CITY SANITATION PLAN FOR KOVVUR

November 2017

sampoorna swachhta sankalp
Andhra Pradesh

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Executive Summary

Introduction

The City Sanitation Plan (CSP) is an action plan and planning tool. It is meant to serve as a reference document for the state of sanitation in the town, to assist the town in improving sanitation access and to contribute to sanitation outcomes with the objective of universal access as envisioned in the National Urban Sanitation Pl

The main purpose of the CSP is to support urban local bodies and NGOs, CBOs, citizens and private sector agencies to take concrete steps to achieve 100% sanitation. The Kovvur Municipality in consultation and considering the recommendations from citizen groups, elected representatives, government departments and City Sanitation Task Force is developing the CSP. The main aim of the CSTF is to achieve 100% sanitation in the city by involving the suggestions from public, private institutions, NGOs and Aided Organizations in coordination with Town Planning Wing.

The City Sanitation Plan (CSP) is aimed at developing and maintaining a clean, safe and pleasant physical environment in Kovvur Town to promote social, economic and physical well-being of all sections of the population with special focus on for urban poor, women and vulnerable groups. It encompasses plan of action for achieving 100% sanitation in the town of Kovvur through demand generation and awareness campaigns, sustainable technology selection, construction and maintenance of sanitary infrastructure, provision of services, O&M issues, institutional roles and responsibilities, public education, community and individual action, regulation and legislation.

In line with NUSP, the CSP articulates the resolve of GoI to achieve United Nations Sustainable Development Goals specifically, SDG 6.2 and 6.3 pertaining to safely managed sanitation and hygiene services safely treated wastewater.

Gaps and interventions in sanitation are planned through five key areas — a) Water Supply, b) Access to toilets, c) Liquid Waste Management, d) Solid Waste Management and e) Storm Water. In addition to these focus areas, this document also looks at gaps in institutional capacity and financing for this plan. The planning horizon spans for ten years (up to 2027) and action points have been suggested for four phases - immediate (<1 year), short-term (1-3 years), medium team (3-5 years) and long term (5-10 years).

Context

Kovvur town, situated on the banks of the Godavari, is a grade-III municipality in West Godavari district. With a small industrial base, most of the land use is residential — notably, a good proportion (36%) of land within the ULB limits is agricultural land. It houses several government institutions (government hospital, Mandal Revenue office, Police Station, Court Complex, Irrigation Department, Housing Board and others) of local importance and sees a sizeable floating population. It also is home to prominent temples, notably at Goshapadakshetram, and sees tourist inflow on religious account especially when the Godavari Pushkaralu is held and on auspicious days throughout the year.

With a population of 39,667 in 23 electoral wards spread over an area of 24.56km2, the town has a sex ratio of 1061. Sixty three percent of inhabitants are classified as urban poor and are spread across 23 notified slums. Census 2011 data indicates that 21% of the population are categorized as Scheduled Caste (SC), 2% as scheduled tribes (ST) and 77% as backward and other backward castes.

Sanitation status - Critical Issues and Focus areas

1. Low coverage of household service connections (HSCs) and poor quality of water supplied

Current Status

The town has a low coverage of HSCs — only 33% of the town is covered through piped municipal water supply. Additionally, a third of the town relies on ground water extracted primarily through bore and tube wells. The remaining third of the town essentially relies on 100 public stand posts and 147 hand bores and manually collect water for household usage.

Water quality is a key issue. Municipally sourced water (~4.5 MLD per day through 4 elevated reservoirs) is sourced from ground water in an area north of the town and the water quality has not been tested. The treatment of water is unscientific - done through simple chlorination and is not tested for potability before supply. Anecdotal evidence suggests the proliferation of packaged drinking water cans that are primarily used for drinking purposes.

Revenue collection of municipal water is another key issue and the number of metered connections is low.

