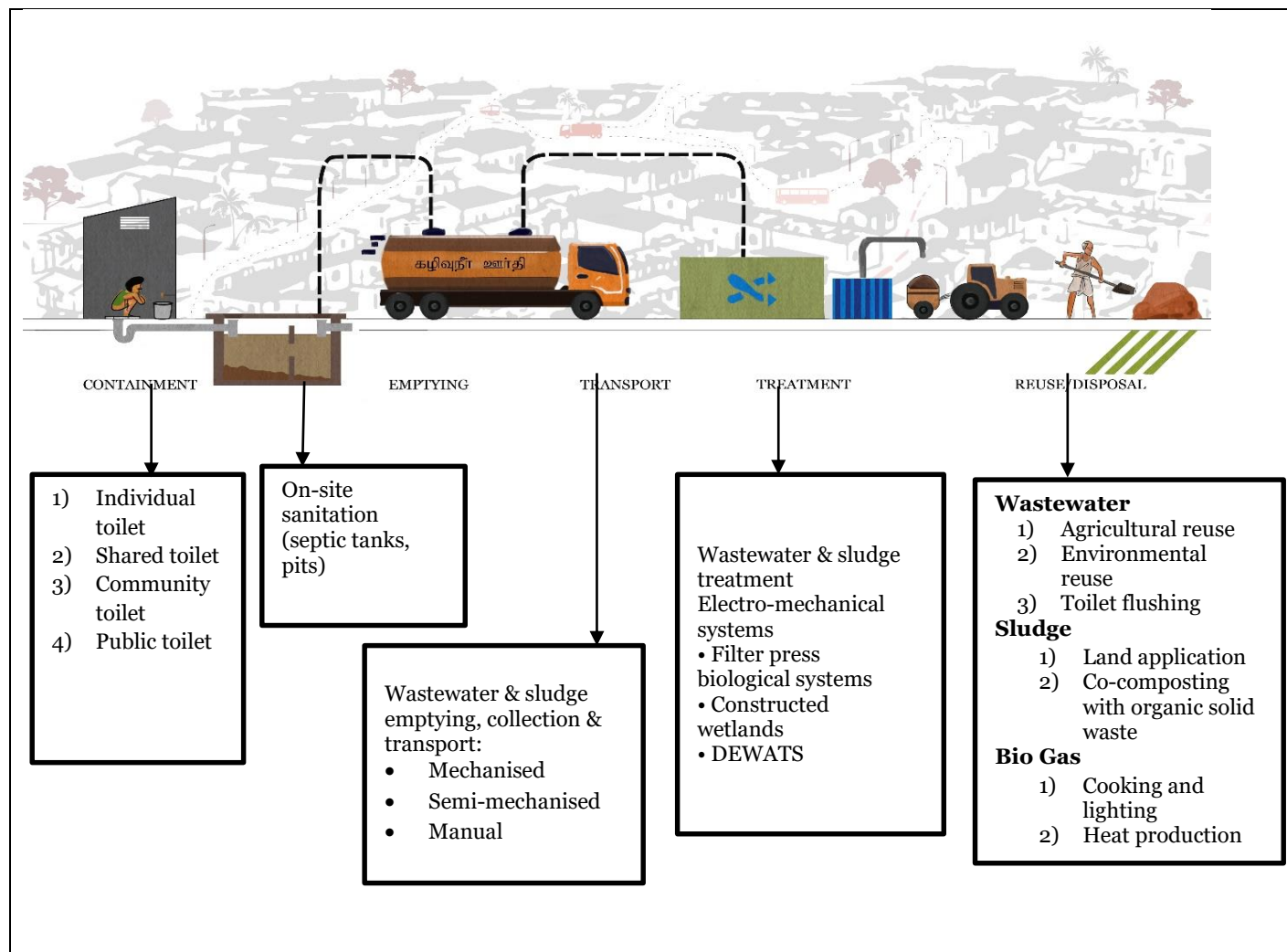


Japan's laws, regulations and subsidies for on-site wastewater treatment systems can be made applicable in regions of water scarcity as well as in developing countries with high density population lacking sewer systems. Similarly, Malaysia's institutional and regulatory improvements also suggest the need to create enabling conditions in laws, rules and regulations with respect to the Indian context.

2 Legal Framework Governing Urban Sanitation

2.1 Sanitation Value Chain

Figure 2.1: Sanitation Value Chain



Source: TNUSSP, 2016

| Table 2.1: Sanitation Value Chain | |
|-----------------------------------|--|
| Components | Description |
| Containment | Access: It describes the type of toilet, pedestal, pan, or urinal with which the user comes in contact. It is how the user accesses the sanitation system and is the first component of the fecal sludge value chain. |
| | Capture: It describes the ways of collecting, storing, and sometimes treating the products generated at the latrines. The treatment provided by these technologies is often a function of storage and is usually passive. There are two types of containment systems—on-site systems where the containment/treatment modules are built at the site of wastewater generation, and off-site systems which convey wastewater away from the site through pipes towards the treatment plant and finally ensure safe disposal. |
| Emptying & Transport | This component looks at the safe collection and transportation of wastewater and sludge to avoid health hazard and leakage into the environment. Some of |

| Components | Description |
|-------------------------------|--|
| | the equipments utilised to collect wastewater include storm water drains, conventional sewers and vacuum sewers. Similarly, for sludge emptying/collection gulper systems, portable pumps and vacuum tankers are used. |
| Treatment | This component looks at the treatment of septage/sewage through various processes such as filter press, constructed wetlands and Decentralised Wastewater Treatment Systems (DEWATS) so as to bring them to safe levels of disposal. |
| Safe Disposal or Reuse | After the treatment, the end products have to be checked to meet the standard requirements set by the Pollution Control Boards before they can be disposed. As part of reuse, the treated water can be utilised for agricultural lands and toilet flushing. The treated sludge can be reused as soil conditioners in agriculture and the biogas generated can be used for cooking, lighting and heat production. |
| <i>Source: CDD, 2016</i> | |

2.2 Legal Instruments Governing the Sanitation Value Chain

The 74th Constitutional Amendment (CA) enacted in 1992 sought to put on a firmer footing the relationship between the state government and the ULBs with respect to (a) the functions and taxation powers; and (b) arrangements for revenue sharing. It also provided the impetus for democratic and inclusive decentralisation through its emphasis on (i) regular conduct of elections; (ii) timely elections in the case of supersession; and (iii) adequate representation for weaker sections of society such as Scheduled Castes (SC), Scheduled Tribes (ST) and women.

The CA listed eighteen functions under the Twelfth Schedule (Article 243W) in the Indian Constitution (see Annexure 6), that needed to be devolved to ULBs through adequate legal action in the states. Of these, the ones bearing an influence on sanitation include (i) water supply for domestic, industrial and commercial purposes; (ii) public health, sanitation conservancy and solid waste management; (iii) slum improvement and upgradation; and (iv) public amenities including street lighting, parking lots, bus-stops and public conveniences. The finance commissions and legal scholars in subsequent years debated on the core and non-core nature of these functions, when examining the capacity and requirements of different size classes of local bodies. The Eleventh Finance Commission recognised local functions to be of civic, regulatory and development character (Eleventh Finance Commission, 2000, p.84). When it came to the identification of items in the Twelfth Schedule, it classified the slum improvement and upgradation function as a development (welfare) function and the remaining listed above as part of core civic functions (ibid, p.312 and p.313).

The Fourth State Finance Commission was constituted based on the 73rd and 74th amendments to study the financial position of rural and ULBs and present its suggestions to the Tamil Nadu government. The 4th Finance Commission has recommended devolving 10 per cent of the state's own tax revenue to the local bodies and this fund has increased to Rs. 3,926.32 crores for ULBs in the Budget Estimates 2015–2016 (*TN budget speech 2015–16*).

The state government examined all the recommendations of the Fourth State Finance Commission and placed it to the State Assembly in 2013 following which certain orders were to be enforced under G.O. Ms.No.549 which include the following inter alia: 1) The vertical sharing was kept at 40:31:29 between Municipal Corporations, Municipalities and Town

Panchayats. 2) A separate fund of INR 100 crore per annum was created for handling solid waste management in ULBs, and was to be distributed to the ULBs in the vertical sharing ratio of 40: 31: 29 under three instalments. 3) Between the rural and ULBs, the sharing ratio is 58:42. 4) Each Town Panchayat will receive a minimum lump sum grant of INR20 lakh as against the old sum of INR10 lakh. 5) The funds will be dispersed to the relevant departments such as the Commissioner of Municipal Administration/ Director of Town Panchayats, and the directives to these departments would be issued by the Municipal Administration and Water Supply Department in consultation with the Finance Department (G.O.Ms.No.549).

The sources of law relating to urban sanitation exist in an assortment of legal instruments (IELRC, 2013), including pollution control laws enacted by the Government of India, municipal laws enacted by the Government of Tamil Nadu, laws governing parastatal bodies, public health laws, development control rules enacted by urban planning authorities, building and sanitation rules and bye-laws enacted at the state or local level. Apart from these laws and rules, the National Urban Sanitation Policy (2008) scheme guidelines for the erstwhile JNNURM and the more recent AMRUT and Swachh Bharat Mission (Urban) provide the basis for government and private sector interventions in urban sanitation.

The Tamil Nadu District Municipalities Act, 1920, was amended in 1994, to bring the state law in line with the 74th CA. The main emphasis in the amendments was to make regular conduct of elections mandatory and procedures of timely re-elections in cases of supersession. A significant portion of the amendments focused on the conduct of elections and the rules for democratic inclusion—representation of women, members from SC and ST.

Similar to the Municipalities Act enacted for all municipalities and town panchayats, Corporation Acts for all Corporations in the state has also been issued. Apart from Chennai, the governance and functioning of the 11 Corporations is administered by the Commissioners of the Corporation as per their respective Municipal Corporations Act mentioned below.

1. Madurai City Municipal Corporation Act, 1971
2. Coimbatore City Municipal Corporation Act, 1981
3. Salem City Municipal Corporation Act, 1994
4. Tiruchirappalli City Municipal Corporation Act, 1994
5. Tirunelveli City Municipal Corporation Act, 1994
6. Tiruppur City Municipal Corporation Act, 2008
7. Vellore City Municipal Corporation Act, 2008
8. Erode City Municipal Corporation Act, 2008
9. Thoothukudi City Municipal Corporation Act, 2008
10. Dindigul City Municipal Corporation Act, 2013
11. Thanjavur City Municipal Corporation Act, 2013

The Corporation Act for the different corporations is primarily based on the Municipalities Act. However, the implementation of the same is governed by the Commissioner of the Corporation at the City/Corporation level, whereas the executive authority is the chief governing officer in the case of Municipalities and Town Panchayats.³

³ The District Municipalities Act 1920 has been taken as the basis for analysing the provisions of the Sanitation value chain and any new provisions from the Corporation Act has been referred from the Coimbatore City Corporation Act, 1981 and included accordingly.

The various laws, rules and regulations for enforcing the capture, containment, collection, transport, treatment, disposal and reuse systems, and the responsibilities of the various stakeholders through the sanitation service chain in the case of Tamil Nadu is outlined below. The Legal Provisions in the state empower framing of bye-laws for the provision of safe sanitation, and the state Pollution Control Boards are entitled to enforce provisions of certain Central Acts for providing efficient sanitation systems.

The Town and Country Planning Act, 1971 delegates responsibility for the provision of water supply, drainage, sewerage and sewage disposal facilities to all existing planning authorities through its master plans. The Government is empowered to declare new regional planning areas or local planning areas for developmental purposes. Post declaration of the new regions, the respective planning authority will prepare a regional plan, master plan or the new town development plan which should provide for water supply, drainage, sewerage, sewage disposal, public utilities and other related amenities (TN Town Planning Act, 1972).

In the case of the Chennai Metropolitan area, a separate Metropolitan Development Authority with members from various government organisations including the Director of the Chennai Metropolitan Water Supply and Sewerage Board has been constituted. Thereby, during the preparation of any master plan or town development plan for all works relating to water supply and sewerage, the Metropolitan Development Authority will consult and collaborate with the Chennai Metropolitan Water Supply and Sewerage Board (TN Town Planning Act, 1972).

The definitions for the various terminologies utilised in the sanitation service chain as per the Tamil Nadu Acts and Rules is provided below.

| Table 2.2: Definitions | | | | |
|-------------------------------|--|--|--|---|
| | TN Municipalities Act, 1920 | Public Health Act, 1939 | Chennai Metropolitan Water Supply and Sewerage Board Act, 1978 | Tamil Nadu Town & Country Planning Act, 1971 |
| Latrine | Latrine includes privy ⁴ , water closet and urinal (<i>Section 3, (12)</i>). | | | |
| Filth/Sewage | The Act has assigned the term filth for sewage, night soil, dung, dirt, putrid and putrefying substances and all offensive matter (<i>Sec 3, (9)</i>). | The term filth denotes night soil and other substances of latrines, cesspools and drains. It also includes dung, refuse or offensive material thrown from manufacture, | The term sewage encompasses night soil and other contents of water closets, latrines, privies, cesspools or drains, and polluted water from shafts, kitchens, bathrooms, | |

⁴ Toilet

| Table 2.2: Definitions | | | | |
|-------------------------------|---|--|--|---|
| | TN Municipalities Act, 1920 | Public Health Act, 1939 | Chennai Metropolitan Water Supply and Sewerage Board Act, 1978 | Tamil Nadu Town & Country Planning Act, 1971 |
| | | industry or trade, and putrid and putrefying substances <i>(Sec 3, (11) (a)).</i> | stables, cattle sheds and other similar places, and includes trade effluent <i>(Sec 2, (n)).</i> | |
| Drains | The drain includes rain/storm water drains/chutes used solely for draining away the rain water falling on the surface of any street, bridge or causeway and does not include a drain or sewer within the meaning of the CMWSSB Act, 1978 <i>(Sec 3, (8A)).</i> | A drain covers all house drains and any other description which includes a sewer tunnel, culvert, ditch, channel, or any other device for carrying off sullage, sewage, offensive matter, polluted water, rain water or subsoil water <i>(Sec, 3(5)).</i> | Drain system includes all types of pipes or septic tanks and other devices for carrying, treating and disposing sewage, sullage, offensive matter, wastewater and for collecting, expelling or removing sewage, and does not include rain/storm water drains which are meant to drain surface and rain water <i>(Sec 2, (d)).</i> | |
| House Drains | | Drains to be used for the drainage of one or more premises is referred to as house drains. <i>(Sec 3, (15))</i> | | |
| Sewers | | | Sewers are devices for carrying off sewage, sullage, offensive matter polluted water, wastewater, or sub-soil water, and includes a drain <i>(Sec 2, (o)).</i> | |

| Table 2.2: Definitions | | | | |
|-------------------------------|--|--|---|--|
| | TN Municipalities Act, 1920 | Public Health Act, 1939 | Chennai Metropolitan Water Supply and Sewerage Board Act, 1978 | Tamil Nadu Town & Country Planning Act, 1971 |
| Sewerage | | | Sewerage refers to a system of sewers used for collection, treatment or disposal of sewage (<i>Sec 2, (p)</i>). | |
| Offensive Matter | | This includes filth, sewage, dirt, house sweepings and spitting (<i>Sec 3, 27 (a) (b)</i>). | | |
| Nuisance | | Nuisance includes an act, thing or omission likely to cause danger or annoyance to the sense of sight, smell, hearing etc. and is injurious to health or property of the public in an area (<i>Sec 3, (25)</i>). | | |
| Scavenger | The Act defines a scavenger as a person who is involved in collecting and removing filth either directly or in driving carts used for the removal of filth (<i>Sec 3, (28)</i>). | | | |
| Amenities | | | | Amenities include all sewerage and drainage services (<i>Sec 2 (2)</i>). |

| Table 2.2:Definitions | | | | |
|---|------------------------------------|--------------------------------|---|--|
| | TN Municipalities Act, 1920 | Public Health Act, 1939 | Chennai Metropolitan Water Supply and Sewerage Board Act, 1978 | Tamil Nadu Town & Country Planning Act, 1971 |
| Engineering operations | | | | Engineering operations include the the laying out of means of water supply, drainage and sewerage (<i>Sec 2 (17)</i>). |
| <i>Source: TN Municipalities Act, 1920; Public Health Act, 1939; Chennai Metropolitan Water Supply and Sewerage Board Act, 1978; Tamil Nadu Town & Country Planning Act, 1971</i> | | | | |

2.2.1 Containment

Access

The first component of the sanitation chain is access falling under containment. This takes place in latrines which by definition under the Tamil Nadu District Municipalities Act includes privy, water closet and urinal. The building regulations under the Municipal Act states that while buildings are being constructed, there should necessary regulations for materials, position and methods for the construction of latrines (Tamil Nadu District Municipalities Act, 1920). The Tamil Nadu Building Rules also state that the form and dimension of any water closet or privy should be presented in the building plans presented to the Executive Authority (Tamil Nadu Building Rules, 1972).

The Municipal Council funds the construction and maintenance of public latrines, and the local authority is obligated to construct and maintain sufficient number of public sanitary latrines. The Municipal Act necessitates the provision of private latrines by owners/occupiers in their own land, for groups of huts falling under their land, for labourers employed by them and for markets, cart-stands, cattle-sheds, choultry etc. under their control (TN Dis Mun Act, 1920). The health officer sends notices for construction of latrines, new latrines or additional latrines as maybe required, and in its absence, charges a fine of Rs.50 on the defaulting party. The owner of the premises is also obligated to maintain the latrines in his premises and take up any alternation, repairs or cleaning at his expense (Tamil Nadu Public Health Act, 1939). In case of failure to keep latrines clean and in proper order, a fine of Rs. 50 can be imposed on the defaulting party as per Tamil Nadu Municipalities Act, 1920 (TN Dis Mun Act, 1920).

The Building Rules prescribes the standard number of sanitary facility requirements like water closets, privy and urinal and other such draining systems in residential buildings and all types of commercial buildings. Detailed categorical specifications of sanitary requirements for various structures such as office buildings, factories, theatres and restaurants are given in Annexure 1 (TN building rules, 1972).

Capture

Planning: The Building regulations under the Tamil Nadu District Municipal Act states that while buildings are being constructed, there should be a provision of secondary means of access for the removal of filth through drains and cesspools (TN Dis Mun Act, 1920). Therefore, the buildings plans submitted to the Executive Authority/Commissioner should clearly delineate the dimensions of the cesspool to be constructed and the position of any sewer with which the drainage is proposed to be linked. The lowest floor of the building should be constructed in a way that allows effectual draining through adequate sullage and sewage systems. The overall plan of the house and drainage proposed should be presented in the building plan for approval from the Executive Authority of the local body (TN building rules, 1972).

Construction: The Corporation and the Municipal Council are responsible for providing and maintaining sufficient systems of public drains and cesspools falling under their control. Drains/cesspools falling within or outside the premises of the municipality/city are under the charge of the Municipal Council/corporations but shall be altered, repaired and cleansed at the expense of the owner of the premises in accordance with the bye-laws and regulations framed by the Council in this behalf (TN Dis Mun Act, 1920) (Coimabto Municipal Corporation Act, 1981).

The health officer is empowered to issue orders on drainage in private streets, construction directives providing drainage for huts and drainage of courtyard, alley, passage, etc. If some premises don't have a drain for discharging sewage the owner will be directed by the health officer/Commissioner/Executive Authority to construct a closed cesspool, tank or filter and a house drain communicating with such closed cesspool, tank, filter or other work. The funds for constructing drains situated more than 100 feet away from the premises will be financed by the concerned local authority. In cases where the local authority decides to alter or undertake a new drainage system, the cost for construction/alteration will be borne partly by the local authority and partly by the owner in accordance with the Rules prescribed (TN Dis Mun Act, 1920)(Tamil Nadu Public Health Act, 1939). The commercial private markets are also obligated to construct drains, cess pits and sufficient provisions for water supply and sanitation. The Commissioner oversees this implementation of drainage and sanitation facilities and any failure to do so will lead to suspension of licenses for the private markets (Coimabto Municipal Corporation Act, 1981).

Operation and Maintenance: The health officer prohibits the construction of cesspools beneath buildings or nearby water courses, and also issues directions for closure of unfit cesspools (Tamil Nadu Public Health Act, 1939). The Executive Authority is also empowered to exercise their powers and direct any defaulting party to construct technically fit cesspools and drains for collecting and emptying sewage in accordance with the bye-laws and regulations (TN Dis Mun Act, 1920). Only on the establishment of adequate means of drainage will the owners of buildings constructed or reconstructed receive a permit certificate from the health officer (Tamil Nadu Public Health Act, 1939).

The Tamil Nadu Public Health Act and Tamil Nadu Municipalities Act prohibits letting out of filth/offensive matter which covers sullage, sewage from sewers, latrines from buildings/lands into streets, open space, surface drains, public drains. Similarly soaking out of offensive matter through external walls of sanitary appliances is also prohibited (Tamil Nadu Public Health Act, 1939)(TN Dis Mun Act, 1920). The sullage/sewage to be emptied into the authorised drains

should not be of injurious refuse nature which will affect the treatment, flow or characteristic of the contents in the drain on its combination. The Act strictly forbids any solid or liquid sewage matter from being emptied in the water-course causing nuisance in the neighbourhood (Tamil Nadu Public Health Act, 1939).

Drains and cesspools which become unhygienic and cause injury to public health will be termed as a nuisance. During inspection or when the local authority receives complaints of such nuisance he will transfer the case to the health officer or any other officer of the public health establishment in the Local Authority. Following this, the health officer issues a notice to the defaulting person to remove or abate such nuisance (Tamil Nadu Public Health Act, 1939). The Executive Authority/Commissioner may also close or limit the use of existing private drains in case of the drain/sewers system violating the prescribed discharge to be emptied as per rules. In addition, directions will be provided to the owner for construction of separate drains for unpolluted water and separate drains sewers for sullage and sewage (TN Dis Mun Act, 1920)(Coimabtoire Municipal Corporation Act, 1981).

In case the person causing nuisance has not taken necessary action within the stipulated time or in the absence of the defaulter, the local body will step in to execute the works and collect necessary dues like taxes from the defaulting person (Tamil Nadu Public Health Act, 1939). The Executive Authority can also direct persons to immediately undertake urgent works abating nuisance and complete them within a specified time as per Section 339 of the Act. If a person fails to comply as per the notice to remove or abate such nuisance, he can be produced before a magistrate and fined an amount not exceeding Rs.50 for the offence (TN Dis Mun Act, 1920).

2.2.2 Collection and Transport

The Tamil Nadu District Municipalities Act, 1920 Act holds the municipal council responsible for all collected sewage from the containment. The Act defines scavenger as a person who is involved in collection and removal of filth either directly or in driving carts used for this purpose. As part of the property tax the municipality can charge a scavenging tax for removal of filth from a household (TN Dis Mun Act, 1920).

The Municipality is obliged to make arrangements and provide directives for regular removal of filth from private premises, private markets, etc. in authorised covered vehicles. The Municipality is also obligated to provide for depots for depositing the collected filth (TN Dis Mun Act, 1920).

The Tamil Nadu Municipalities Act also specifies that the filth must be disposed only in vehicles intended for this purpose. Only authorised vehicles/carts with adequate covers to prevent the escape of the contents/stench and having provisions that prevent negligent spills during removal are to be used in the Municipality. Further, under Section 316 of the Act, a person who fails to obtain license for any vehicle is charged with a fine of Rs. 50 and the amount of tax payable by him for the vehicle (TN Dis Mun Act, 1920). As per Section 233 of the Coimbatore Corporation Act, 1981, all Corporations are obliged to maintain an establishment under the jurisdiction of the Commissioner which undertakes removal of rubbish and filth from toilets which are not given connections to public drains (Coimabtoire Municipal Corporation Act, 1981).

2.2.3 Treatment

There are limited policies and regulations for septage management in India. However, there are laws which prohibit the discharge of sewage/septage into a water body or on land without proper treatment and without necessary consent from state Pollution Control Boards. The Tamil Nadu Pollution Control Board enforces the provisions of the Water (Prevention and Control of Pollution) Act, 1974 and the rules and orders made under the Environment (Protection) Act, 1986.

Section 5 of the Environmental Protection Act issues directions to any officer or authority to carry out functions specified under the Act. Following this, the Water Quality Assessment Order was issued under the EPA Act in 2001 (EPA Act, 1986). The functions under the Order include directing all government / local bodies / non-governmental agencies to take measures ensuring proper treatment of wastewater with a view to restoring the water quality of the water bodies (WQAA, 2001).

The Water (Prevention and Control of Pollution) Act, 1974 empowers the Tamil Nadu State Pollution Control Board to supervise and receive necessary information on the construction and installation of any treatment or disposal system and provide the necessary approvals for its operation as per the Act. The State Board prescribes the standards of treatment of sewage to be discharged into a water body/stream as per permissible limits preventing pollution. The State Boards will also inspect the workings of the sewage treatment plants as per the Act and evolve economical and reliable methods of treatment of sewage favouring environmental conditions (WPA Act, 1974).

2.2.4 Safe Disposal and Reuse

The Tamil Nadu Municipalities Building Rules, 1972 states that any person who constructs or reconstructs a building within 15 metres of a water body will carry out measures to prevent contamination of the water body from drains (TN building rules, 1972). The Tamil Nadu Public Health Act 1939 and the Tamil Nadu Municipal Act, 1920 enforce regulations for the prevention of contamination of water and disposal of filth in water bodies, open spaces or land (TN Dis Mun Act, 1920)(Tamil Nadu Public Health Act, 1939).

Water pollution in India is precisely regulated under the provision of Water (Prevention and Control of Pollution) Act, 1974. The Water (Prevention and Control of Pollution) Act, 1974 provides for a permit system or 'consent' procedure from the state Pollution Control Boards to prevent and control water pollution. The Water Act prohibits disposing polluting matter in streams, wells and sewers, or on land in excess of the standards established by the state boards. The consent of the state boards is to be obtained for the establishment and for the discharge of sewage through existing and new outlets into any stream, well or sewer, or on land or into marine coastal areas. The breach of the above mentioned Sections 24, 25 and 26 is punishable with imprisonment for a term not less than one year and six months and is extendable up to six years with fine (WPA Act, 1974).

The Environment (Protection) Act 1986 and the Environment (Protection) Rules 1986, authorise the state Pollution Control Board to lay down stringent standards for emission or discharge of environmental pollutants for the purpose of protecting and improving the quality of the environment, and preventing and abating environmental pollution (Env Protection Rules, 1986)(EPA Act, 1986). Furthermore, the Water Quality Assessment Order 2001 under

the Environment (Protection) Act also enables provisions for the constitution of a state-level water quality review committee to generate reliable water quality data, facilitate activities ensuring prevention of pollution to water bodies, and improving the coordination between central and state agencies (WQAA, 2001). The central government is entitled under Section 2 of the Environmental Protection Act, 1986 to prepare manuals, codes or guides relating to the prevention, control and abatement of environmental pollution (EPA Act, 1986).

In a municipality, the local authority is obliged to take necessary action if the Director of Public Health feels that the source of water supply in any local area is insanitary, contaminated or is subject to imminent risk of contamination due to a bad location, lack of protection, unsatisfactory construction and operation and maintenance. Thereby, to protect water supply, the health officer is authorised to drain off or remove any such source of water supply from the land or any receptacle which could cause injury to health or become offensive to the neighbourhood (Tamil Nadu Public Health Act, 1939). In addition, the state Pollution Control Board has the power to enter and inspect and is entitled to issue a 30-day notice to a polluter to execute any work required under the consent order which has not been executed. In case the defaulting person has not executed the works, the State Board may take up the work and collect the dues from the person/industry. The Board also needs to be informed on cases of discharge of any noxious polluting matters, and in times of emergency the Board is authorised to issue orders for mitigating and prohibiting such discharges, and in critical times it can call for closure of the industry, water supply or any other related service (WPA Act, 1974).

With regard to reuse, the state Pollution Control Board is responsible for evolving processes for the reuse of sewage for application in agriculture under the Water (Prevention and Control of Pollution) Act, 1974 (WPA Act, 1974). The Water Quality Assessment Authority Order, 2001 issued under the Environmental Protection Act, 1986 is also committed to promoting recycling/reuse of treated sewage for irrigation in development of agriculture through various government / local bodies / non-governmental agencies (WQAA, 2001).

The role of the various organisations involved in the water quality assessment and management at the state level is summarised in the table:

| Table 2.3: State Government Organisations | | | |
|---|--|---|--|
| Line Department of State Government | Water Quality Review Committee | State Pollution Control Board | ULBs |
| Implementation of water quality management programmes and schemes | Generation of reliable water quality data; facilitation of activities for prevention and control of pollution of water bodies, and improvement of co-ordination between central and state agencies | Enforcement of provisions of various Acts and Rules for prevention and control of water pollution | Implementation of water quality management programme |
| <i>Source : http://wqaa.gov.in/Content/Institutional_Setup.aspx</i> | | | |

2.2.5 Bye-laws

The District Municipalities Act, 1920 entitles the Municipal Council to frame bye-laws for the following:

- maintenance and protection of the water supply system, and the protection of the water supply from contamination;
 - maintenance and protection of the drainage system;
 - construction of house drains, and for regulating their situation, mode of construction and materials;
 - alteration and repair of house drains;
 - cleansing of house drains;
 - construction of cesspools, septic tanks, filters and drains;
 - cleansing of latrines, earth closets, ash pits and cesspools, and the keeping of latrines supplied with sufficient water for flushing;
- (TN Dis Mun Act, 1920)

The bye-laws under the TN District Municipalities Act, 1920 and all Corporations Act have a retrospective effect in relation to drainage, water supply, water closets, earth closets, privies, ash pits and cesspools in connection with buildings. Thereby, buildings constructed before the passing of the bye-laws and Acts also fall under the scrutiny of the Municipal Council in case of improper privies and cesspools and other related nuisances. Under the TN District Municipalities Act, 1920, penalty for breach of by-law starts with Rs.50, and continuing breaching will entail a fine of Rs.15 per day during which the breach continues after conviction for the first breach. Further violation after receipt of notice entails a fine which may extend to Rs.10 for every day during which the breach continues (TN Dis Mun Act, 1920).

In the case of Corporations, the fine for breach extends to Rs. 100 and continuing breaching will entail a fine of Rs. 25 per day during which the breach continues after conviction for the first breach. Further violation after receipt of notice entails a fine which may extend to Rs. 20 twenty per day during which the breach continues (Coimabto Municipal Corporation Act, 1981). Detailed penalties for breach of laws and bye-laws for the TN District Municipalities Act, 1920 and the Public Health Act, 1939 is presented in Annexures 2 and 3 respectively. All Acts, Laws and Rules governing the sanitation cycle discussed above have been summarised and presented in a tabulated form in Annexure 4.

2.3 Summary

All Acts need to be revised regularly to match current needs, and there should be provisions for inclusions of overlooked or newly evolved components through new bye-laws or Rules. Currently the adequacy of bye-laws and Rules provisioned for the enforcement of many Acts is a matter of concern.

The penalties stated in all the Acts are outdated and meagre, and do not match with current rates. In addition, the procedures and responsibilities for collection of penalties has not been clearly started in any of the Acts. Although the local bodies are authorised by law to stop violators, the implementation of the same is complicated due to a lack of capacity and practical remedial measures.

The existence of multifarious laws fragmented across the purview of different departments sometimes leads to overlaps and confusion. This also indicates scope for better coordination between directives issued by centrally controlled laws and state laws to be enforced by the respective Centre and State institutions.

3 Institutional Arrangements for Urban Sanitation: Tamil Nadu

3.1 Constitutional directions on urban sanitation

The purpose of the 74th Constitutional Amendment was to construct a decentralised urban governance structure for passing on responsibilities to the ULBs in matters of all functions, representations, finance and planning.

The Constitutional Amendment 1992 necessitated the constitution of three types of municipalities (Nagar Panchayat, Municipal Council and Municipal Corporation) and election of Chairperson of a municipality in the manner specified by the state law. At the ward level or other level within the municipal area also, committees were to be constituted as per state law.

