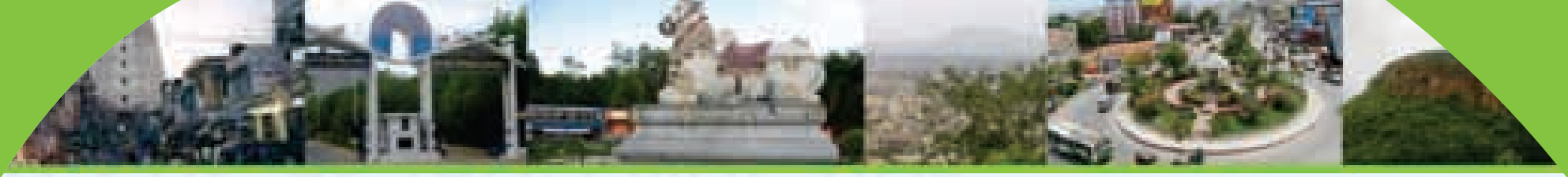
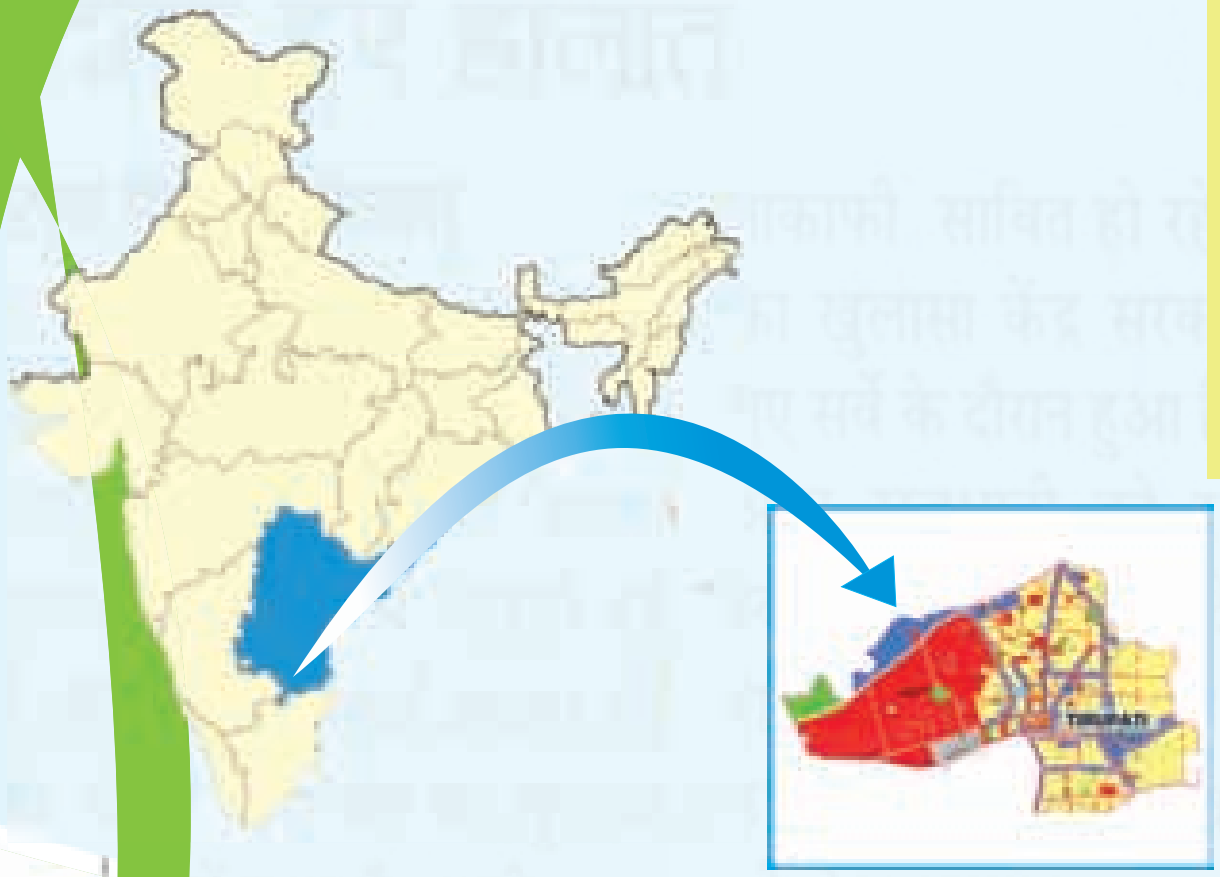


CITY SANITATION PLAN FOR TIRUPATI



MESSAGE

FOREWORD

We are pleased to provide some introductory thoughts to this document, which arrives at an important turning point in the development phase of the City of Tirupati. We would like to express our deep appreciation for the initiative and support given by GIZ in the preparation of the City Sanitation Plan. This document is a succinct overview of the City Sanitation Plan for the City of Tirupati in order to recognize the stress areas in the sanitation sector and establish priorities in the intervention areas along the defined strategic guidelines.

City Sanitation Plan is a 30-year strategic framework to deliver on the long-term vision we have set for the sanitation sector in Tirupati City. This framework forms the basis on which the City Administration will work with stakeholders - including other spheres of government, service providers and beneficiaries - in our common mission to overcome the vast gaps in sanitation services. The process culminating in this framework included in-depth research and wide-ranging consultation with city stakeholders. Building on the objectives set out in the National Urban Sanitation Policy of 2008, the technical team under GIZ conducted 6 months of data-driven research which resulted in the release of the preliminary draft 'Tirupati Status Report' document for stakeholders' comment in August 2010. A two-month period allowing for stakeholders' comment and consultation followed. Post validation of the data presented in the preliminary draft, the draft 'City Sanitation Plan' was released in September 2011 followed by stakeholder consultations and subsequent finalization of the strategic framework. Today, we can confidently say that all interested parties had a meaningful opportunity to contribute to the adopted framework.

This document is not exclusive in the context of planning for the city because its formulation has been synergized with the elements of Tirupati's City Development Plan. The strategic plan reflects the thoughts, feelings, ideas, and wants of the stakeholders of the city and moulds them along with the city's purpose, mission, and regulations into an integrated document. The final section of this document can serve as a guide to implementing process for the stakeholders. This document is not a static document as this can be quickly adjusted with additional scenarios that may occur. With this document, and with the community-defined commitments that lie behind it, we are enabled to establish a clear case for a strategic choice that presents itself in relation to a current or predicted transport gap, given the balanced view of the range of options available coupled with the timeframes within which each explicit strategic choice needs to be made.

We consider the evolving agenda based on the document to be ambitious, but achievable. The framework is ambitious because it puts forward an uncompromising vision of sanitation services which are in tune with the needs of our city and the real needs of community, whilst at the same time striving to come as close to financial self-sufficiency as possible. This means that sanitation sector must deliver improved basic services and better services to all users. Furthermore - since we are operating in a context of limited national resources – it also means that these objectives must be reached at the lowest possible system cost, that services must aim to be self-sustaining and that they must generate the necessary reinvestment to meet future customer requirements.

Ambitious though these goals may be, they are achievable because the framework is based on current realities and judiciously forecasted trends. It spells out the roles of government, private service providers and customers and sets clear targets. The role of city administration is to put appropriate institutions in place and define clear rules to regulate investment and operations in an attempt to achieve the agreed goals for the sanitation sector.

This strategic framework represents the first foundation of a new collective process which will breathe life into our long-term vision and strategy and will guide all our collective actions as we strive to meet the needs of the city and our community. Wide ownership of the process will ensure that the strategy remains dynamic and adaptable as it is continually enriched and enhanced by the experience of implementation. It is with a great deal of satisfaction that we declare this strategic framework to be the action agenda for the 'Sanitation Sector'. This agenda is the basis on which the initiatives must be evaluated, especially by the most important stakeholder in the sanitation sector - the informed and demanding customer.

The formal implementation of this agenda starts in earnest today with the release of this strategy document and continues for the next 30 years. Along the way we intend to address the national goals to which government is committed and meet the needs of the community we have chosen to prioritise.

Shri T Prasad
Municipal Commissioner,
Tirupati City

1. Introduction to NUSP

1. Government of India launched National Urban Sanitation Policy (NUSP) in 2008 with the vision that – *'all Indian cities and towns become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.'*

2. The overall goal of NUSP policy is to transform India *into 'community driven, totally 'sanitized', 'healthy' and 'liveable' cities and towns'* while focusing on the specific goals of Generating Awareness & Promoting Behaviour Change; Achieving Open Defecation Free Cities and Integrating City Wide Sanitation.

3. NUSP provides the draft framework that supports the states in developing their own *'State Sanitation Strategies'* to achieve the goals set out in NUSP. The state sanitation strategies shall be with respect to each of their – (1) *unique sanitation*, (2) *climate and physiographic factors*, (3) *economic*, (4) *social and political parameters* and (5) *institutional variables.*

4. States will need to determine time-frames and deadlines to achieve the goals mentioned in the NUSP and will need to spell out a detailed roadmap, including the incremental targets for achievement of goals. All such steps are spelt out in and operationalized under the *'City Sanitation Plans'*. City Sanitation Plan is a planning document that shall achieve the step wise implementation of the goals spelt out in NUSP.

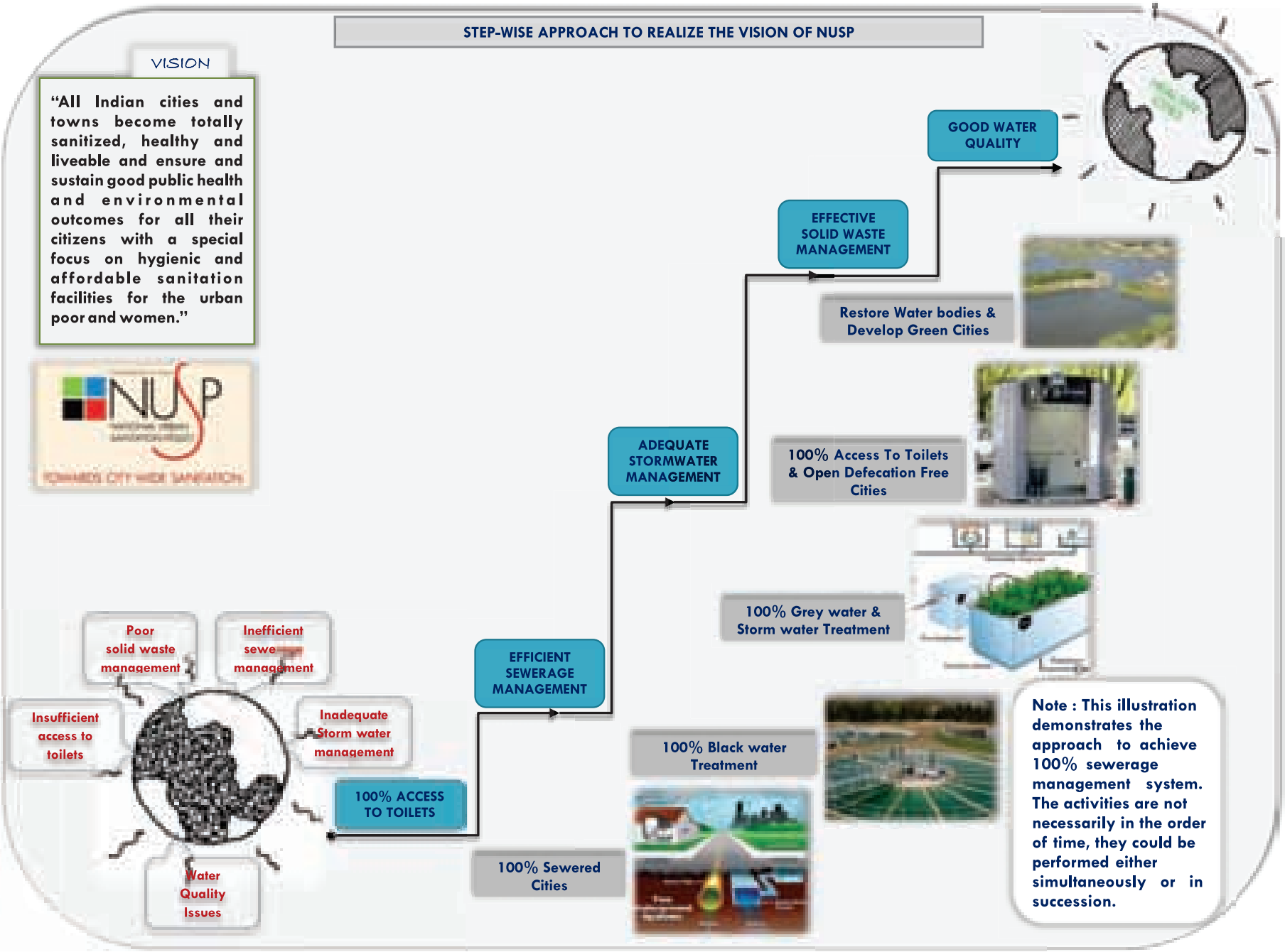
5. The vital step in accomplishing the objectives of CSP is to elevate the consciousness about sanitation in the minds of municipal agencies, government officials, and most importantly amongst people of the city. *'City Sanitation Task Force'* comprising of the representatives from the aforementioned sections in the city is the instrument for achieving the same. The CTF shall be the driving force behind the preparation of CSP as well as creating awareness amongst the city stakeholders.