Recommendations

i. Emphasis is to be placed on covering urban poor households, leveraging state-level government themes to cover the access gap (to piped water) as a priority. Focus in the medium term can be to reduce dependence on ground water and cover households that rely only on tube and bore-wells. A key aspect of this initiative is to focus on conducting awareness and mass enrolment drives to trigger behavior change and bring more citizens in the system. This has to be accompanied by capacity building of the ULB staff in order to enable them to spearhead such an initiative

ii. Proliferating water meters in order to tackle the problem of non-revenue water. Initial focus can be on ensuring covering of all bulk generators and apartment complexes and the metering of all new connections

iii. 3. A system for testing water quality on a regular basis and constant monitoring to ensure public health is an immediate concern. This sets the basis for the implementation of an approved infrastructure project for water supply that can address the increased demand for safe and municipal water

2. Limited access to toilets for floating populations and sustaining ODF in vulnerable areas.

Current Status

There are currently four public toilets in the town. Public toilets currently are not equipped to service menstrual hygiene requirements and do not have a sustainable cost-recovery or sustainable maintenance model. Access to these public toilets is restricted by unscheduled timings and the lack of caretakers. Moreover, there is a need to construct public toilets in other areas of the town that often see a large floating population. One community toilet exists in Yanadi colony to service areas

where space constraints do not allow the construction of IHHTs – the maintenance of this toilet is managed by the community with materials supplied by the municipality. Infrastructure development proposals have been made for the construction of seven new public toilets and two new community toilets in relevant locations.

Interviews and focus group discussion indicate that there is poor awareness of the use of a twin pit latrine system and this is a vulnerable point for slippage. In order to sustain the recent ODF status that Kovvur town has received, constant monitoring and behaviour change activities are important to keeping a check on open defecation.

Recommendations

i. The functionality of existing assets is a key imperative. Upgradation of the public toilet in Goshapadakshetram and the community toilet at Yanadi colony in terms of desludging, maintenance, lighting, provision of menstrual health facilities and installing caretakers. This would bring all public toilets in line with service level benchmarks and standardize them with the two new public toilets at the municipal office and court complex

ii. Constructing two new community toilets (Rajiv Colony and Sri Ram colony) and the seven new public toilets would increase coverage to ensure that the needs of the floating population is met

iii. An information education campaign in vulnerable areas on the correct use of a twin pit system is at the heart of tackling ODF slippage.

iv. Ensuring that all the existing and new public and community toilets have gender segregated entrances and have inclusive designs where people of all genders, age and social classes feel comfortable. Ensuring that the facilities are comfortable for use by the differently abled

v. Models for Operations and maintenance of PTs and CTs to be explored with specific opportunities to women as social entrepreneurs

3. Irregular desludging of containment structures and the absence of liquid waste treatment systems for black, grey and storm water

Current Status

Kovvur has a decentralized black water management system. Most containment structures (72%0 in the town are single pit latrines with the rest being septic tanks or twin pit latrines. Desludging operations are irregular and occur when the containment structure has filled up. Two septic tank trucks (using mechanized suction) currently operate in the town and empaneled with the municipality, making 3-4 trips on average per day. The volume of faecal sludge generated per day is 10-12 kL. Both operators employ the use of personal protective gear, record data of desludging operations in an FSM tracker (a phone based data entry form recording details of the tank/household being desludged) and have their vehicles fitted with GPS devices. Currently no provision exists for the treatment of faecal sludge and the waste is disposed into agricultural canals outside the town limit.

Grey water management in the town is linked to the existing open storm water drainage system. Field observations suggest that a majority of structures have a septic tank overflow valve and water disposal valve connected to the storm water drainage system. The system disposes the grey and

storm water of the town into the Kongalapadu irrigation canal on the western periphery of the town. These drains are monitored by the public health section who conduct regular de-silting and maintenance. Currently, there is no provision for treatment and reuse/recharge using this water.