The power to levy taxes and the delegation of tax responsibilities were assigned to municipalities from the state under Article 243X. In addition, the state also credits grants-in-aid from its consolidated fund and provisions municipalities to create funds for all money received for future withdrawals.

Article 243I necessitated the constitution of a Finance Commission to review the financial position of municipalities and make recommendations for the distribution of taxes levied, allocation of share proceeds, audit of accounts and determination of taxes, duties, tolls etc. between the State and Municipalities (Article 243I, Article 243Y). A State Election Commission was also to be constituted for the conduct of elections to all Local Bodies.

ULBs have the constitutional powers to manage the basic services of their locality. Hence they are the front end to the citizens and are responsible for addressing their concerns, and accountable for the work that are executed in their locale. For every activity that is executed during a project starting from project preparation to implementation, council resolutions are required, which is treated as acceptance by the ULB for a particular activity. The Council has powers to take up projects, provide sanctions within their delegated powers, provide approvals for tariffs, user fees, enter into contractual obligations for work execution, issue tenders, etc. All ULBs other than the Corporation of Chennai report to the CMA.

Article 243W of the 74th Amendment facilitates the functioning of ULBs as self-governed bodies with autonomy of power and responsibilities in all matters listed below in the Twelfth Schedule the Article (Kapoor, n.d.)

1. Urban planning including town planning
2. Regulation of land use and construction of buildings
3. Planning for economic and social development
4. Roads and bridges
5. Water supply for domestic, industrial and commercial purposes
6. Public health, sanitation conservancy and solid waste management
7. Fire services
8. Urban forestry, protection of the environment and promotion of ecological aspects
9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded
10. Slum improvement and upgradation

- 11 Urban poverty alleviation
- 12 Provision of urban amenities and facilities such as parks, gardens, playgrounds
- 13 Promotion of cultural, educational and aesthetic aspects
- 14 Burials and burial grounds; cremations, cremation grounds and electric crematoriums
- 15 Cattle pounds; prevention of cruelty to animals
- 16 Vital statistics including registration of births and deaths
- 17 Public amenities including street lighting, parking lots, bus stops and public conveniences
- 18 Regulation of slaughter houses and tanneries

Consequent to the 74th Amendment of the Constitution, the Government of Tamil Nadu amended the Tamil Nadu District Municipalities Act, 1920 for transferring the powers and responsibilities to ULBs in order to implement schemes for economic development and social justice including those in relation to matters listed in the Twelfth Schedule of the Constitution.

3.2 Urban Governance in Tamil Nadu

The main departments under the Government of Tamil Nadu for addressing water supply and sanitation needs are mapped to understand the roles and responsibilities of the various organisations and the execution process. The hierarchy of departments in the state and details of financial institutions and special purpose vehicles formed by the government have also been covered below. The current institutional set up with respect to different aspects of water and sanitation projects is mapped below:

| Responsible agencies | Policies | Planning | Project Development | Financing | Implementation | O&M | Monitoring |
|-----------------------------|-----------------|-----------------|----------------------------|------------------|-----------------------|----------------|-------------------|
| MA&WS | • ⁵ | | | • ⁶ | | | • |
| CMWSSB ⁷ | | • | • | | • | • | |
| TWAD Board ⁸ | | • | • | | • | • | |
| CMA ⁹ | | • | • | | | | • |
| DTP ¹⁰ | | • | | | | • | |
| ULBs ¹¹ | | • | • | | • | • | |
| TUFIDCO ¹² | | | | • | | | • |
| TNUDF ¹³ | | | • | • | | | • |

Source : TNUSSP Analysis, 2017

⁵ State Government Department in charge of water and sanitation in the State

⁶ Arranging and channelising finances to different departments

⁷ Governed by the Chennai Metro Water Supply and Sewerage Board Act,

⁸ Governed by the Tamil Nadu Water and Drainage Board Act,

⁹ CMA oversees the functions of ULB in terms of planning and implementation; help them in identification of consultants for developing DPR; Monitor implementation of all projects related to ULB

¹⁰ The Director of Town Panchayat is governed by the District Municipalities Act, 1971.

¹¹ All Corporations, Municipalities from Grade I and above can develop and implement water and sanitation programs on their own, according to District Municipalities Act, 1971 and subsequent Government Orders

¹² TUFIDCO passes on State and Central Government finances to the respective departments

¹³ TNUDF assists CMA / ULB in hiring consultants for DPR preparation, lend to ULBs towards financing and also provide capital grants for project implementation;

3.3 The Municipal Administration and Water Supply (MAWS) Department

The Department of Municipal Administration and Water Supply is the governing body responsible for coordinating the activities of various organisations and agencies in the planning, execution and maintenance of measures to provide improved infrastructure and services in the urban areas, as well for providing drinking water supply in rural and urban areas of the state. Policies with respect to different sectors are formulated (enabled through budget announcements and policy notes), and approved by the Department. The MAWS department reviews projects periodically with respect to their physical and financial progress, and guides them in resolving matters related to policies and inter-departmental issues (DMAWS manual, 2005).

The Department focuses on the following areas:

- Improvement of basic infrastructural facilities in all urban areas
- Provision of safe drinking water in urban and rural areas
- Betterment of lives of urban/rural poor by provision of basic services
- Sanitation and solid waste management services, with emphasis on recycling of wastewater and proper disposal of solid waste.

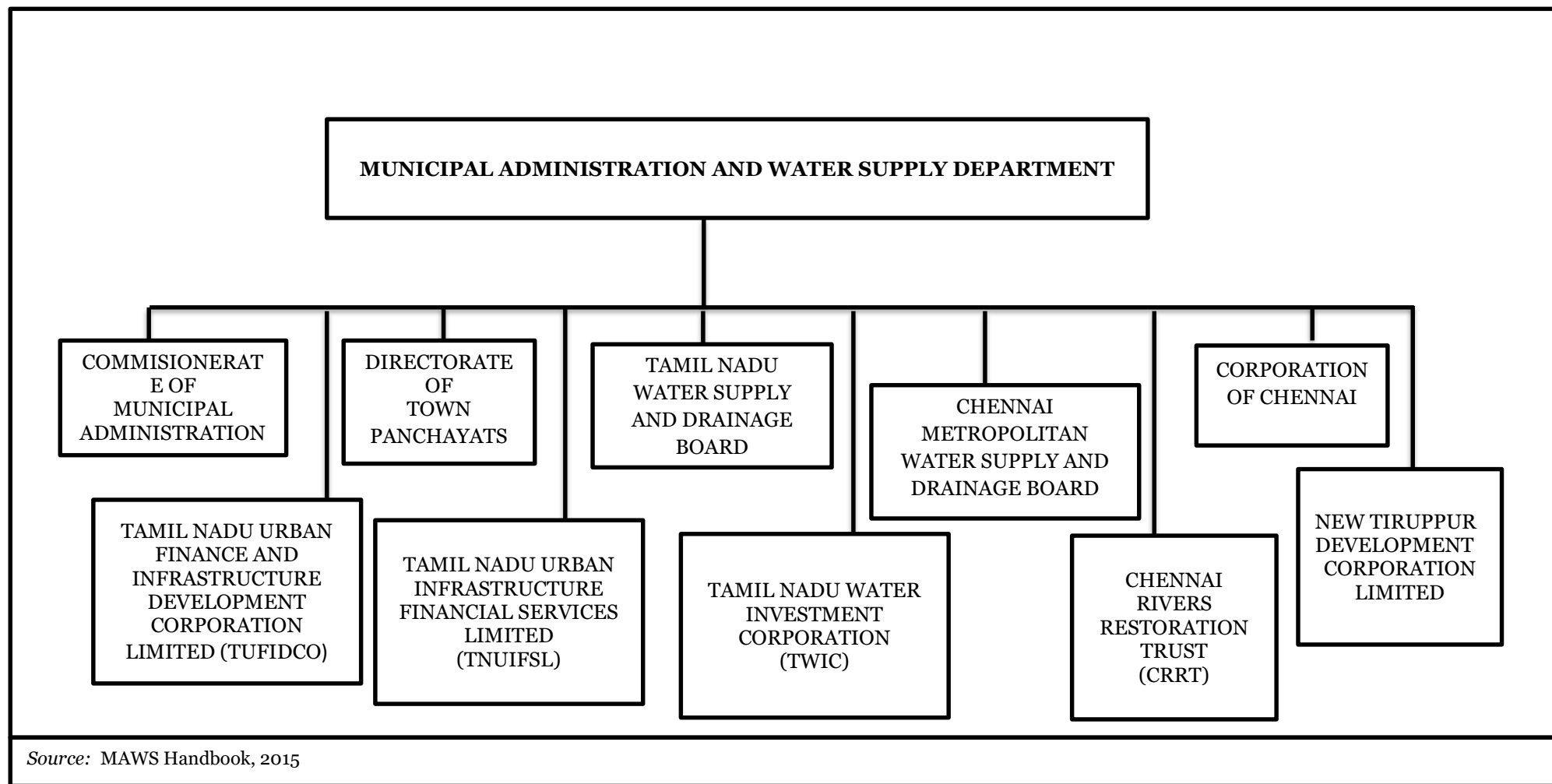
In addition, the Department's administrative duties cover the following:

- Administrative support during elections relating to municipal corporations and municipalities;
- General administration and all matters relating to local boards not specifically assigned to other departments;
- Providing permissions for development works in municipalities and municipal corporations under Five Year Plans;
- Administrative initiatives for local self-government in urban bodies;
- Regulation of markets
- Works and buildings under the administrative control of this department;
- Administration of various taxes including on advertisements levied by municipalities and municipal corporations, animals, lands and buildings, professions, trades, employment
- Administration of undertakings like TWAD, CMWSSB

At present there are 12 City Municipal Corporations, 124 Municipalities and 528 Town Panchayats in the state. In the administration of the MAWS, the Principal Secretary is the administrative head of the Department and Principal Adviser to the minister in-charge. He is assisted by a Joint Secretary, four Deputy Secretaries and eight Undersecretaries exercising control over 29 sections dealing with specific subjects (MAWS manual, 2005).

The Department also handles various centrally sponsored schemes in addition to state schemes. The Department decides the manner of execution of subsidy programmes, including the amounts allocated and the details of beneficiaries of such programmes (DMAWS manual, 2005).

Figure 3.1: Departments functioning under MAWS



3.4 Commissionerate of Municipal Administration (CMA)

The Commissionerate of Municipal Administration is the nodal department responsible for coordinating and supervising the functions of all ULBs in the state which includes all municipalities and municipal corporations except the Corporation of Chennai. It is headed by the Commissioner of Municipal Administration who has administrative control over all ULBs (except Chennai and town panchayats) and is responsible for their efficient functioning. They guide ULBs in developing projects, provide required sanctions, and help them in formulating policies and bye-laws. The CMA takes care of the overall administrative policies of the ULBs (CMA Manual, 2009). It has multifarious functions in terms of providing basic infrastructure in all ULBs, conduct of elections to local bodies and administering the staff in the ULBs, and in directing the discharge of obligatory functions. The 74th Constitutional Amendment endowed the ULBs such powers, authority and responsibilities so as to function as institutions of self-government in relation to the matters listed in the Twelfth Schedule which covers water supply, public health, sanitation conservancy and solid waste management (CMA Manual, 2009). The functions of the municipal corporations and municipalities as per the Tamil Nadu District Municipalities (Amendment) Act 1994 are given below (TN Dis Mun Act, 1920)

- 1) Provision and maintenance of Water Supply (Section 125, 126 of the Act)
- 2) Provision and maintenance of Street Lights (Section 136)
- 3) Provision and maintenance of public Drainages (Section 137)
- 4) Provision and maintenance of Public Latrines (Section 145)
- 5) Cleaning the streets and removal of sweepings (Section 153)
- 6) Provision and maintenance of public streets, roads, etc. (Section 162)
- 7) Plant and preserve trees on the sides of public streets (Section 162 –A)

In addition, the implementation of various schemes in relation to water supply, laying of roads, underground sewerage, solid waste disposal etc., is handled by the engineering wing of the Commissionerate of Municipal Administration and the office of the Regional Directors of Municipal Administration (RDMA) (CMA Manual, 2009).

3.4.1 Administrative Setup

The Commissioner of Municipal Administration is assisted by the Joint Commissioner of Municipal Administration, Joint Commissioner (Administration), two Additional Directors of Municipal Administration, two Superintending Engineers and other Engineering as well as Administrative Officials. Apart from this, there are Regional Directors of Municipal Administration and the Commissioners of Corporations (CMA Manual, 2009).

The Commissionerate of Municipal Administration functions as the appointing authority for the municipal posts and also the appellate authority for any punishment imposed on the municipal employees for whom the Municipal Commissioners are the appointing authority. He is also the disciplinary authority and is vested with the powers to transfer and take disciplinary action on the Commissioners of Municipalities, Municipal Commissioners, RDMA's and Municipal employees. The Commissioner of Municipal Administration is empowered to issue sanction for works up to Rs.1 crore (CMA Manual, 2009).

3.4.2 Municipal Corporations

At the Municipal Corporation level, the Commissioners of Madurai, Coimbatore, Salem, Tiruchirappalli, and Tirunelveli, Vellore, Erode, Dindigul, Thanjavur, Thoothukudi and Tiruppur Corporations assist the Commissioner of Municipal Administration from their respective corporations. The governance and functioning of the 11 corporations is administered by the Commissioners of the Corporation as per their respective Municipal Corporations Act mentioned below:

1. Madurai City Municipal Corporation Act, 1971
2. Coimbatore City Municipal Corporation Act, 1981
3. Salem City Municipal Corporation Act, 1994
4. Tiruchirappalli City Municipal Corporation Act, 1994
5. Tirunelveli City Municipal Corporation Act, 1994
6. Tiruppur City Municipal Corporation Act, 2008
7. Vellore City Municipal Corporation Act, 2008
8. Erode City Municipal Corporation Act, 2008
9. Thoothukudi City Municipal Corporation Act, 2008
10. Dindigul City Municipal Corporation Act, 2013
11. Thanjavur City Municipal Corporation Act, 2013

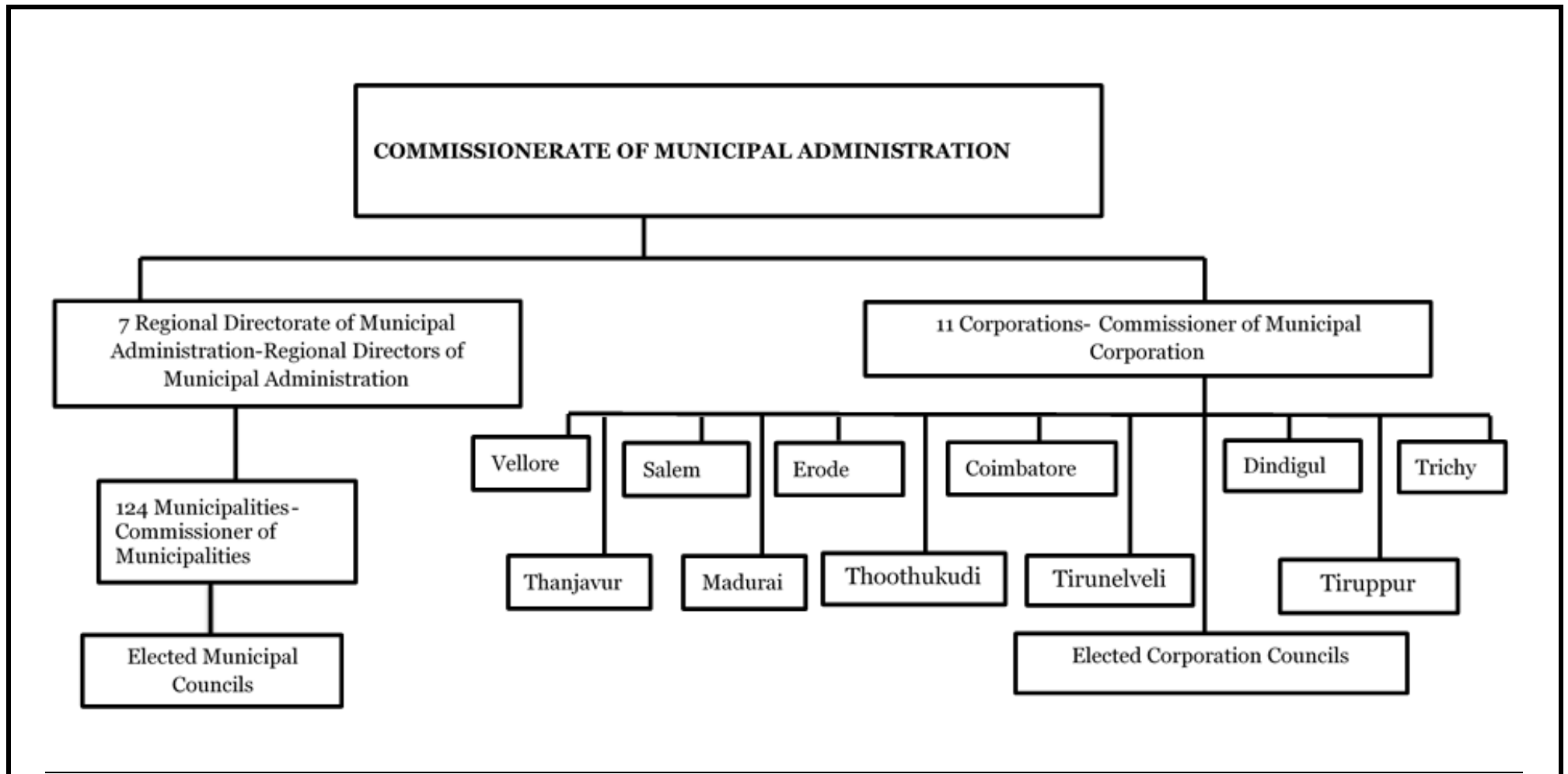
3.4.3 Municipalities

There are 7 Regional Directors of Municipal Administration (RDMAs) with headquarters at Chengalpattu, Vellore, Salem, Thanjavur, Tiruppur, Madurai and Tirunelveli. The Regional Directors of Municipal Administration are entrusted control of all Regional offices and Municipalities with necessary financial and administrative powers (CMA Manual, 2009). The details of the some of the powers of the RDMAs is given below:

- The appeals in all disciplinary cases and transfers for staff in 1st, 2nd and Grade III Municipalities
- The maintenance and preparation of independent confidential reports in the case of Municipal Commissioners Grade I and Grades-II Municipalities
- In case of a default as per government orders under Section 39 of the TNDM Act 1920, it will exercise powers and perform functions of the Council, its Chairman, its Executive Authorities
- The operation of all Municipalities in the region is under the superintendence and inspection of the RDMAs
- To direct all Municipalities to dispose of all compost accumulated for more than one year in a public auction
- Authorised to convene and preside over the Municipal Council on no confidence motion moved against Vice Chairman & Chairman respectively under Sec. 40 A & 40 B of TNDMA
- Empowered as the budget scrutinising authority
- Entitled to accord sanction for re-appropriation of 20 per cent and above
- To exercise powers in respect of all the Municipal Commissioners for fixation of pay and sanctions for maintenance, increments and various fund advances.

(CMA Manual, 2009)

Figure 3.2: Administrative Units under CMA



Source: Adapted from CMA Handbook, 2005

3.5 Directorate of Town Panchayats (DTP)

The 74th Amendment followed by a state legislation conferred Town Panchayats (TPs) the status of ULBs (ULBs) and transferred TPs to the legal jurisdiction of the District Municipalities Act 1920. Subsequently, in 1981, the Government constituted a separate Directorate of Town Panchayats (DTP) which was brought under the Department of MAWS in 1996 (DTP Manual, 2005). The DTP is the head of the Directorate for the Town Panchayats in Tamil Nadu.

The Town Panchayats are fast growing urban, industrial, commercial, temple and heritage centres which act as a buffer zone to keep the huge urban population moving from rural areas to cities (DTP Manual, 2005). They are governed by the Tamil Nadu District Municipalities Act 1920. There are 528 Town Panchayats in the state which are classified into four grades, based on the income criteria:

| Sl. No | Grades | Average Annual Income | Minimum Population | No. of Town Panchayats (Old Status) | No of Town Panchayats (As per Reclassification) |
|--------|-----------------|---|--------------------|-------------------------------------|---|
| 1 | Special Grade | Exceeding Rs.200 lakh | 5000 to 30000 | 12 | 64 |
| 2 | Selection Grade | Exceeding Rs.100 lakhs but not exceeding Rs.200 lakh | | 222 | 202 |
| 3 | Grade - I | Not exceeding Rs.50 lakhs but not exceeding Rs.100 lakh | | 214 | 200 |
| 4 | Grade - II | Not exceeding Rs.50 lakh. | | 80 | 62 |
| | | | Total : | 528 | 528 |

Source : <http://www.tn.gov.in/dtp/introduction.htm>

3.5.1 Functions of Town Panchayats

The Town Panchayats are responsible in delivery of the following civic services:

1. Providing basic amenities such as
 - roads
 - street lights
 - water supply
 - public health
 - drainage
2. Granting of building licenses
3. Levying of taxes
 - property tax
 - vacant land tax
 - professional tax

- non tax revenue
 - water charges
4. Issuing birth & death certificates
 5. Issuing dangerous & offensive trade licenses
 6. Implementation of state / central schemes

With respect to projects, the functions of the town panchayats are very much restricted in terms of project development and implementation. TWAD Board takes care of the entire project cycle with respect to water and sanitation in town panchayats. DTP connects the town panchayats with the government by enabling government orders, guiding town panchayats in taking forward projects, etc. Project technical sanctions for water and sanitation are given by the TWAD Board, and for other projects it is given by the Chief Engineer of the CMA's office.

3.5.2 Administrative setup

State level: At the state level, the Director of Town Panchayats is the Head of the Department (HOD) and looks into the affairs of 528 Town Panchayats, under the purview of the Municipal Administration and Water Supply Department. He also reviews and monitors all development programmes implemented by the Town Panchayats as the Inspector of Town Panchayats (DTP Manual, 2005).

District level: At the district level, the Collectors are the administrative head of Town Panchayats. The Collectors of the respective districts are entrusted with the Administrative Sanction powers and supervisory responsibilities on all the development works in Town Panchayat Areas (DTP Manual, 2005).

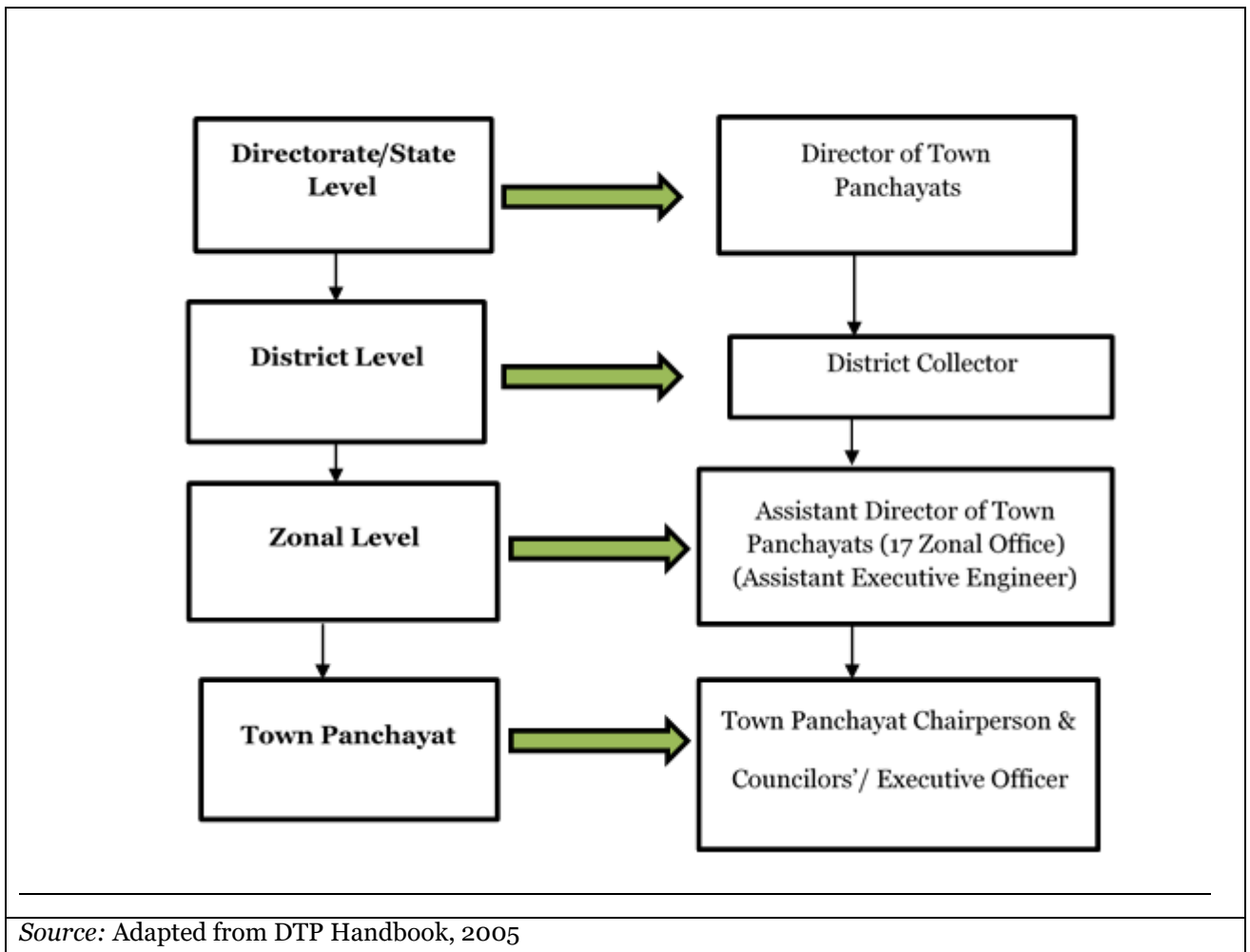
The Town Panchayats are also a part of the District Planning Committee for ensuring inclusive development in concurrence with the city development plan (DTP Manual, 2005).

Zone level: The Collectors are assisted by Zonal Assistant Directors of Town Panchayats who head the 16 zonal offices in the state, covering 31 districts (DTP Manual, 2005).

Town Panchayats level: In a Town Panchayat, the Executive Officer is the Head Authority and is authorised to sign all cheques for payment from the panchayat fund and other funds. The Executive Officer is supported by Head Clerk, Junior Assistant, Bill Collector, Typist for the maintenance of records, Collection of taxes, maintenance of assets and in ensuring the publicity and propaganda and in implementation of government programmes (DTP Manual, 2005).

Town Panchayat engineering cell: There is a technical wing at the state level which is headed by an Executive Engineer (Town Panchayats) functioning in the Directorate of Town Panchayats. In the District Level there is an Assistant Executive Engineer at the head who comes under the purview of the Zonal Assistant Director of Town Panchayats. Further, there are around 116 Junior Engineers in the sub-zonal level for implementing schemes in the Town Panchayats (DTP Manual, 2005).

Figure 3.3: Organisation Structure DTP



3.6 Tamil Nadu Water Supply and Drainage (TWAD) Board

The Tamil Nadu Water Supply and Drainage (TWAD) Board is a statutory body formed by the Government of Tamil Nadu on 14 April 1971. The TWAD is the main implementing agency for all water supply and sewerage schemes outside the Chennai metropolitan area. The TWAD also raises substantial resources from financing institutions and in the open market to provide drinking water and drainage facilities to urban areas in the state. TWAD works in coordination with the district and state level government departments of the state, and the national ministries and significant academic institutions within the state, to implement the water supply and sewerage schemes effectively in the districts of Tamil Nadu. The functions of the TWAD Board include project planning, DPR preparation, technical sanction, procurement and implementation. While many ULBs can implement projects on their own, as mentioned above, TWAD Board can still take up such projects and oversee implementation. In such cases power is given to the TWAD Board through a council resolution. In recent times, it is understood that TWAD Board enters into a Memorandum of Understanding (MOU) with ULBs, which basically is similar to a 'Performance Agreement'. As an institution, they report directly to the MAWS department.

The administrative head of the MAWS is the chairperson of the TWAD, while an administrative officer (usually from the IAS) is the Managing Director. The activities of the

TWAD Board are guided and monitored by a Board of Directors of Senior Level Administrators and Engineers of the Government of Tamil Nadu (TWAD, 2005).

3.6.1 Functional Units in TWAD Board

The TWAD Board has four main regional offices in the north, east, west and south of the state for executing schemes. A Chief Engineer heads each of the four regional offices functioning at Vellore, Thanjavur, Coimbatore and Madurai. These Chief Engineers delegate duties to Superintending Engineers heading **17** circle offices, Executive Engineers heading **94** divisional offices and Assistant Executive Engineers heading **313** sub-division offices in the districts. In addition, there is one Project Chief Engineer at Dharmapuri for Hogenakkal Water Supply and Fluorosis Mitigation Project and one Director for Communication and Capacity Development Unit (CCDU) in the cadre of Chief Engineer headquartered at Chennai (TWAD, 2005).

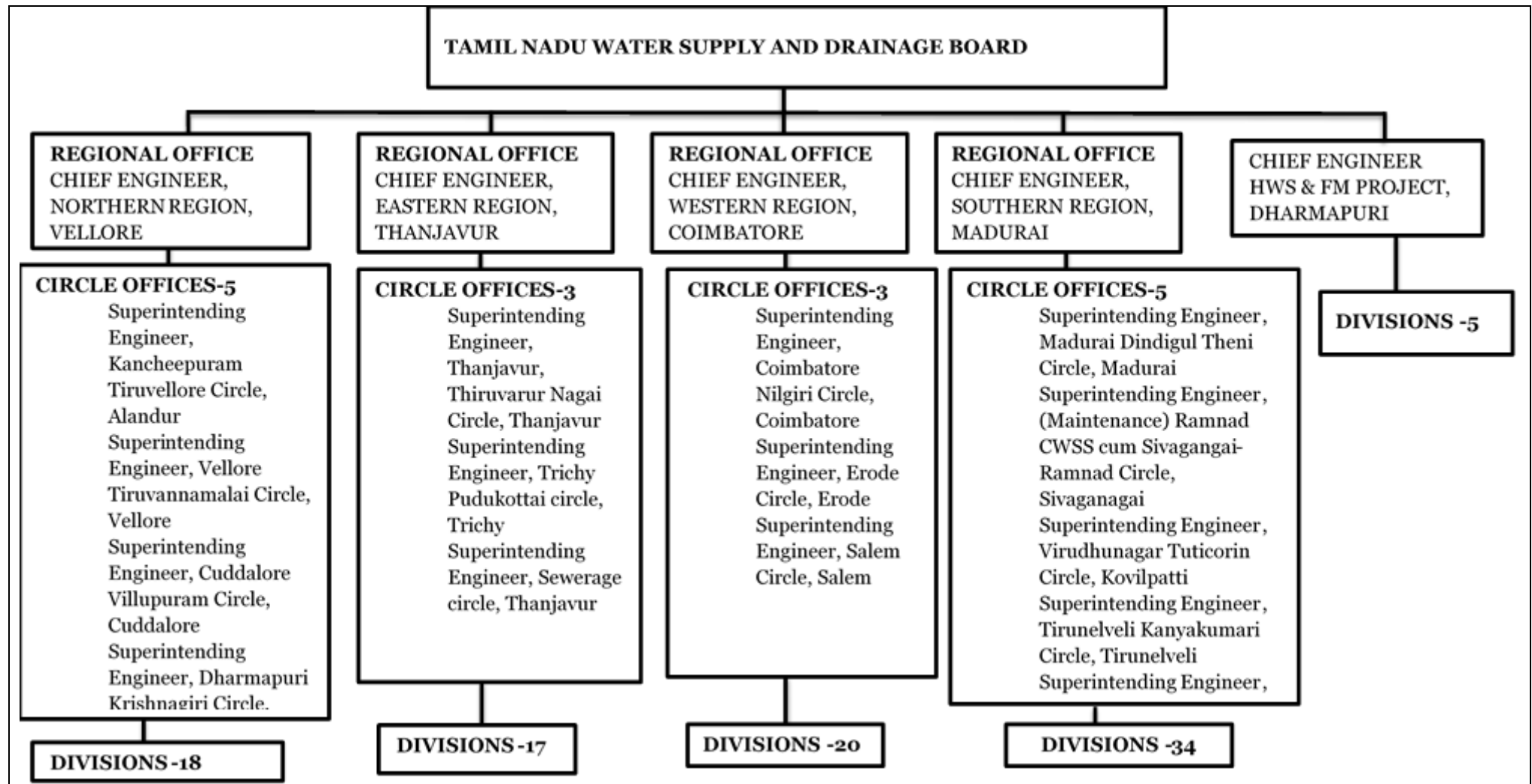
Regional offices: The Chief Engineers are responsible for overall execution of all scheme works and functioning of staff in their region. They are supported by the Joint Chief Engineers of Regional Offices in all technical and administrative matters. The Administrative Officer in the Regional Offices shall assist the Chief Engineer and Joint Chief Engineer in all the administrative matters (TWAD, 2005).