6. Government of India has instituted award schemes at different levels to mobilize cities and their participation in the promotion of sanitation in urban areas per the guidelines of NUSP, and recognise the excellent performance in this area – *'National Awards'*, and *'Special and Honorary Awards'* at state level.

STEP-WISE APPROACH TO REALIZE THE VISION OF NUSP

VISION

"All Indian cities and towns become totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women."



Note : This illustration demonstrates the approach to achieve 100% sewerage management system. The activities are not necessarily in the order of time, they could be performed either simultaneously or in succession.

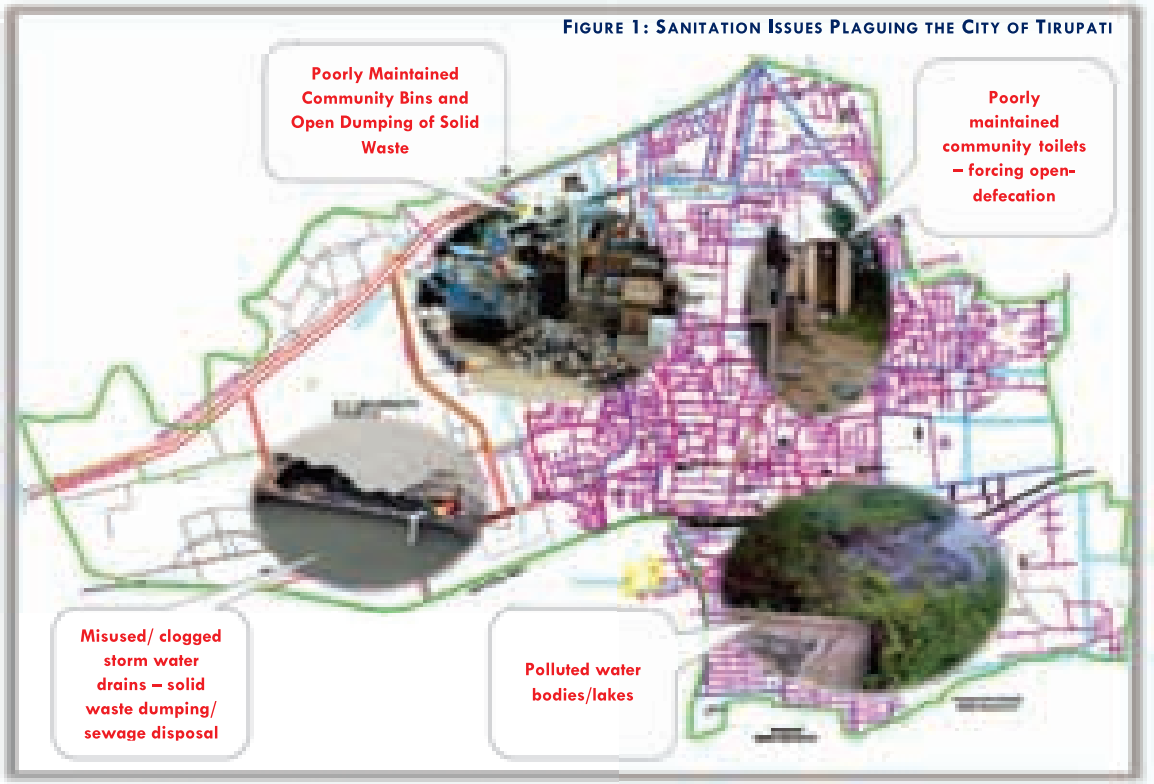
Tirupati, located in Chittoor district of Andhra Pradesh is famous for the Lord Venkateshwara temple in Tirumala. While Tirupati's economy has been pre-dominantly pilgrim- based, its growth in recent years has been driven by its emergence as education and trade hub of the Rayalseema region of Andhra Pradesh

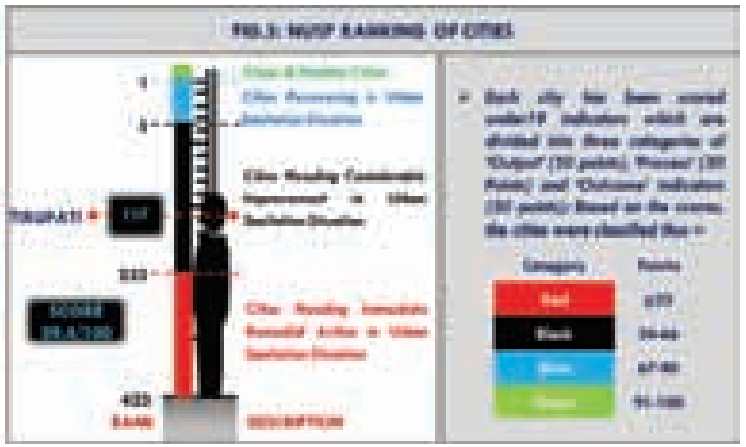
As per provisional reports of Census India, population of Tirupati in 2011 is 287,035, Being a pilgrim centre, daily floating population averages 55,000 and peaks to 100,000 during festivals; Tirupati city is governed by Municipal Corporation which comes under Tirupati Urban Agglomeration (TUA) and its population is 459,985. Spread over 70.67 sq.km, the TUA comprises of 1 town, 3 urban out-growths and nine (9) villages in addition to MCT. Population in areas beyond MCT within TUA is actually growing faster than within MCT.

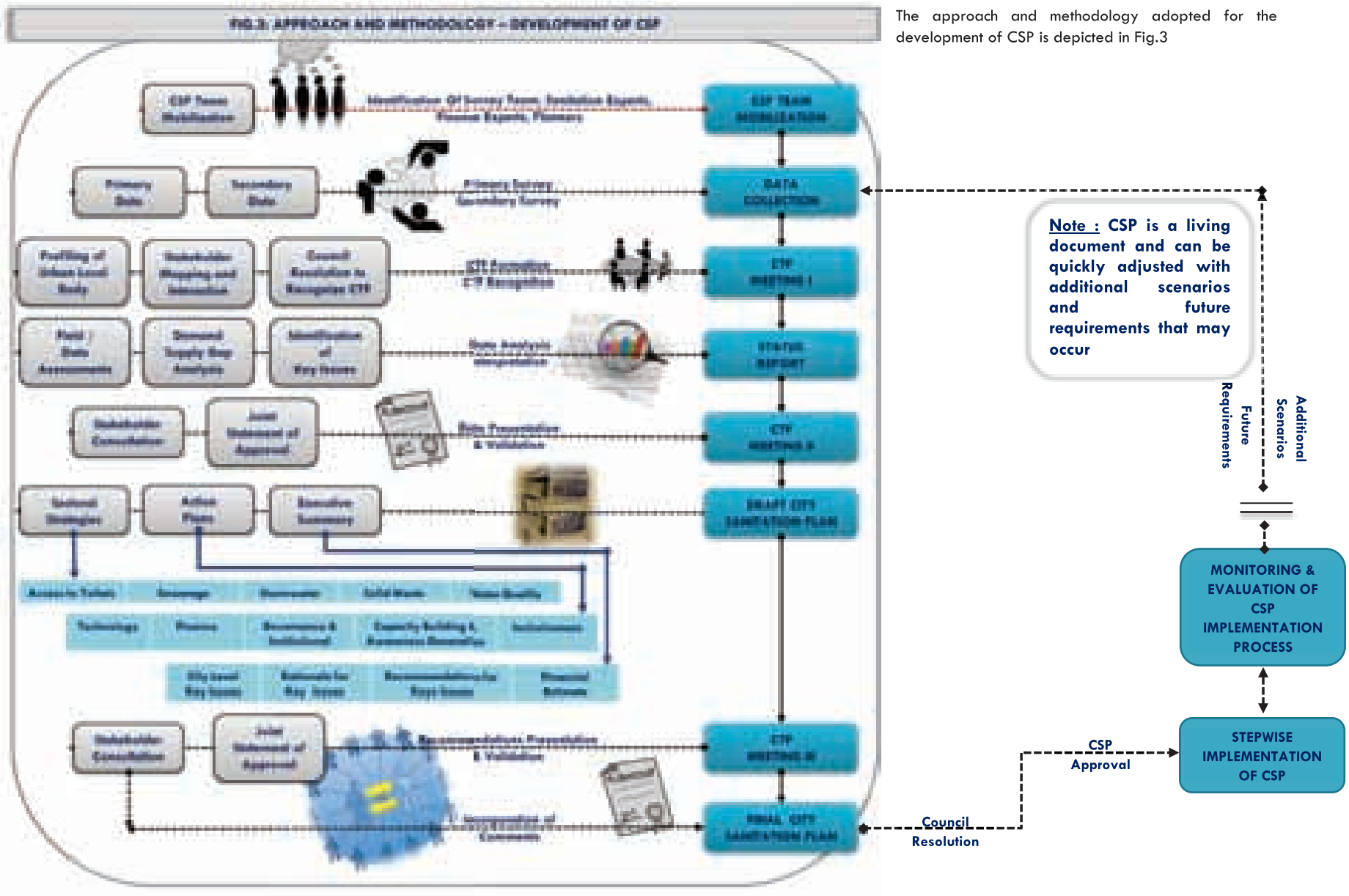
Sanitation service levels have not kept pace with the growth of the city and fall below SLB norms specified by the Ministry of Urban Development Government of India (MoUD). The consequence – 'City plagued with sanitation problems as illustrated in the Fig.1.

A Sanitation rating exercise of cities carried out by MoUD in 2009-10 ranked Tirupati a low **117 among 423 cities** with a score of **39.4 in 100**, highlighting the need to address sanitation challenges in an integrated comprehensive manner.

FIGURE 1: SANITATION ISSUES PLAGUING THE CITY OF TIRUPATI







The approach and methodology adopted for the development of CSP is depicted in Fig.3

Input Variables

1. The City Sanitation Plan should include baseline information related to sanitation and sanitation related services in the city. It is required that all information cited will refer to the source of information in order to assure their quality and authenticity (Source reliability). The quality of the baseline information should be preferably from (a) *Official documents*, (b) *Reports published by research Institutions/Universities/Colleges,* (c) *Primary surveys* (d) *Individual Research (publications, etc.)* and *NGO reports.*

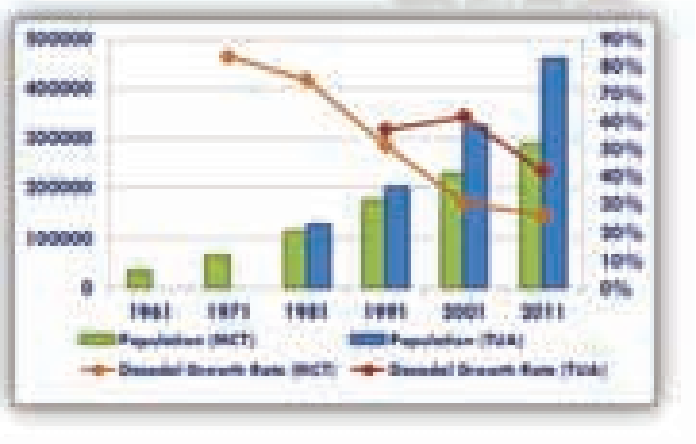
2. The baseline information is primarily categorized into primary and secondary information. The primary information is gathered through a series of field surveys and the secondary information is consolidated from several available official documents and/or reports and/or interviews and/or research publications.