Recommendations

i. The construction of a faecal sludge treatment plant to treat the town's faecal waste generated from on-site sanitation systems is a priority.

ii. Conducting behaviour charge campaigns to encourage regular desludging of containment structures and to facilitate the quick establishment of a treatment facility.

iii. Roles and responsibilities are to be clearly defined to ensure that capacity is built within the municipality to employ the data gathered from the FSM tracker and GPS devices, and to monitor desludging operations of private operators, to address all gaps in the operationalization of GO134 & GO135.

iv. Infrastructure improvement of storm water drains is to be conducted through conversion of the existing open drains to covered pucca drains. In the medium term, the feasibility of establishing a waste water treatment plant is to be explored.

v. Grey water management must also include an identification of bulk disposers/local industries to regulate drainage into the system, identification of clogging hot-spots and a scheduled route map is to be put in place for desilting of drains.

4. Lack of waste segregation at source and absence of treatment facilities for wet and dry waste

Current Status

Kovvur has a high coverage (98%) of door-to-door collection of waste from households and commercial establishments. Source segregation efforts are in the works and are planned to be initiated along with the procurement of new collection vehicles. There are no public bins to drop off household waste due to the state's bin free city policy. Micro pocket planning is in place and sanitary workers collect waste and gather at secondary collection points within the city, which are then transported to be dumped. Currently, there is no provision for the treatment or recycling of solid waste. A notified dumping site north of the town exists but municipal waste is often disposed in other lands around the ULB limits.

Street sweeping is undertaken by the Public Health (PH) staff workforce once a day, council resolutions have been passed to initiate a second round of street sweeping in commercial areas at night time. Main commercial areas have dustbins set up by independent shop owners - the municipality is currently in the process of regulating and filling gaps in the placement of bins in all commercial areas. Recent plans include the introduction of an incentive system for public health workers (both permanent and temporary) that recognizes performance and attendance, and fines for littering.

Recommendations

i. In a phased manner, introduce source segregation to cover the town. Initial emphasis on bulk generators and ward-wise coverage through residential areas of the town. These efforts must be supported by capacity building and infrastructure initiatives to enable public health workers to manage all new reforms, and large scale awareness campaigns to push for

segregation at source. The municipality needs support in planning route maps, schedules and monitoring waste segregation.

ii. Establish a dry waste resource center in or to reduce the volume of solid waste that the city needs to dump. Establish a wet waste processing center at the town level (wind row/vermi-composting). This could be done through remediation of the existing dump site. In the medium and longer term, composting can be decentralized by encouraging larger waste generators to become zero waste generators in terms of wet waste. Information education initiatives and programs to invite players and enable the sale of compost for agricultural use within ULB limits should be explored in the medium term. Issue licenses to rag-pickers and integrate them through the dry waste resource center.

iii. Regular performance incentives for public health workers and the linking of Personal Protective Equipment (PPE) usage to the assessment system

The City Sanitation Plan (CSP) has been prepared by the Sampoorna Swachhata Sankalp (S3 Andhra) comprising of the Administrative Staff College of India, EY & the University of Chicago) team in conjunction with Kovvur municipality. Data contained in this document is based on a baseline study conducted in late 2016, municipal records, Census data and informal discussions. The roadmap outlined here is anchored by the urban local body in conjunction with all stakeholders including citizens, private actors in the space, community organizations, women SHGs, and the sanitation workforce and associated parties. This is a living document - to be constantly improved based on ongoing initiatives and updated information.

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Section 1. Introduction and Context

1.1 Introduction and Background

The City Sanitation Plan (CSP) for Kovvur provides an integrated action plan to achieve universal sanitation access as envisioned in Government of India's National Urban Sanitation Policy (NUSP) situated within the framework of Swachh Bharat Mission. The CSP identifies the issues related to infrastructural improvements, governance, financial, capacity enhancement, awareness raising and pro-poor interventions and proposes short, medium and long- term measures to achieve the goals of National Urban Sanitation Policy (NUSP).