Circle offices: In the circle offices, the Superintending Engineers are in control of investigation, execution and maintenance of the schemes within their jurisdiction and are assisted by an Administrative officer (TWAD, 2005).

Divisional and sub-divisional offices: Executive Engineers are in charge of divisional offices and Assistant Executive Engineers head the sub-divisional offices (TWAD, 2005).

Further there are Assistant Engineers/Junior Engineers who are the root level engineering staff responsible for assisting officers in the regional offices and circle offices. Superintendents responsible for getting work done from subordinates and Account/Junior Account officers for finance are present in all offices (TWAD, 2005).

Figure 3.4: Functional Setup of TWAD



Source: Adapted from TWAD Handbook, 2005

3.7 Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB)

The CMWSSB was constituted in 1978 by the Chennai Metropolitan Water Supply and Sewerage Act 1978, for exclusively attending to the Chennai Metropolitan Area's growing needs, planned development and appropriate regulation of water supply and sewerage services with particular reference to the protection of public health and for all matters connected therewith or incidental thereto. These water supply and sewerage services would involve providing adequate supply of safe and good quality water; and collection, treatment and safe disposal of sewage. The agency is also involved in planning for development, DPR preparation, procurement, technical sanctions and implementation. CMWSSB is empowered to collect user fees from the project beneficiaries. The service limits were confined to Chennai City limits initially, but have progressively expanded to cover the whole metropolitan area (Chennai Metropolitan Area). Occasionally, the Government specifies implementation of projects through CMWSSB outside the area of CMA, and these are bound by specific government orders.

The CMWSSB is administered by a Board of Directors. The MAWS Secretary is the Chairman heading the Board of Directors. The Managing Director is assigned as the Chief Executive Authority to the Board and is in charge of the day-to-day administration of the Board and exercises supervision and control over its employees. The Managing Director is usually an IAS officer and is assisted by the Heads of Departments of various departments such as Engineering, Finance etc.

The Functions of the Board with respect to water supply and sewers are given in the below table.

| | |
|--|--|
| Water | Transmission and treatment of water. Equitable distribution of water to the residents of Chennai. |
| Sewer | Collection of sewage through pumping station and transmission of sewage water to sewerage treatment plants. Treatment of sewerage water and disposal by way of industrial supply and discharge into the sea through waterways. |
| <i>Source: http://www.chennaietrowater.tn.nic.in/rti_organisation.html</i> | |

The Board is also responsible for providing the following services in the Chennai Metropolitan Area:

- Provision of new water/sewer connections
- Maintenance of service connections, water mains, water distribution stations, water treatment plant, sewerage treatment plant etc.
- Assessment of water and sewerage tax
- Raising of water and sewerage tax, water charge, sewerage service charges etc.

(http://www.chennaietrowater.tn.nic.in/rti_organisation.html)

3.8 Corporation of Chennai (CoC)

Under the Chennai City Municipal Corporation Act, 1919, the CoC is administered directly by the MAWS of the Government of Tamil Nadu. The CoC is headed by the Mayor and he presides

over a Council of 200 councillors who meet ordinarily once a month. The executive wing is headed by the Commissioner. The Commissioner is assisted by Deputy Commissioners, Assistant Commissioners, Regional Deputy Commissioners, various Heads of Departments and 15 Zonal Officers at present.

The duties of the Corporation extend to the proper functioning of all departments mentioned below for the Chennai Metropolitan Area:

- Parks
- Roads
- Health
- Bridges
- Buildings
- Revenue
- Electrical
- Education
- Town planning
- Land & estates
- Small savings
- Storm water drain
- Mechanical engineering
- Solid waste management

The Corporation of Chennai maintains 1160 roads to a length of 370 km and storm water drains to a length of 962 km. Further, the Corporation is removing 5000-5200 MT of solid waste per day through 966 conservancy vehicles and maintaining Kodungaiyur and Perungudi dumping grounds for dumping the solid waste (<http://chennaicorporation.gov.in/index.htm>).

3.9 The Tamil Nadu Urban Finance and Infrastructure Development Corporation Ltd. (TNUFIDCO)

TNUFIDCO was incorporated under the Companies Act, 1956 in 1990 with equity stakes from the GoTN (97 per cent), local bodies (2.6 per cent) and HUDCO (0.6 per cent). TNUFIDCO is a financing institution, dealing with grants from the centre and state governments. The main object of the corporation is provision of financial assistance and guidance to ULBs, Corporations, Boards, Authorities and parastatal agencies for their infrastructure projects and development schemes. They conduct project appraisals before releasing grants to ULBs. They also provide loans for certain projects as part of government sponsored programmes. They also monitor projects during implementation. It is a Government of Tamil Nadu undertaking and is the nodal agency to implement Government programmes/schemes in the state. In addition to this, the TNUFIDCO extends financial assistance from its own source to the local bodies and parastatal agencies for various infrastructure development schemes (TNUFIDCO Manual, 2005)

TNUFIDCO also has a Corporate Social Responsibility (CSR) component and its CSR policy will focus on safe drinking water, sanitation, environmental sustainability and education in urban areas. This will be executed either on its own, through collaboration with companies or

through local bodies, government departments, state government undertakings, Boards and Universities (TNUFIDCO Manual, 2005).

The Chairperson and Managing Director of TNUFIDCO is an officer of the administrative service from MAWS, on special duty. The paid up share capital of the Corporation contributed by the Government and other agencies and their share holding pattern area is given in the following table.

| Table 3.4: Share Capital of TNUFIDCO | | | |
|---|-----------------------------|---|-----------------------------------|
| Sl. No | Shareholder category | Amount of paid up share capital (Rupee. in lakh) | Shareholding in percentage |
| 1 | Government of Tamil Nadu | 3102.00 | 96.9375% |
| 2 | ULBs (109) | 78.00 | 2.4375% |
| 3 | HUDCO | 20.00 | 0.6250% |
| Total | | 3200.00 | 100.00% |
| <i>Source: TNFUIDCO Handbook, 2005</i> | | | |

TNUFIDCO functioned in earlier years as a nodal agency for urban schemes sponsored by the Government of India, such as the low-cost sanitation scheme, the Nehru Rozgar Yojana, the Mega Cities Project and the UIDSSMT. It became the nodal agency for the JNNURM, and subsequently for state schemes focused on urban infrastructure (TNUFIDCO Manual, 2005).

3.10 Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL)

Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) is a Public Limited Company registered under the provisions of the Companies Act, 2013 on 7 November 1996. The authorised share capital of the company is Rs.2 crores and the paid up share capital is Rs.1.00 crore. TNUIFSL is a public-private-partnership in the urban sector. It is promoted by the Government of Tamil Nadu with equity participation from banks and financial institutions namely ICICI Bank, Housing Development Finance Corporation (HDFC) Limited and IL & FS Financial Services Limited (IL & FS). The Company is managed by a Board of Directors. The Chairman of the Board is Principal Secretary to the Government, MA & WS Department, GoTN. The other board members include IAS officers from the Government and managers from the private banks (<http://www.tnuifsl.com/aboutus.asp>).

The services provided by the company for the urban sector is noted below:

- Project preparation and development (including preparation of feasibility studies, detailed project reports, city development plans, traffic and transportation plan etc.);
- Project and financial structuring, appraisals and project management;
- Procurement and contract management (for works and consultancy);
- Loan management and fund management;
- Treasury management;
- Financial and investment advisory services;
- Project and policy advisory services;
- Resource mobilisation services;
- Capital market access to ULBs;

- Transaction advisory services (including PPPs);
- Management and other consultancy services

The Principle funds managed by the company are listed below:

- Tamil Nadu Urban Development Fund (TNUDF)
- Project Development Grant Fund (PDGF)
- Project Sustainability Grant Fund (PSGF)
- Chennai Mega City Development Fund (CMCDF)
- Tamil Nadu Urban Road Infrastructure Fund (TURIF)
- Water & Sanitation Pooled Fund (WSPF)

3.11 Tamil Nadu Urban Development Fund (TNUDF)

TNUDF, is a financial intermediary, which lends to ULBs for project implementation. The institution provides project development support through donor-aided grant funds, and also helps in project monitoring by hiring management consultants in specific cases. When a ULB applies for a loan, they conduct a thorough project appraisal, and guide them in making the project bankable (<http://www.tnudf.com/>).

3.12 Chennai Rivers Restoration Trust

The Trust was established to formulate, develop and improve eco-parks and water bodies in the state of Tamil Nadu with the intention of maintaining eco-balance, water conservation, minimising and mitigating pollution (G.O. (Ms) No. 15, Municipal Administration and Water Supply (MC-I) Department, dated 22 January 2010). The restoration of waterways and water bodies is a continuous process, and come under various ongoing schemes under different departments. Thereby, the Government constituted two committees, namely state level sub-committee and technical committee to converge all the existing schemes which are aimed at pollution free and clean waterways and water bodies on one platform (MAWS manual, 2005).

The state level sub- committee deals with all matters related to policy planning, regulation, inter-departmental coordination and implementation. The technical committee will take on board all ongoing projects and facilitate the implementation under the supervision and guidance of the state level sub- committee (DMAWS manual, 2005).

The Chief Secretary to the government is the Chairman of the Trust and the other board members for the Trust are detailed in the below table:

| 1 | Chief Secretary | Chairman |
|---|--|----------|
| 2 | Principal Secretary to Government Finance Department | Member |
| 3 | Principal Secretary to Government Municipal Administration and Water Supply Department | Member |
| 4 | Principal Secretary to Government Highways Department | Member |
| 5 | Principal Secretary to Government Public Works Department | Member |

| | | |
|------------------------------------|--|------------------|
| 6 | Principal Secretary to Government Environment and Forest Department | Member |
| 7 | Commissioner Corporation of Chennai | Member |
| 8 | Chairperson and Managing Director Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) | Member Secretary |
| <i>Source: MAWS Handbook, 2015</i> | | |

3.13 Tamil Nadu Water Investment Corporation(TWIC)

Tamil Nadu Water Investment Company Limited was formed as a special purpose vehicle in 2000 under the Companies Act, 1956 by the Infrastructure Leasing and Financial Services Ltd (IL&FS) Ltd. and the GoTN as an investment company to implement an integrated water supply and sewage project, and to promote infrastructure development projects jointly with government institutions and local bodies. TWIC's expertise is reported to cover the range of services in urban water and sewerage systems, desalination, industrial effluent management and recycling. TWIC offers project implementation and consultancy services, O&M inputs during Engineering, Procurement and Construction (EPC) and O&M services. The projects under TWIC are implemented through public-private-partnership / community participation models which promote sustainable development. The vital shareholders for the company are the Infrastructure Leasing and Financial Services Limited (IL&FS) and the Government of Tamil Nadu (GoTN). The Principal Secretary, MAWS, Govt. of Tamil Nadu is the Chairperson and the Board Members include various government officials and members of IL & FS (<http://www.twic.co.in/>).

3.14 New Tiruppur Area Development Corporation Limited (NTADCL)

The NTADCL was established by the Government of Tamil Nadu (GoTN) and Infrastructure Leasing and Financial Services Ltd (IL&FS) in 199 as a special purpose vehicle to implement the Tiruppur Area Development Program (TADP). NTADCL was promoted by the TWIC along with Tiruppur Exporters Association, to implement the first water sector related project under the public-private-partnership framework in the country

As part of the Tiruppur Area Development Program (TADP) the NTADCL has been mandated, through a concession by GoTN, to develop, construct, operate and maintain a 185 million litres per day (mld) capacity water supply project. In addition, construction of a sewerage system for Tiruppur Municipality involving collection, treatment and disposal of sewerage and solid waste is also undertaken. The project also involves providing low cost sanitation facilities for slum areas in Tiruppur and is expected to cover about 60 per cent population in Tiruppur Municipality at an estimated cost of about Rs.1023 crore. In the urban sector in Tiruppur around 3 towns with a population 422432 are to be benefitted with a water supply of 19.83 mld in 2006 and 31.15 mld by 2031. This project caters not only to the people of Tiruppur but also those in more than 30 villages en route the pipeline (NTADCL, 2005).

The NTADCL has engaged two engineering, procurement and construction contractors and one operations and maintenance contractor through competitive bidding for implementation and maintenance of the project. Further, a 30-year concession agreement has been signed

between the NTADCL and the government of Tamil Nadu. Through this 30-year period it is expected to earn a targeted return on investment of 20 per cent (Kothandaraman, n.d.).

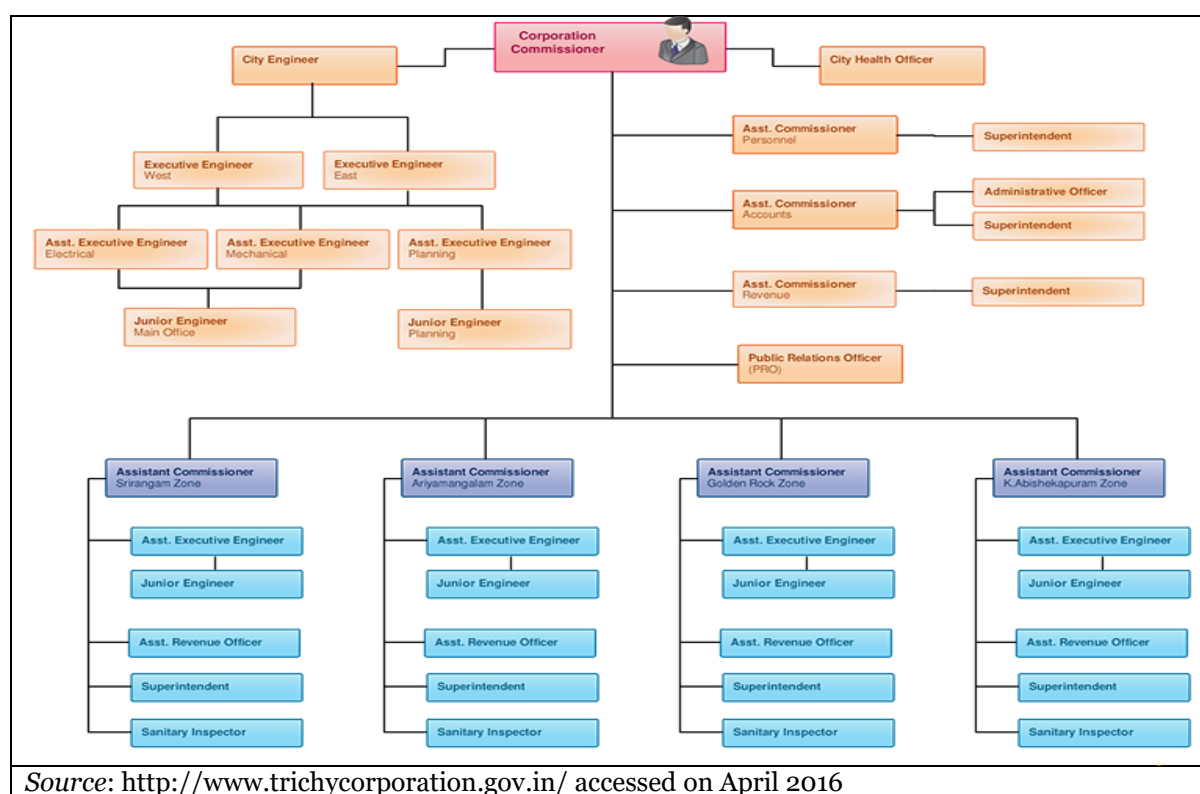
3.15 Administration at the ULB Level

For administrative purposes, the ULBs are classified based on population, revenue and geographical area. The administration of the corporations, municipalities and town panchayats is explained in the following sections.

3.15.1 Organisation Structure of Corporations

In large city corporations, the administrative head is the Commissioner. He is assisted by Assistant Commissioners, City Engineers and City Health Officer. A detailed structure of the Corporation is shown below:

Figure 3.5: Organisation Structure of Corporation

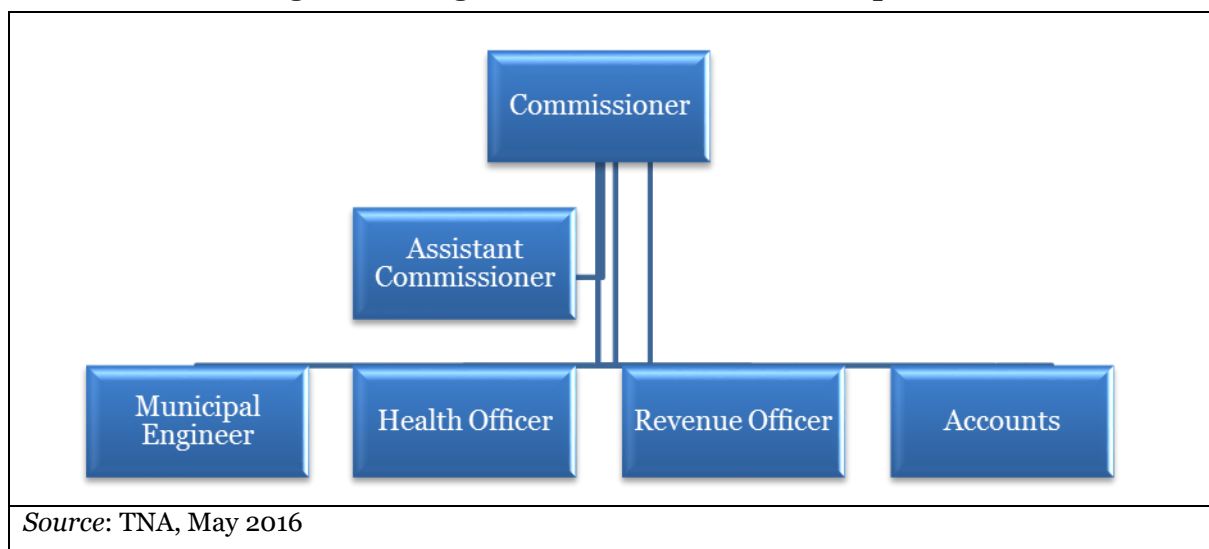


Source: <http://www.trichycorporation.gov.in/> accessed on April 2016

3.15.2 Organisation Structure of Municipalities

In municipalities, the administrative head is the Municipal Commissioner. The Municipal Commissioner is assisted by Assistant Commissioner, Municipal Engineer, Revenue Officer, Accounts Manager and Health Officer. Below is the sample organisation structure of a municipality in Tamil Nadu:

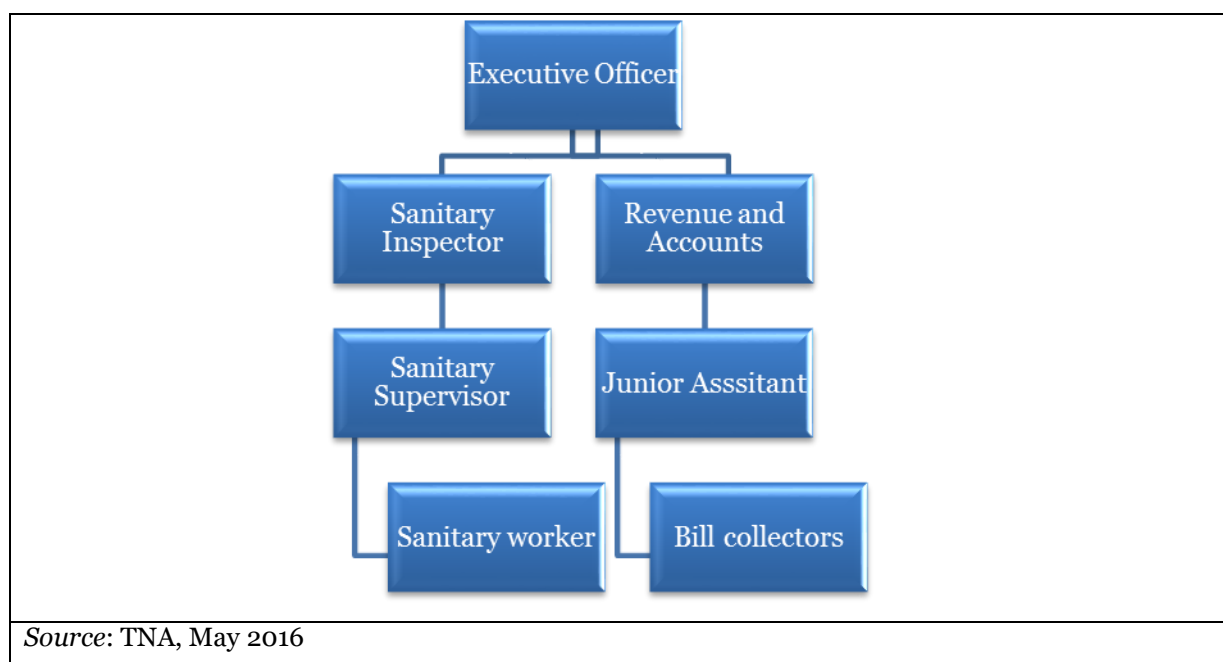
Figure 3.6: Organisation Structure of Municipalities



3.15.3 Organisation Structure of Town Panchayats

At the town panchayat level, the Executive Officer is the administrative head, who is authorised to sign all cheques for payment from the panchayat fund. He is assisted by the Head Clerk, Junior Assistant, Bill Collector, and Typist for maintenance of records, collection of taxes, maintenance of assets and implementation of government programmes (DTP 2012).

Figure 3.7: Organisation Structure of Town Panchayats



3.16 Role of ULBs in Urban Sanitation

As per the 74th Amendment of the Constitution, the ULBs are responsible for safe sanitation in the state. While the administrative head of the ULBs focuses on the managerial policies

and administration of sanitation programmes in the cities, the Public Health Department and the Engineering Department have major roles in executing these policies.

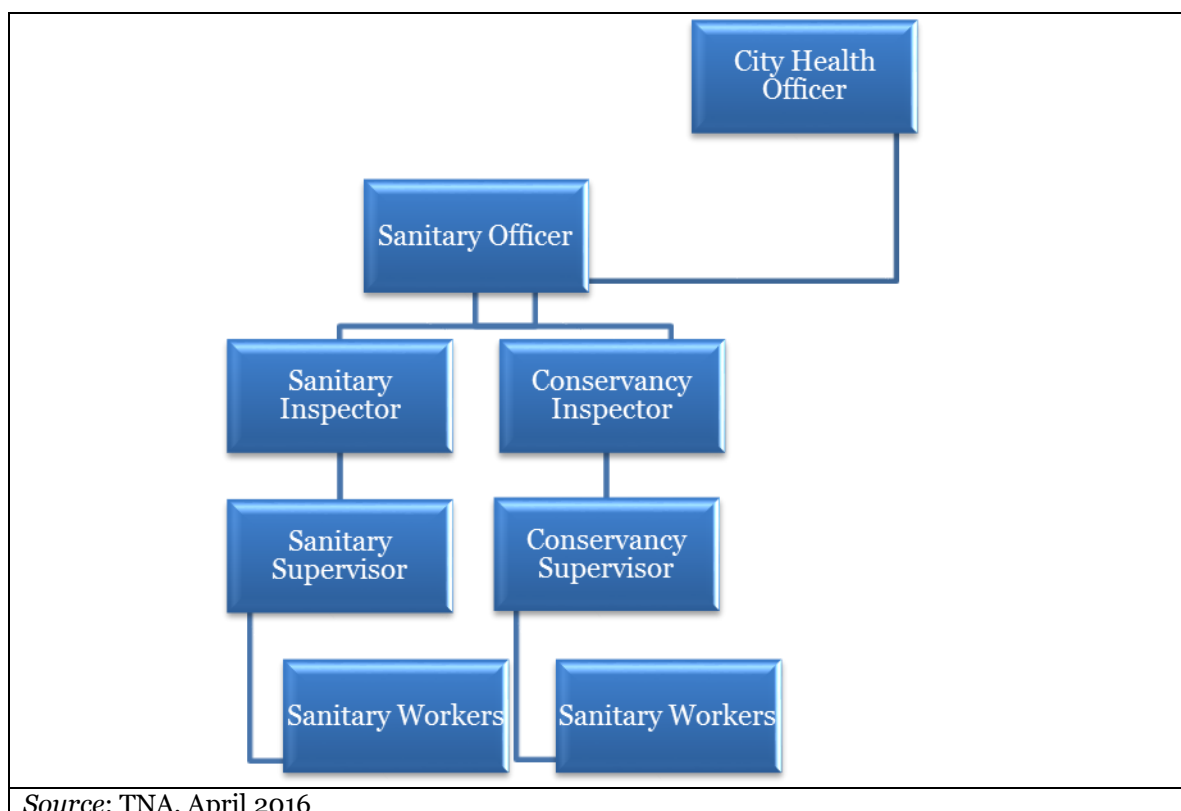
3.16.1 Role of Public Health in Urban Sanitation

The Public Health Section is responsible for sanitation in the ULBs and is entrusted with the following tasks.

- i. Monitoring authority for sanitation
- ii. Reporting to higher authorities on the existing sanitation status
- iii. Managing solid waste
- iv. Cleaning of streets
- v. Cleaning of community and public toilets
- vi. Controlling open defecation and maintenance of toilets
- vii. Assuring that excreta is not disposed of in open drains and
- viii. Creating awareness among the public about better sanitation

The Public Health Section consists of sanitary officers, sanitary inspectors, sanitary supervisors and sanitary workers. In major corporations, the City Health Officer is in charge of the Public Health Section, whereas in municipalities, the Municipal Sanitary Officer is in charge of the department. In Town Panchayats, sanitary inspectors discharge the same responsibility.

Figure 3.8: Public Health Section



The following categories of staff work in the Public Health Section:

- i. City Health Officer: head the Public Health Section at the corporation level.

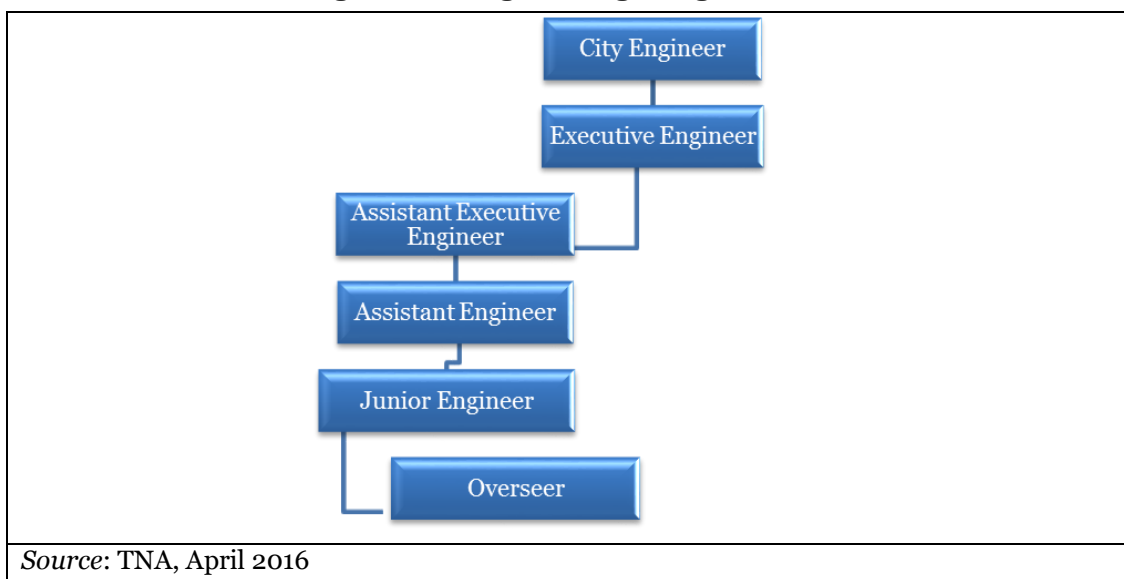
- ii. Sanitary Officers: head the department at the municipal and zonal level. It is the duty of the sanitary officer to assure higher standards of sanitation in cities.
- iii. Sanitary Inspectors: have a supervisory function on public health in the town panchayats. In the case of municipalities and corporations, they work under the health officer and sanitary officer.
- iv. Conservancy Inspectors: This position is understood to exist only in old corporations and municipalities. In the current survey, only Madurai has this position as part of their corporation structure.
- v. Sanitary Supervisors: supervise the activities of sanitary workers.
- vi. Sanitary Workers: handle the daily sanitary work activities at the cities, consisting of sweeping, collection of garbage, clearing of open drains.

3.16.2 Role of Engineering wing in Urban Sanitation

The Engineering Wing of the ULBs takes charge of the construction and maintenance of the toilets, drains, sewers, and treatment plants. The Engineering Wing (Public Works) is in charge of purchasing equipment, maintenance of machinery and vehicles, and providing equipment for sanitary workers. Their roles include:

- i. Construction of public, community and government school toilets
- ii. Construction and maintenance of sewers including sanitary sewers, storm water drains and combined sewers
- iii. Construction and maintenance of open drainage systems
- iv. Construction, operation and maintenance of pumping stations
- v. Construction and maintenance of sewerage treatment plants
- vi. Treatment and reuse of wastewater
- vii. Purchase and maintenance of equipment and vehicles for sanitation
- viii. Maintaining records of de-sludging vehicles owned by the ULB
- ix. Regulating and maintaining records of de-sludging vehicles owned by private vendors
- x. Preparing tenders for equipment and vehicle purchase for urban sanitation
- xi. Approval of tenders for equipment and vehicle purchase for urban sanitation
- xii. Maintenance and control of dumping yard

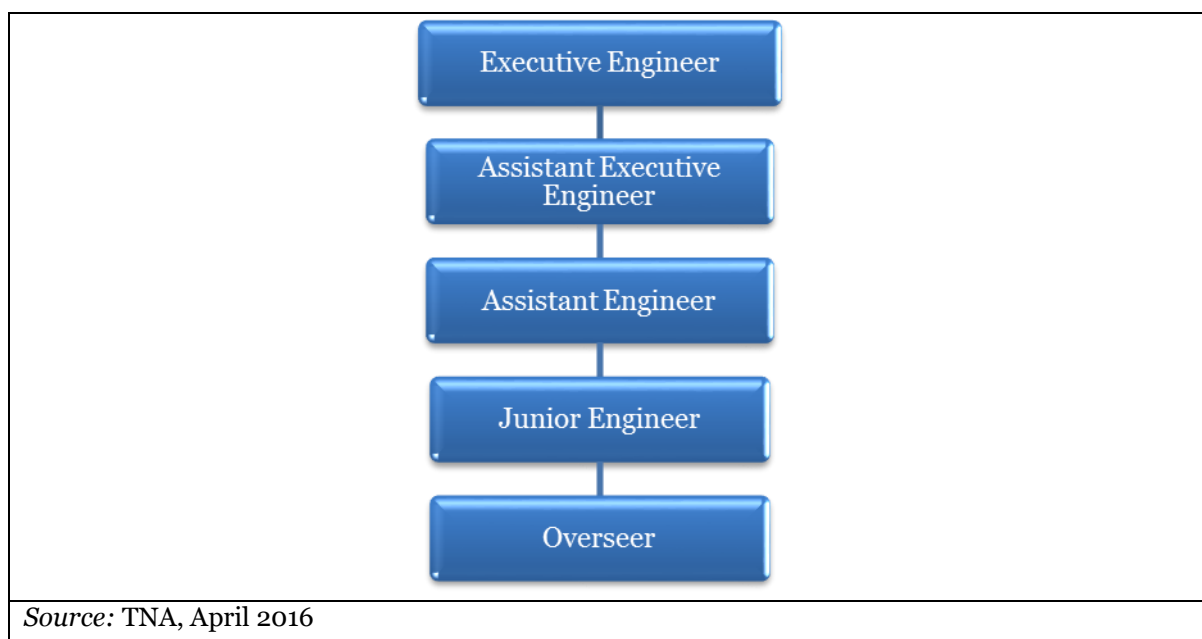
Figure 3.9: Engineering Wing in Cities



3.16.3 Engineering Wing in Town Panchayat

There are no specific posts for the engineering staff in the town panchayats. The engineers are deployed at the zonal levels. The Assistant Director of the town panchayat manages the 17 zonal offices in Tamil Nadu, where the engineering department is structured in the following manner:

Figure 3.10: Engineering Wing at the Zonal Level Town Panchayat



In the engineering wing, the following categories of staff work at the city level:

- i. The City Engineer is the Head of the engineering wing at the corporation level.
- ii. The Executive Engineers are responsible for zonal level administration at the corporations, municipalities and town panchayats.
- iii. The Assistant Executive Engineer (AEE) assists the executive engineer in zonal administration.
- iv. The Assistant Engineer is posted in the division, and designated to assist higher officers. His duties include planning, designing, and overseeing construction and maintenance of building structures including sewers, septage treatment plants and open drainages in the city.
- v. The Junior Engineers assist the Assistant Engineers in executing activities at the city level. They are the supervising authority in implementing engineering activities.
- vi. The Overseers carry out instructions received from higher offices from time to time, with regards to proper execution of a work in his department. They conduct inspections at the public undertakings at regular intervals and report to Junior Engineers about tools required for work to be completed in time, and keep a watch over the proper use of tools and plant, if any, issued to contractors.