3. The primary and secondary data together represent the following sets of information – (a) General Information – location, physical, demographical and land-use aspects of the city (b) Technical Information – water and sanitation infrastructure facilities and their current performance; (c) Institution and Governance – existing legislative framework, roles and responsibilities for urban infrastructure services; (d) Financial – urban finances on urban infrastructure services; (e) Capacity Enhancement – current capacities of the ULB and on-going activities for capacity enhancement; (f) Health and Hygiene – previous health hazards/epidemics related to sanitation and current health and hygiene practices.

Please refer to www.urbanindia.nic.in/programme/uwss/CSP/CSP_Baseline_Assessment_sheets.pdf for information on input variables

1. PRESENT POPULATION

Source: 2011 India Census

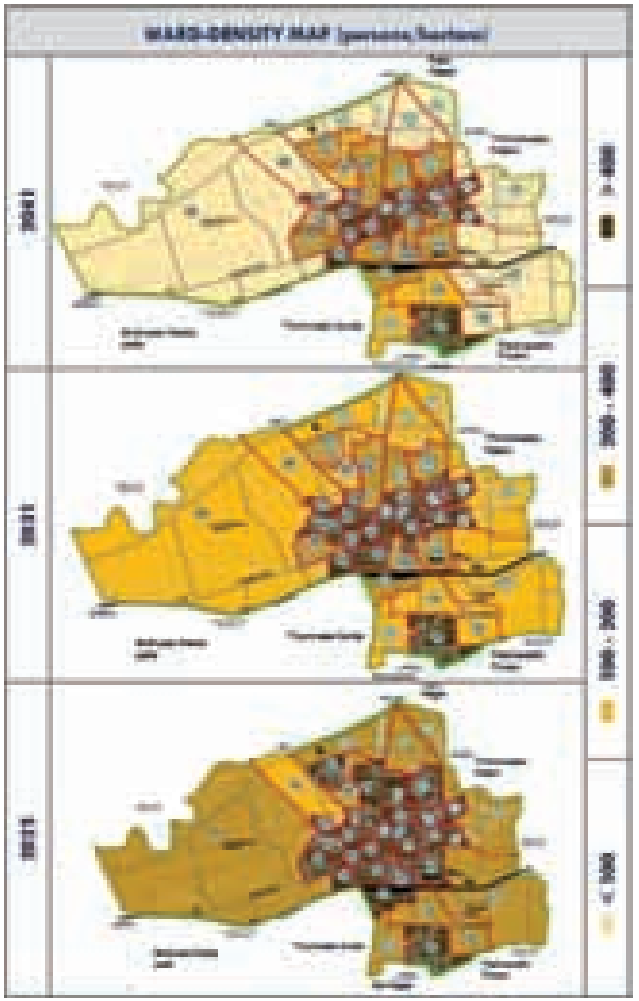


While population within the MCT grew rapidly during the 1970s and 1980s, the growth rate has tapered since then and fell to 30.6% during 1991-2001. Population growth in areas beyond MCT within TUA remains high. Population in MCT limits and TUA grew by 42% and 48% respectively during 2001-2006 and is reflective of the direction and pace of urbanisation.. On average 55,000 pilgrims visit Tirupati daily and during festivals this number crosses 100,000. Besides as the administrative head quarter of the Tirupati Revenue Division, Tirupati also houses several government offices which also contributes to the floating population.

2. FUTURE POPULATION

Source: CSP Projections

Population of MCT is estimated to go up from 2.27 lakh in 2001 to 3.91 lakh by 2021 and 6.79 lakh by 2041. As per TUDA estimates, TUA population could cross 6.6 lakh by 2021. Population in rest of TUA beyond MCT is likely to be 70% of MCT population by 2021 and could potentially overtake MCT population in the long term, as growth within MCT tapers.



The population is concentrated in the central parts of Tirupati. Population density is low in peripheral areas though they are likely to experience rapid growth. Election ward 36 houses the S V University campus and population density is likely to remain low in this part of the city.

Status Indicators

1. The Service Level Benchmarks (SLB) established by Ministry of Urban Development, Government of India shall enable the comparison of the existing levels of service in various sectors against the defined key parameters; and hence ascertain the performance gaps. The gap assessment shall help the authorities to introduce improvements through the sharing of information and best practices, ultimately resulting in creation and sustenance of better services to the citizens

2. The eight key parameters thus identified for the purpose of service level benchmarking in the sectors of water supply, sewerage and solid waste are as state below – (a) *coverage of service;* (b) *collection efficiency of service network;* (c) *adequacy of treatment systems;* (d) *quality of treatment systems;* (e) *extent of reuse and recycle of the solid waste generated/waste water;* (f) *efficiency in collection of service charges;* (g) *extent of cost recovery; and* (h) *efficiency in redressal of customer complaints.*

3. In addition to the service level benchmarking, Government of India has instituted the rating of cities based on urban sanitation indicators, under the guidelines of NUSP. The first round of rating of cities was conducted between December 2009 and April 2010 under the guidance of the National Advisory Group on Urban Sanitation. Each city has been scored under 19 indicators which are divided into three categories of 'Output' (50 points). 'Process' (30 points), and 'Outcome' (20 points) Cities need to utilize these results to prioritize the areas of improvement by developing and implementing city sanitation plans as well as raise the awareness of city stakeholders. This rating exercise also sets the baseline to measure the achievement in the future

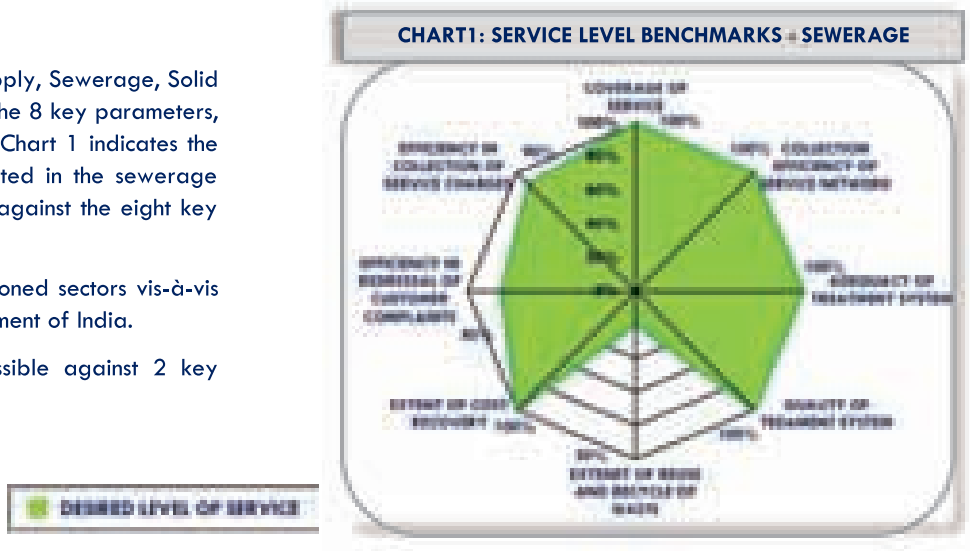
SERVICE LEVEL BENCHMARKS

The Service Level Benchmarks (SLB) have been established for the sectors of Water Supply, Sewerage, Solid Waste and Storm Water. However, the attempt to compare the service levels against the 8 key parameters, as has been initiated only in the sectors of water supply, sewerage and solid waste, Chart 1 indicates the eight key parameters against which the service level benchmarking has been executed in the sewerage sector. The spider chart indicates the desired level of service in the sewerage sector against the eight key parameters.

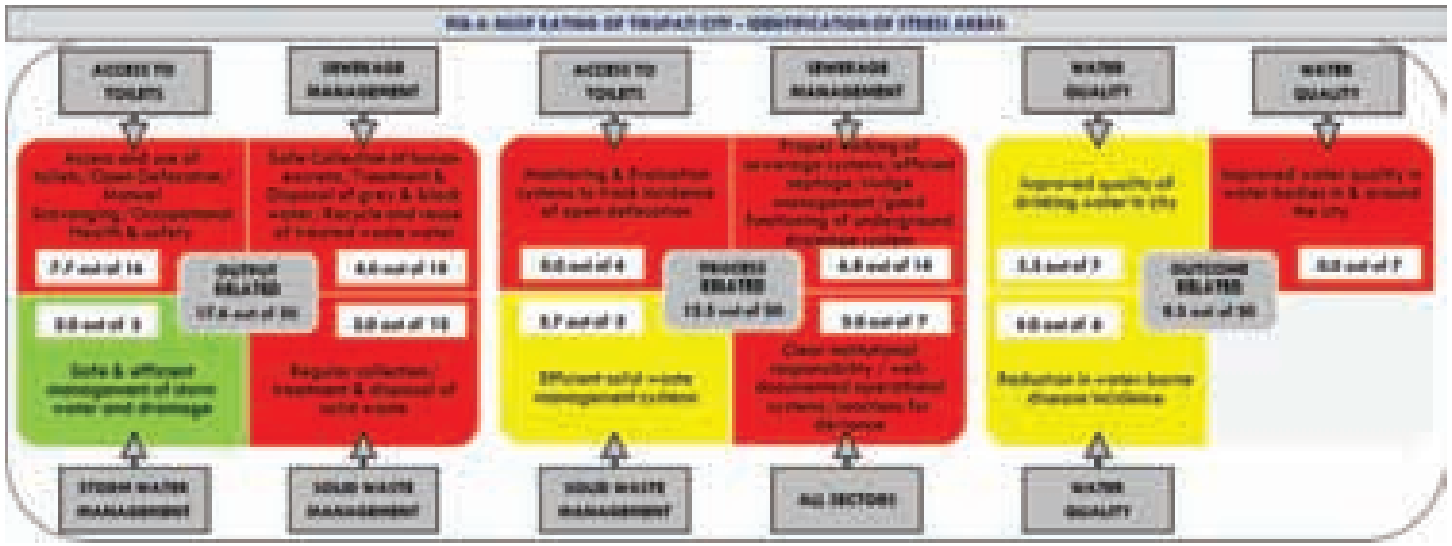
The following sections present the assessment of the existing service in the aforementioned sectors vis-à-vis the desired level of service established by the Ministry of Urban Development, Government of India.

Comparison of existing levels of service in the storm water sector has been possible against 2 key parameters only.

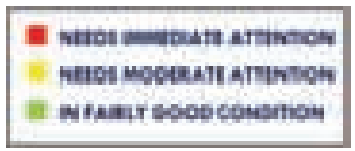
CHART1: SERVICE LEVEL BENCHMARKS - SEWERAGE



RESULT FOR TIRUPATI CITY ON NATIONAL URBAN SANITATION RATING



The rating as depicted in the figure below serves as baseline for an objective self-assessment of the cities from time to time, and highlights the stress areas in the sanitation sectors



1. ACCESS TO TOILETS

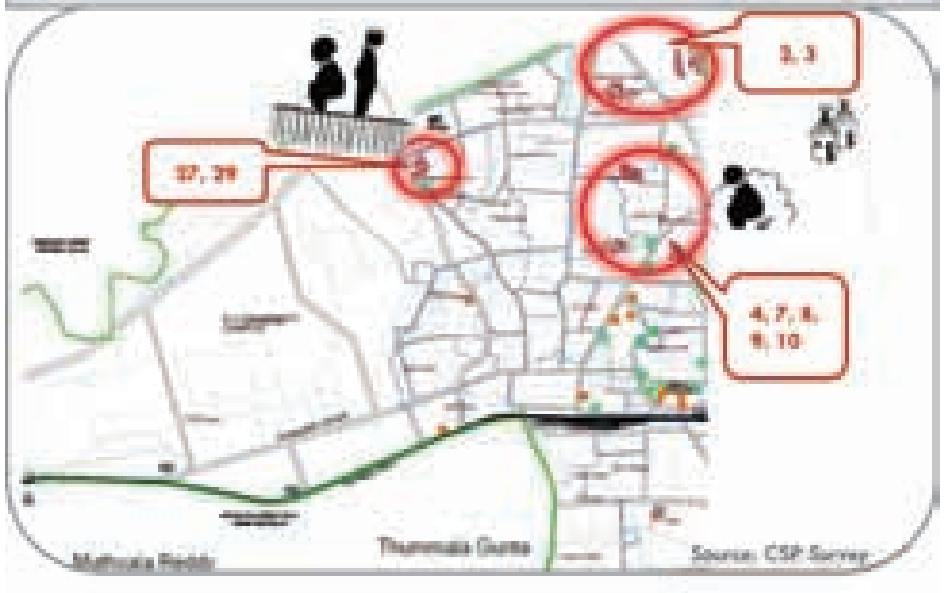
Open Defecation (OD) is widely prevalent in select slum clusters within MCT. Although access to individual toilets is reasonably high at **94%**, Open Defecation is visibly prevalent in 10 places adjoining slum pockets in election wards 2, 3, 5, 10, 12, 13, 17, 18 and 29. Street reconnaissance and local interactions reveal higher levels of OD prevalence in slums in peripheral areas. While the CSP estimates a demand of 62 Community Toilets in slum areas to cater to requirements in 2016, there are no functional Community Toilets at present, in these areas. Low Cost Sanitation toilets provided under slum development programs in the past are now defunct and non-operational. This leads to pollution & severe health impacts.