The purpose of this document is to act as a guiding document to assist all stakeholders (the ULB, community level organizations and other private actors) led by the City Sanitation Task Force (CSTF) in taking concrete steps across water supply, liquid waste (faecal sludge, storm water, waste water), solid waste management to move towards 100% sanitation to improve the standard of health and hygiene for the citizenry.

This document has been developed by the Kovvur Municipality through multi-stakeholder consultations with the support of the S3 Andhra team. The data presented in this document is data includes census data, ULB data across sections and a baseline study conducted from late 2016 onwards.

1.2 City Sanitation Task Force (CSTF)

The first City Sanitation Task Force (CSTF) was constituted vide a council resolution on 15th May 2016 mainly for the micro planning, work rationalization and monitoring of sanitation (esp. solid waste management) related activities in the town as directed by the Government for Andhra Pradesh through a government order, GO No. 279 dated 31st Dec 2015. Regrettably, since its inception no CSTF meetings were held. Recent change in political leadership, unavailability of few members and change in representation from organizations involved developed a need for re-constituting the CSTF. With recent preposition from the S3 team reinforcing the need for CSTF for developing the City Sanitation Plan (CSP), the Municipal Commissioner proposed changes in the composition of CSTF and the new CSTF was formed vide a council resolution on 29th April 2017. The copies of the council resolutions and the old CSTF list is presented in ***Annexure 1*** for reference.

The present CSTF is an 18 members committee headed by the Municipal Chairperson with Municipal Commissioner as the convener. It consists of ward councilors, municipal sanitation staff, representatives from educational institution, chamber of commerce, bar association, lions club, rotary club and few ex-ward councilors. The **Table 1-1**below shows the composition of the current CSTF.

The new CSTF has a women sub-committee to plan, guide and monitor gender sensitive interventions in sanitation improvement such as menstrual hygiene, safe access to community and public toilets, facilities within them, safety and privacy. The sub-committee is headed by the Chairperson supported by the women CSTF members. It has been decided to include the lady Head Mistress of the Municipal High School in this group.

The first CSTF meeting was conducted on 22nd May 2017. The key points discussed during the meeting were:

1. Need, roles and responsibilities of CSTF and the sub-committee

2. Existing situation of sanitation in the town
3. Preparation of CSP
4. Implementation of FSM guidelines (GO 134)
5. Selection of Pilot ward for initiating source segregation of solid waste
6. Frequency of CSTF meetings

Table 1-1 Members of the CSTF

Sl. No.	Name	Designation	Role in CSTF
1	Mrs. Jonnalagadda Radha Rani	Chairperson, Kovvur Municipality	Chairperson
2	Mr. T Nagendra Kumar	Commissioner, Kovvur Municipality	Convener
3	Mr. P Sudhir	Civil Surgeon, Govt. Hospital	Chairman, Health Standing Committee
4	Mr. P V Prabhakar Rao	Assistant Engineer, Kovvur Municipality	Chairman, Sanitation Standing Committee
5	Mr.B Gangaraju	Sanitary Inspector, Kovvur Municipality	Chairman, Solid Waste Management Committee
6	Mr. Naidu Venkateshwara Rao	12th Ward Councilor	Chairman, Standing Committee for Strategy, Planning & IEBC activities
7	Mr. Matte Narayan Murthy	Chamber of Commerce	Member
8	Mrs. N. Lakshmi Kantam	President, Town Level Federation (MEPMA)	Member
9	Mr. Y. Satyanarayana	Vice Principal, Govt. Junior College	Member
10	Mr. Akula Raman	President, Rotary Club	Member
11	Mr. Goli Venkata Ratnam	President, Lions Club	Member
12	Mr. Misala Prasad	PH Worker	Member
13	Ms. Misala Satya Devi	11th Ward councilor	Member
14	Mr. Potru Srinivasa Rao	21st Ward councilor	Member
15	Mr. Prasad	Circle Inspector of Police	Member
16	Mr. Kalavacherla Seshagiri Rao	President, BAR association	Member
17	Mr. Murukonda Ramesh	President, Town Telugu Youth Association	Member
18	Mr. Nageswara Rao	Masons Association	Member