3.16.4 The Role of Town Planning in Sanitation

The Town Planning wing is supposed to ensure that the public, private and industrial institutions are constructed according to the building rules, and the wastewater and human excreta is not disposed of in open spaces or into water bodies.

3.17 Municipal Cadres

The ULBs in Tamil Nadu are staffed by designated cadres through various government regulations, rules and orders.

3.17.1 Public Health Cadre

The Public Health cadres are regulated through the Tamil Nadu Municipal Public Health Service Regulations, 1970 which puts forth a list of Class I, II, III, IV and V officers. The Class I direct recruitment officers include the Women Medical Officers, Lady Superintendent, Medical Officer (Public Health Laboratory) and Medical Officer (I.D. Hospital). The Class II officers constitute the Sanitary Officers and Selection Grade Sanitary Inspector wherein a Health Officer of Direct Recruitment forms the Class III of the cadre list. Under the Class IV cadre there is a Sanitary Inspector and Foreman. Class V consists of the other personal like Matrons, Cinema Operators etc.

In addition to the 1970 health regulations, the Tamil Nadu Municipal (non- centralised regular) Public Health Establishment Regulations was enacted in 1976. Under these regulations the sanitary workers like Sweepers, Scavengers, Thotties, Cart Driver, Drain Cleaners, Tank and Burial and Burning Ground Watchman, and all other Sanitary Workers including those employed for anti-malaria, anti-filaria, guinea worm and compost schemes are employed through direct recruitment and later were eligible to be promoted to Sanitary Supervisors.

3.17.2 Municipal Engineering Cadre

The municipal engineering service rules 1970 appointed and delegated several grades of officers for various engineering works. The Class I officers had drainage, water works and sewage farms superintendent in addition to other engineers. Similarly, there are nine other classes consisting of electrical superintendent, mechanical superintendent, public works overseers, works inspectors, head mason, master workman, drivers etc.

As per Section 303 read with Section 77-A of the Tamil Nadu District Municipalities Act 1920, the Tamil Nadu Municipal Engineering Service Rules came into force with effect from 24 December 1997. The service will consist of the following categories and cadres given below:

- Category I: Chief Engineer (municipal corporation)
- Category I-A: Superintending Engineer
- Category II: Executive Engineer/Regional Executive Engineer
- Category III: Asst. Executive Engineer
- Category IV: Asst. Engineer

3.17.3 Municipal Town Planning Cadres

The Municipal Town Planning Cadres consists of a Senior Town Planning Officer, Town Planning Officer, Grade-I Town Planning Officer, Grade-II Town Planning Inspector and Town Planning Assistant Draughtsman.

In addition to the above, the Tamil Nadu Municipal General Service Rules, 1970, TN Medical Service Rules 1970 and TN Municipal Commissioner Services also enforce appointment of cadres for various posts.

4 Urban Finances and Fund Flow

In the context of developing a road map for septage management for the State, it becomes imperative to understand the amount of investments that have gone into the water and sanitation sector over the previous years. The Government of Tamil Nadu has been financing water and sanitation projects through different sources, such as the following:

1. state government's own sources
2. central government sponsored schemes
3. multi-lateral aided sources

Further, each of these programs has a different process that is followed by the government in terms of project development and approvals. The processes that are related to policies on procurement, safeguard issues, etc. also differ depending on the source of funding for the project. However, based on agreements with the multilateral organisations such as the World Bank, etc., the process and procedures stipulated by the donor agency prevails, even with a minimum financing of the agency for a project.

In this regard, this section attempts to collate information related to budgets that are allocated for water and sanitation programs in Tamil Nadu and the different processes that are followed for different financing agencies. The process is mapped based on interviews with the O/o CMA and the O/o DTP, and the budget related information has been sourced from published information in websites and data obtained from the respective organisations.

The major sources of finances of the ULBs include the state budgets, State Finance Commission Grants, state plan grants, Central Finance Commission Grants, centrally sponsored schemes grants, own revenue, assigned revenue and loans from multilaterals.

4.1 Tamil Nadu Budget 2015-2016

4.1.1 Budget Estimates 2015-2016

In the budget estimates for the year 2015-2016, steps were taken for implementation of Under Ground Sewerage Schemes (UGSS) in one corporation, 20 municipalities and 11 town panchayats at a cost of Rs. 2,041.61 crores and septage management in 17 town panchayats at a cost of Rs.197.34 crore. A sum of Rs.133.33 crore has been allocated to the special fund for undertaking solid waste management projects in financially weak ULBs and around 93 projects at a cost of Rs.143.46 crore have been taken up and are in progress. Further, in order to eradicate open defecation, works worth Rs.137.52 crore have been undertaken in ULBs over the last 3 years (TN Budget, 2016).

In relation to schemes, the government has sanctioned Rs.500 crores and Rs.750 crores for the Chennai Mega City Development Mission (CMCDM) and the Integrated Urban Development Mission (IUDM) respectively for the year 2015-2016. The National Urban Development Mission (NUDM) put forth by the Centre for catering to urban infrastructure in all cities has been allotted an amount of Rs.500 crores in the budget. Further Heritage City Development and Augmentation Yojana (HRIDAY) has selected Kancheepuram and Velankanni under its scheme, and the Tamil Nadu budget estimates 2015-2016 has allocated a sum of Rs.46 crores for its implementation. Finally, a total sum of Rs. 152 crore has been set

aside for the implementation of the Tamil Nadu Sustainable Urban Development Project (TNSUDP) in the budget estimates 2015-2016 (TN Budget, 2016).

4.1.2 Budget Memorandum 2015-2016

The revised budget estimates for the year 2014-2015 and budget estimates for the year 2015-2016 are presented in the table below (Shanmugam GOTN, 2016) .

| Table 4.1: Overall Budget (Rupees in crore) | | | |
|--|------------------------------------|-----------------------------------|----------------------|
| Financial Year | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 | Increase in % |
| Overall size of the Budget | 1,60,534 | 1,74,511 | 8.71 |

Source: TN Budget Memorandum-2015-2016

The Summary of the Financial Statements from 2013 to 2016 is set out in the table below.

| Table 4.2: Financial Statement (Rupees in crore) | | | | |
|---|------------------------|-------------------|-------------------|-------------------|
| Item | Actuals 2013-14 | BE 2014-15 | RE 2014-15 | BE 2015-16 |
| Revenue Receipts | 108036 | 127389 | 133189 | 142681 |
| Revenue Expenditure | 109824 | 127100 | 136725 | 147297 |
| Capital expenditure (including net loans) | 18795 | 26003 | 23809 | 27213 |
| Total Expenditure | 128619 | 153104 | 160534 | 174511 |
| Revenue Surplus / Deficit | -1788 | 289 | -3537 | -4616 |
| Fiscal Deficit | 20583 | 25714 | 27346 | 31829 |
| FD/GSDP Ratio | 2.55 | 2.73 | 2.90 | 2.89 |
| Public Debt (Net) | 19837 | 23501 | 25597 | 29014 |

Source: TN Budget Memorandum-2015-2016

4.1.3 Revenue Receipts

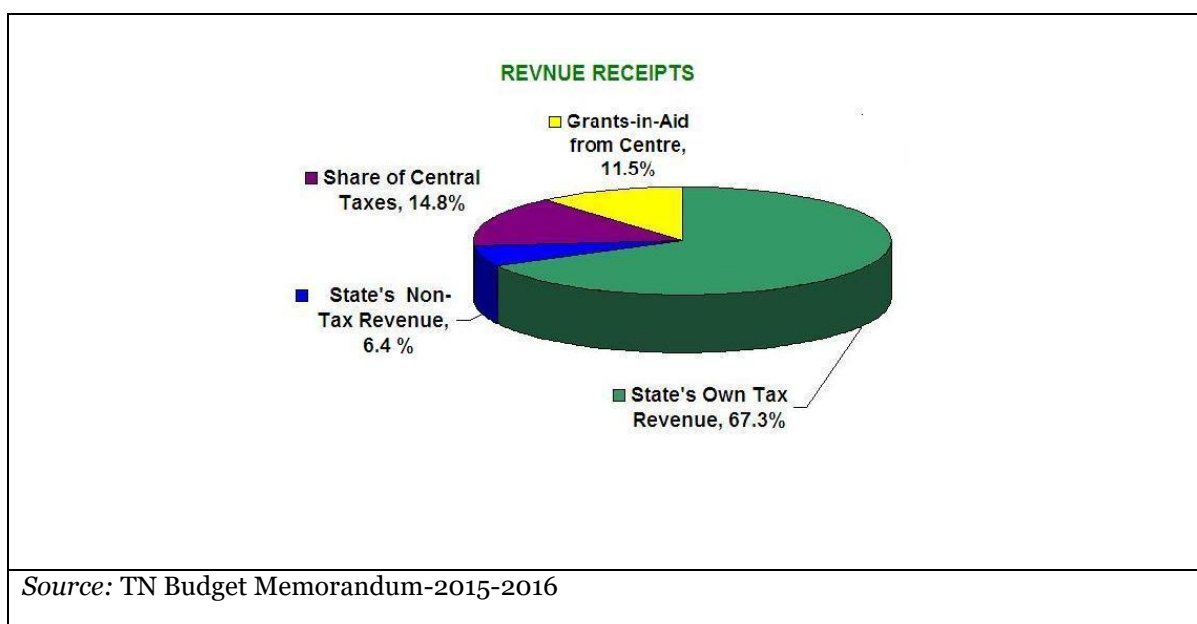
The estimates of revenue receipts from the centre and state and the share percentage of the different revenue receipts is put forth below in the table and diagram. Of the total non-tax revenue received from the state for the year 2013-2014, the share from the Water Supply and Sanitation Department is Rs.20.35 lakh as per revised estimates (Shanmugam GOTN, 2016).

| Table 4.3: Revenue Receipts (Rupees in crore) | | | | |
|--|---------------------------|-----------------------------------|------------------------------------|-----------------------------------|
| Source of Revenue | Accounts 2013-2014 | Budget Estimates 2014-2015 | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 |
| State's Own Tax Revenue | 73718 | 91835 | 85773 | 96083 |
| Non Tax Revenue | 9343 | 8083 | 8868 | 9071 |
| Share in Central Taxes | 15852 | 19014 | 16824 | 21150 |
| Grants-in-Aid from Government of India | 9122 | 8456 | 21724 | 16377 |

| Source of Revenue | Accounts 2013-2014 | Budget Estimates 2014-2015 | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 |
|-------------------|--------------------|----------------------------|-----------------------------|----------------------------|
| Total | 108036 | 127389 | 133189 | 142681 |

Source: TN Budget Memorandum-2015-2016

Figure 4.1: Revenue Receipts



4.1.4 Revenue Expenditure

The details of expenditure under Capital Account, expenditure under Water Supply, Sanitation and Urban Development and Loans/Advances from state government for the same are detailed in the table below (Shanmugam GOTN, 2016).

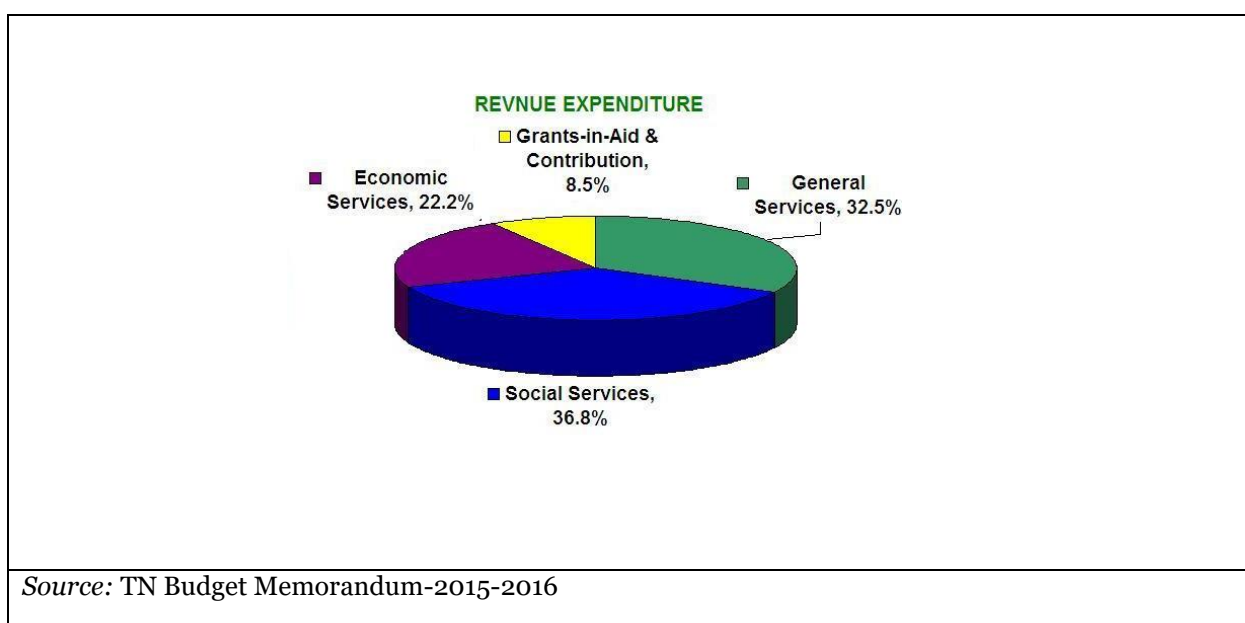
| Items | Accounts 2013-2014 | Budget Estimates 2014-2015 | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 |
|---|--------------------|----------------------------|-----------------------------|----------------------------|
| Capital Outlay on Water supply and Sanitation | 1,383,42.86 | 1,578,29.05 | 1,654,13.99 | 1,618,66.87 |
| Capital Outlay on Urban Development | 1,745,16.35 | 1,931,47.07 | 1,967,75.85 | 3,070,14.08 |

| Items | Accounts 2013-2014 | Budget Estimates 2014-2015 | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 |
|-----------------------------|--------------------|----------------------------|-----------------------------|----------------------------|
| Water Supply and Sanitation | 638,83.32 | 340,03.65 | 774,73.42 | 614,46.46 |

| Table 4.4: Expenditure under Capital Account (Rupees in Lakh) | | | | |
|--|---------------------------|-----------------------------------|------------------------------------|-----------------------------------|
| Urban Development. | 1,967,56.63 | 2,247,80.42 | 2,549,15.54 | 985,43.54 |
| Loans and Advances by the State government | | | | |
| Items | Accounts 2013-2014 | Budget Estimates 2014-2015 | Revised Estimates 2014-2015 | Budget Estimates 2015-2016 |
| Loans for Water Supply and Sanitation | 131,44.97 | 22,66.74 | 63,36.74 | 17,28.54 |
| Loans for Urban Development | 276,88.00 | 125,00.00 | 272,93.85 | 663,47.00 |
| <i>Source: TN Budget Memorandum-2015-2016</i> | | | | |

The Water Supply, Sanitation and Urban Development Departments fall under social services and the percentage of expenditure for social services out of the total revenue expenditure is 36.8 per cent. The split up of the total revenue expenditure is provided in the diagram below (Shanmugam GOTN, 2016).

Figure 4.2: Revenue Expenditure



4.1.5 Annual plan - 2015-2016

The Tamil Nadu State Planning Commission is committed to preparing five year plans and Annual plans in addition to other responsibilities. Tamil Nadu's 12th five-year plan (2012-2017) had an outlay of Rs.2.11 lakh crore of which Rs.1,16,933 crores has been utilised up to 2014-2015. The State Plan outlay for 2014-2015 was Rs. 50,660 crores and for 2015-2016 it was increased to Rs. 55,100 crore (TN Budget, 2016). Of the total outlay, the budget estimates for water supply, housing and urban development departments under the Annual Plan 2015-2016 is presented below.

| Sector | 2015-2016 Budget Estimates |
|-----------------------------|-----------------------------------|
| Water supply and sanitation | 18,96,37.36 |
| Housing | 524,05.15 |
| Urban development | 35,43,72.59 |
| Total | 59,64,15.10 |

Source: TN Budget Memorandum-2015-2016

4.1.6 Revised Budget Estimates 2016-2017

In the revised budget estimates of 2016-2017, 20 underground sewerage schemes at an estimated cost of Rs. 1,017.09 crores are under various stages of progress. In addition, 3 more underground sewerage schemes will be commenced with an estimated cost of Rs.205.23 crore during the year.

In the current 2016-2017 budget a sum of Rs.886 crores is provided for IUDM and Rs.800 crores for CMCDM for various works including spill over works. The Smart Cities Programme has selected the cities of Chennai and Coimbatore thereby making them eligible to a fund of Rs.100 crores per city each year for five years from the Government of India and a sanction of Rs.400 crores from the State Budget 2016-2017. Further, the revised budget estimate has allocated a sum of Rs.500 crore for AMRUT and Rs.399.39 crore for TNSUDP (TNBudget, 2017).

4.2 The Fourth State Finance Commission

The Fourth State Finance Commission was constituted based on the 73rd and 74th amendments to study the financial position of rural and ULBs, and present its suggestions to the government.

The 4th Finance Commission has recommended devolving 10 per cent of the state's own tax revenue to the local bodies and this fund has increased to INR3,926.32 crore for ULBs in the budget estimates 2015-2016 (TN Budget, 2016). The 4th SFC devolution grants transferred to local bodies since 2007-08 inclusive of infrastructure gap filling fund and O&M gap filling fund for the three tiers of the ULBs is presented below (FSFC, 2017).

| ULBs | 2007-08 | 2008-09 | 2009-10 | 2010-2011(RE) | 2011-2012 (RBE) |
|--|----------------|----------------|----------------|----------------------|------------------------|
| Municipal Corporations | 3278515 | 3542376 | 3960968 | 5809320 | 6877522 |
| Infrastructure Gap Filling Fund (IGFF) | 103532 | 111864 | 125083 | 183452 | 217185 |
| Operation and Maintenance Gap Filling Fund (O&MGFF) | 69022 | 74576 | 83389 | 122301 | 144790 |
| Devolution Arrears | | | 690000 | | |
| Table 4.6: Fund flow through SFC devolution (Rupees in thousands) | | | | | |
| Total | 3451069 | 4418816 | 4169440 | 6115073 | 7239497 |
| Municipalities | 4480637 | 4841247 | 5413323 | 7939405 | 9399281 |

| | | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Infrastructure Gap Filling Fund | 141494 | 152881 | 170947 | 250718 | 296819 |
| Operation and Maintenance Gap Filling Fund | 94329 | 101921 | 113965 | 167145 | 197880 |
| Devolution Arrears | | 780000 | | | |
| Total | 4716460 | 5876049 | 5698235 | 8357268 | 9893980 |
| Town Panchayats | 3169231 | 3424297 | 3828936 | 5615676 | 6648272 |
| Infrastructure Gap Filling Fund | 100081 | 108136 | 120914 | 177337 | 209945 |
| Operation and Maintenance Gap Filling Fund | 66720 | 72090 | 80609 | 118225 | 139964 |
| Total | 3336032 | 3604523 | 4030459 | 5911238 | 6998181 |
| Grand Total | 11503561 | 13899388 | 13898134 | 20383579 | 24131658 |
| <i>Source: 4th SFC, 2011</i> | | | | | |

In absolute terms, the sum of SFC devolution in the above table is presented above. Further this is subjected to deductions like electricity taxes, transfers to road maintenance fund, surcharges under land revenue, motor vehicle tax, stamp duty etc. Hence there will be a difference in the gross of SFC devolution presented above and the net value furnished in other statements (FSFC, 2017).

4.2.1 Sharing of Funds

The vertical sharing ratio between the tiers of ULB is 40: 31: 29 for municipal corporations, municipalities and town panchayats respectively based on the three criteria which are 2011 census population, area, and debt outstanding and the table for the same is presented below (FSFC, 2017).

| Criteria | Weightage | Municipal Corporations | Municipalities | Town Panchayats | Total |
|---|------------|------------------------|------------------|-------------------|------------------|
| 2011 Census Population | 80 | 12372.3 | 71559.7 | 64399.4 | 248331.42 |
| Area in Sq.km | 15 | 6880.68 | 10749.3 | 28932.1 | 46562.14 |
| Debt outstanding | 5 | 6295.17 | 6780.6 | 2444.94 | 15520.71 |
| Total | 100 | 25548.2 | 89089.6 | 95776.5 | 310414.28 |
| Ratio | | 40.45 (40) | 28.7 (29) | 30.85 (31) | |
| <i>Source: 4th SFC, 2011</i> | | | | | |

4.2.2 Sewerage Charges

The income from sewerage charges and O&M expenditure for municipal corporations and municipalities in Tamil Nadu is presented in the below table. However, in the case of Tamil Nadu, sewerage charges are being collected only from a few municipal corporations like Madurai and Trichy (FSFC, 2017).

| Table 4.8: Income from Sewerage Charges and O&M expenditure. (Rupees in crore) | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| Municipal Corporations | | | | | |
| | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
| Sewerage Charges | 6.43 | 7.93 | 8.69 | 8.80 | 8.97 |
| O & M Expenditure (Except Chennai) | 12.87 | 15.08 | 14.67 | 20.87 | 22.42 |
| Per centage of income on expenditure | 49.96 | 52.59 | 59.24 | 42.17 | 40.00 |
| Municipalities | | | | | |
| | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
| Income from sewerage charges | 2.63 | 2.26 | 2.05 | 1.97 | 2.97 |
| O & M Expenditure | 8.61 | 10.46 | 10.90 | 12.22 | 16.41 |

Source: 4th SFC, 2011

The operation and maintenance expenditure of sewerage systems needs to be covered from the sewerage charges collected. However, the sewerage charges cover only 40 to 50 per cent of the O&M expenditure in the case of Tamil Nadu. This is because of the many sewerage schemes which are still in the pipeline for which sewerage charges are to be collected only on their completion (FSFC, 2017).

The state government examined all the recommendations of the Fourth State Finance Commission and placed it to the state assembly in 2013 following which certain orders were to be enforced under G.O. Ms.No.194 (G.O.194 GOTN, 2013). They are as follows:

- The vertical sharing was 40:31:29 between municipal corporations, municipalities and town panchayats.
- A separate fund of Rs.100 crores per annum was created for handling solid waste management in ULBs. This fund was to be distributed to the ULBs in the vertical sharing ratio of 40: 31: 29 under 3 instalments.
- Between the rural and ULBs, the sharing ratio is 58:42.
- There will be an increase from 3 per cent to 7 per cent in the IGFF for each tier of ULBs and debt relief to 41 municipalities and 3 municipal corporations will be covered under this fund. Similarly, the O&M GFF funds for each tier of ULBs shall be increased from 2 per cent to 3 per cent.
- Each town panchayat will receive a minimum lump sum grant Rs.20.00 lakh as against the old sum of Rs.10.00 lakh.
- The contributions to the Infrastructure Gap Filling Fund and Operation and Maintenance which is 7 per cent and 3 per cent respectively will be deducted from the devolution share of the ULBs. The remaining devolution will be distributed across 10 monthly instalments (from April to January) as per the existing procedure based on budget estimate provisions and the balance based on revised estimate provisions for the state's own tax revenue.
- The funds will be dispersed to the relevant departments such as the Commissioner of Municipal Administration/ Director of Town Panchayats and the directives to these

departments would be issued by the Municipal Administration and Water Supply Department in consultation with the Finance Department.

- The Corporations due of devolution arrears will be sanctioned in 3 annual instalments and the excess devolution will be deducted in 3 annual instalments commencing from 2013-14 (G.O.194 GOTN, 2013).

4.3 Central Finance Commissions

4.3.1 13th Finance Commission

The 13th Finance Commission had sanctioned a general basic grant of Rs.1550.98 crore and general performance grant of Rs.821.12 crore towards ULBs in Tamil Nadu for the period 2010-11 to 2014-15. The general basic grant is being deployed by the ULBs for water supply and underground sewerage schemes implemented by the TWAD and CMWSS Board in addition to other works. Further, payments for electricity charges and water charges, and payment to outsourced agencies for solid waste management activities are also being covered under these funds (FSFC, 2017).

4.3.2 14th Finance Commissions

In the 14th Finance Commission there was major gain for the state from the union tax revenues from 32 per cent to 42 per cent. In terms of calculating tax devolution, the criteria and respective weights were population (17.5 per cent), demographic change (10 per cent), income distance (10 per cent), area (15 per cent) and forest cover (7.5 per cent). The tax devolution to all states is Rs. 5,23,958 crore (BE) for 2015-2016 which is a notable increase from the 2014-2015 revised estimates of Rs.3,37,808 crore (FICCI, 2016). In the case of Tamil Nadu, the state-wise share in the divisible pool of union taxes is 4.023 per cent of the general shareable tax pool and 4.104 per cent of the service tax pool. This is a decrease from the previous shares of 4.969 per cent and 4.104 per cent for general and service tax pool respectively (TN Budget, 2016).

Table 4.9: Transfer to States (Rupees in crore)

| Sl. No | Channel | 2014-2015 (BE) | 2014-2015 (RE) | 2015-2016 (BE) |
|---|--|-----------------|-----------------|-----------------|
| 1 | Devolution of Taxes | 3,82,216 | 3,37,808 | 5,23,958 |
| 2 | Assistance to States | 4,01,414 | 3,51,231 | 3,24,176 |
| I | Non Plan Grants | 69,095 | 79,174 | 1,07,566 |
| II | Centrally Sponsored Schemes- through State Budgets | 5,505 | 4,283 | 23,817 |
| III | Centrally Sponsored Schemes- Direct to implementing agencies | | | |
| IV | Central Assistance for State Plans | 3,14,814 | 2,55,874 | 1,80,293 |
| Total Transfer to States | | 7,71,630 | 6,77,139 | 8,35,634 |
| <i>Source: Presentation on 14th Finance Commission</i> | | | | |

The total recommended grants-in-aid for all states for 2015-2016 is Rs.5,37,354 crores. The grants to the ULBs is divided into two parts which is basic grants and performance grants. These grants are shared in the ratio of 80:20 for basic and performance respectively. The basic grant to ULBs will be distributed among the three tiers, namely the municipal corporations,

the municipalities (the tier II ULBs) and the nagar panchayats (the tier III local bodies) using the formula given by the respective State Finance Commissions. The criteria for distribution of grants from states for local bodies is based on 2011 population data (90 per cent weight) and area (10 per cent weight) (FICCI, 2016).

The MAWS has recommended that the grants be given in two instalments, one in June and the second in October with 50 per cent of the basic grant as the first instalment of the year. The release of grants in Tamil Nadu for the period of 2015-2020 as per the 14th Finance Commission is presented in the table below (G.O.(Ms)No.108, 2016).

| (Rupees in crore) | Basic Grant | Performance Grant |
|--------------------------|--------------------|--------------------------|
| 2015-16 | 790.04 | --- |
| 2016-17 | 1093.95 | 322.87 |
| 2017-18 | 1263.96 | 365.37 |
| 2018-19 | 1462.18 | 414.92 |
| 2019-20 | 1975.71 | 543.31 |
| Total (2016-2020) | 6585.85 | 1646.46 |

Source: MAWS G.O.(Ms)No.108, 2015

As per the 4th Finance Commission the vertical sharing ratio between the 3 tiers of ULBs shall be 40:31:29 for municipal corporations, municipalities and town panchayats, respectively. Under the 14th Finance Commission basic grants for urban local bodies from 2015-16 to 2019-2020, are as follows:

| Year | Allocation | Corporations including Chennai | Municipalities | Town Panchayats |
|--------------|-------------------|---------------------------------------|-----------------------|------------------------|
| | | (40%) | (31%) | (29%) |
| 2015-16 | 790.04 | 316.02 | 244.91 | 229.11 |
| 2016-17 | 1093.95 | 437.58 | 339.12 | 317.25 |
| 2017-18 | 1263.96 | 505.58 | 391.83 | 366.55 |
| 2018-19 | 1462.18 | 584.87 | 453.28 | 424.03 |
| 2019-20 | 1975.71 | 790.28 | 612.47 | 572.96 |
| Total | 6585.85 | 2634.33 | 2041.61 | 1909.90 |

Source: MAWS G.O.(Ms)No.108, 2015

As part of the 14th Finance Commission 8 centrally sponsored schemes were delinked from the centre's responsibility with states taking on a higher fiscal responsibility for scheme implementation. As a result, Tamil Nadu faces a revenue impact of Rs. 1,137 crores per annum as per 2014-2015 allocations. (TN Budget, 2016)

4.3.3 Use of Funds by the Government of Tamil Nadu

The 14th Finance Commission has advocated the use of grants to local bodies for delivery of basic services like water supply, sanitation including septage management, sewerage, storm water drainage and solid waste management. In the case of Chennai, around 10 per cent from its share of devolution will be transferred to the Chennai Metropolitan Water Supply and Sewerage Board (G.O.(Ms)No.108, 2016).

In the recent years, the ULBs have also taken up a number of water supply and sewerage projects under schemes like the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), Urban Infrastructure Governance (UIG) and Integrated Urban Development Mission (IUDM); with financial assistance from agencies such as the World Bank, Japan International Cooperation Agency (JICA) and Kreditanstalt fur Wiederaufbau (KfW). Thereby in 4 corporations and 84 municipalities, projects have been taken up at an estimated cost of Rs.2864.09 crores. Further, another 15 new underground sewerage schemes are to be executed at an estimated cost of Rs.1167.83 crore. The Municipal Administration and Water Supply G.O (MS) No.108 dated 25.07.2015 stated that the general funds of the ULBs will be utilised to supplement the grants and loans under various schemes, and in addition, the funds allocated by the 14th Finance Commission can be deployed for improving the core municipal services of water supply and sewerage facilities (G.O.(Ms) No.108, 2016).

The Swachh Bharat Mission in its guidelines has estimated a cost of INR 5237.6 crore for solid waste management. The state government also provides financial assistance to the ULBs through Integrated Urban Development Mission and Solid Waste Management fund, external aids and 14th Finance Commission Grants as the ULBs are not financially equipped to implement solid waste management projects which would amount to Rs.70 crore annually when outsourced (G.O.(Ms) No.108, 2016).