Key Issue 1 **–**
'Inadequate provision of Public Toilets and Community toilets has led to prevalence of open defecation in low-income pockets in the fringes'

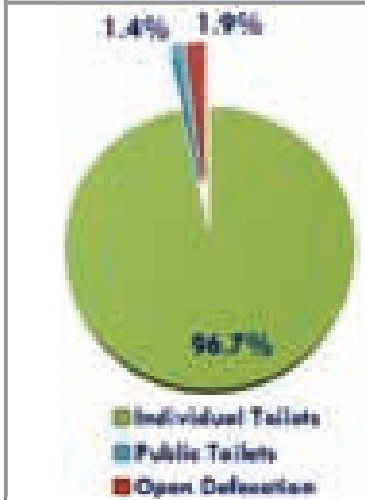
Critical design considerations such as gender sensitivity, 24x7 access and water availability are often not addressed. For instance, Pay-and-use toilets built by MCT do not have urinals. Public urinals have become pollution hot spots due to lack of water supply and maintenance. Accountability for toilet maintenance within MCT is diffused with Toilet monitoring being handled by the Health Department while repairs and maintenance are done by the Engineering department. As a result, open urination is rampant particularly in commercial areas in election wards 14-17. Critically vulnerable locations include group theatres, Railway station area, and behind both the private and government Bus Stands.

Key Issue 2 **–**
'Inappropriate design considerations and inadequacy of public toilets resulting in open defecation & urination in commercial areas'

WARDS WITH OPEN DEFECATION



ACCESS TO TOILETS



Source: CSP Survey

Factfile:

- Access to individual toilets is high at 93%, per SLB
- 4% of respondents in slum areas reported OD
- 0.4 seats per 500 floating population as against a desired level of 1 for every 500 of floating population
- 88% of respondents using public toilet cited poor maintenance

2. SEWERAGE MANAGEMENT

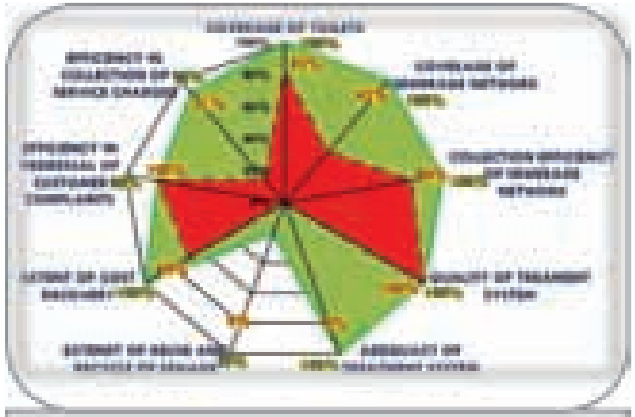
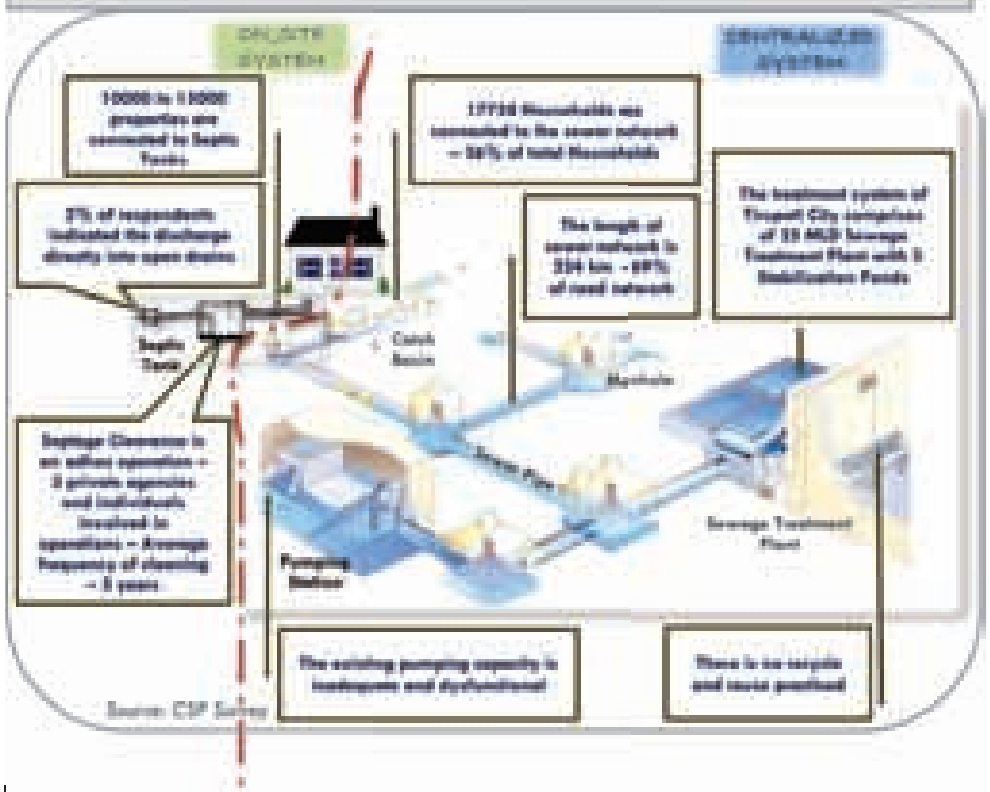


CHART2: SERVICE LEVEL BENCHMARKING-SEWERAGE SECTOR

DESCRIPTION OF EXISTING SEWERAGE MANAGEMENT SYSTEM

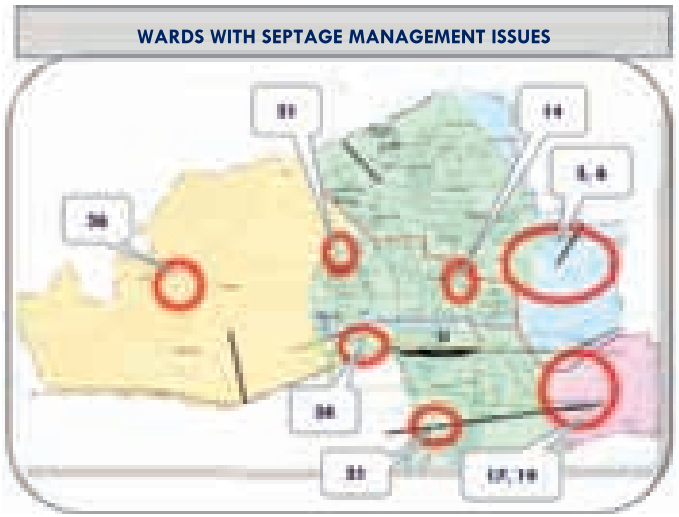


A significant amount of waste-water is let into septic tanks and soak pits and in several cases into in open drains. MCT does not maintain an updated record of septic tanks in the city; the Health department estimates that there are about 10,000 properties with access to soak pits under the ILCS scheme, several of which are non-functional. 57% of the respondents from primary survey indicated that they had not cleaned up the septic tank even once, suggesting limited adoption, awareness and enforcement of guidelines relating to septic tank construction and maintenance. Only 12% of respondents indicated a clean-up frequency of septic tank of less than 1 year. Desludging practices are archaic and managed by informal private service providers with little attention to safety, health and environment aspects. There are 3 agencies engaged in the cleaning of septic tanks, typically done through 6 KL tanker trucks. Septage collected is discharged in open spaces in vicinity of MCT without treatment creating the risk of further groundwater contamination and health impacts.

Key Issue 3 **–**

'Regulation and oversight of Onsite sanitation and septage management is inadequate, leading to wastewater dumping and potential risks of groundwater contamination'

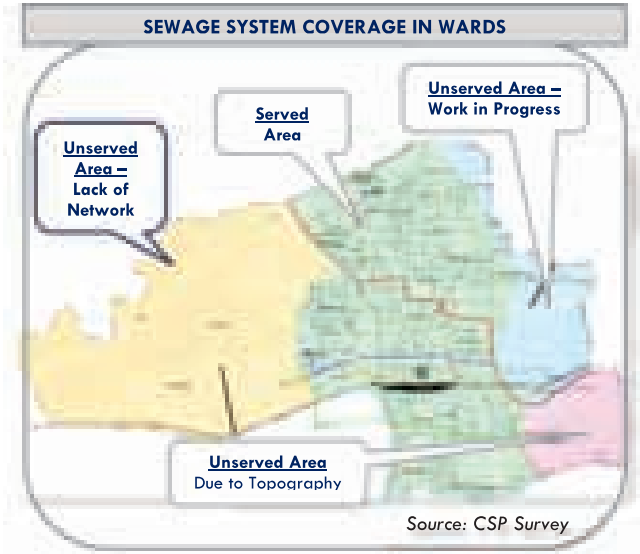
WARDS WITH SEPTAGE MANAGEMENT ISSUES



Apart from parts of election ward 17 and 36 and few areas in select wards, where rider lines for connecting to households have not been provided, Tirupati has a fairly extensive sewerage network that covers nearly 79% of the roads. However, approximately 40% of properties in the city are actually connected to the sewer network as per the MCT sources. Also nearly 50% of connections cover black water only while grey water gets discharged in storm drains and in open. Reported STP capacity at 25 MLD is inadequate vis-à-vis the waste water generation (estimated at 37 MLD). While 26% of primary survey respondents reported problems of choking sewerage network suggesting network under-utilisation, discharge of untreated wastewater at STP inlet suggests a pumping capacity bottleneck even with existing flows. There is no secondary treatment at the STP. Though average outlet BOD (75 mg/l) conforms to pollution control norm of 100 mg/l for discharge for irrigation, it is higher than pollution norm of 30 mg/l allowed for discharge in water sources. This results in pollution and has adverse impacts on public health

Key Issue 4 **–**

'While MCT's sewerage system covers most areas of the city, service delivery is below par on wastewater collection efficiency and treatment performance'



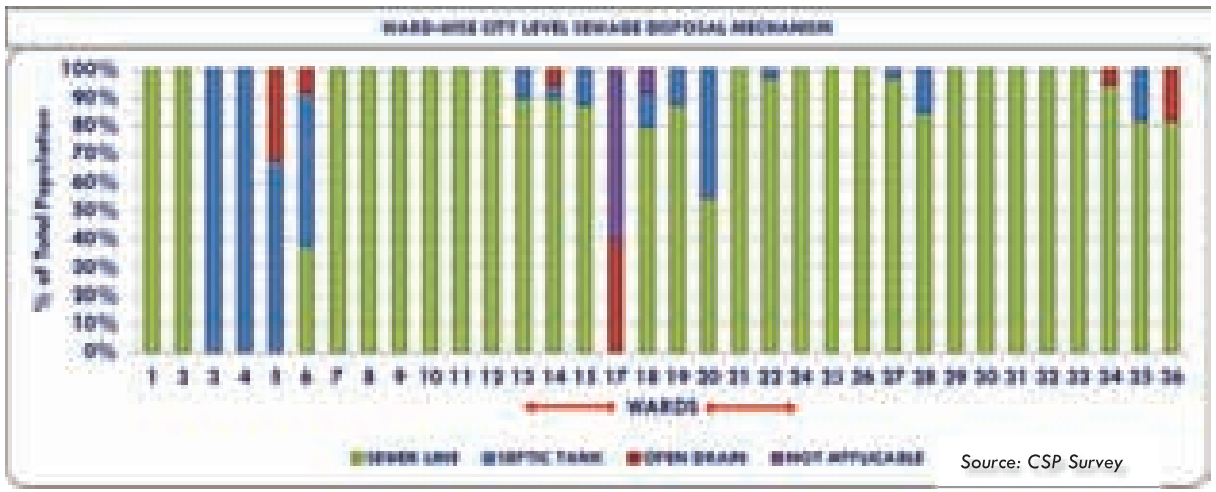
Factfile:

- **Sewer network length is 224 km**
- **Sewer network covers 69% of road network**
- **Only 36% of households are connected to sewerage network**
- **Only 25 MLD STP Capacity is existing**
- **10000 to 15000 properties are connected to septic tanks**

Ongoing Interventions:

In Election Wards 18-22 (southern part of MCT), network laying is under progress. Parts of this area are already connected and provision of connections is underway

The PHED is further constructing 100MLD capacity of stabilization ponds in view of the excess load on the existing ponds and currently the work is in progress. The MCT is currently also pursuing the proposal of supplying 3MLD of treated waste water to LANCO a cement industry @ of Rs2/-per KL.