Source: Kovvur Municipality, April 2017

1.3 City Profile

1.3.1 Location

Kovvur town is situated on the western bank of River Godavari, it is about 12 km from Rajamahendravaram city and 92 km from Eluru which is the district headquarters of West Godavari

in Andhra Pradesh. It is located at 17.0167°N 81.7333°E and has an average elevation of 10 m (33 ft.) above mean sea level.

Figure 1-1 Location of Kovvur town

Source: Google Maps, 2017

1.3.2 Nature and importance

Kovvur, in West Godavari, is known as an institutional and religious town. "*Goshpada Kshetram*" is a very well-known tourist place where there are a numerous temples and a *Ghat* where the Godavari *Pushkaralu* take place.

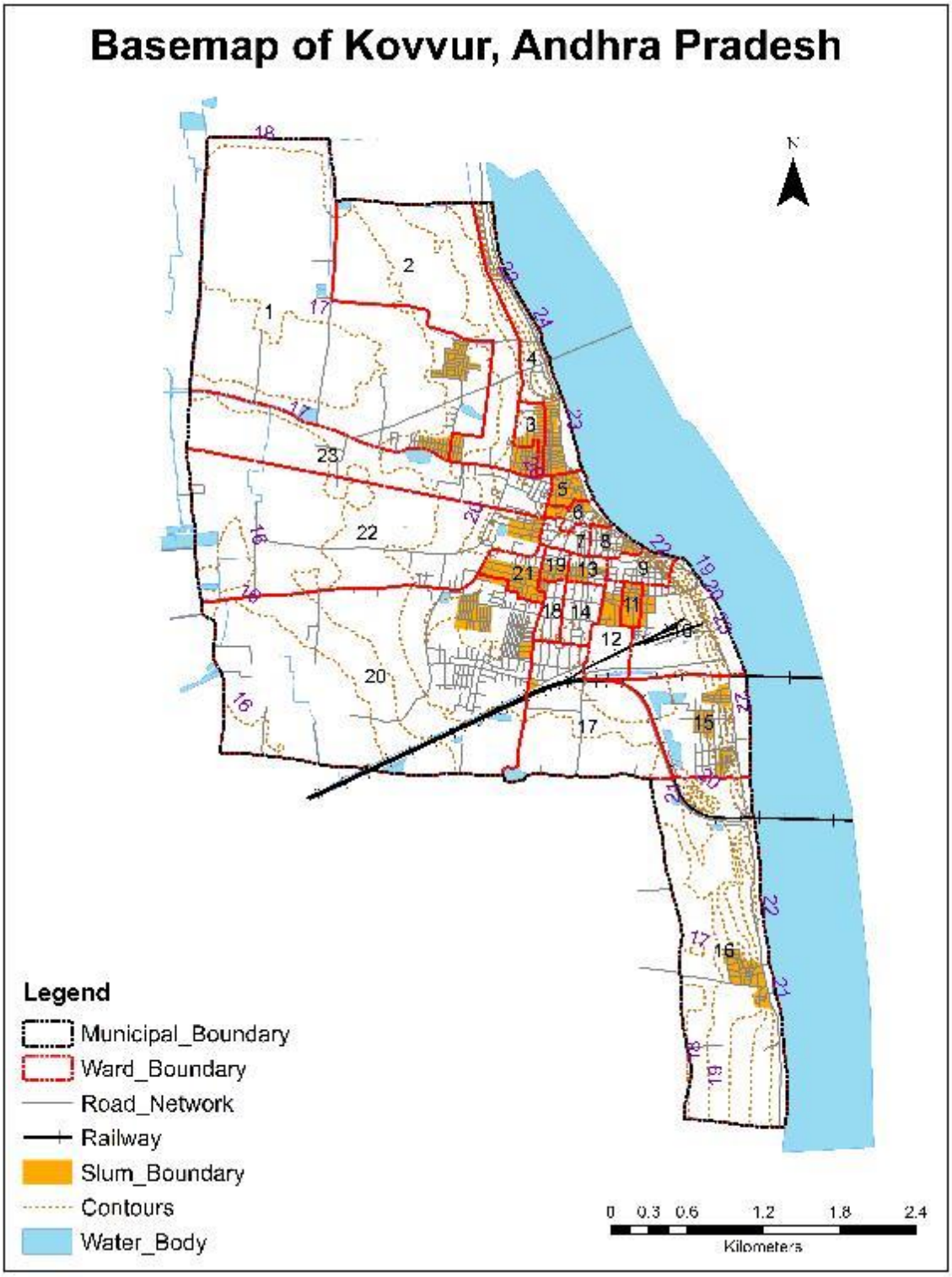
1.3.3 Physical characteristics

Kovvur Municipality is a Grade-III municipality since 2001. It was upgraded from Nagar Panchayat into Municipality in the year 1995. The town is spread across 24.56 sq.km[1] and has 23 municipal electoral wards[2].

[1] As per District Census Handbook (DCHB), West Godavari, Census of India, 2011.

[2] Note: As per Census of India, 2011 there are 16 municipal revenue wards. In March 2014, for conducting the municipal elections, the town was reorganized into 23 electoral wards.

Map 1 - Administrative Map of Kovvur



Source: Kovvur Municipality and S3 team GIS analysis