5 Schemes

5.1 Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

The Ministry of Urban Development aims to provide basic services (e.g. water supply, sewerage, urban transport) to households, and builds amenities in cities to improve the quality of life for all through AMRUT. The total outlay for the scheme from the centre is Rs. 50,000 crores for five years from FY 2015-16 to FY 2019-20 (AMRUT Guidelines, 2015). The Tamil Nadu revised budget 2016-2017 allocated a sum of Rs.500 crore for the AMRUT scheme (TNBudget, 2017).

5.1.1 Scheme Components

The scheme's thrust areas concentrate on the following

- i. water supply,
- ii. sewerage facilities and septage management,
- iii. storm water drains to reduce flooding,
- iv. pedestrian, non-motorised and public transport facilities, parking spaces, and enhancing amenity value of cities by creating and upgrading green spaces, parks and recreation centres, especially for children.
- v.

The sewerage and septage component focuses on laying out of new sewerage systems, augmentation and rehabilitation of sewerage systems and construction of treatment plants. Faecal sludge management (cleaning, transporting and treatment), particularly mechanical and biological cleaning of septic tanks, is also being addressed. Further, recycling and reuse of wastewater is also taken up (AMRUT Guidelines, 2015).

5.1.2 Eligibility criteria

The AMRUT scheme has selected 500 cities from all over India. The concerned local MPs, Mayors and Commissioners will prioritise projects for the ULBs based on a gap analysis and financial strength of ULBs. The list of cities is selected based on the following criteria:

1. All cities and towns with a population of over one lakh with notified municipalities, including cantonment boards (civilian areas),
2. All capital cities/towns of states/ UTs,
3. All cities/ Towns classified as Heritage Cities by MoUD under the HRIDAY Scheme,
4. Thirteen cities and towns on the stem of the main rivers with a population above 75,000 and less than 1 lakh, and
5. Ten cities from hill states, islands and tourist destinations (not more than one from each state).

The selection of cities will be on the above mentioned basis and additionally potential smart cities will also receive higher priority for being selected under the scheme. In Tamil Nadu, 33 cities/towns have been selected for the AMRUT scheme. In the 33 cities selected there are 12 eligible smart cities and 2 HRIDAY cities (AMRUT Guidelines, 2015)

There has been a deviation in the norm with respect to the AMRUT city Rameshwaram in Tamil Nadu. Rameshwaram with a population of 45,000 which is much below the eligible

population of 1 lakh and above, has been included in the list by relaxing the norms as a tribute to Dr. Abdul Kalam who hailed from there. Further, the centre has approved projects worth Rs. 48 crores of which, Rs. 45 crore would be used to improve sewerage networks and rest on developing parks and open spaces in Rameshwaram (The Hindu, 2016). The list of the eligible cities under AMRUT, Smart city and HRIDAY for Tamil Nadu is provided in the table below. The map for the list of eligible cities/towns is provided in Annexure 5.

Table 5.1: List of Eligible Cities/Town in Tamil Nadu

| Sl.No | Name of AMRUT City/Town | Name of Smart City | HRIDAY Cities |
|-------|---------------------------|--------------------|---------------|
| 1 | Chennai (M Corp.) | Chennai | |
| 2 | Coimbatore (M Corp.) | Coimbatore | |
| 3 | Madurai (M Corp.) | Madurai | |
| 4 | Tiruchirappalli (M Corp.) | Tiruchirappalli | |
| 5 | Salem (M Corp.) | Salem | |
| 6 | Tirunelveli (M Corp.) | Tirunelveli | |
| 7 | Ambattur (M) | | |
| 8 | Tiruppur (M Corp.) | Tiruppur | |
| 9 | Avadi (M) | | |
| 10 | Tiruvottiyur (M) | | |
| 11 | Thoothukkudi (M Corp.) | Thoothukkudi | |
| 12 | Nagercoil (M) | | |
| 13 | Thanjavur (M) | Thanjavur | |
| 14 | Pallavaram (M) | | |
| 15 | Dindigul (M) | Dindigul | |
| 16 | Vellore (M Corp.) | Vellore | |
| 17 | Tambaram (M) | | |
| 18 | Cuddalore (M) | | |
| 19 | Alandur (M) | | |
| 20 | Kancheepuram (M) | | Kancheepuram |
| 21 | Erode (M Corp.) | Erode | |
| 22 | Tiruvannamalai (M) | | |
| 23 | Kumbakonam (M) | | |
| 24 | Rajapalayam (M) | | |
| 25 | Rameshwaram | | |
| 26 | Kurichi (M) | | |
| 27 | Madavaram (M) | | |
| 28 | Pudukkottai (M) | | |
| 29 | Hosur (M) | | |
| 30 | Ambur (M) | | |
| 31 | Karaikkudi (M) | | |
| 32 | Nagapattinam (M) | | |
| 33 | Velankanni | | Velankanni |

Source : http://amrut.gov.in/list_of_cities.aspx

5.1.3 Targets

In Tamil Nadu the first priority will be accorded to sufficient coverage of water supply systems in the city followed by sewerage projects. The abstract plan for achieving Service Level Benchmarks with respect to sewerage and septage management is given below.

| Total Project Cost in Crore | Indicator | Baseline | Annual Targets based on Master Plan | | | | | |
|-----------------------------|--|----------|-------------------------------------|-----|------|------|------|------|
| | | | (Increment from the Baseline Value) | | | | | |
| | | | FY 2016 | | FY | FY | FY | FY |
| | | | H1 | H2 | 2017 | 2018 | 2019 | 2020 |
| 11594.19 | Coverage of Latrines (Individual or community) | 78% | 80% | 83% | 87% | 91% | 95% | 100% |
| | Coverage of sewerage network services | 27% | 30 | 43% | 50% | 60% | 80% | 100% |
| | Efficiency of Collection of Sewerage | 26% | 26% | 41% | 51% | 61% | 81% | 100% |
| | Efficiency in treatment | 43% | 43% | 45% | 50% | 60% | 80% | 100% |

Source: TN SAAP, 2015-2016

5.1.4 Funding Pattern

The total population and the number of statutory towns are considered on 50:50 ratios for allocation to the state from the centre.

The central government funding pattern for water supply, sewerage and sanitation facilities is such that cities with a population of less than 10 lakh people will receive half the project cost while cities with population exceeding 10 lakh people will receive a third of the project cost under the central government's assistance. The instalments will be released in the ratio of 20:40:40 of the approved project cost. The first set of project sanctions will be released on the approval of the State Annual Action Plan (SAAP) by the MOUD. On mobilisation of 75 per cent resources as per SAAP, the ULBs will receive a Utilisation Certificate. This certificate will be submitted at the centre to receive the 2nd and 3rd instalments (AMRUT Guidelines, 2015).

A sum of Rs.25 lakhs is released at the outset for planning. The state requires to bear a project cost of not less than 20 per cent, and the ULBs share is 30 per cent. In addition, the state and ULBs have identified additional sources of financial support through the State Finance Commission. The AMRUT projects have been converged with various ongoing and / sanctioned programmes like Smart Cities programme, TNSUDP and KfW (GOTN SAAP, 2015).

5.1.5 Allocation of Funds

Under the State Action Plan for 2015-2016, the total project cost for all the components amounted to Rs.3249.23 crore and the total fund requirement was Rs.1372.42 crore. Following the approval of the Tamil Nadu State Annual Action Plan (SAAP) the centre released Rs 274.48

crore (20 per cent of the approved Central share towards project fund of Rs 1372.crore) on November 2015 (GOTN SAAP, 2015).

In Tamil Nadu, the total project fund (2015-2020) for the sewerage and septage component is INR 11594.19 crore. The tables below detail the project fund sharing pattern (GOTN SAAP, 2015).

| Sector | No. of Projects | GOI | State | | | ULB | | | Total |
|---------------------------------|-----------------|----------|---------|----------|----------|---------|----------|----------|----------|
| | | | 14th FC | Others | Total | 14th FC | Others | Total | |
| Sewerage and Septage Management | 57 | 5797.095 | 0 | 2318.838 | 2318.838 | 16.65 | 3461.607 | 3478.257 | 11594.19 |

Source: TN SAAP, 2015-2016

Similarly, the sector wise breakup of consolidated investments for all ULBs in the state is given in the below table.

| Sl.No | Name of the ULB | Water Supply | Sewerage | Drainage | NMT | Green Space | Grand Total |
|-------|----------------------------------|--------------|----------|----------|--------|-------------|-------------|
| 1 | Ambur Municipality | 107.9 | 275 | 32 | 10.5 | 5.38 | 430.78 |
| 2 | Avadi Municipality | 496.3 | 247.3 | 613.85 | 48.4 | 102.3 | 1508.15 |
| 3 | Chennai Municipal Corporation | 4400.46 | 1099.71 | 1524.6 | 225 | 120.67 | 7370.44 |
| 4 | Coimbatore Municipal Corporation | 1672 | 1631 | 1076 | 848 | 130 | 5357 |
| 5 | Cuddalore Municipality | 395.63 | 202.24 | 622.5 | 96.4 | 32.92 | 1349.69 |
| 6 | Dindigul Municipal Corporation | 371.75 | 240 | 849.5 | 98 | 38.17 | 1597.42 |
| 7 | Erode Municipal Corporation | 676 | 145 | 900 | 415.92 | 11.2 | 2148.12 |
| 8 | Hosur Municipality | 576 | 153 | 171 | 90 | 27 | 1017 |
| 9 | Kancheepuram Municipality | 733.38 | 392.62 | 222.65 | 80.59 | 16.9 | 1446.14 |

| Table 5.4: Sector Wise Breakup of Consolidated Investments for all ULBs in the State (2015-2020) | | | | | | | |
|---|---------------------------------------|---------------------|-----------------|-----------------|---------------|--------------------|--------------------|
| Sl.No | Name of the ULB | Water Supply | Sewerage | Drainage | NMT | Green Space | Grand Total |
| 10 | Karaikudi Municipality | 116.4 | 15 | 264 | 74.4 | 50.48 | 520.28 |
| 11 | Kumbakonam Municipality | 40 | 110 | 890 | 14 | 3.38 | 1057.38 |
| 12 | Madurai Municipal Corporation | 1470.74 | 722.3 | 720 | 307.2 | 48 | 3268.24 |
| 13 | Nagapattinam Municipality | 390 | 50 | 375 | 200 | 25 | 1040 |
| 14 | Nagercoil Municipality | 320 | 323 | 220 | 96.4 | 47.7 | 1007.1 |
| 15 | Pallavaram Municipality | 716 | 160 | 300 | 110 | 20.2 | 1306.2 |
| 16 | Pudukottai Municipality | 428.16 | 150 | 150 | 116 | 180 | 1024.16 |
| 17 | Rajapalayam Municipality | 245 | 225 | 60 | 21 | 5.01 | 556.01 |
| 18 | Salem Municipal Corporation | 540.2 | 644.41 | 991.56 | 505 | 43.6 | 2724.77 |
| 19 | Tambaram Municipality | 520 | 80 | 352.09 | 57 | 40 | 1049.09 |
| 20 | Thanjavur Municipal Corporation | 761 | 779 | 325.5 | 92.5 | 62 | 2020 |
| 21 | Thiruvannamalai Municipality | 197 | 260 | 248 | 185 | 22 | 912 |
| 22 | Thoothukkudi Municipal Corporation | 180.03 | 448.9 | 560.13 | 824.66 | 45.43 | 2059.15 |
| 23 | Tiruchirappalli Municipal Corporation | 251.5 | 955 | 1366 | 137 | 67.75 | 2777.25 |
| 24 | Tirunelveli Municipal Corporation | 124 | 992 | 612 | 186 | 158 | 2072 |
| 25 | Tiruppur Municipal Corporation | 1032 | 860 | 733.7 | 122 | 62.34 | 2810.04 |
| 26 | Velankanni Town Panchayat | 24.94 | 33.71 | 5 | 16.71 | 0.55 | 80.91 |
| 27 | Vellore Municipal Corporation | 300 | 400 | 505 | 194.7 | 9 | 1408.7 |
| Total Project Investments | | 17086 | 11594.2 | 14690 | 5172.4 | 1375 | 49918 |

| Table 5.4: Sector Wise Breakup of Consolidated Investments for all ULBs in the State (2015-2020) | | | | | | | |
|---|-----------------|--------------|----------|----------|-----|-------------|---------------|
| Sl.No | Name of the ULB | Water Supply | Sewerage | Drainage | NMT | Green Space | Grand Total |
| A & OE @ 8% of the project cost | | | | | | | 3993.4 |
| Grand Total | | | | | | | 53911 |

Source: TN SAAP, 2015-2016

5.1.6 Funds Disbursed

The total project spending for sewerage works for the year 2015-2016 is Rs.33.71 crore and the same is presented in the below table.

| Table 5.5: Proposed spending during current Financial year (2015-16) (Amount in Crore) | | | | | | | | | |
|---|---|--------|---------|--------|-------|---------|--------|--------|--------------|
| Sector | Total Project Investment for Sewerage (2015-2020) | GoI | State | | | ULB | | | Grand Total |
| | | | 14th FC | Others | Total | 14th FC | Others | Total | |
| Sewerage | 11594.19 | 16.855 | 0 | 6.742 | 6.742 | 0 | 10.113 | 10.113 | 33.71 |

Source: TN SAAP, 2015-2016

The Sector-wise proposed total project fund for Tamil Nadu in the financial year 2015-2016 is provided below.

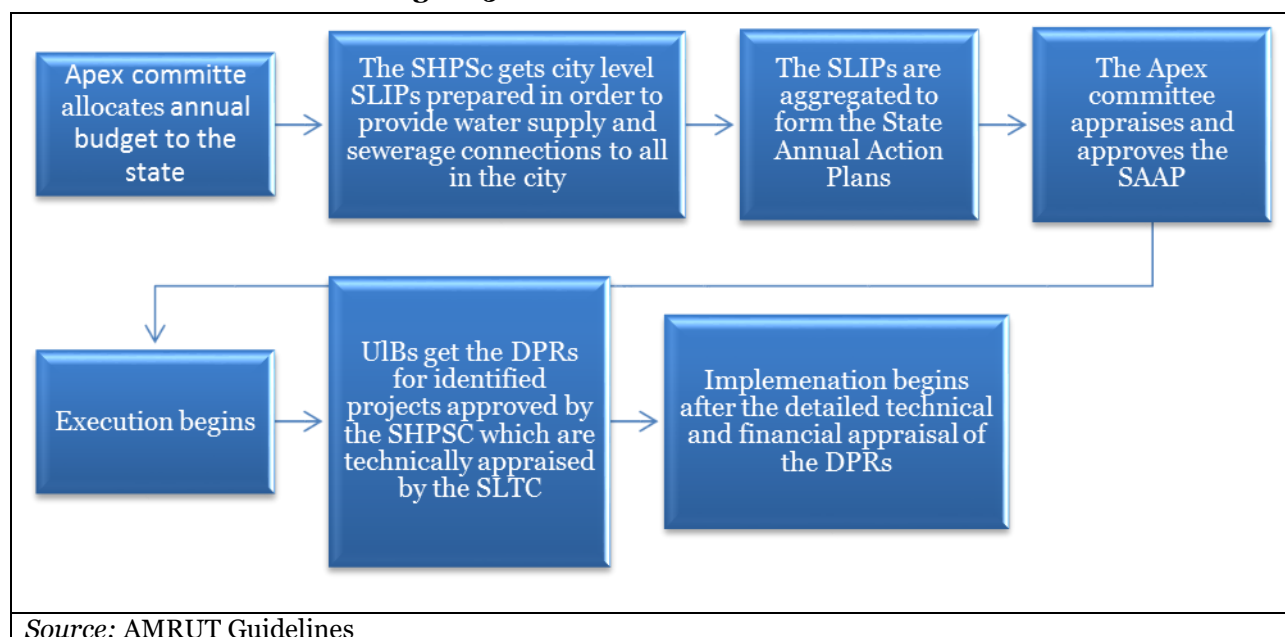
| Table 5.6: Sector Wise Proposed Total Project Fund and Sharing Pattern for the Current FY - 2015-16 | | | | | | |
|--|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sl.No | Sector | No.of Project | GoI | State | ULB | Total |
| 1 | Water supply | 11 | 1321.33 | 975.273 | 850.437 | 3147.04 |
| 2 | Sewerage and Septage | 1 | 16.855 | 6.742 | 10.113 | 33.71 |
| 3 | Drainage | 0 | 0 | 0 | 0 | 0 |
| 4 | Non-Motorised transport | 0 | 0 | 0 | 0 | 0 |
| 5 | Green Space | 27 | 34.24 | 13.696 | 20.544 | 68.48 |
| Grand Total | | 39 | 1372.4 | 995.71 | 881.09 | 3249.2 |

Source: TN SAAP, 2015-2016

5.1.7 Scheme Management

At the national level, an Apex Committee chaired by the Secretary, MOUD allocates funds based on State Annual Action Plans (SAAPs) submitted. At the state level, the State Level High Powered Steering Committee (SHPS) plans the state and ULB's (ULB) share towards the project and allocates the release of central and state share of funds in time for execution of projects. The ULBs and the respective Municipal Commissioners will procure implementation agencies and bring together stakeholders to ensure project completion within the cost (GOTN SAAP, 2015).

Figure 5.1: AMRUT Scheme Execution



5.1.8 Status of Works Undertaken

In Tamil Nadu for the financial year 2015-2016, the total project cost allocated for sewerage and septage management is Rs.33.71 crore. This amount has been assigned to sewerage works to be taken up in Velankanni Town Panchayat which is expected to be completed in 3 years (GOTN SAAP, 2015).

Table 5.7: Principles of Prioritisation for the Current Financial year (2015-16) (Rupees in crore)

| Towns | Water Supply LPCD | Water Supply Project Cost | Sewerage Project Cost | Green Space Cost | Total Amount Prioritised | Center Share | State Share | ULB Share | Remarks |
|------------|-------------------|---------------------------|-----------------------|------------------|--------------------------|--------------|-------------|-----------|--|
| Velankanni | 73 | 0 | 33.71 | 2.14 | 35.85 | 17.925 | 7.170 | 10.755 | DPR to be prepared and to be taken up in the second year |

Source: TN SAAP, 2015-2016

5.2 Swachh Bharat Mission - Urban (SBM-U)

The Swachh Bharat Mission under the Ministry of Urban Development has been implemented for a five-year period starting from 02 January 2014. The total implementation cost of the SBM-U (Urban) is INR 62,009 crore of which the government of India's share is INR 14,623 crore and the state/ULB share of 25 per cent will amount to INR 4874 crore (SBM guidelines, 2014). In the Tamil Nadu budget estimates for 2015-16, an allocation of Rs.150 crore is provided for implementation of the Swachh Bharat Mission in urban areas (TN Budget, 2016).

5.2.1 Scheme Components

The scheme aims to achieve the following objectives: (i) Elimination of open defecation, (ii) Eradication of manual scavenging, (iii) Modern and scientific municipal Solid Waste Management, (iv) To effect behavioural change regarding healthy sanitation practices, (v) Generate awareness about sanitation and its linkage with public health, (vi) Capacity augmentation for ULBs, and (vii) To create an enabling environment for private sector participation in Capex (Capital Expenditure) and Opex (Operation and Maintenance expenditure) (SBM guidelines, 2014).

5.2.2 Eligibility criteria

The mission covers all statutory towns (defined by 'statute' as urban, such as municipal corporations, municipalities, cantonment boards, notified town area committees, town panchayats, or nagar palikas). In Tamil Nadu there are around 721 statutory towns with 11,28,692 households and a population of 2,98,32766 whose fund share will be 14.21 per cent (SBM guidelines, 2014).

The state government or ULBs will sanction only new projects under the SBM-U to avoid duplication. The projects are considered as new if they are not projects already sanctioned and ongoing under state and central schemes and externally-aided programmes (SBM guidelines, 2014).

5.2.3 Funding Pattern

The government of India has proposed that the state wise allocations under the mission would be based on total urban population (50 per cent weightage) and total number of statutory towns (50 per cent weightage) (MAWSD G.O.105, 2015).

The state is required to submit a concept note on state sanitation strategy in order to claim the first instalment. The concept note and a proposal shall be submitted online to the Ministry of Urban Development by the state governments. In addition, City Sanitation Plans are also required to be submitted to the centre. On acceptance of the proposal by the Ministry, the first instalment of funds shall be disbursed to states / UTs. Subsequent instalments will be released on the submission of the Utilisation Certificate for 75 per cent of the funds released as first instalments and satisfactory physical and financial progress as per National Advisory & Review Committee (NARC) criteria (SBM guidelines, 2014).

| Sl. No. | Scheme | Sharing Pattern | Unit Cost in Rupees | GoI Share in Rupees | State share in Rupees | ULB share in Rupees | Beneficiary share in Rupees |
|---------|--------------------------------|--------------------------|---------------------|---------------------|-----------------------|---------------------|-----------------------------|
| 1 | IHHL | 75:25 25:12.5:12.5:50 | 12000 | 4000 | 2000 | 2000 | 4000 |
| 2 | Insanitary Latrine to Sanitary | 75:25 25:12.5:12.5:50 | 12000 | 4000 | 2000 | 2000 | 4000 |
| 3 | Pit Latrine to Sanitary | 75:25 25:12.5:12.5:50 | 12000 | 4000 | 2000 | 2000 | 4000 |
| 4 | Community Toilets | 40:35:25 (per seat) | 65000 | 26000 | 8667 | 30333 | ** |
| 5 | Public Toilets | 0:53:47(per seat) | 65000 | ** | 34667 | 30333 | ** |
| 6 | SWM | 20:07:73 (per capita) | 1500 | 300 | 100 | 1100 | ** |

Source: G.O.(Ms)No.105, 2015

The Sanction of Projects in Tamil Nadu for the period of 2014-2019 is presented in the below table.

| Sl. No | Scheme | Units Proposed 2014-19 in lakh | Total Rupees in Crore | GoI Share in Rupees in Crore | State share in Rupees in Crore | ULB share in Rupees in Crore | Beneficiary share in Rupees in Crore |
|--------|--------------------------------|--------------------------------|-----------------------|------------------------------|--------------------------------|------------------------------|--------------------------------------|
| 1 | IHHT | 13.95 | 1674 | 558 | 279 | 279 | 558 |
| 2 | Insanitary Latrine to Sanitary | | | | | | |
| 3 | Pit Latrine to Sanitary | | | | | | |
| 4 | Community Toilets | 0.36 | 234 | 94 | 31 | 109 | ** |
| 5 | Public Toilets | 0.2 | 130 | ** | 69.33 | 60.66 | ** |
| 6 | SWM | 276 | 4140 | 828 | 276 | 3036 | ** |

| Sl. No | Scheme | Units Proposed 2014-19 in lakh | Total Rupees in Crore | GoI Share in Rupees in Crore | State share in Rupees in Crore | ULB share in Rupees in Crore | Beneficiary share in Rupees in Crore |
|--------------------|--------|--------------------------------|-----------------------|------------------------------|--------------------------------|------------------------------|--------------------------------------|
| Grand Total | | | 6178 | 1480 | 655 | 3485 | 558 |

Source: G.O.(Ms)No.105, 2015

5.2.4 Scheme Management

At the national level there is a National Advisory and Review Committee (NARC) which will be responsible for overall monitoring and supervision of SBM-U (Urban) and approve and release instalment of funds for states /UTs by the central government under the mission. In addition, there is a SBM-U National Mission Directorate which will be responsible overall for all activities related to SBM-U and formulation of framework to support the State Mission Directorate (SBM guidelines, 2014).

Similarly, at the state level there is a High Powered Committee (HPC) which is responsible for the management of the project at the state level which includes sanction of projects submitted by ULBs, planning fund flow in the state recommended proposals for release of instalments of funds for projects under the mission (SBM guidelines, 2014).

At the ULB level active participation is encouraged in PPP mode to invite private capital in urban infrastructure as well as to bring in private sector efficiency in delivery of urban services and Operation and Maintenance (SBM guidelines, 2014).

5.2.5 Status of Works Undertaken

A Swachhta Status Report 2016 has been prepared by the central government to analyse the success of works undertaken under the SBM-U. This has been prepared state wise and details on the targets and achievements made until 2016 have been covered (Annant, 2016).

With respect to the state of Tamil Nadu the number of latrines constructed in households, schools and anganwadis during the last 3 years and the current year is presented below.

| 2012-2013 | | | 2013-2014 | | | 2014-2015 | | | 2015-2016 (upto 29-02-2016) | | |
|-----------|---------------|------------------|-----------|---------------|------------------|-----------|---------------|------------------|-----------------------------|---------------|------------------|
| IH HLs | School toilet | Anganwadi toilet | IH HLs | School toilet | Anganwadi toilet | IH HLs | School toilet | Anganwadi toilet | IH HLs | School toilet | Anganwadi toilet |
| 324 | 216 | 3095 | 2076 | 31340 | 21403 | 904 | 37816 | 24292 | 49 | 624500 | 3780 |

Source: Swachhta Status Report, 2016

The number of community and public toilets completed as on 31 January 2016 is shown below.

| Community and Public Toilets (No. of Seats) | Work Commenced (Number) | Completed (Number) |
|--|--------------------------------|---------------------------|
| Total | 13365 | 5039 |

Source: Swachhta Status Report, 2016

The solid waste management activities taken up in the different wards of Tamil Nadu up to 31 January 2016 under the SBM-U scheme is tabulated below.

| State | Total No. of Wards | No. of Wards with 100% door to door collection | Total Waste Generation (Metric Tonnes/Day) | Total Waste Processing (%) | Target to Achieve Waste Processing by March 2016 (%) |
|--------------|---------------------------|---|---|-----------------------------------|---|
| Tamil Nadu | 12802 | 9182 | 15272 | 16 | 25 |

Source: Swachhta Status Report, 2016

5.3 Integrated Urban Development Mission(IUDM)

In 2011-2012, the Tamil Nadu government launched a Rs. INR 6,654 crores 'Integrated Urban Development Mission' to provide basic facilities in all corporations (except Chennai), municipalities and town panchayats. The duration of the mission is five years: From 2011-2012 to 2015-2016 (*The Hindu, 2012*).

5.3.1 Scheme Components

Under this mission, existing schemes are dovetailed and additional resources are provided to improve the standards of basic infrastructure like roads, street lights, drinking water, sewerage and sanitation, storm water drains, solid waste management, improvement of bus stands, parking places etc., in an integrated manner (MAWSD policy note, 2015).

5.3.2 Fund Allocation

The IUDM Funds allocated for the 5 years has been detailed below.

| Sl. No | Particulars | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | Total |
|---------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| 1 | IUDM allocation /Budget | 750.00 | 750.00 | 750.00 | 750.00 | 750.00 | 3000.00 |
| 2 | Fund released by GoTN | 750.00 | 250.00 | 450.00 | 600.00 | 150.00 | 2200.00 |
| 3 | Unspent amount refunded by ULBs – deposited with P.D.A/c. | | | | | | 0.49 |

| Table 5.13: IUDM Fund Position (Rupees in Crore) | | | | | | | |
|---|---|----------------|----------------|----------------|----------------|----------------|----------------|
| Sl. No | Particulars | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | Total |
| 4 (i) | Fund released to ULBs for the sanctioned projects | 400.00 | 600.00 | 438.99 | 580.20 | 16.69 | 2035.88 |
| (ii) | Third party inspection fee/Consultancy charges/Audit fee/Management fee | | | | | | 14.61 |
| (iii) | So far fund utilised - Total | | | | | | 2050.49 |
| 5 | Balance Fund available in P.D. Account | | | | | | 150.00 |
| 6 | Release proposals received from ULBs have been scrutinised by TUFIDCO and is being sent to Government for release | | | | | 159.71 | |
| 7 | Further fund requirement for the sanctioned projects during June, July and August 2015. | | | | | 250.00 | |
| <i>Source: G.O.(Ms)No.96, 2015</i> | | | | | | | |

5.3.3 Scheme Management

The Allocations under these schemes are fully regulated by Government of Tamil Nadu and Government has absolute domain over the funds of the schemes. Projects maybe fully funded under IUDM either as gap funding or used for leveraging funds from other schemes. The Tamil Nadu Urban Finance and Infrastructure Development Corporation (TUFIDCO) is the appointed Nodal agency and will act as a Fund Management Agency for the IUDM. The Nodal agency will open and operate the Bank accounts in the name of IUDM for implementation (MAWSD G.O.78, 2012).

Application for financial assistance should be submitted by the ULB/para statal agencies through the Commissionerate of Municipal Administration(CMA) and Directorate of Town Panchayats (DTP) along with a Detailed Project Report. The Tamil Nadu Urban Finance and Infrastructure Development Corporation (TUFIDCO) receives all project proposals from the CMA and DTP. Further there is a Project Sanctioning Committee with senior government officials which approves projects and administrative sanction for proposals sent in by the Nodal agency (MAWS G.O.78, 2012).

IUDM funds will be released in two instalments. 50 per cent of the fund may be released immediately upon issue of sanction. Balance 50 per cent of the fund may be released based on

the progress of the project. The ULBs will issue work orders for the sanctioned works and request TUFIDCO to release the fund (MAWS G.O.78, 2012).

The Director of Municipal Administration is authorised to draw the amount sanctioned and credit to the Public account, viz. “Integrated Urban Development Mission Fund” maintained by the TUFIDCO and releasing the same to the IUDM projects approved by the Project Sanctioning and Monitoring Committee, as per the minutes of the committee (MAWS G.O. 106, 2013).

5.3.4 Status of Works Undertaken

The Projects covered under the IUDM mainly fall under the Commissionerate of Municipal Administration and Directorate of Town Panchayats. The tables below explain the works undertaken under the IUDM from 2012 to 2015 and the number of ULBs covered.

| Table 5.14: Projects Sanctioned under IUDM 2012-2013 (Rupees in Crore) | | | | | | |
|---|----------------------------|--------------------|------------------------|-------------------|---|----------------------------------|
| Name of Work | No. of ULBs covered | No of Works | Estima ted Cost | IUDM Share | Other Sources KfW/JICA/JN NURM-II/Own Fund | IUDM Share for 2012 -2013 |
| Municipalities and Corporations | | | | | | |
| UGD Project | 9 | 9 | 495.54 | 52.52 | 443.02 | 25.50 |
| SWM | 75 | 282 | 63.62 | 62.64 | 0.98 | 62.64 |
| Eradication of Open Defecation | | | 50.89 | 12.50 | 38.39 | 12.50 |
| Town Panchayats | | | | | | |
| UGD Project | 6 | 6 | 184.63 | 101.44 | 83.19 | 17.91 |
| SWM | 46 | 51 | 9.50 | 9.50 | 0.00 | 9.50 |
| Others (Liquid Waste Management, Gasifier crematorium etc.) | 1 | 2 | 1.20 | 1.20 | 0.00 | 1.20 |
| <i>Source: (MAWS G.O.225, 2012)</i> | | | | | | |

| Table 5.15: Projects Sanctioned under IUDM 2013-2014 (Rupees in Lakh) | | | | | | |
|--|----------------------------|--------------------|------------------------|-------------------|------------------|-----------------------------------|
| Name of Work | No. of ULBs covered | No of Works | Estima ted Cost | IUDM Share | ULB Share | IUDM Share for 2013 - 2014 |
| Municipalities and Corporations | | | | | | |
| UGD schemes | 6 | 6 | 60359.00 | 32641.00 | 27718.00 | 4869.00 |
| Biomethanation Plant | 20 | 20 | 1860.00 | 1674.00 | 186.00 | 1674.00 |
| Town Panchayats | | | | | | |
| UGD Scheme | 21 | 21 | 59196.00 | 59196.00 | | 6000 |
| <i>Source: (MAWS G.O.492, 2013)</i> | | | | | | |

| Table 5.16: Projects Sanctioned under IUDM 2014-2015 (Rupees in Lakh) | | | | | |
|--|----------------------------|--------------------|------------------------|-------------------------------------|----------------------------------|
| Name of Work | No. of ULBs covered | No of Works | Estima ted Cost | IUDM Share and other sources | IUDM Share for 2014- 2015 |
| Municipalities and Corporations | | | | | |
| UGD Project | 6 | 6 | 28328.00 | 25130.11 | 1897.89 |
| <i>Source: (MAWS G.O.281, 2014)</i> | | | | | |

Further, the Projects proposed to be taken up under the IUDM Share for the upcoming years has been presented below.

| Table 5.17: Projects Sanctioned under IUDM 2016-2018 (Rupees in Lakh) | | | | | | | |
|--|--------------------|-----------------------|-------------------|---------------|----------------------------------|----------------------------------|----------------------------------|
| No. of ULBs covered | No of Works | Estimated Cost | IUDM Share | Others | IUDM Share for 2015 -2016 | IUDM Share for 2016 -2017 | IUDM Share for 2017 -2018 |
| Municipalities and Corporations (UGD/Water Supply) | | | | | | | |
| 23 | 27 | 159301.02 | 71241.00 | 88060.02 | 19319.00 | 18930.00 | 13754.00 |
| Town Panchayats (UGSS/Septage Management) | | | | | | | |
| 29 | 29 | 58892.00 | 53679.50 | 5460.50 | 19988.00 | 21034.10 | - |
| <i>Source: (MAWS G.O.281, 2014)</i> | | | | | | | |

5.4 Heritage City Development and Augmentation Yojana (HRIDAY)

The MOUD has initiated various capacity building initiatives since 2006 for the development of Indian heritage cities. The heritage areas are lacking in basic services and infrastructure facilities such as water supply, sanitation, roads, etc. and basic amenities like toilets, signage, street lights. The HRIDAY scheme was inaugurated to support civic infrastructure development projects linking heritage facilities with trunk infrastructure of the city (HRIDAY Guidelines, 2015).