3. SOLID WASTE MANAGEMENT

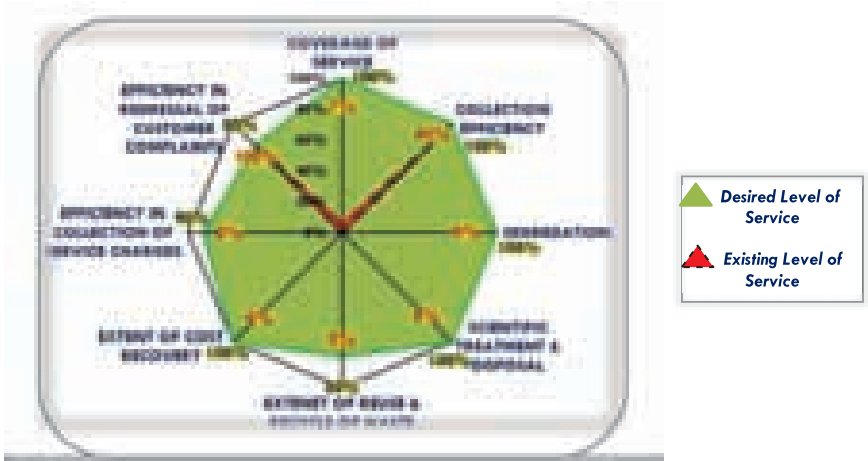
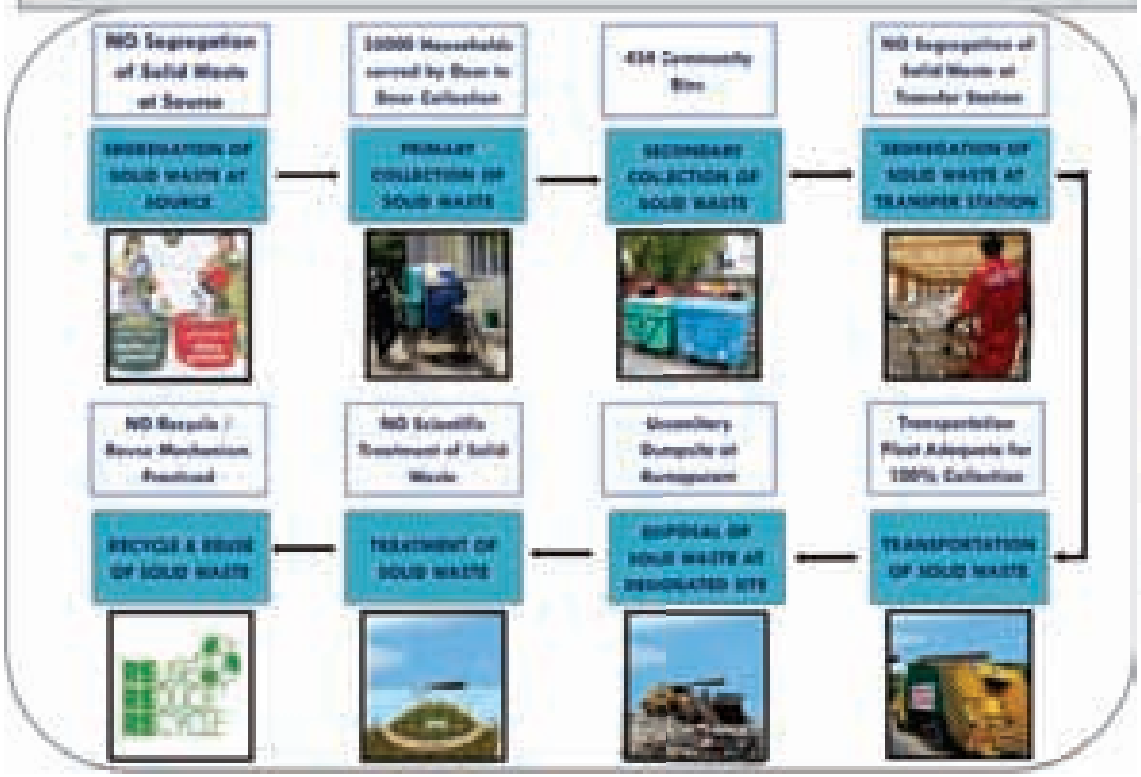


CHART 3: SERVICE LEVEL BENCHMARKING – SOLID WASTE MANAGEMENT

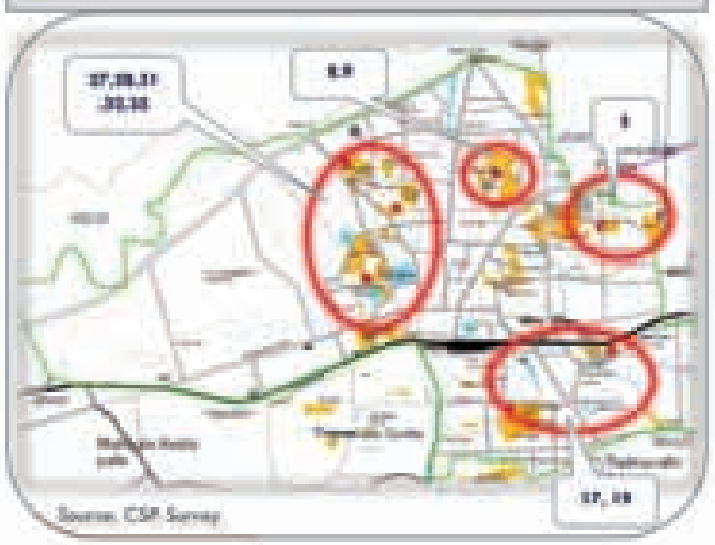
Waste collection efficiency is only 80% while coverage of Door-to-door collection and Source segregation is only 6.5% and 8.6% respectively as per the SLB norm. More than 50% of complaints received on storm water drains pertain to dumping of waste in drains. Reconnaissance visits confirms that most storm drains are choked and waste bins are overflowing indicating scope for improvement in service delivery. While the conservancy staff report under the Health department, the Engineering department is responsible for procurement of vehicles and tendering thus creating overlaps in responsibility. Sanitary staff is not exposed to modern waste management practices including door-to-door collection, bin-free approaches, optimal routing, recovery and processing.

Key Issue 5 **–**
'Littering and waste dumping in open drains reflects the poor state of Solid Waste Management in MCT and the door-to-door collection is negligible'

DESCRIPTION OF EXISTING SOLID WASTE MANAGEMENT SYSTEM

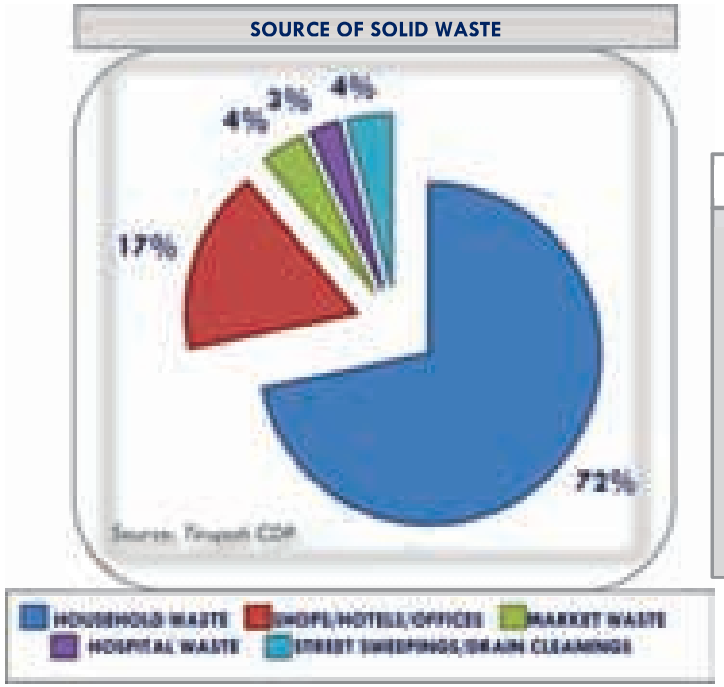


WARDS WITH OPEN DUMPING OF SOLID WASTE



The entire 145 MT is being collected, transported and dumped at the dumpsite located at Ramapuram. There is no scientific segregation (for biomedical hazardous waste, solid domestic hazardous wastes, recyclables, and organic wastes), processing or engineered landfill facility. Prevailing O&M cost at Rs.1788 per ton appears high relative to other cities, especially in the context of poor service levels and lack of facilities for processing and landfill. MCT does not have user charges, though it has initiated steps to incorporate user charges and fines. Sanitary staff is not exposed to modern waste management practices including recovery and processing

Key Issue 6 –
'Processing / safe landfilling of generated solid waste is non-existent leading to unhygienic and adverse health conditions'



Ongoing Interventions:

A Detailed Project Report has been prepared for addressing the SWM requirements of Tirupati. The DPR has identified specific interventions required for improving the SWM practices in the city involving a capital outlay of Rs 23 crore. The DPR is sanctioned for implementation.


Bad condition of community bins and overflowing bins


Open dumping of solid waste


Community bins non-confirming to prescribed design standards

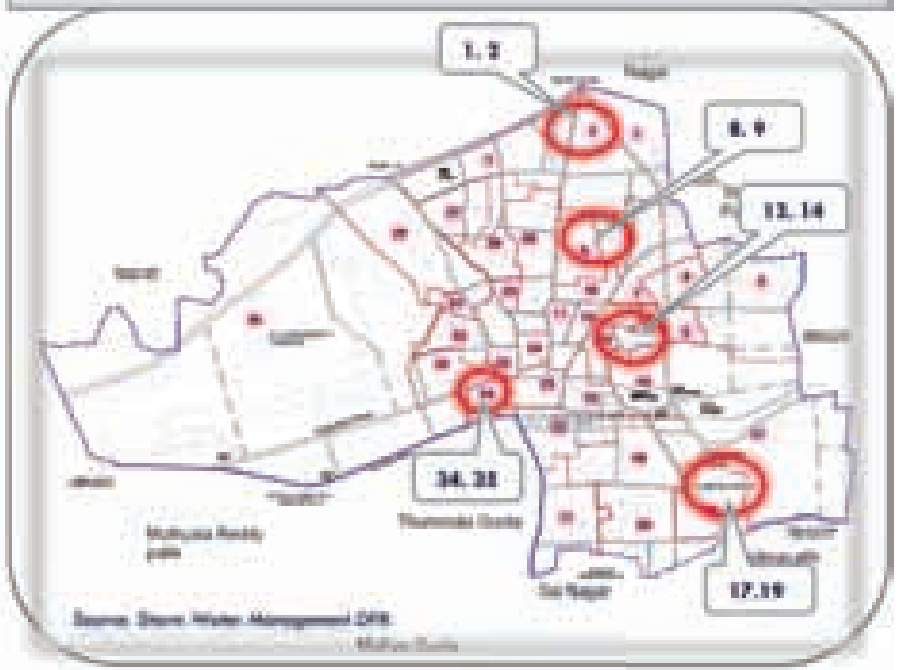

Storm water drains clogged by solid waste

4. STORM WATER MANAGEMENT

Even though Tirupati has a **natural topography** advantage (with a sloping towards the eastern part of the town which minimizes water logging) and a reasonably **good storm drain coverage** (107% as per SLB study), effectiveness is severely limited due to indiscriminate and widespread **solid waste dumping and grey water flows** into this network. Nearly 50% of complaints received by MCT are on choking of storm drains with Solid waste. Visual inspection reveals that even black-water is discharged into storm drains along low-income pockets. In some stretches such as Kothapalli, storm drains are also used as open defecation spots. A number of areas face water logging due to ineffective storm water drains and **lack of water retention zones** to capture peak run-off. Encroachment of urban water bodies shown in revenue maps and rapid urbanization further Storm drains are thus emerging as vulnerable pollution hotspots as combination of solid waste dumping, sullage flows and poor maintenance threatens to create adverse health impacts and eye-sore. While MCT is in the process of implementing a trunk drain network under JNNURM, branch networks are poorly designed with narrow width, lack of appropriate lining, lack of appropriate integration into trunk drains and further contributes to water stagnation and ineffective storm water handling.