1.3.4 Demography

1.3.4.1 Resident population

The population of the town as per Census of India, 2011 is 39,667 inhabiting in 10,919 households are indicating average household size of 3.6. With 19,244 males and 20,423 females, the sex ratio in the town is about 1061, which is higher than State's average of 993. The sex ration among children below 6 years is 1027 (1859 boys and 1909 girls) compared to state average of 939. The transgender population in the town is yet to be ascertained and it is assumed to be zero.

The latest data from the municipality indicates that though there has been no increase in the population, there has been an increase in the number of households (11,295 HHs). The ward-wise population details[3] are in the Table 1-2 below. The most and least populous wards in town are ward nos. 20 and 10 respectively.

Table 1-2 Ward-wise population of Kovvur Municipality

Ward. No.	Population	Population		No. of Households
		Male	Female	
1	2174	1073	1101	531
2	1711	848	863	477
3	2105	1045	1060	515
4	1846	901	945	547
5	1581	792	789	543
6	1195	597	598	309
7	1338	651	687	410
8	1210	551	659	382
9	1871	908	963	596
10	1044	534	510	211
11	1084	548	573	331
12	1544	750	794	328
13	1421	704	717	411
14	1809	869	940	590
15	2418	1175	1243	649
16	1748	864	884	510
17	1786	855	931	564
18	1845	896	949	532
19	1079	512	567	209