The HRIDAY is a fully central government funded scheme with a total outlay of INR 500 crore. The duration of the scheme would be for 27 months starting January 2015 and ending on 31 March 2017 (HRIDAY Guidelines, 2015).

5.4.1 Scheme Components

The scheme aims at the development of water supply, sanitation, drainage, waste management, approach roads, footpaths, street lights, tourist conveniences, electricity wiring, landscaping and such citizen services. To achieve this development, the scheme focuses on four theme areas i.e. physical infrastructure, institutional infrastructure, economic infrastructure and social infrastructure (HRIDAY Guidelines, 2015).

5.4.2 Eligibility criteria

The twelve heritage cities selected by the central government are listed below.

1. Ajmer
2. Amravati
3. Amritsar
4. Badami
5. Dwarka
6. Gaya
7. Kanchipuram
8. Mathura
9. Puri
10. Varanasi
11. Velankanni
12. Warangal

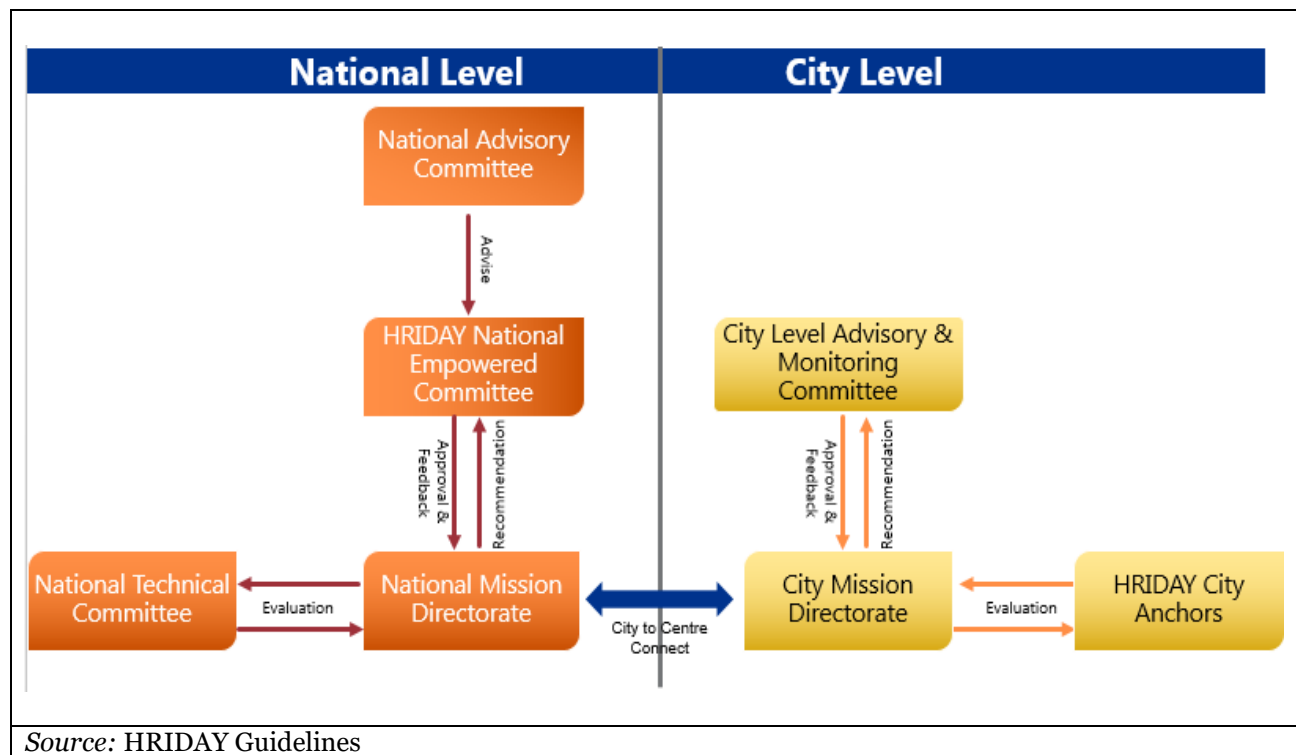
Additional cities may be explored after consultations (HRIDAY Guidelines, 2015).

5.4.3 Scheme Management

National Level: The National Advisory Committee is the apex advisory body and shall assist in creating the implementation and governance framework for the scheme. HRIDAY National Empowered Committee (HNEC) provides overall sanction, approval and guidance to the scheme. The National Mission Directorate takes up the activities of selection of agencies for preparation of city HRIDAY Plans, DPRs and investment. The Technical Committee performs technical review and evaluates implementation frameworks, Detailed Project Reports, City HRIDAY plans and other such agendas before it is put forth at the HNEC Meeting (HRIDAY Guidelines, 2015).

City/ULB Level: The role of the City Level Advisory and Monitoring Committee is to oversee, review and monitor the performance of the scheme; approve City HRIDAY Plans and DPRs before it is put forth at the HNEC. It facilitates coordination between the centre, states and implementing agencies. The City Mission Directorate is responsible for the selection of agencies, evaluation of HRIDAY plans, DPRs and the executing and monitoring of HRIDAY Scheme at the city level. Agencies reputed in the field of heritage will be selected as HRIDAY city anchors for each of the 12 cities and will help in the successful implementation of the scheme (HRIDAY Guidelines, 2015).

Figure 5.2: Institutional Setup



The HRIDAY city anchors are responsible for preparing the City HRIDAY Plan (CHP) for their respective city. Subsequently the city will have to develop DPRs for availing assistance for projects undertaken under the scheme. The cities will assign the DPR preparation to selected agencies from the centre’s empanelled list. The project work will be executed by Public Works Organisation (PWO) / Central Public Sector Unit (CPSU) / state parastatals / Special Purpose Vehicle (SPV)/ contractors / NGO’s of national repute. National Institute of Urban Affairs (NIUA) is designated as HRIDAY National Project Management Unit (NPMU) for the scheme and will function as a secretariat for the National Mission Directorate (HRIDAY Guidelines, 2015)

A tripartite agreement has been entered into with the respective ULBs, states and MoUD detailing the duties of each party for facilitating effective implementation of the project. The City Mission Directorate will also enter into a bi-party agreement with the respective executing agency to prescribe the terms and conditions under which the services will be provided, the type of services, terms of payment etc. (HRIDAY Guidelines, 2015).

5.4.4 Funding Pattern

The fund will be released to NIUA and City ULBs by MoUD based on the following components.

| Components | % of total Funds | Release of Funds to: |
|---|-------------------------|-----------------------------|
| HRIDAY Pilot Cities Project implementation | 85% | City Mission Directorate |
| National Project Management Unit (NPMU) /City Project Management Unit Establishment and operationalisation at MOUD/City | 3% | NIUA |
| Capacity Development for Heritage Cities | 3% | Executing Agencies |
| DPRs and Development / Management Plans | 4% | City Mission Directorate |
| Information Education and Communication (IEC) | 4% | Executing Agencies |
| Administrative and Office Expenses (A&OE) | 1% | |

Source: HRIDAY guidelines

| Sl.No. | Cities | Funds (Rupees in Crore) |
|---------------|---------------|--------------------------------|
| 1 | Ajmer | 40.04 |
| 2 | Amravati | 22.26 |
| 3 | Amritsar | 69.31 |
| 4 | Badami | 22.26 |
| 5 | Dwarka | 22.6 |
| 6 | Gaya | 40.04 |
| 7 | Kanchipuram | 23.04 |
| 8 | Mathura | 40.04 |
| 9 | Puri | 22.54 |
| 10 | Varanasi | 89.31 |
| 11 | Velankanni | 22.26 |
| 12 | Warangal | 40.54 |
| Total | | 453.91 |

Source : HRIDAY City Anchors Orientation Workshop May 29, 2015

The above mentioned budget components will have to be approved by the HNEC before release of funds to concerned agencies and institutes. The fund will be released to executing agencies by the MoUD as under:

1. 20 per cent (1st instalment) on approval of the project.
2. 60 per cent (2nd instalment) on 20 per cent physical and financial progress of the project
3. 20 per cent (3rd instalment) on 60 per cent physical and financial progress of the project

The scheme also looks at coordination with other stakeholders such as World Bank, UNESCO, Cities Alliance, UN Habitat, Ministry of Environment and Forests, Ministry of Housing and Urban Poverty Alleviation (HUPA) and provision for private funding by private entities that are directly or indirectly benefiting from the project (HRIDAY Guidelines, 2015).

5.4.5 Status of Works Undertaken

Detailed Project Reports (DPRs) amounting to Rs. 340 crores for the cities of Ajmer, Amritsar, Amaravati, Badami, Dwaraka, Gaya, Kanchipuram, Mathura, Puri, Varanasi, Velankanni and Warangal has been submitted and approved by the HNEC under the scheme. (<http://hridayindia.in/project-progress/#>). 7 out of the 12 cities submitted their concept plans to the Union Ministry of Urban Development in the month of August 2015 (Indian Express, Aug 2015).

With respect to Tamil Nadu, the total funds for allocated for Velankanni and Kancheepuram are Rs. 22.26 crore and Rs. 23.04 crore respectively. In the case of Velankanni Town Panchayat, the HNEC has reviewed and approved projects amounting to Rs. 97,09,736 and sanctioned the release of 20 per cent of the project cost (Rs. 19,41,947). (*4th HNEC meeting, 2015*) The infrastructure projects taken up in Velankanni include constructing paved pathways along the 16th century churches and beach, installation of LED streetlights and signages (Indian Express, Aug 2015).

6 Institutional Arrangements and Process Flow for Projects: A Case Study of Trichy City Corporation (TCC)

Initially, all ULBs in Tamil Nadu were bound by the provisions of the District Municipalities Act, 1920. After upgrading into the Corporation, the TCC initially followed the Coimbatore City Corporation Act, 1981¹⁴. The Government then introduced common provisions in the respective Acts of all corporations. TCC later developed an Act of its own, and was hence bound by the Trichy City Corporation Act, 1994.

6.1 Trichy City Corporation

Tiruchirappalli known as Trichy, is the fourth largest city in Tamil Nadu, and one of the oldest inhabited cities of the state. It is a famous temple town and accommodates a huge floating population during festive seasons. Trichy lies in the Deccan Plateau and comes under the sub-tropical climatic region. Hence, there are no extremes of summer and winter. It is hottest between March and June and cool from November to January.

Trichy lies at an altitude of 78m above sea level, and is spread over an area of 167.23 sq.kms, surrounded by urban agglomeration spread over an area of 180 sq.kms. The river Cauvery flows through the city along the west-northwest direction to south-southeast direction.

Trichy Municipality was constituted in 1866, and was subsequently upgraded as a Corporation in 1994. Tiruchirappalli reported a population of 847,387 living in 214,529 households across 60 wards within the then municipal corporation limits (Census 2011). The city is subdivided into 4 administrative zones with a total of 65¹⁵ wards.

Local Body Elections

Local body elections are conducted once in 5 years. Councillors are elected through this process. Until 2011, Mayor was elected through a separate vote registration by the Citizens. From 2011, Mayor and Deputy Mayor were elected by the elected council members themselves and no separate votes from public were required.

6.1.1 ULB Council

The Council which consists of elected representatives, is the governing body of the ULB. They are empowered to take decisions on subjects related to the local body. TCC has 65 electoral wards, and therefore the council consists of 65 councillors.

The council is the ultimate authority for all sanctions and approvals of subjects related to the ULB. Nevertheless, they do not have the scope to execute these powers, unless the Commissioner (Executive head of the ULB) places the subject before the council.

6.1.2 Commissioner

The Commissioner is the executive head of the ULB and is in charge of developing proposals and subjects that need to be placed before the council. He is the interface between the government hierarchy and the ULB.

¹⁴ Reportedly, all Corporations in TN except Chennai, were following Coimbatore City Corporation Act, 1981

¹⁵ TCC had a total of 60 wards with 15 in each of the zones. With the expansion of TCC, 5 more wards were added. Of this, 3 wards were added to Golden Rock zone and 2 to Ariyamangalam zone.

The commissioner is supported by 7 Assistant Commissioners, who manage the 4 zones and the functional activities of TCC. Other than this, the City Engineer (CE), Public Relations Officer and the Taxation Chairman report to the Commissioner.

The Commissioner¹⁶ is the overall in charge of the ULB as an executive authority. He is responsible for implementing the decisions of the council and the government. The Commissioner is also in charge of organising periodic council meetings, and reporting on the implementation status of the decisions taken by the council.

The Commissioner of Corporation is appointed in either of the following methods:

- Direct recruitment
- Promoting Section Officers of the Secretariat
- Promoting Senior Municipal Managers
- Promotion from the cadre of Superintendent (working in the O/o CMA)

When the city jurisdiction is vast, cadres from the Indian Administrative Service are posted too.

6.1.3 Assistant Commissioners (ACs)¹⁷

TCC has 7 Assistant Commissioners, of which 4 are executive heads of the 4 zones respectively, and 3 ACs are functional heads working at the head office of the Corporation. The ACs are in charge of all activities under their jurisdiction. They report directly to the Commissioner. The zones have zonal committees which consist of elected representatives of the wards under the zones. The ACs are responsible to conduct such meetings and place proposals for the approval of the Committee. Proposals are taken to the head office, only upon the approval of the zonal committee. The powers of ACs are similar to that of the Commissioner, confined to their jurisdiction.

Assistant Commissioners in Zones - Of the 4 ACs who manage the zones, 2 posts¹⁸ are filled in by the Revenue Divisional offices¹⁹, with personnel of Deputy Collector cadre on deputation²⁰. This is being done for the cadres to understand municipal functioning. The other 2 zones are filled in by the corporation officials based on seniority and qualification. The government issues an Order (GO) for appointment of ACs.

The ACs in the Head office, are the AC-Personnel, AC-Revenue and AC-Accounts. Their functions are as follows:

Recruitment norms for Assistant Commissioners serving at HQ-

- In order to serve as AC Revenue, the individual should have worked in the cadre of Accounts Officer and should have worked as Assistant Revenue Officer for a specific period
- For Serving as AC Personnel, serve for a period of more than 2 years as Administrative Officer
- To serve as AC Accounts, the candidate should have worked for more than 2 years as Accounts Officer
- In order to make the above functional heads as Zonal Officers, they should have worked for a minimum period of 4 years either in the cadre of AOs and Accounts Officer or 4 years altogether.
- Once the individual is promoted as Zonal Officer, they are subject to transfers. Until then they are not.

¹⁶As reported, 50% of the posts of Commissioner out of 125 municipalities remain vacant.

¹⁷ It is given to understand that all Corporations have a similar system of having zones and Assistant Commissioners. It was informed that all Corporations have 4 zones with exception of Chennai Corporation (there are also new Corporations for which jurisdiction has not been formulated so far). The number of wards may increase depending on the size of the city.

¹⁸ In TCC, Srirangam and Ariyamangalam zones are filled with cadres from Revenue Department

¹⁹ Revenue Department

²⁰ When they are relieved from services, the ULB for which they work is responsible to relieve them

Assistant Commissioner (Personnel) is responsible for the overall administration of the office; maintaining discipline; preparation of panel for filling up of sanctioned posts, promotions and transfers, taking disciplinary action, etc. He is responsible for preparing administrative reports to be placed before the council.

Assistant Commissioner (Revenue) is in charge of revenue collections of the Corporation; take tangible steps to arrest revenue leakage, if any; field supervision to ensure correctness of property assessments; consolidation of income from different zones. He is supported by two ministerial staff (head clerk and a clerk)

Assistant Commissioner (Accounts) is in charge of preparation of budgets, income and expenditure statement and balance sheet; in charge of developing MIS related to accounting statements

6.1.4 Engineers

City Engineer (CE) is the chief technical designation for the Corporation. He is responsible for all engineering works carried out in the city. He reports directly to the Commissioner. He is supported by the Assistant Executive Engineers (AEE) in the zones. The cadre of CE is higher than the ACs in the zonal offices.

Executive Engineers (EE): There are 2 EEs in TCC, and each of them share the works of two zones. They supervise the works carried out in the zones.

6.1.5 AEE (Planning)

Certain corporations like Madurai and Coimbatore have a separate town planning division. In TCC, there is no separate town planning department. The works related to TP department is carried out by the AEE (Planning). There are two posts, and each of them manages two zones.

6.1.6 City Health Officer (CHO)

City Health Officer (CHO) is responsible for the overall sanitation of the city. They guide in prevention of diseases and issue sanitary certificates. CHOs are directly appointed by the Department of Public Health (DPH). The candidature requires a qualified MBBS with a course on public health. They are directly appointed by the government. While the CHO does not have assistants in the head office, he is supported by the Sanitary Officer (SO), Sanitary Inspector (SI) and the Sanitary Supervisors (SS) and sanitary workers in the zones.

| |
|--|
| <p>City Health Officer (CHO) is in charge of providing clearance for the sanitary status of toilets, while the CE is responsible for the actual construction of toilets. CHOs are responsible for awareness creation among the public for aspects related to Sanitation</p> |
|--|

Assistant City Health Officers (ACHO) / Medical Officers (MO):
Medical officers (MO) working in the corporation are normally promoted as ACHO. There are 15 MOs working in the TCC. The MOs are responsible for the smooth functioning of the dispensaries, maternity homes and they supply medicines to the public through the hospitals.

6.1.7 Zonal Office – Structure, powers and functions

Every zonal office is in charge of its jurisdiction. TCC has four zones, viz., Golden Rock, Abhishekapuram, Srirangam, and Ariyamangalam. Golden Rock and Ariyamangalam have 18 wards and 17 wards respectively, and the other two zones contain 15 wards each.

Zonal committee and Chairman: The zonal office is governed by the zonal committee and is headed by the Zonal Chairman. The Chairman of the zones is appointed by the Mayor and the Deputy Mayor. The Zonal Chairman has powers similar to the Mayor of the Corporation, confined to his area.

Assistant Commissioners in Zones: Of the four ACs who manage the zones, two posts²¹ are filled in by the Revenue Divisional Offices, with personnel of Deputy Collector cadre on deputation. This is being done for the cadres to understand municipal functioning. The other two zones are filled in by the corporation officials based on seniority and qualification. Government issues an Order (GO) for appointment of ACs.

The function of Assistant Commissioner includes the following:

- Administration
- Discipline
- Monitoring functions of the staff
- Monitoring revenue of the zone and sanitation aspects in the zone
- Supervision of all development works
- According building permissions²² for 1500 sq.ft for domestic properties.

Assistant Executive Engineer (AEE): Every zone has one AEE. He supervises and assists implementation of all engineering works in the zone. He overlooks the work of the Assistant Engineer (AE) / Junior Engineer (JE).

Assistant Engineer (AE) / Junior Engineer (JE): They help in developing engineering drawings, prepare cost estimates; super check the work of technical assistants.

Technical Assistant: They prepare Bill of Quantities (BOQs) / Cost estimates.

Sanitary Inspectors: In addition to maintaining the sanity of their zone, they also issue and maintain the birth and death registers.

6.2 Process Flow

This section discusses the process flow with respect to different stages of project implementation. The various stages of a project from concept to completion are as follows:

- Project concept / demand
- Detailed project report preparation
- Sanctions and approvals
- Financial closure
- Procurement of works
- Project monitoring
- Project completion

The sections below discuss in detail the different stages listed above.

²¹ In TCC, Srirangam and Ariyamangalam zones are filled with cadres from Revenue Department

²² Building permission for all commercial properties can be given by the Commissioner of TCC only

6.2.1 Project Concept

Generally, a project is conceived for development based on demand. Infrastructure demand could arise in many ways through different channels. For example, citizens requiring day to day amenities such as water supply, street lights, roads etc. They approach the local municipal body during grievance redressal sessions that is conducted by the ULB on a monthly or fortnightly basis. There could be projects conceived by the ULB for uniform provisions of infrastructure, ensuring efficiency in operations, etc. For example, equitable distribution of water supply, energy efficiency of street lights, pumps, etc. Policy decisions taken by the Government, for example, construction of crematoriums or toilets across all ULBs.

6.2.2 Internal Process

All projects that are decided for further development shall be resolved by the council for taking it up further, either for project preparation or for implementation. This includes the GoI schemes, GoTN schemes and multilateral projects. The Commissioner shall place the subject to the council with adequate justification. Upon resolution, the same shall be sent to the O/o CMA for further guidance in terms of funding and DPR preparation.

TCC has come forward with unique project concepts in their budget 2016-17 through different funding agencies, such as bio-methanisation plant, bio-digester and green spaces. Other than this, TCC has provided for small scale projects from their general funds towards improvement of drains, and roads, based on local demand.

Upon CMA's clearance, the ULB shall approach institutions for the preparation of a Detailed Project Reports (DPR). There are smaller projects that would require only cost estimates and would not require a detailed project report preparation²³. In such cases, the ULB prepares cost estimates through their personnel²⁴.

6.3 Project Preparation

Once a project is resolved in the council, the next step is to develop a Detailed Project Report (DPR). Projects that are complex, large scale and that involve critical technical inputs are generally prepared by consultants hired by either the ULBs or the funding agencies.

6.3.1 Detailed Project Report (DPR)

A detailed project report is the one that provides the technical and financial details of the project, details out the environmental conditions, management measures and social aspects of the project. It finally provides the bill of quantities and cost estimates for the project. A flow chart that gives a snapshot of the DPR is given below.

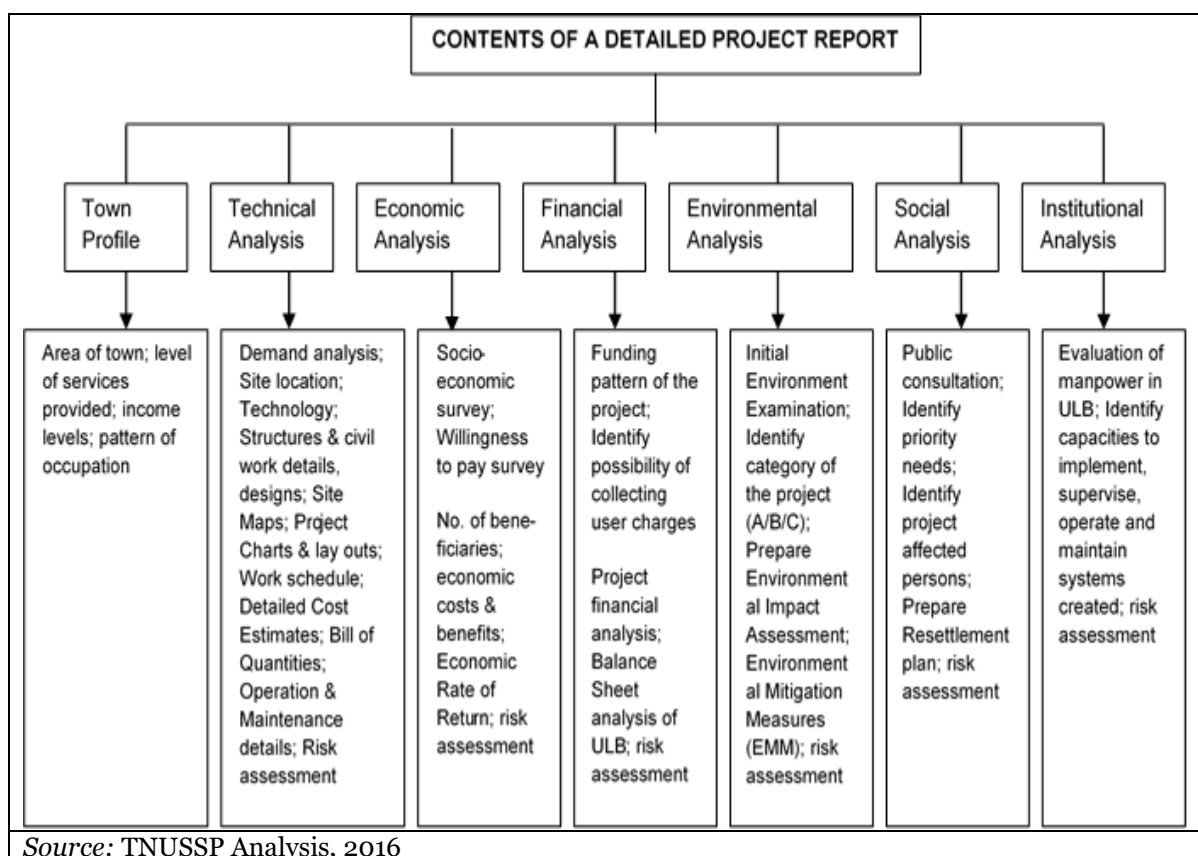
6.3.2 DPR Funding

There are different agencies that finance DPR through grants in Tamil Nadu. Predominantly, financing for DPR is provided by the agency that finances project implementation. Different schemes have different guidelines for financing DPR.

²³ Eg., small water supply distribution lines, relaying of roads, street lights, storm water drains, etc.

²⁴ As given in TCC institutional set up (Section)

Figure 6.1: Contents of Detailed Report



AMRUT: The central government funding pattern for water supply, sewerage and sanitation facilities is such that cities having a population of less than 10 lakh people will receive half the project cost while cities with population exceeding 10 lakh people will receive a third of the project cost. The instalments will be released in the ratio of 20:40:40 of the approved project cost. The first set of project sanctions will be released on approval of the State Annual Action Plan (SAAP) by the MOUD. On mobilisation of 75 per cent resources as per SAAP the ULBs will receive a Utilisation Certificate. This certificate will be submitted at the centre to receive the second and third instalments (AMRUT Guidelines, 2015).

SBM-U: The government of India has proposed that the state-wise allocations under the mission would be based on total urban population (50 per cent weightage) and total number of statutory towns (50 per cent weightage) (MAWSD G.O.105, 2015). The state is required to submit a brief concept note on the state sanitation strategy in order to claim the first instalment. The concept note and a proposal shall be submitted online to the Ministry of Urban Development by the state governments. In addition, City Sanitation Plans are also required to be submitted to the centre. On acceptance of the proposal by the Ministry, the first instalment of funds shall be disbursed to the states / UTs. Subsequent instalments will be released on the submission of the Utilisation Certificate for 75 per cent of the funds released as first instalments and satisfactory physical and financial progress as per National Advisory & Review Committee (NARC) criteria (SBM guidelines, 2014).

Project Development Grant Fund: The grant fund managed by the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) is meant for project preparatory

purposes. The corpus for the fund is provided by the government of Tamil Nadu through various sources as detailed below:

- External aided projects assisted by the World Bank, KfW and JICA through annual budgetary allocation, based on the lines of credit in operation.
- Plough back of the government of Tamil Nadu's share of Tamil Nadu Urban Development Fund's (TNUDF) interest on units.
- The external aided projects assisted by World Bank, KfW, JICA and such other funding institutions through annual budgetary allocation, which may be availed from time to time.
- The transfer of available funds from Grant Fund-II under TNUDF III, KfW Grant Fund –II under SMIF-TN Program, SMIF-TN-II-2 Program, JBIC Grant Fund-II under TNUIP and Project Preparatory Grant Fund to the PDGF.
- The interest from deposits, investments and any other income earned or accruing to the PDGF shall form part of its corpus and shall be applied for the objective for which the fund is created.
- Other sources and means as ordered by the government from time to time.

All categories of ULBs, statutory boards, government departments and other institutions owned or managed by the GoTN, TNUDF, Water and Sanitation Pooled Fund are eligible to avail this TA grant.

6.3.3 Appointment of Consultants

Once the funding agency for a DPR is decided, a council resolution is obtained to that effect. Procurement norms observed by the funding agency is followed for the appointment of consultants. The following is the process:

6.3.4 Tenders

- Project preparation funded by GoI and GoTN grants would be handled by the O/o CMA or the ULB. ULB calls for tenders using the Transparency in Tenders Act, 1998 (revised in 2000). They enter into an agreement with the consultants.
- When project preparation is funded by external donor agencies, TNUIFSL floats tenders and enters in to an agreement with the consultant.

6.3.5 Bid Evaluation

Normally a committee is formed to evaluate the bids received. The committee generally consists of the Commissioner of the concerned ULB, Municipal Engineer / City Engineer, representative from the O/o CMA, representative of the funding agency.

The bids are evaluated in accordance with the bid criteria. A bid evaluation report is prepared upon completion.

6.3.6 Agreement

Agreements are generally signed by the ULBs with the identified consultants. However, with respect to GoI funding (which is handled by TUFIDCO) and for the grant funds managed by TNUIFSL, the respective funding entity enters into an agreement with the consultant.

6.3.7 DPR Progress Review

DPRs generally require four stages of submission, depending on the size of the assignment. They are: (i) Inception Report; (ii) Interim Report; (iii) Draft Final Report; (iv) Final Report. At each stage of submission, the reports are reviewed by a committee. The committee, in general, consists of the Chairman of the ULB; Commissioner of the ULB; Municipal Engineer of ULB; Technical experts from funding agencies; CE from the CMA's office or his representative. External experts are called for assignments that require specialisation. Once the review committee approves a report, the consultants are due to be paid.

6.3.8 Payments to Consultants

The funding agency pays the amount due to the consultants for that particular stage for which the report is approved, upon receipt of invoice.

6.4 Sanctions and Approvals

The different sanctions and approvals that is required for a project are:

- Administrative sanction
- Technical sanction
- Environmental clearances, if any
- Clearance from other departments, if any
- Clearance of title for land

6.4.1 Administrative Sanction (AS)

This is the method by which clearance is given by the respective authority, for taking up the project for implementation. There are different authorities who provide administrative sanctions for projects. In ULBs, there is a clear delegation of powers for project sanctions. However, funders of projects like the GoI, external donors, etc. have pre-mentioned methods of project approvals under the respective schemes. In any case, the first acceptance of the project shall come from the council, based on which administrative approvals will be given by the authorities.

- Sanctions under AMRUT: For AMRUT projects, a State Level Technical Committee (SLTC) is formed that clears the project (DPR), based on technical reviews. After this, the High-Powered Committee (HPC) clears the project for implementation. The Administrative Sanction is then issued by the MA&WS department, vide Government Order.
- State Programs: For state programs like the IUDM, a Project Sanctioning Committee is formed, headed by the Secretary, MA&WS as the Chairman. The Member Secretary of TUFIDCO (agency handling State funds for special schemes) is the convener. Projects are cleared by this committee, upon which the MA&WS Department Issues Administrative Sanction vide Government Order.
- Donor Aided Projects: For projects that are funded by donors, a High-Powered Committee (HPC) is formed, headed by the Secretary. The Managing Director of TNUDF is the convener of the Committee. Upon clearance from the committee, Administrative Sanctions are issued by the MA&WS vide GOs.