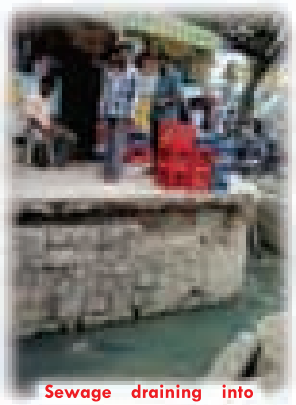
Key Issue 7 **–**
'Storm water drain network faces severe abuse with 'grey water flows' and solid waste dumping.'

WARDS WITH WATER LOGGING ISSUES




Storm water drains clogged by solid waste


Bad condition of storm water drains

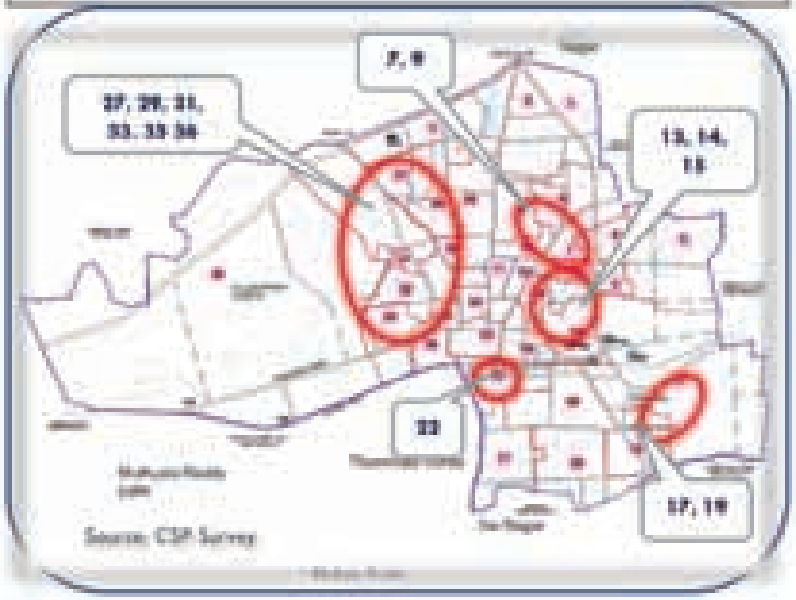

Sewage draining into storm water drains

Ongoing Interventions:

A Detailed Project Report on improving Storm Water Drains has been prepared by SV University. This DPR has been sanctioned for assistance under the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) program of MoUD and implementation of this project is underway.
For more information, please refer to Pg 63 of the Volume I of Draft Report – 'City Sanitation Plan for Tirupati'

5. WATER QUALITY

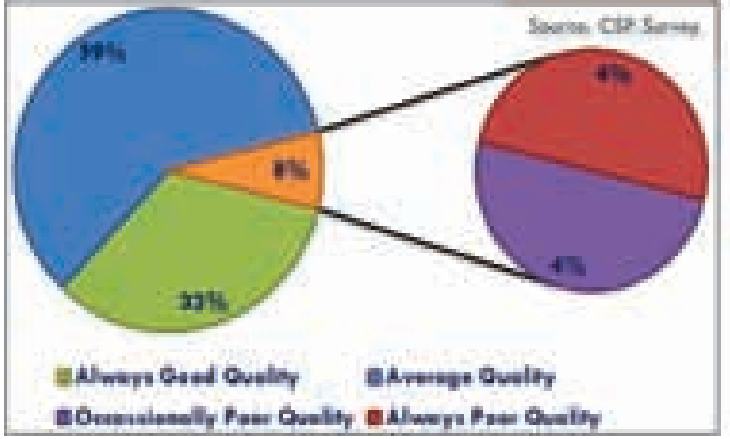
WARDS WITH WATER QUALITY ISSUES



Nearly 51% of respondents in the primary survey felt that water supplied by MCT is insufficient. Per capita supply is less than 90 LPCD when the high floating population is factored, as against service level norm of 135 LPCD. Supply frequency is less than 1 hour per day and piped connections account for only 52% of properties. While water demand is expected to increase to 116 MLD by 2041, supply from existing sources in MCT is only 44 MLD. With negligible metering (covering only 3.6% of connections) and no bulk metering in the network, reported network losses cannot be validated. Though residual chlorine and bacteriological parameters are monitored daily, other physical and chemical indicators are inadequately monitored. There is no monitoring of ground water status (except near waste dumpsite by APPCB). Power cost for operating power bore based secondary network translates to nearly Rs. 9 per KL which is significantly higher relative to reported O&M cost of Rs. 3.48 per kl for water supply. These issues in service delivery reflect in moderate Cost recovery and poor Collection efficiency levels which are 68% and 22%[19] respectively.;

***Key Issue 8* –**
'Service delivery in Water Supply within MCT falls significantly short of service level norms'

PERCEPTION OF RESIDENTS ON WATER QUALITY



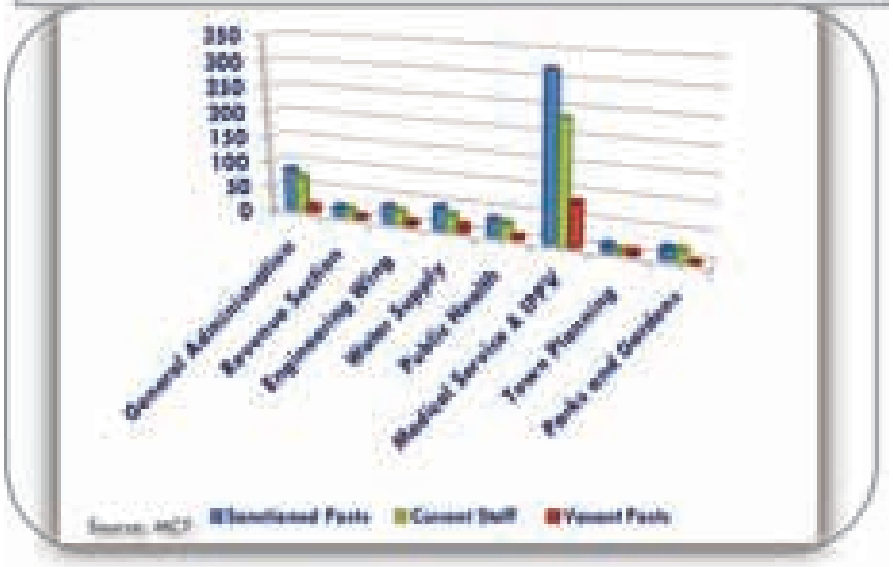
6. INSTITUTIONAL AND FINANCIAL SYSTEMS

The Public Health and Engineering Department, Government of Andhra Pradesh (PHED) is responsible for implementation of capital projects in water supply and sewerage. Since MCT is responsible for O&M only, it often faces ownership and capacity constraints in managing O&M and service delivery effectively. Even within MCT, responsibility for sanitation is diffused across multiple departments (as shown below). While SWM is being handled by Public Health department, procurement of vehicles is handled by Engineering section 22% of the sanctioned position are vacant, indicating constraints even with respect to planned manpower. Officials are also constrained by inadequate exposure to modern practices in water supply, sanitation and solid waste management as a result of which critical practices such as continuous water supply and metering in water supply, door-to-door collection and source segregation in SWM etc. have not been adopted. Though administration of MCT is overseen by the District Collectorate, absence of a formally Elected Municipal Council sometimes constrains policy formulation and implementation.

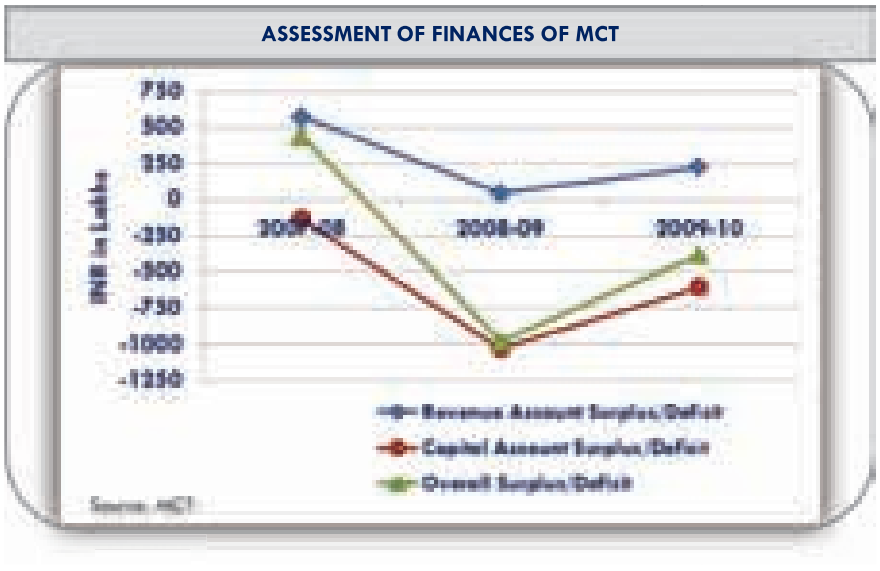
Key Issue 9 **–**

'While overlaps in roles and responsibilities for sanitation within MCT and among GoAP agencies tends to create diffused accountability, inadequate staffing and exposure to modern sanitation practices within MCT constrains ability to drive transformational changes needed'