- ULB powers for Administrative Sanctions: The government has decentralised project sanctions by providing powers to the local authorities involved. Accordingly, the following are the threshold limits of different categories for providing AS. Any project within this threshold can be approved by the respective authorities.

| Table 6.1: Administration Sanction | |
|---|---|
| Works Cost- ceiling (Rupees in lakh) | Authority to issue Administrative sanction |
| Upto 10.00 | Commissioner |
| 10.00-20.00 | Mayor |
| 20.00-30.00 | Works Committee ²⁵ |
| 30.00-50.00 | Finance Committee ²⁶ |
| 50.00-200.00 | Council |
| 200.00-1000.00 | Commissioner of Municipal Administration (CMA) |
| Above 1000.00 | MA&WS |
| <i>Source : TCC, 2016</i> | |

6.4.2 Technical Sanctions

Technical approvals are provided by different committees for projects funded by various agencies. Generally, Technical Sanctions (TS) are given only upon receipt of the AS. The committee involved in providing the TS looks into the technical details, Bill of Quantities and cost estimates²⁷, environmental aspects, approvals and clearances obtained for the project, etc. The government has increased the sanctioning powers of engineers at different cadres. Accordingly, the following are the TS powers delegated:

| Table 6.2: Technical Sanction Powers | |
|---|--|
| Works Cost-ceiling (Rupees in lakh) | Authority to issue Technical sanction |
| Up to 25.00 | Asst. Executive Engineer (AEE) |
| 25.00-40.00 | Executive Engineer (EE) |
| 40.00-50.00 | Regional Engineer (RE) ²⁸ |
| 50.00-100.00 | City Engineer of the ULB |
| Above 100.00 | Chief Engineer of the CMA's Office |
| <i>Source : TCC, 2016</i> | |

Since the GoTN has been implementing a large number of sewerage schemes, the state government has appointed a Technical Standing Committee exclusively for sewerage systems. The Committee includes:

- Executive Director, CMWSSB
- Executive Director, TWAD Board
- Chief Engineer, CMA

Irrespective of the funding, the above committee provides technical approval for Sewerage projects. Upon the committee's approval, the CE of CMA's office gives the Technical Sanction. All donor aided projects follow the existing procedure for providing TS.

²⁵ 9 members out of the council are chosen for this committee, headed by the Mayor

²⁶ Another set of 9 members are chosen from the council to form this committee, headed by the Mayor

²⁷ Checking if the costs are provided as per the Schedule of Rates (SOR)

²⁸ Engineering cadre of the Regional Directorate of Municipal Administration (RDMA). There are 7 regions in the State

Once AS & TS is obtained, the ULB shall place the same in the council, and obtain orders to proceed.

6.4.3 Environmental Clearances

All projects are subject to environmental screening, which is part of the DPR. Projects that fall under the E1 category are further taken up for Environmental Impact Assessment (EIA). Necessary clearances for such projects falling under the E1 / E2 are to be obtained before placing for tender.

At the central level, the Ministry of Environment and Forests clears environmentally sensitive projects. An EIA report is to be prepared which involves the following:

| Timeline | Process Flow | Responsible Authorities |
|---------------------------------------|---|--------------------------------|
| | Submission of application (Form 1, prelim reports) | Investor |
| 60 days | Stage 1: Screening; Decide project A, B1 or B2 | Expert Committee |
| | Stage 2: Scoping; Come up with Terms of Reference (TOR) | |
| | Prepare preliminary EIA report | Investor |
| 45 days | Stage 3: Public consultation | State Pollution Control Board |
| 60 days | Stage 4: Appraisal | Expert Committee |
| 30 days | Final Decision | Regulatory Authority |
| <i>Source : TNUSSP Analysis, 2016</i> | | |

At the state level, the state Pollution Control Board is the approving authority. Environmental clearances or environmental management plans are to be updated regularly post implementation of the project.

Projects that are financed by donor agencies necessarily require EIA and are subject to review by the donor agency, irrespective of the size of the project. Government funded projects do not require specific documentation. However, they require clearances from the respective authorities. An indicative list of environmental permissions for various infrastructure projects is given Annex 7.

6.4.4 Other Clearances

Other clearances such as from the Highways Department (for road cutting), clearance from the Forest Department, in case the project intervenes in a forest area etc. must be obtained as needed.

6.5 Land title

The ULB shall arrange for the land to be alienated if it belongs to government departments, or shall initiate land acquisition in accordance with the provisions of the Land Acquisitions Act, or funder's norms for land acquisition. The land should be in the name of the ULB before

issuance of tenders²⁹. Upon receipt of all the above approvals, the ULB shall proceed towards procurement of works.

6.6 Financial Closure

Prior to tender, the project needs to finalise the funding source and relevant sanctions from funding agencies. For projects related to GoI schemes, there are fixed norms by which funds are released. The individual agencies perform appraisal of projects based on developed criteria. Capital expenditure can be funded either by loans or grants or a blend of loans and grants. Schemes introduced by the GoI such as AMRUT, SBM-U, etc. provide grants, and also leverage and provide loans. Donor agencies have provided loans to the government, and the same is being lent to ULBs. However, this comes with a mix of grant that is brought in by the state government.

AMRUT: The scheme has fixed payment norms. It provides half the project cost from the GoI for cities with a population less than 10 lakh people, a third of the project cost for cities with a population of more than 10 lakh people. The instalments will be released in the ratio of 20:40:40 of the approved project cost. ULBs need to mobilise 75 per cent of resources, after which they would receive a Utilisation Certificate (UC). UCs will be submitted to the centre to receive the second and third instalments.

SWACHH BHARAT MISSION: Once the project is approved, 25 per cent of the project cost is released. Balance is released upon submission of the Utilisation Certificate.

Donor aided projects: TNUDF handles the projects funded by external agencies. It does a thorough appraisal of the project and provides technical and financial inputs. The fund being a financial intermediary lends to ULBs, and prefers lending to bankable projects. In this regard, TNUDF guides the ULB in making the project sustainable by introducing additional sources of revenue for the project or by identifying sources of income from the budget for being escrowed. The additional sources of revenue in the form of tariff / user fee need to be accepted by the council and a resolution passed. This goes in to the AS issued by the government itself. An in-principle loan sanction is given prior to AS, because the AS requires financial closure. However, the funding agency makes a proper sanction only after the AS / TS is received, and only after all clearances are obtained, and land is taken over by the ULB.

State Schemes: TUFIDCO handles state schemes. Depending on whether the scheme houses grants or loans, TUFIDCO conducts appraisals accordingly. Based on the norms of the schemes, sanctions are provided.

6.7 Procurement of Works

Tenders for works are issued only by the ULBs, as they are the constitutional authority for the works executed in their region. However, guidance is issued by the funding agencies on the bid document preparation. In certain cases, bid documents are prepared as part of the DPR itself that can be put to tender directly.

Procurement norms are prescribed by the funding agency. Normally in Tamil Nadu, the Transparency in Tenders Act is followed for all government projects. However, in case of donor

²⁹ Reportedly, land title has been mandated for all projects by the CMA through an Order.

aided projects, the procurement framework of the donor needs to be followed. The agreements between multilaterals and the Transparency in Tenders Act also mentions that procurement norms of donors shall be followed irrespective of the quantum of funds infused in the project.

The different processes that are part of procurement process are discussed below.

6.8 Bid Document Preparation

Bid documents are prepared normally as part of DPR. Standard bid documents are available for government projects as well as donor aided projects. In case of the latter, TNUIFSL reviews the bid documents and provides clearance for the same.

Bid documents specify the eligibility criteria, financing requirements and experience of bidders. Bid documents contain the detailed technical specs of the project, detailed BoQs and cost estimates that are based on the schedule of rates prevailing at the time of tender.

In the corporation, the City Engineer with the assistance of the AEE of the zones prepares the bid documents.

6.9 Issue of Tenders

Irrespective of the funding source, the ULB is the sole authority to issue tenders for all projects. They are the ultimate authority to sign agreements with contractors.

6.9.1 Pre-bid Meeting

Upon issuing tenders, the ULB calls for a pre-bid meeting with prospective bidders. The details of the bid documents are discussed during the pre-bid meeting. Agreed changes in the document are also carried out in the bid document, and the minutes of the meeting are published.

6.9.2 Bid Submission and Evaluation

Bids are submitted on the day as specified in the bid documents at the time of tender. Transparency shall be ensured during bid submission. The name of the contractors shall be mentioned for others to understand the bid market.

Bid evaluation is carried out by a committee which consists of the Commissioner, ME, a representative from the O/o CMA and a representative of the funding agency. Bid evaluation is carried out in accordance with the criteria given in the bid. The eligibility criteria are first evaluated. Upon satisfaction of eligibility criteria, further details are checked. Adequacy of technical details is checked. The financials are opened, and the criteria for evaluation as given in the bid document is taken as the basis for evaluation.

The bid evaluation is cleared by the procurement experts of the funding agency. In case of donor-aided projects, the procurement experts provide clearance for bid evaluation.

6.9.3 Works Contract

The format of works contract is given as part of the bid document itself. The Works Contract is entered by the ULB with the contractor. The contract document provides the milestones for implementation of the project. Fund disbursements are linked to these milestones.

6.10 Project Monitoring

Project monitoring during implementation is normally done by the ULBs themselves. However, for projects that are complex in nature such as sewerage system or a comprehensive water supply, ULBs engage Project Monitoring Consultants (PMCs) to monitor the quality of construction and physical and financial progress, and recommend payment for the contractors.

6.11 Monitoring at ULB

At the ULB level, the zonal engineers take the lead in monitoring the schemes implemented in their zones. They report to the EE at the Corporation, who consolidates information for the City Engineer and the Commissioner.

6.12 Appointment of PMCs

PMCs are appointed either at the insistence of the funding agency³⁰, or, if the ULB or the CMA deems fit to appoint a PMC based on the complexity of the project or due to lack of manpower. PMCs are appointed in a similar manner as DPRs.

6.13 Progress Review Committees

There are different levels of reviews undertaken during project implementation.

- The city headquarters conducts progress reviews with the Commissioner leading the meeting;
- The Commissionerate of Municipal Administration (CMA) conducts periodic reviews of projects in order to understand the local issues and resolves the same;
- The MA&WS reviews projects periodically, to update on the status of the project, and resolves issues that requires Government intervention. The funding agency is part of this review.

6.13.1 Submission of progress reports

The PMC / the monitoring agency are required to submit a detailed progress report to the review committees and the funding agency every month, or once a quarter.

³⁰ When the project is complex, there is all possibility that there could be cost escalations due to time overruns. This would affect the project cash flows adversely. In order to avoid this situation, lenders may insist on appointing PMCs who can take forward the project to meet a timely completion

6.14 Disbursement of funds

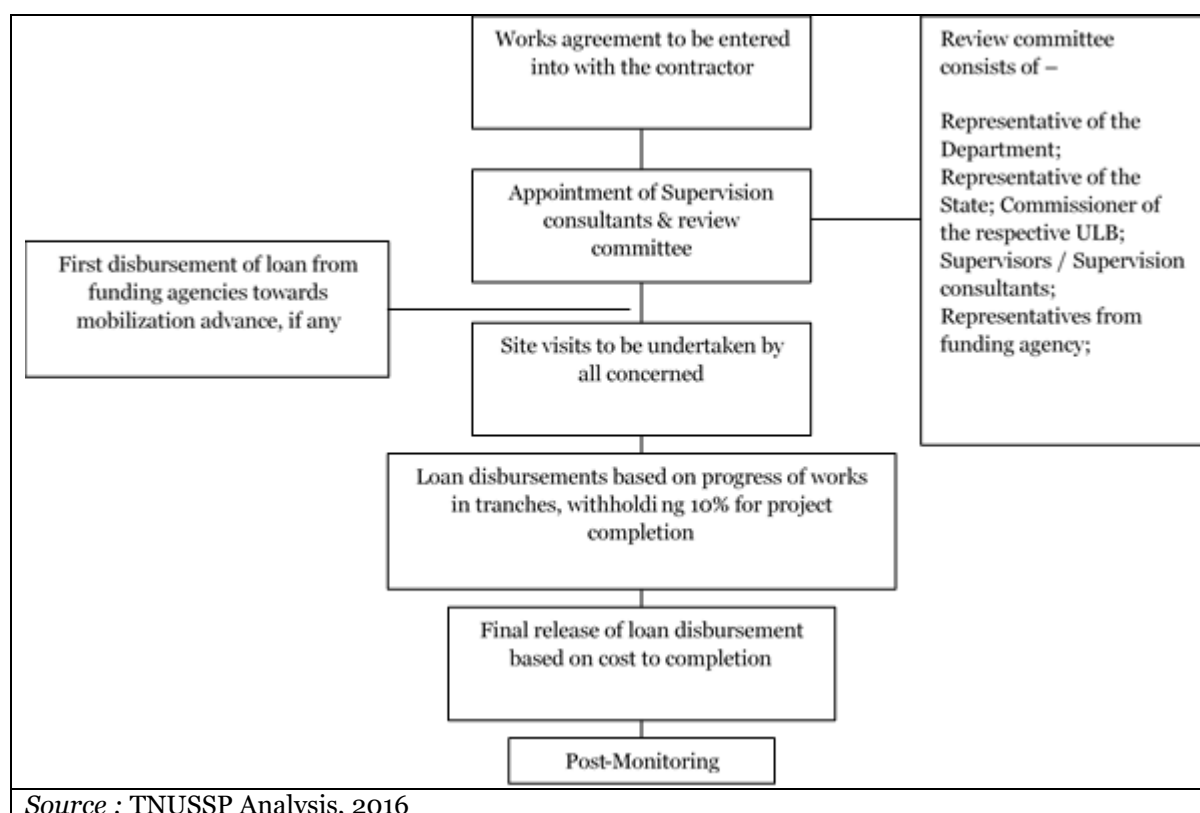
In most of the schemes, a mobilisation advance is paid for initial expenditure of a project. Next tranches of disbursements are paid based on submission of a 'Utilisation Certificate', or in case of donor agencies funded projects, 'Statement of Expenditure (SOE)', needs to be submitted along with relevant vouchers and invoices. 10 per cent of the funds are generally retained to be paid upon successful completion of the project.

6.15 Project Completion

Towards the end of the completion of the project when all the clauses of the works contract are complete in all respects, test runs and trial checks are conducted by the contractor in the presence of the PMC and the ULB. When the test checks are successful, the implementing agency shall prepare a 'Project Completion Certificate', which includes the aspects that have been covered and completed under the project.

The Completion Certificate and the SOEs / Utilisation Certificate are produced to the funding agency for obtaining the final 10 per cent of funds. The asset is handed over by the contractor through formal letter of acceptance by the ULB.

Figure 6.2: Project Process Flow



Similar to corporations, the municipalities and town panchayats also have standard institutional arrangements and process flow for projects. However, the staffing requirements, fund flows, powers and functions under their jurisdiction are limited in comparison to the larger metropolitan cities and corporations. The scope of their powers, institutional framework and project functioning is in the process of being explored in detail.

7 Roadmap for Promoting Urban Sanitation in Tamil Nadu

7.1 Key Issues

On the basis of the sanitation policies and programmes enacted in the state, the statement of intents and political commitment of the GoTN in prioritising and addressing the issues of urban sanitation are commendable. However, there are some drawbacks preventing successful implementation which have been summarised below.

7.1.1 Legal and Institutional Issues

1. All Acts need to be revised regularly to match current needs, and there should be provisions for inclusions of overlooked or newly evolved components through new bye-laws or rules. Currently, the adequacy of bye-laws and rules provisioned for enforcement of many Acts is a matter of concern. The Septage Management Operative Guidelines are a good example pioneered by the GoTN.
2. The penalties stated in all the Acts are outdated and meagre and do not match with current rates. In addition, the procedures for collection of penalties and responsibilities for collection have not been clearly stated in any of the Acts.
3. Although the local bodies are authorised by law to stop violators, the implementation of the same is complicated by lack of capacities, as well as lack of practical remedial measures.
4. The existence of multifarious laws fragmented across the purview of different departments sometimes leads to overlaps and confusion. For example, close coordination is needed between local planning authorities and water supply and sanitation delivery agencies. This also indicates scope for better coordination between directives issued by centrally controlled laws and state laws to be enforced by the respective centre and state institutions.

7.1.2 Governance Systems

In the governance system, the absence of a dedicated central sanitation institution solely governing on-site systems is a major drawback. There are multiple authorities in existence under various departments for the enforcement of various acts which lead to overlaps in duties, thereby hindering proper planning and enforcement. The scope for public-private partnerships, role of government in supervising private players in the sanitation field and accountability of private players to the government is yet to be fully developed and institutionalised.

7.1.3 Financial Issues

With respect to finance, the policy of the government has historically promoted sewerage as a feasible option with little attention to on-site sanitation systems until 2014. The former also have cornered the major share of financial allocations. Investment-wise, a greater balance may be desirable between off-site and on-site systems in order to achieve 100 per cent sanitation outcomes for cities.

7.2 Urban Sanitation in Tamil Nadu: Roles and Responsibilities

A summary of the of different stakeholders responsible for the various components along the sanitation value chain is presented below. Table 7.1 lists out the various stakeholders responsible for the different components of the sanitation value chain. The Acts and regulations governing the different components are presented. Corresponding to these, the gaps and constraints faced in the functioning of these components and proposed actions plans have also been formulated.

| Table 7.1: Urban Sanitation in Tamil Nadu : Responsible Stakeholders, Current Gaps/Constraints and Proposed Actions | | | | | | |
|--|---------|------------------------------|-------------------------------------|---|--|---|
| Component | | Capital | Operation and Maintenance | Acts and Regulations | Current Gaps/Constraints | Proposed Actions |
| Containment | IHHL | Households (HH) + SBM-U (OD) | HH | <ul style="list-style-type: none"> • TN District Municipalities Act 1920, • Tamil Nadu Corporation Act, • Public Health Act 1939, • TN Municipalities Building Rules 1972, • TN Town and Country Planning Act 1972 | Violation of laws, Low penalties, Lack of adequate Bye-laws, Improperly constructed sanitary structures, Lack of monitoring agencies | Mason Training for properly constructed septic tanks, Bye-laws for septage management, increasing penalties |
| | PSC | ULB + NGO | ULB + Private Sector+ NGO | | | |
| Conveyance | FS | Private + ULB | Private + ULB | <ul style="list-style-type: none"> • TN District Municipalities Act 1920, • Tamil Nadu Corporation Act | Un-regulated de-sludging, Unsafe disposal practices, Manual scavenging | Setting up of Call centre for regulating sludge operators, Occupational Safety Standards for Sanitary workers |
| | UGSS | ULB + TUFIDCO | ULB/TWAD | | | |
| Treatment | Septage | DEWATS by NGO | DEWATS by NGO | <ul style="list-style-type: none"> • Public Health Act 1939, | Indiscriminate disposal into water bodies and land, Insufficient | Setting up of new Treatment plants, |
| | Sewage | ULB+TUFIDCO+HH (Apartment) | ULB+TWAD+PVT Sector+ HH (Apartment) | | | |



Table 7.1: Urban Sanitation in Tamil Nadu : Responsible Stakeholders, Current Gaps/Constraints and Proposed Actions

| Component | | Capital | Operation and Maintenance | Acts and Regulations | Current Gaps/Constraints | Proposed Actions |
|--------------------------------------|---|--------------------------------------|---------------------------|--|---|----------------------------|
| | Solid waste | Private Sector + ULB (Co-composting) | Private Sector + ULB | <ul style="list-style-type: none"> • Water (Prevention and Control of Pollution) Act 1974, • Environmental Protection Act 1986, • Environmental Protection Rules 1986, • Water Quality Assessment Order 2001 | treatment plants, need for new technologies for treating fecal sludge, Laws overlooking pathogen content of effluents | Formulating re-use options |
| Re-use/Safe Disposal | Sewage | CMWSSB, ULB, | CMWSSB, ULB | | | |
| Policies | NUSP, Advisories, Operative Guidelines, 5 year plans, Vision 2023 | | | | | |
| Schemes | SBM-U/AMRUT/HRIDAY/IUDM | | | | | |
| <i>Source: TNUSSP Analysis, 2017</i> | | | | | | |

7.2.1 Containment

Under containment, the households (HHs), ULBs, NGOs and private sector players are involved in the creation of capital, construction and maintenance of Individual Household Toilets (IHHL) and Public Sanitary Complexes (PSC). In addition, the SBM-U scheme allots capital for the construction of toilets to eradicate open defecation. With respect to the off-site and on-site sanitation systems, the ULBs are the main bodies involved in the capital creation for construction and maintenance. The Acts under which the containment components are regulated include TN District Municipalities Act 1920, Tamil Nadu Corporation Acts, Public Health Act 1939, TN Municipalities Building Rules 1972 and TN Town and Country Planning Act 1972.

The constraints faced as a result of violation of laws, low penalties and insufficient bye-laws are to be addressed with monitoring agencies for enforcement of laws and increasing penalty rates by enacting new bye-laws for increased new penalties as well for all other required provisions. In the case of improperly constructed sanitary structures, training is to be provided to masons for constructing proper septic tanks and retrofitting/ reconstruction of existing septic tanks is to be carried out.

7.2.2 Conveyance

Since underground sewerage systems are directly conveyed to the treatment plants, the ULBs, TUFIDCO and TWAD are the main players for the creation of infrastructure and maintenance. With respect to on-site systems, in addition to the ULBs conveyance trucks, there are multiple private players involved in the collection and disposal of fecal sludge.

This multitude of private players involved in the conveyance component are unregulated and unregistered in many instances. This has led to an increase in unsafe disposal practices and cases of human contact with excreta too during emptying. The options suggested to eradicate these practices include registering and regulating sludge operators, and tracking their actions and advocating occupational safety standards for sanitary workers.

7.2.3 Treatment and Re-use/ Safe Disposal

The ULBs, TUFIDCO, TWAD, private sector players, households and apartments are all responsible stakeholders for treatment of septage, sewage and solid waste. However, the methods of treatment vary for septage, sewage and solid waste. The re-use and safe disposal options are areas which are being explored by the ULBs and CMWSSB. At present, the Acts regulating these components include the Public Health Act 1939, Water (Prevention and Control of Pollution) Act 1974, Environmental Protection Act 1986, Environmental Protection Rules 1986 and Water Quality Assessment Order 2001.

The State Pollution Control Board is the apex body in the state for monitoring setting up of treatment plants, safe disposal of effluents and re-use options. With respect to effluents, all Acts detail on effluent parameters but are silent on the pathogen content of effluents. Simultaneously there are issues of indiscriminate disposal into water bodies and existence of insufficient treatment plants. There is a need for setting up of additional treatment facilities including developing new options for treating and re-using resources therefrom.

7.3 Key Interventions and Road Map

The key intervention areas to be addressed to achieve 100 per cent sanitation for urban Tamil Nadu, include the following:

7.3.1 Augmenting Treatment Plant Capacity

An increased number of treatment plants and augmentation of capacity is the most immediate measure. While increase in conventional treatment plants is on-going, dedicated septage treatment facilities will enable handling the additional septage generated from regulated disposal.

7.3.2 Promoting Safe and Regulated De-sludging

All private de-sludging operators would require to be registered at the concerned ULBs and their functioning will need to be monitored and regulated to eliminate unsafe disposals. Suggestions were also given for scheduled de-sludging of septic tanks at regular intervals, depending on local conditions.

Portfolio management of the investment between augmenting of treatment plant capacity and regulation of de-sludging operators is a pre-requisite to the implementation. A cluster approach which would involve granting sole responsibility of a region to a specific private contractor has also been put forth. In this context the private contractor is assigned with the capital, operation and maintenance expenses as well profits generated from all activities starting from de-sludging to treatment and re-use.

7.3.3 Households, Masons and Building

Regulations for existing households, masons and builders to adhere by government standards and rules during construction of sanitation systems must be strictly enforced.

7.3.4 Private Sectors

Private players must be involved as viable stakeholders for the construction and maintenance of treatment plants and operation of de-sludging trucks.

7.3.5 New Approaches; State Regulations

New innovations for treatment of fecal sludge through private players with government support needs to be developed. Simultaneously, a market for the new technologies also needs to be created. The issues identified in the legal policies need to be addressed, and suggested improvements in the State rules and regulations will ensure effective implementation of activities.

7.4 Phasing Options

On identification of the key intervention areas and listing of activities to be performed under each area there were 3 approaches conceived to enable regulated implementation. These approaches to address the urban sanitation issues are summarised below.

7.4.1 Phased Regional Approach

Region-wise augmentation of the treatment plant capacity and corresponding regulation of de-sludging operators in the region must be thought through. This could be done region by region on the basis of some prioritisation.

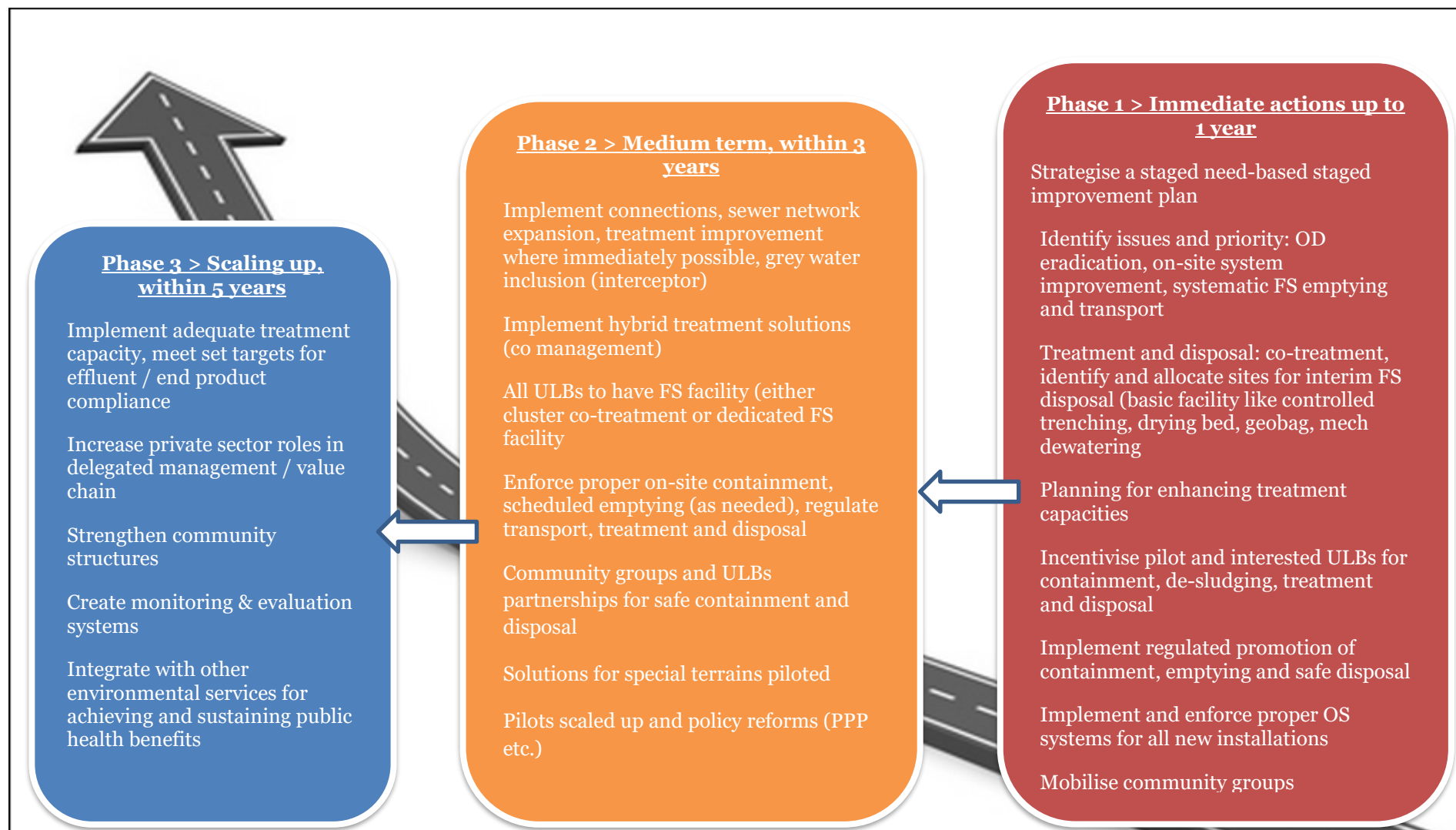
7.4.2 Phased All-out Approach

This approach is a time phased approach to be based on Tamil Nadu's septage operative guidelines. In Phase 1 of the approach the existing treatment plants not utilising 100 per cent of their capacity needs to be augmented to full utilisation and necessary funds for the same needs to be provided. In Phase 2, proposals for new treatment plant options are to be developed.

7.4.3 Phased Equitable Approach

Since different regions benefit differently based on environmental conditions, a customised approach should be adopted based on environmental conditions.