ASSESSMENT OF INSTITUTIONAL CAPACITY OF MCT



ASSESSMENT OF FINANCES OF MCT

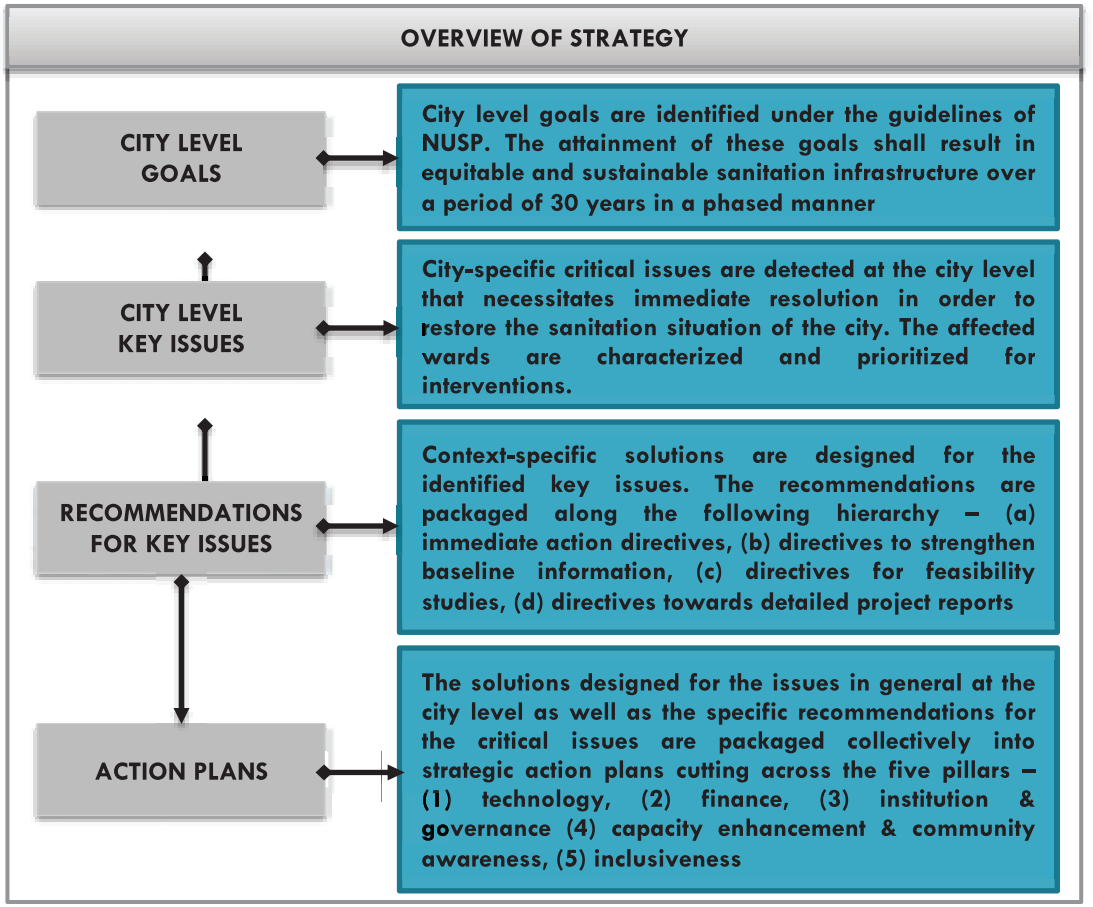


Cost recovery in water supply and sewerage are at 69% of O&M costs while Collection efficiency is reported at 22% and 21% in both water supply and sewerage respectively. There are no user charges levied for Solid Waste Management yet, though recently MCT has initiated steps to implement the same. The city is yet to shift fully to accrual accounting; a mandatory requirement under JNNURM Revenue Income has grown at a CAGR of 43% while Revenue Expenditure has grown faster at 59%. Capital Expenditure shows a faster growth than Capital Income. While Revenue Account is in Surplus (though overall surplus dipped from 2007-08), the Capital Account is in deficit, leading to an overall deficit for 2008-09 and 2009-10.

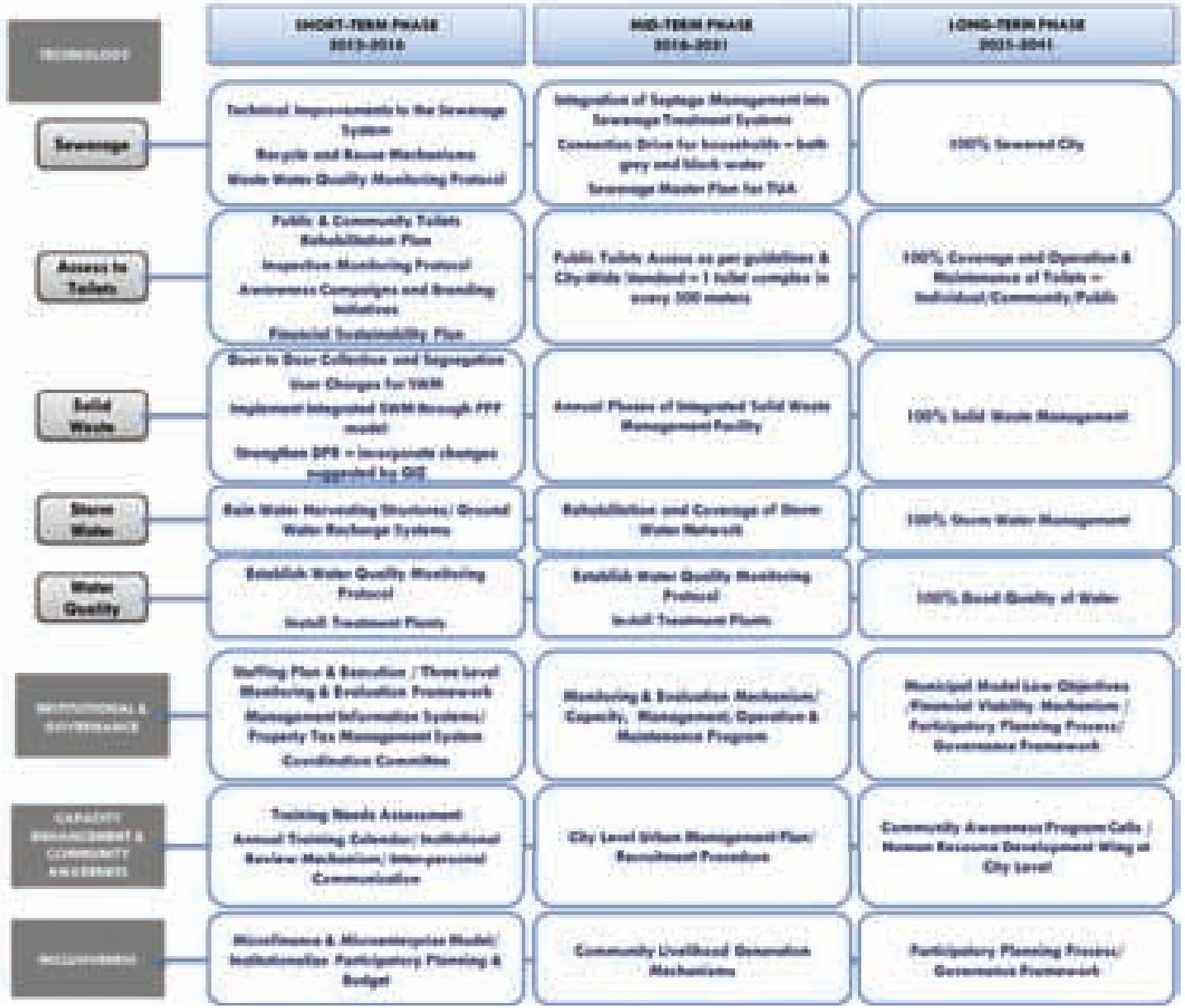
Key Issue 10 **–**

'MCT's financials are severely constrained to support capital investments; Cost recovery in sanitation services does not even meet O&M costs and collection efficiency of even the low user charges is very low'

4 Strategies



BROAD OVERVIEW OF THE KEY MILESTONES IN ACTION PLANS

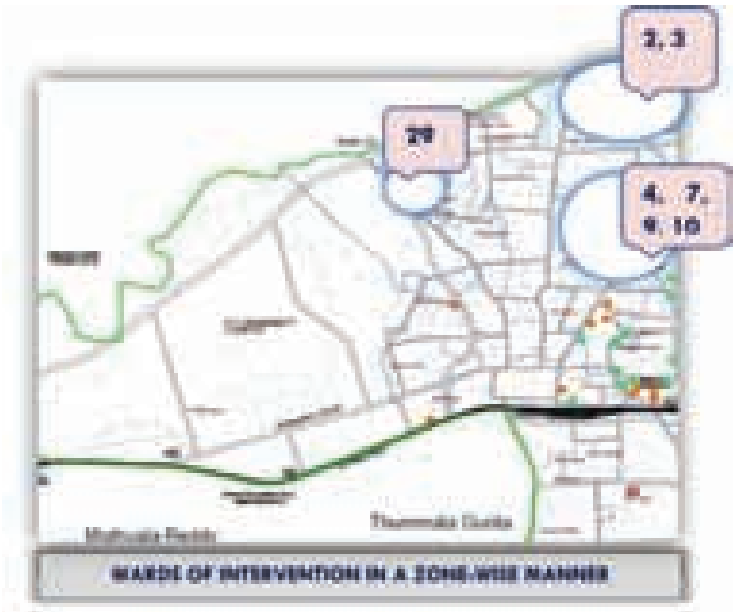


*** Please refer to ;Draft Report – CSP – Volume II for detailed action plans*

BROAD OVERVIEW OF THE RECOMMENDATIONS

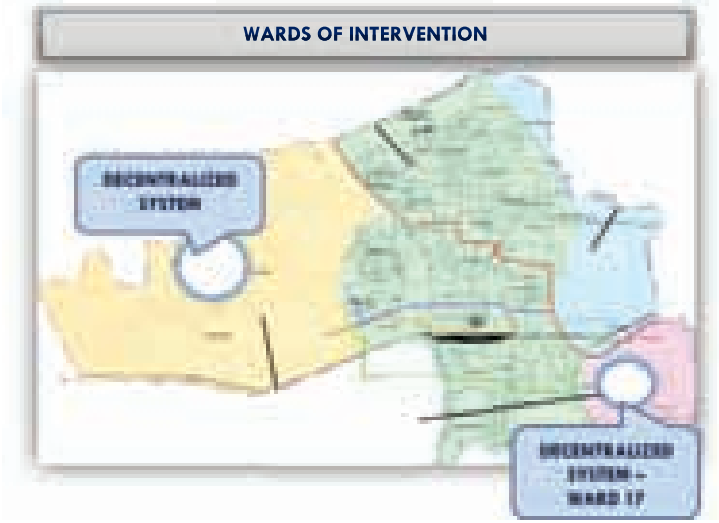
IMMEDIATE ACTION DIRECTIVES	➢ Phasing out open urinals and replacing them with aesthetically appealing functional Public Toilets. ➢ Provision of Community Toilets in slums and ward locations with high OD prevalence. ➢ Provision of Public Toilets in commercial areas with high floating population. ➢ Provision of Public Toilets in other areas to achieve a target standard (say access within every 500 m). Inspection and Monitoring Protocol
STRENGTHEN BASELINE DATA	Slum Mapping and Demand Assessment for Community Toilets
FEASIBILITY STUDY	Location Selection for Public Toilets Development
DPR	➢ DPR for City Wide Toilet Development Plan DPR for Construction Works of New Toilets

*** Please refer to 'Executive Summary'– CSP and 'Draft Report CSP documents for elaborate details on recommendations*



IMMEDIATE ACTION DIRECTIVES	➢ Comprehensive Household Sanitation Survey As Recommended In The Information Systems Improvement Plan (Prepared Under The SLB Study) On Priority ➢ Install Bulk Metering At STP And Trunk Mains. ➢ Re-size And Replace Pumping Equipment At The STP To Address Pumping Bottleneck ➢ Troubleshoot Places In The Sewerage Network Where Choking Complaints Are Reported Frequently ➢ Initiate A Sewerage Connection Drive ➢ Create Facilities At The STP To Receive And Treat Septage ➢ Re-use Of Treated Waste-water From STP For Industrial Use ➢ Formulate bye-laws for monitoring and regulating guidelines on septage management and on-site sanitation backed by implementation of Onsite Sanitation Monitoring framework ➢ Establish a waste-water quality monitoring protocol in coordination with APPCB.
FEASIBILITY STUDY	➢ Conduct a feasibility study to evaluate the case for upgrading STP to secondary treatment ➢ Implement decentralized waste water management sanitation systems in unserved areas
DPR	➢ PHED should prepare a Master Plan and DPRs for extending sewerage services across TUA

WARDS OF INTERVENTION



*** Please refer to 'Executive Summary'– CSP and 'Draft Report – CSP documents for elaborate details on recommendations*

IMMEDIATE ACTION DIRECTIVES	➢ Training initiative on modern waste management practices ➢ Municipal Bye-Laws ➢ Awareness Campaigns ➢ MCT should implement user charges for SWM services which should be revised periodically
PILOT PROJECTS	➢ MCT should induct Self Help Groups and local NGOs to implement door-to-door collection/segregation
FEASIBILITY STUDY	➢ Explore the use of PPP in Solid Waste Management