Figure 7.1: Roadmap for Promoting Urban Sanitation in Tamil Nadu



Source: TNUSSP Analysis, 2016

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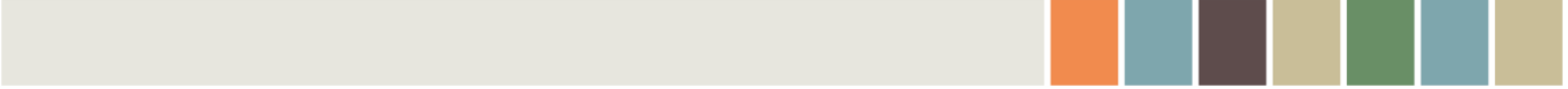
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Annexures



Annexure 1: Standards for sanitary facilities in buildings

Table A1.1– Office Buildings

| Serial Number (1) | Fitments (2) | For Accommodation other than for Principals | |
|----------------------|--------------------------|--|--|
| | | For Male Personnel (3) | For Female Personnel (4) |
| 1. | Water-closets | 1 for every 25 persons or part thereof | 1 for every 15 persons or part thereof |
| 2. | Ablution taps | 1 in each water closet | 1 in each water closet |
| | | 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closet and urinals. | |
| 3. | Urinals | Nil upto 6 persons 1 for 7-20 persons 2 for 21-45 persons 3 for 46-70 persons 4 for 71-1000 persons From 101 to 200 persons add at the rate of 3 per cent For over 2000 persons add at the rate of 2.5 per cent. | |
| 4. | Wash basins | 1 for every 25 persons or part thereof | |
| 5. | Drinking water fountains | 1 for every 100 persons with a minimum of one on each floor. | |
| 6. | Cleaner's sinks | 1 per door Min. preferably in, or adjacent to sanitary rooms. | |

Table A1.2–Factories

| Sl. No | Fitments | For Male | For Female |
|--------|---------------|--|--|
| | | Personnel | Personnel |
| 1 | Water-closets | 1 for 1-15 persons | 1 for 1-12 persons |
| | | 2 for 15-35 persons | 2 for 13-25 persons |
| | | 3 for 36-65 persons | 3 for 26-40 persons |
| | | 4 for 66-100 persons | 4 for 41-57 persons |
| | | | 5 for 58-77 persons |
| | | | 6 for 78-100 persons |
| | | From 101-200 persons add at the rate of 3 per cent | From 101-200 persons add at the rate of 5 per cent |

| Sl. No | Fitments | For Male | For Female |
|--|----------------------------|--|---|
| | | Personnel | Personnel |
| 2 | Ablution taps | From over 200 persons, add at the rate of 2.5 per cent. | From over 200 persons, add at the rate of 4 per cent. |
| | | 1 in each water closet | 1 in each water closet |
| | | 1 water tap with drainage arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closets and urinals | |
| 3 | Urinals | 1 up to 6 persons | |
| | | 1 for 7-20 persons | |
| | | 2 for 21-45 persons | |
| | | 3 for 46-70 persons | |
| | | 4 for 71-100 persons | |
| | | From 101 to 200 persons, add at the rate of 3 per cent. | |
| | | For over 200 persons, add at the rate of 2.5 per cent. | |
| 4 | Washing taps with drainage | 1 for every 25 persons or part thereof. | |
| 5 | Drinking water fountains | 1 for every 100 persons with a minimum of one on each floor. | |
| | | | |
| | | | |
| | | | |
| 6 | Baths (preferably showers) | As required for particular trades or occupations | |
| Note: For many trades of a dirty or dangerous character, more extensive provision are required by-law. | | | |

Table A1.3-Cinemas, Concert Halls And Theatres

| Sl.No. | Fitments | For Male Public | For Female Public | For Male Staff | For Female Staff |
|--------|---------------|------------------------------------|------------------------------------|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1. | Water-closets | 1 per 100 persons upto 400 persons | 2 per 100 persons upto 200 persons | 1 for 1-15 persons 2 for 16-35 persons | 1 for 1-12 persons 2 for 13-25 persons |

| Sl.No. | Fitments | For Male Public | For Female Public | For Male Staff | For Female Staff |
|--------|---------------|---|--|--|---|
| | | For over 400 persons add at the rate of 1 per 250 persons or part thereof | For over 200 persons, add at the rate of 1 per 100 persons or part thereof | | |
| 2. | Ablution Taps | in each water-closet | 1 in each water-closet | 1 in each water closet | 1 in each water closet |
| | | 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closets and urinals. | | | |
| 3. | Urinals | 1 for 50 persons or part thereof | | Nil, upto 6 persons 1 for 7-20 persons 2 for 21-45 persons | |
| 4. | Wash basins | 1 for every 200 persons or part thereof | 1 for every 200 persons or part thereof | 1 for 1-15 persons 2 for 16-35 persons | 1 for 1-12 persons 2 for 13-25 persons |

Table A1.4-Art Galleries, Libraries And Museums

| Sl.No | Fitments | For Male Public | For Female Public | For Male Staff | For Female |
|-------|---|--|---|---|--|
| 1 | Water-closets | 1 per 100 persons up to 400 persons | 1 per 100 persons up to 200 persons | 1 for 1-15 persons 2 for 16-35 persons | 1 for 1-12persons 2 for 13-25 persons |
| | | For over 400 persons add at the rate of 1 per 250 persons or part thereof | For over 200 persons add at the rate of 1 per 250 persons or part thereof | | |
| 2 | Ablution Taps | in each water-closet 1 water tap with every 50 persons or part thereof in the vicinity of water-closets and urinals. | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet |
| | draining arrangements shall be provided for | | | | |

| Sl.No | Fitments | For Male Public | For Female Public | For Male Staff | For Female |
|-------|-----------------|---|--|--|------------|
| 3 | Urinals | 1 for 50 persons or part thereof | | Nil, up to 6 persons 1 for 7-20 persons 2 for 21-45persons | |
| 4 | Wash basins | 1 for every 200 persons or part thereof | 1 for every 200 persons or part thereof 1 per floor, Min | 1 for 1-15 persons 2 for 16-35 persons | |
| 5 | Cleaner's sinks | | | | |

[Note: It may be assumed that two-thirds of the number are males and one third females]

Table A1.5- Hospitals Indoor Patient Wards

| Sl. No | Fitments | For Males and Females |
|--------|--------------------------------|--|
| (1) | (2) | (3) |
| 1. | Water-closets | 1 for every 8 beds or part thereof. |
| 2. | Ablution taps | 1 in each water-closet plus one water tap with draining arrangements in the vicinity of water closets and urinals for every 50 beds or part thereof. |
| 3 | Wash basins | 2 up to 30 beds add 1 for every additional 30 beds or part thereof |
| 4. | Baths | 1 bath with shower for every 8 beds of part thereof. |
| 5. | Bedpan Washing Sinks | 1 for each ward |
| 6. | Cleaner's sinks | 1 for each ward |
| 7. | Kitchen sinks and dish washers | 1 for each ward |
| | (where kitchen is provided) | |

Table A1.6- Hospitals Outdoor Patient Wards

| Sl. No. | Fitments | For Males | For Females |
|---------|---------------|---|--|
| -1 | -2 | -3 | -4 |
| 1 | Water-closets | 1 for every 100 persons or part thereof | 2 for every 100 persons or part thereof |
| 2 | Ablution taps | 1 in each water closet; 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinals. | 1 in each water-closet |
| 3 | Urinals | 1 for every 50 persons or part thereof. | ..... |
| 4 | Wash basins | 1 for every 1000 persons or part thereof | 1 for every 100 persons or part thereof. |

Table A1.7-Hospitals (Administrative Buildings), Medical Staff Quarters and Nurses Homes)

| Sl. No | Fitments | For Administrative Buildings | | For Medical Staff Quarters (Hostel Type) | | For Nurses Homes (Hostel Type) |
|--|--|--|--|---|---|---|
| | | (3) | (4) | (5) | (6) | (7) |
| 1. | Water-closets | 1 for every 25 persons or part thereof | 1 for every 15 persons or part thereof | 1 for 4 persons | 1 for 4 persons or part thereof | 1 for 4 persons |
| 2. | Ablution | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet |
| 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closets | | | | | | |
| 3. | Nil upto 6 persons 1 for 7-20 persons, 2 for 21-45 persons 3 for 46-70 persons, 4 for 71-100 persons, From 101 to 200 persons, add at the rate of 3 per cent. For over 200 persons, add at the rate of 2.5 per cent. | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet | 1 in each water-closet |
| 4. | Wash basins | 1 for every 25 persons or part thereof | 1 for every 25 persons or part thereof | 1 for every 8 persons or part thereof 1 for every 8 | 1 for every 8 persons or part thereof 1 for | 1 for every 8 persons or part thereof 1 for |
| 5. | Baths (with shower) | 1 for each floor | 1 for each floor | 1 for 4 persons or part thereof | 1 for 4 persons or part thereof | 1 for 4-6 persons or part thereof |
| 6. | Cleaner's sinks | ..... | 1 per floor Min | ..... |  |  |

Table A1.8-Hotels

| Sl. No. | Fitments | For Residential Public and Staff | For Public Rooms | | For Non-residential staff | |
|---------|---------------|---|--|---|--|---|
| | | | For Males | For females | For Males | For females |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1. | Water closets | 1 per 8 persons omitting occupants of the room with attached water-closets, minimum of 2 if both sexes are lodged | 1 per 100 persons up to 400 persons for over 400, add at the rate of 1 per 250 persons or part thereof | 2 per 100 persons up to 200 persons' For over 200, add at the rate of 1 per 100 persons or part thereof | 1 or 1-15 persons 2 for 16-35 person 3 for 36-65 persons 4 for 66-100 persons | 1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41/57 persons 5 for 58/77 persons 6 for 78/100 persons |
| 2. | Ablution taps | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet |
| | | 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closets and urinal | | | | |
| 3. | Urinals | ..... | 1 per 50 persons or part thereof | ..... | Nil up to 6 persons 1 for 7-20 persons 2 for 21-45 persons 3 for 46-70 persons 4 for 71-1000 persons | ..... |
| 4. | Wash basins | 1 per 10 persons omitting the wash basins installed in the room suite | 1 per water closet and urinal provided | 1 per water-closet provided | 1 for 1-15 persons 2 for 16-35 persons 3 for 36-55 persons 4 for 56-100 persons | 1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons 6 for 78-100 persons |
| 5. | Baths | 1 per 10 persons omitting occupants of the rooms with bath in suite | | | | |
| 6. | Slop sinks | 1 per 30 bed-rooms, | | | | |

| Sl. No. | Fitments | For Residential Public and Staff | For Public Rooms | For Non-residential staff |
|---------|--------------------------------|----------------------------------|------------------|----------------------------|
| | | 1 per floor, Min. | | |
| 7. | Kitchen sinks and dish washers |  | ..... | 1 in each kitchen |

Note: It may be assumed that two-third of the member are males and one-third females.

Table A1.9-Restaurants

| Sl. No. | Fitments | For Male Public | For Female Public | For Male Staff | For Female Staff |
|--|-------------------|--|---|--|--|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1. | Water-closets | 1 for 50 seats up to 200 seats. For over 200 seats, add at the rate of 1 per 100 seats or part thereof | 1 for 50 seats up to 200 seats. For over 200 seats, add at the rate of 1 per 100 seats or part thereof. | 1 for 1-15 persons 2 for 16-35 persons 3 for 36-65 persons 4 for 66-100 persons | 1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons 6 for 78-100 persons |
| 2. | Ablution taps | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet |
| 1 water tap with drainage arrangements shall be provided for every 50 persons or part thereof in the vicinity for water-closets and urinals. | | | | | |
| 3. | Urinals | 1 for 5 seats | ..... | Nil, up to 6 persons 1 for 7-20 persons 2 for 21-45 persons 3 for 46-70 persons 4 for 71-100 persons | ..... |
| 4. | Wash basins | ..... | 1 for every water-closet provided | ..... | ..... |
| 5. | Kitchen sinks and | ..... | 1 in each kitchen | ..... | ..... |
| 6. | Slop or service | ..... | 1 in the restaurant | ..... | ..... |

[Note: It may be assumed that two-thirds of the number are males and one third females].

Table A1.10-Schools

| Sl. No. | Fitments | Nursery Schools | Schools other than For Boys | Nursery Schools for Girls | Boarding Schools | |
|---|--------------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | | | | | For Boys | For Girls |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1. | Water-closet | 1 per 5 pupils or part thereof | 1 per 40 pupils or part thereof | 1 per 25 pupils or part thereof | 1 for every 8 pupils or part thereof | 1 for every 6 pupils or part thereof |
| 2. | Ablution Taps | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet |
| 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closet | | | | | | |
| 3. | Urinals | ..... | 1 per 20 pupils or part thereof | ..... | 1 for every 25 pupils or part thereof | ..... |
| 4. | Wash basins | 1 per 15 pupils or part thereof | 1 per 40 pupils or part thereof | 1 per 40 pupils or part thereof | 1 for every 8 pupils or part thereof | 1 for every 6 pupils or part thereof |
| 5. | Baths | 1 bath sink per 40 pupils or part thereof | ..... | .... | 1 for every 8 pupils or part thereof | 1 for every 6 pupils or part thereof |
| 6. | Drinking water fountains | 1 for every 50 pupils or part thereof. | 1 for every 50 pupils or part thereof | 1 for every 50 pupils or part thereof | 1 for every 50 pupils or part thereof | 1 for every 50 pupils or part thereof |
| 7. | Cleaner's sinks | ..... | 1 per floor, Min. | ..... |  |  |

[For teaching staff, the schedule of fitments to be provided shall be the same as in the case of office buildings (See Table 1)]

Table A1.11-Hostels

| Sl. No. | Fitments | For Residents and Residential Staff | | For Non-Residential Staff | | Rooms wherein outsiders are received | |
|---------|---------------|---------------------------------------|---------------------------------------|--|--|--|---|
| | | For Males | For Females | For Males | For Females | For Males | For Females |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1. | Water-closets | 1 for every 8 persons or part thereof | 1 for every 6 persons or part thereof | 1 for 1-15 persons 2 for 16-35 persons 3 for 36-65 persons 4 for 66-100 persons | 1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons | 1 per 100 persons up to 400 persons For every 400 persons, add at the rate of 1 for 250 persons or part thereof | 2 per 100 persons up to 200 persons For over 200 persons, add at the rate of 1 for 100 persons or part thereof |

| Sl. No. | Fitments | For Residents and Residential Staff | | For Non-Residential Staff | | Rooms wherein outsiders are received | |
|---|-----------------|-------------------------------------|---------------------------------|--|--|---|----------------------------------|
| | | For Males | For Females | For Males | For Females | For Males | For Females |
| | | | | | 6 for 78-100 persons | | |
| 2. | Ablution Taps | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet | 1 in each water closet | |
| 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closet | | | | | | | |
| 3. | Urinals | 1 for 25 persons or part thereof | | Nil, up to 6 persons 1 for 7-20 persons 2 for 21-45 persons 3 for 46-70 persons 4 for 71-100 persons | | 1 per 50 persons or part thereof | |
| 4. | Wash basins | 1 for 8 persons or part thereof | 1 for 6 persons or part thereof | 1 for 1-15 persons 2 for 16-35 persons 3 for 36-65 persons 4 for 66-100 persons | 1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons 6 for 78-100 persons | 1 per each water closet and Urinal provided | 1 per each water closet provided |
| 5. | Baths | 1 for 8 persons or part thereof | 1 for 6 persons or part thereof | | | | |
| 6. | Cleaner's sinks | | 1 per floor, Min. | | | | |

Table A1.12-Sanitary Requirement for Large Stations and Airports

| Sl. No. | Place | Water closets for Male | Water closets for Female | Urinals for Males only |
|---------|---|--|--|--|
| (1) | (2) | (3) | (4) | (5) |
| 1. | Junction stations, intermediate stations and bus stations | 3 for first 1,000 persons and 1 for every subsequent 1,000 persons or part thereof | 4 for first 1,000 persons and 1 for every additional 1,000 persons | 4 for every 1,000 persons and 1 for every additional 1,000 persons |
| 2. | Terminal stations and bus terminals | 4 for first 1,000 persons and 1 for every subsequent 1,000 persons or part thereof | 5 for first 1,000 persons and 1 for every additional 1,000 persons or part thereof | 6 for first 1,000 persons and 1 for every additional 2,000 persons' part thereof |
| 3. | Domestic airports, Min | 2* | 4* | 2* |
| | for 200 persons | 5 | 8 | 6 |
| | for 400 persons | 9 | 15 | 12 |
| | for 600 persons | 12 | 20 | 16 |
| | for 800 persons | 16 | 26 | 20 |
| | for 1000 persons | 18 | 29 | 22 |
| 4. | International airports | | | |
| | for 200 persons | 6 | 10 | 8 |
| | for 600 persons | 12 | 20 | 16 |
| | for 1000 persons | 18 | 29 | 22 |

[Note: Separate provision shall be made for staff and workers at these traffic terminal stations].

*At least one Indian style water-closet shall be provided in each toilet. Assume 60 males to 40 females in any area.

Annexure 2: Penalties under Tamil Nadu District Municipalities Act, 1920

Schedule VII Ordinary Penalties [See Section 313]

| Section or rule. | Sub-section or clause | Subject | Fine which may be imposed. |
|------------------|-----------------------|---|----------------------------|
| 146 | | Failure to obey requisition to provide latrine or to remove latrine to another site and failure to keep latrines clean and in proper order. | Fifty rupees |
| 147 | | Failure to provide latrines for premises used by large numbers of people or to keep them clean and in proper order. | One hundred rupees |
| 148 | | Failure to obey requisition to provide latrines for market, cattle-stand or cart-stand or to keep them clean and in proper order. | Do. |
| 149 | | Failure to construct latrines so as to screen persons using them from view. | Twenty rupees. |
| 151 | | Making connection with mains without permission. | Two hundred rupees. |
| 157 | | Improper disposal of carcasses, rubbish and filth. | Ten rupees. |
| 1[158 | | Allowing rubbish or filth to accumulate on premises for more than twenty-four hours, etc. | Twenty rupees.] |
| 159 | | Allowing filth to flow in streets | Ten rupees. |
| 160 | | Using cart without cover in removal of filth, etc. | Twenty rupees. |
| 161 | | Throwing rubbish or filth into drains. | Do. |
| 233 | | Failure to obey requisition to clear or cleanse, etc., building or land in filthy state or overgrown with noxious vegetation. | Do: |
| 239 | | Feeding animals on filth | Fifty rupees. |

Annexure 3: Penalties under Public Health Act, 1939

Public Health Act 1939

| Section or rule. | Sub-section or clause for Ordinary Penalties [See Section 134(1)] | Sub-section or clause for Continuing breaches [See Section 134(2)] | Subject | Fine which may be imposed for Ordinary Penalties [See Section 134(1)] | Fine which may be imposed for continuing breaches [See Section 134(2)] |
|------------------|---|--|--|---|--|
| 28 | (1) | .. | Failure to comply with notice to provide efficient drainage | Fifty rupees | Ten rupees |
| 29 | .. | .. | Failure to comply with notice requiring to connect a house-drain with an outside drain | Fifty rupees | Ten rupees |
| 30 | .. | .. | Failure on the part of the owner of land to comply with notice requiring a drain for a hut on the land | One hundred rupees | Twenty rupees |
| 32 | (1) | .. | Unlawful construction of cesspool or construction of cesspool on unapproved site | Fifty rupees | |
| | (2) | .. | Failure to comply with notice requiring removal or closure of cesspool. | Fifty rupees | Ten rupees |
| 33 | .. | .. | Occupying or permitting occupation of new building without drain. | One hundred rupees | |
| 34 | .. | .. | Letting out sullage or sewage into a street etc. | Fifty rupees | Ten rupees |
| 35 | .. | .. | Discharging injurious refuse, etc into a drain | One hundred rupees | Twenty rupees |
| 36 | .. | .. | Polluting water-course | One hundred rupees | Ten rupees |
| 38 | .. | .. | Constructing or reconstructing a building intended for human habitation without a sanitary convenience | Fifty rupees | Ten rupees |
| 39 | .. | .. | Failure to comply with notice regarding provision of sanitary conveniences or latrines | Fifty rupees | Ten rupees |
| 40 | (1) | .. | Failure to construct and maintain latrines in the prescribed manner | Fifty rupees | |
| | (2) | .. | Failure to comply with notice regarding removal or improvements of latrines | Fifty rupees | Ten rupees |

| Section or rule. | Sub-section or clause for Ordinary Penalties [See Section 134(1)] | Sub-section or clause for Continuing breaches [See Section 134(2)] | Subject | Fine which may be imposed for Ordinary Penalties [See Section 134(1)] | Fine which may be imposed for continuing breaches [See Section 134(2)] |
|-------------------------|--|---|--|--|---|
| | (3) | .. | Causing injury to latrines | Fifty rupees | |
| 44 | | .. | Failure to comply with notice to abate nuisance | Fifty rupees | Ten rupees |
| 46 | (1) | .. | Failure to comply with Magistrate's order prohibiting the use of a house or building | One hundred rupees | Twenty rupees |
| 51 | (1) | .. | Deposit filth, rubbish, etc. in streets | Twenty-Five Rupees | |
| | (2) | .. | Easing or permitting a member of the family to ease in a street, etc. | Twenty-Five Rupees | |
| | (3) | .. | Failure to cover excreta with earth | Five rupees | |

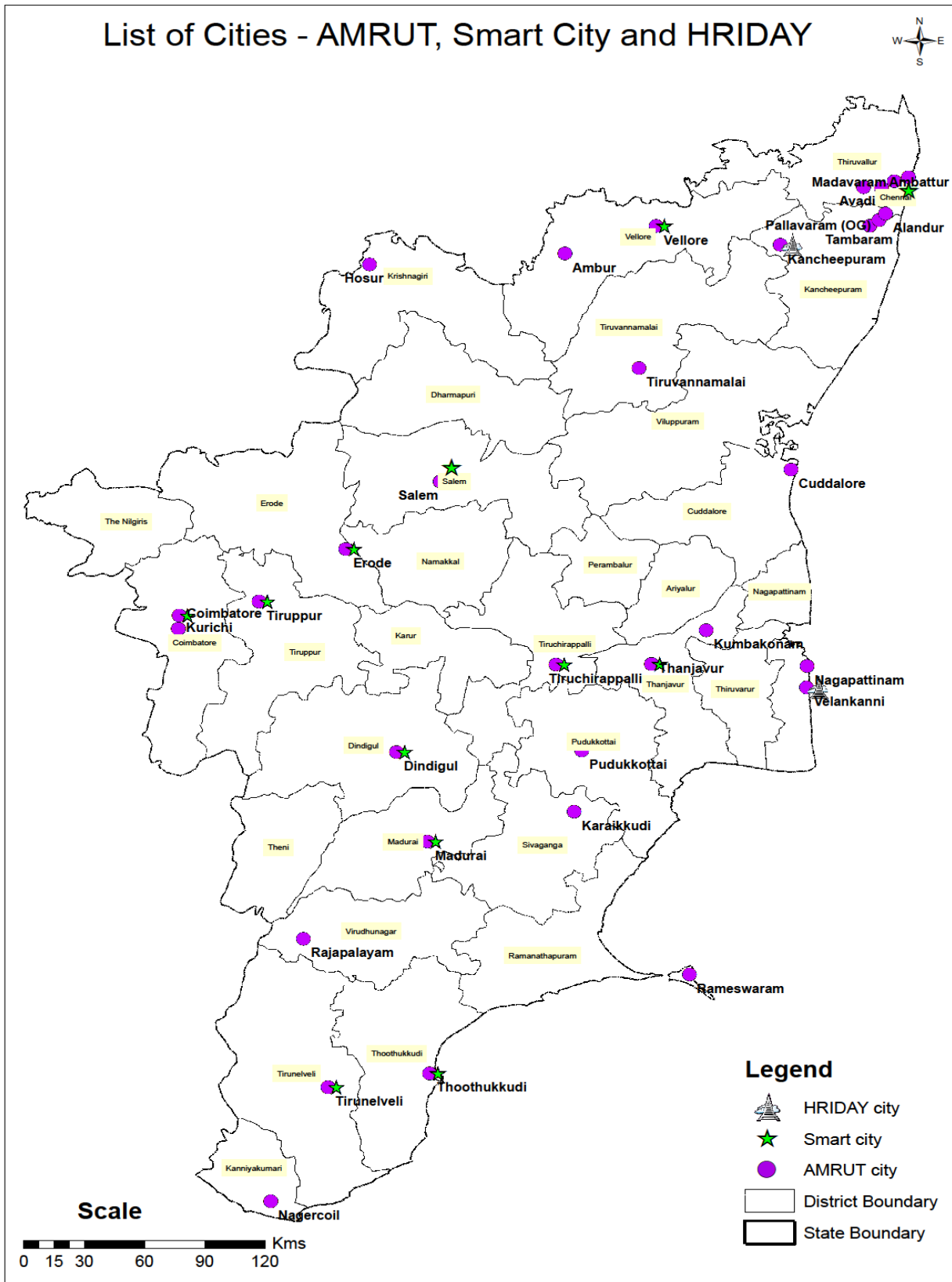
Annexure 4: Acts and Rules Section

| Acts & Rules | | | | | | | | |
|--------------------------------------|--|--|---|---|---|------------------------------------|--------------------------------------|--------------------------------------|
| Sanitation Service Chain | TN Municipalities Act, 1920 | Public Health Act, 1939 | TN Town & Country Planning Act, 1971 | TN Municipalities Building Rules, 1972 | Water (Prevention and Control of Pollution) Act, 1974 | Environmental Protection Act, 1986 | Environmental Protection Rules, 1986 | Water Quality Assessment Order, 2001 |
| Existing and new Urban area Planning | | | Sec 2(2), (Sec 2 (17), Sec 9E, Sec, 10, Sec 11, Sec 12 (c) (iv), Sec 15 (2) (d), Sec 20 (j) | | | | | |
| Containment - Access | Sec 3 (12), Sec 138, Sec 145, Sec 146, Sec 147, Sec 148, Sec 149, Sec 191 (3) (i) | Sec 37, Sec 38, Sec 39 Sec 40, Sec 134 (1) | | Rule 3 (2) (ii), Rule 17, 17A, | | | | |
| Containment - Capture | Sec 3, (8A), Sec 3 (9), Sec 3, (28), Sec 137, Sec 138, Sec 139, Sec 140. Sec 159 Sec 191 (3) (i) (g), Sec 224, Sec 339 | Sec 3, (5), Sec 3, (11) (a), Sec 3, (15), Sec 3, (25), Sec 3, 27 (a) (b), Sec 27, Sec 28, Sec 29, Sec 30, Sec 31, Sec 32, Sec 33, Sec 34, Sec 41, Sec 42, Sec 43, Sec 44, Sec 45 | | Rule 9 (1), Rule 3 (2) (ii) Appendix C, D | | | | |
| Emptying & Transport | Sec 28, Sec 62, Sec 81 (d), Sec 153, Sec 157(b), Sec 160, Sec 264 (e), Sec 316 | | | | | | | |

Acts & Rules

| Sanitation Service Chain | TN Municipalities Act, 1920 | Public Health Act, 1939 | TN Town & Country Planning Act, 1971 | TN Municipalities Building Rules, 1972 | Water (Prevention and Control of Pollution) Act, 1974 | Environmental Protection Act, 1986 | Environmental Protection Rules, 1986 | Water Quality Assessment Order, 2001 |
|---------------------------------|---|--------------------------------|---|---|---|---|---|---|
| Treatment | | | | | Sec 20(3), Sec 17 (k), Sec 17 (f), Sec 17 (g), Sec 17 (h) | | | Order II (b), Order II (d), Order II (I) |
| Safe Disposal and Re-use | Sec 157 (a) | Sec 21, Sec 24 (g), Sec 36 | | Rule 7 | Sec 17 (i), Sec 25, Sec 26, Sec 27, Sec 30, Sec 31, Sec 32, Sec 33A. Sec 43, Sec 44 | Sec 5, Sec 2 (2) (iv). Sec 2 (xiii) | Rule 3 | |
| Bye-laws | Sec 306 (3) (c), Sec 306 (5) (a), Sec 306 (5) (b), Sec 306 (5) (c), Sec 306 (5) (d), Sec 306 (5) (e), Sec 306 (6) | | | | | | | |

Annexure 5: Maps for list of Cities –AMRUT, Smart City, HRIDAY



Annexure 6: Constitutional Amendment- Twelfth Schedule (Article 243w)

- 1) Urban planning including town planning.
- 2) Regulation of land-use and construction of buildings.
- 3) Planning for economic and social development.
- 4) Roads and bridges.
- 5) Water supply for domestic, industrial and commercial purposes.
- 6) Public health, sanitation conservancy and solid waste management.
- 7) Fire services.
- 8) Urban forestry, protection of the environment and promotion of ecological aspects.
- 9) Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded.
- 10) Slum improvement and upgradation.
- 11) Urban poverty alleviation.
- 12) Provision of urban amenities and facilities such as parks, gardens, playgrounds.
- 13) Promotion of cultural, educational and aesthetic aspects.
- 14) Burials and burial grounds; cremations, cremation grounds and electric crematoriums
- 15) Cattle pounds; prevention of cruelty to animals.
- 16) Vital statistics including registration of births and deaths.
- 17) Public amenities including street lighting, parking lots, bus stops and public conveniences.
- 18) Regulation of slaughter houses and tanneries."

Annexure 7: Indicative list of Environmental Clearances for Various Infrastructure Projects

| Project Category | Applicable Legislations | Clearances Required |
|---|--|--|
| I) Water Supply & Sewerage | | |
| A. Water Supply | | |
| 1. Water Source | | |
| (i) Water Supply Withdrawal/ Augmentation | | Approval from Water Resources Organisation /Public Works Department for withdrawal quantity |
| (ii) River Intake Works | | Approval from Public Works Department |
| 2. Feeder Mains, Transmission Mains, Water Supply Distribution Lines, | | Permission from various line departments for ROW (State Highways, Forest Department, Railways, NH, NHAI, Shifting of utilities – EB, Street Lights, etc) |
| 3. Water Treatment Plants | Water (P&CP) Act, 1974 Hazardous Chemicals Rules, 1989 Gas Cylinders Rules, 2004 | TNPCB: Consent to Establish & Operate WTP Directorate of Industrial Safety & Health (Permission for handling scheduled chemicals beyond threshold quantity). Department of Explosives (Storage of toxic gas, above 5 cylinders) |
| 4. Project Sites | | Land Alienation from Owning departments (No waterbody shall be converted. |

| Project Category | Applicable Legislations | Clearances Required |
|---|---|---|
| | | Park sites are not approved.) |
| B. Storm water Drainage | | <p>NOC from the owner department for improvements to the existing channels. (if owner is different from Implementing Agency)</p> <p>Tree cutting Permission from Revenue Department.</p> <p>Compensatory Plantation at Ten times the trees cut.</p> |
| C. Sewerage / Sanitation | | |
| 1. Pumping main, gravity sewers, Sewerage Network | | <p>Permission from various line departments for ROW</p> <p>(State Highways, Forest Department, Railways, NH, NHAI, Shifting of utilities – EB, Street Lights, etc)</p> |
| 2. Lift Station, Pumping Station | | <p>Land Alienation from Owning departments</p> <p>(No waterbody shall be converted.</p> <p>Park sites are not approved.)</p> |
| 3. Sewage and Treatment Plant | <p>Water (P&CP) Act, 1974</p> <p>Hazardous Chemicals Rules, 1989</p> <p>Gas Cylinders Rules, 2004</p> | <p>TNPCB: Consent to Establish & Operate WTP</p> <p>Directorate of Industrial Safety & Health (Permission for handling scheduled chemicals beyond threshold quantity).</p> <p>Department of Explosives</p> <p>(Storage of toxic gas, above 5 cylinders)</p> |

| Project Category | Applicable Legislations | Clearances Required |
|-----------------------------------|---|---|
| | | Permission for disposal of treated sewage effluent from owner of the receiving waterbody. |
| II) Solid Waste Management | | |
| A. Landfill Sites | EIA Notification, 2006 as amended in 2009 SWM Rules, 2016 | Environmental Clearance from SEIAA Secure NOC/ authorisation from TNPCB |
| B. Compost Yard | SWM Rules, 2016 | Secure NOC/ authorisation from TNPCB |
| C. WTE Plants | EIA Notification, 2006 as amended in 2009 SWM Rules, 2016 Air (P & CP) Act, 1981 Water (P&CP) Act, 1974, | Environmental Clearance (for >15MW) from SEIAA (from MOEFCC if within 10km of National Parks) Secure NOC/ authorisation from TNPCB |
| D. Biomethanation Plants | SWM Rules, 2016 Air (P & CP) Act, 1981 Water (P&CP) Act, 1974 | Secure NOC/ authorisation from TNPCB |
| III) Transportation | | |
| A. Roads | | |
| 1. Widening of roads | | |

| Project Category | Applicable Legislations | Clearances Required |
|---|--|---|
| 2. New roads | EIA Notification, 2006 as amended in 2009 Water (P&CP) Act, 1974, Air (P&CP) Act 1981, | Environmental Clearance from MOEF Consent from TNPCB, Permission for tree cutting Consent for Batch Mixing Plants (by contractors) |
| 2. Street lights | E-waste Rules | Disposal of discarded lights through Authorised Agencies. |
| 2. ROBs | Air (P&CP) Act 1981, Noise Rules Fly Ash Notification | Ensure water, air and Noise quality is within the stipulated limits of TNPCB. Use flyash in construction as per the notification. |
| IV. Inland Water Ways / Lakes / Water Bodies | | Permission from Owner Department (if different from implementing agency) |
| V. Buildings | | |
| 1. Commercial Complexes > 1,50,000 sq. m | EIA Notification 2006 as amended in 2009 Water (P&CP) Act, 1974 | Obtain environmental clearance from SEIAA Secure consent to establish and operate from TNPCB |
| 2. Slaughter houses | Water (P&CP) Act, 1974 | Secure consent to establish and operate from TNPCB |
| 3. Municipal Community complexes (< 1,50,000 sq. m) | EIA Notification 2006 as amended in 2009 Water (P&CP) Act., 1974 Air (P&CP) Act., 1981 | Obtain environmental clearance from SEIAA (> 20,000 sq.m) Secure consent to establish and operate from TNPCB |

| Project Category | Applicable Legislations | Clearances Required |
|--|--|--|
| | | |
| VI. Integrated Area Development | | |
| A. Housing (Sites & Services) | Water (P&C) Act,1974, Air (P&CP) Act, 1981 &EP Act 1986 EIA notification, 2006 amended in 2009 | Obtain environmental clearance from SEIAA (>20,000 sq. m) |