IMMEDIATE ACTION DIRECTIVES	➢ Completion of on-going Trunk Drain project being implemented under JNNURM ➢ Rehabilitation of existing networks ➢ Removal of encroachments along drains
STRENGTHENING BASELINE DATA	➢ Identification and elimination of large point sources of sullage and solid waste disposal along the drain
FEASIBILITY STUDY	➢ Identification of potential for setting up water retention zones within and in the vicinity of MCT on the eastern part of the city through restoration and creation of water body(ies),
DPR	➢ DPR to implement a phased investment program for rehabilitation and development of a city wide drain network

WARDS OF INTERVENTION – AWARENESS CAMPAIGNS FOR A BETTER SOLID WASTE MANAGEMENT SYSTEM

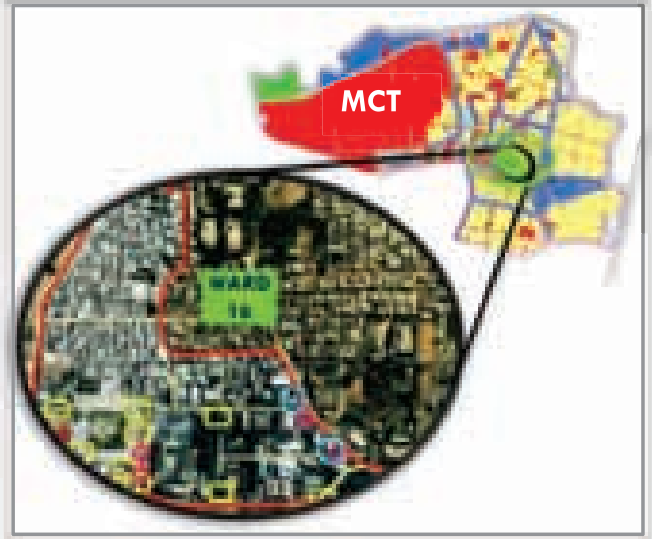
WARDS OF INTERVENTION – FEASIBILITY STUDY FOR RECREATIONAL FACILITIES IN LOW LYING AREAS

*** Please refer to 'Executive Summary'– CSP and 'Draft Report – CSP documents for elaborate details on recommendations*

BROAD OVERVIEW OF THE WARD PROPOSLAS

- Design, Construction and Operation of 9 Public Toilet Complexes in Ward 16
- Establishment of Monitoring and Inspection Protocol
- Development of a Guidance Document for Public Toilet Development & Operation
- Awareness Campaign and Community Involvement Program for Operation & Maintenance shall be Implemented

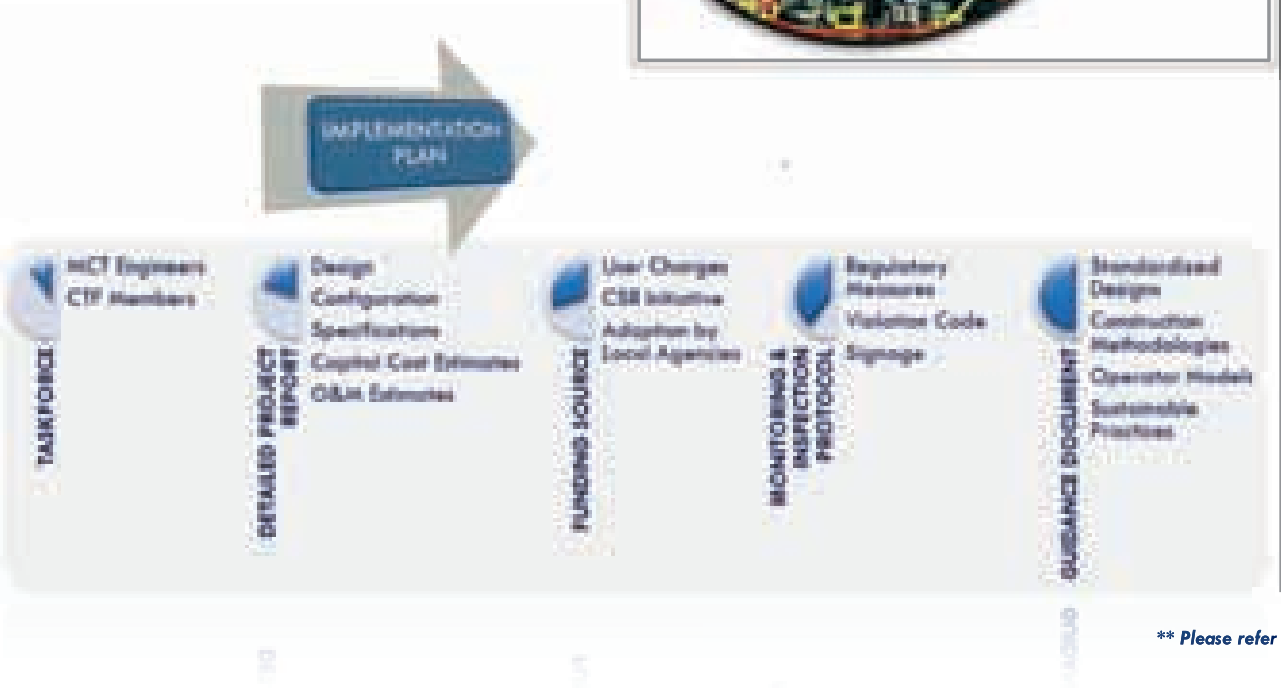
AREAS OF INTERVENTION



The objective of this proposal is to address the poor toilet access and open urination problem through identification of vulnerable pockets and identification of locations for provision of public toilet access.

The Scope of the Proposal covers construction and operation of new Public Toilet in nine locations including 4 locations around Koneru. Given that the streets leading in and out towards the Koneru tank have a large number of open urination spots and available free space / land is limited, the recommendation is to construct smaller toilet blocks adjoining the Koneru.

The open urinals built by MCT in various locations need to be replaced with enclosed toilet blocks taking into account both functional and aesthetic considerations.



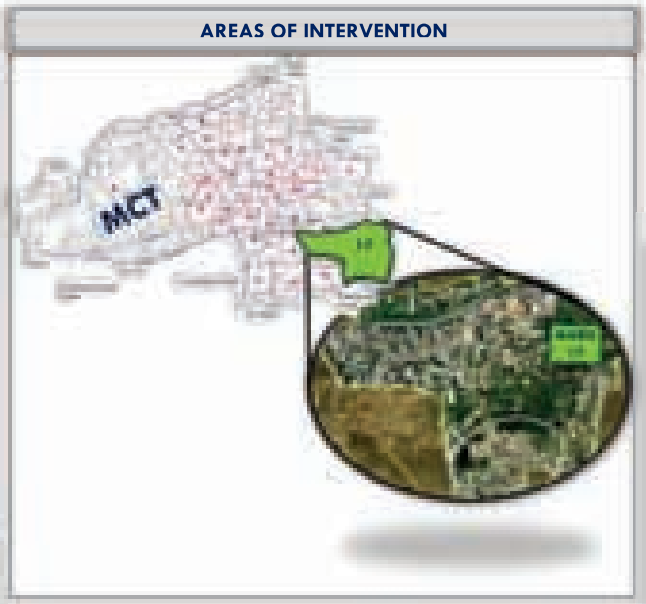
*** Please refer to Draft CSP – Volume IV for elaborate details*

WARD PROPOSAL

- Design and Implement 'Decentralized Waste Water Systems', Water Supply and 5 Community Toilet Blocks in Ward#17
- Sustainable Operator Model / Financial Model shall be Established
- Awareness Campaign and Community Involvement Program for Operation & Maintenance shall be Implemented

The proposal targets elimination of open defecation in the slum cluster of Ward 17 comprising Lenin Nagar, Parvathi puram, Pragathi nagar and Garudathiri nagar through a Comprehensive Community Toilet and implementation of a safe waste water management solution

AREAS OF INTERVENTION



"Decentralized Waste Water Treatment Systems" could serve as a long-term alternate solution with minimal maintenance requirements and low – energy inputs.
They offer flexibility and the technologies are tolerant towards inflow fluctuations. They enable better watershed maintenance.

** Please refer to Draft CIP – Volume IV for elaborate details

CREDITS

We are grateful to the following listed City Sanitation Task Force members for their valuable contributions towards the efforts of preparation of the City Sanitation Plan -

Sri T. Prasad
Sri Panchela Reddy
Smt. Geetanjali
Sri Anandrao
Sri Nagaraja Rao
Sri Venkataramaih
Sri Beshmaiah Naidu
Sri Rami Reddy
Smt. Lakshmi
Sri Janardhana Naidu
Sri Surendra Babu
Smt. Swarajya Lakshmi
Smt. Muni Lakshmi
Sri T.R.Srinivasa Rao
Smt. Shanthi
Sri N.Mohan
Sri B.Srinivasa Rao
Sri P. Vajravelu
Sri Raghu Kumar
Sri B. Venkatarami Reddy
Sri Veera Reddy
Sri Nayab Rasool
Sri K.L.Varma
Representative of the sanitary workers union, MCT
Rpresentatives of the Regional AP Pollution Control Board
Representatives of the PHED
Representatives of IKP (Urban)

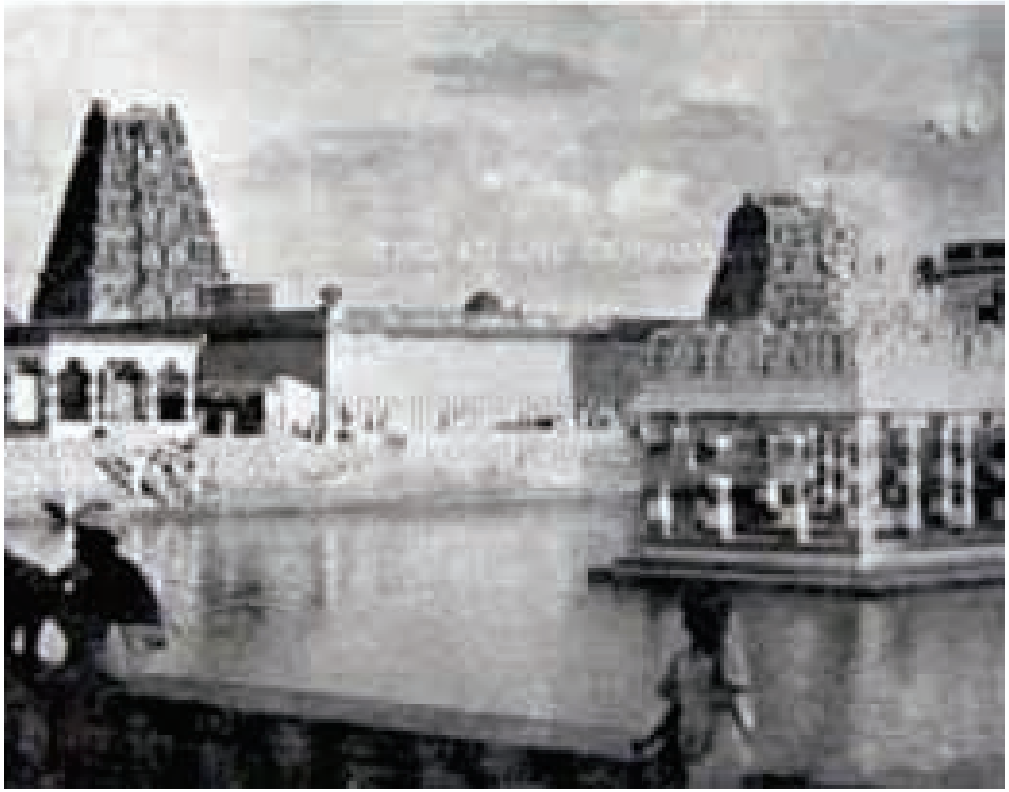
About GIZ

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Technical Cooperation) changed its name to The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on 1 January 2011. It also merged with among others, InWEnt – Capacity Building International, Germany.

It is owned by the German Government and works in the field of international cooperation for sustainable development. GIZ is also engaged in international education work around the globe and currently operates in more than 130 countries worldwide.

GIZ in India

Germany has been cooperating with India by providing expertise through the organisations now forming GIZ for more than 50 years. GIZ's joint efforts with the partners in India are addressing India's priority of sustainable and inclusive growth.



'Let's make human life safer with good sanitation infrastructure'