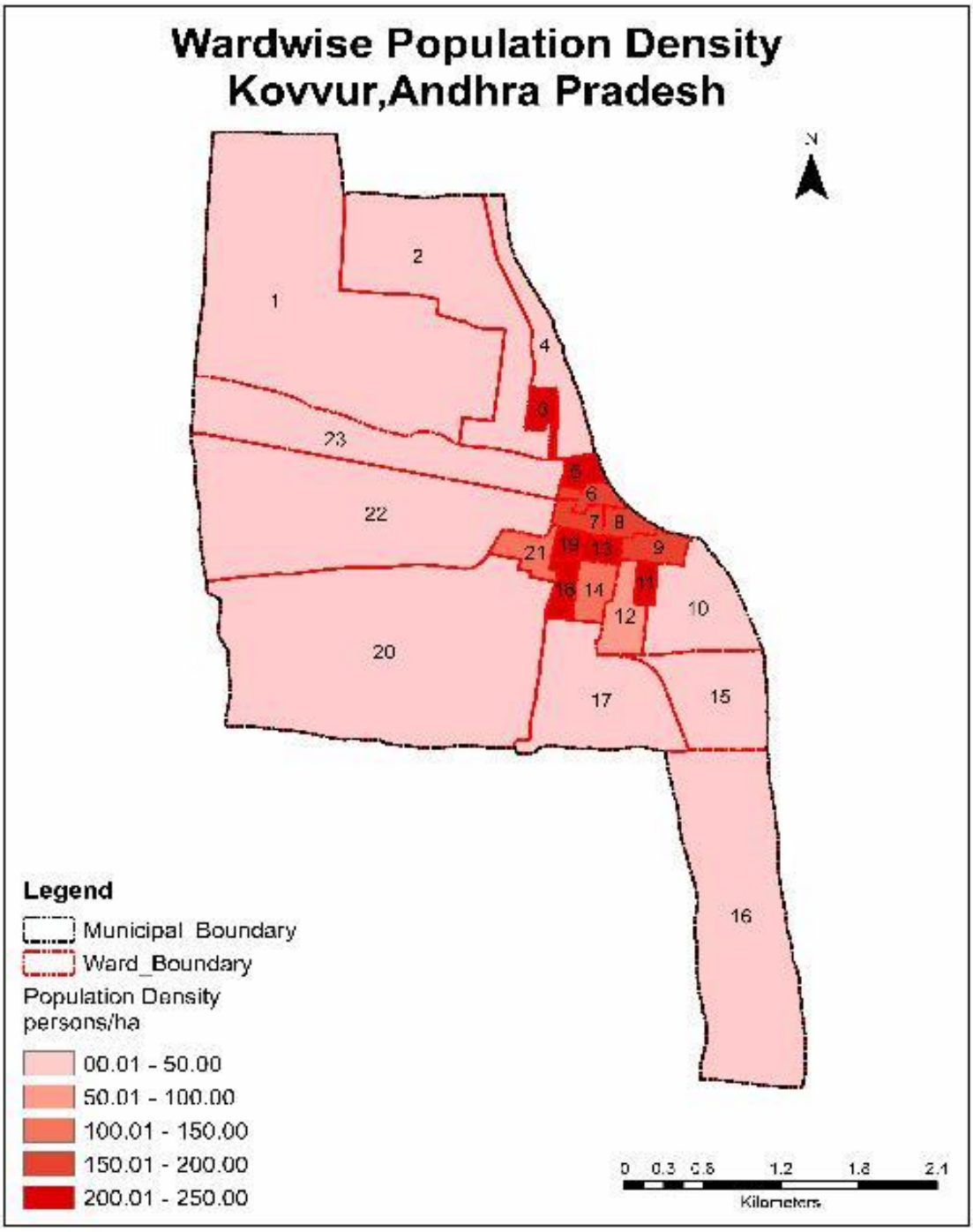
[3] The details of area of each ward is not available, they need to be calculated through the GIS map. Therefore, the ward-wise densities are not presented.

Table 1-2 Ward-wise population of Kovvur Municipality

Ward. No.	Population	Population		No. of Households
		Male	Female	
20	4560	2089	2471	1557
21	1630	814	816	417
22	1328	650	678	333
23	1342	665	677	343
Total	**39667**	**19291**	**20415**	**11295**

Source: Kovvur Municipality, 2016

Map 2 – Population density of Kovvur



There are 23 wards in the city. The twelve at the heart of the city are densely populated.

Source: Kovvur Municipality and S3 team GIS analysis

As per the Census 2011 data, the town has a literacy rate of 74.3 percent. The literacy rate of male population is higher (77.8%) than that of the female population (71%).

With respect to the social composition of the town, 21% percent of the total population belong to the scheduled castes and 2% belong to scheduled tribes. The remaining 77% belong to the backward, other backward and other castes.

1.3.4.2 Urban poor

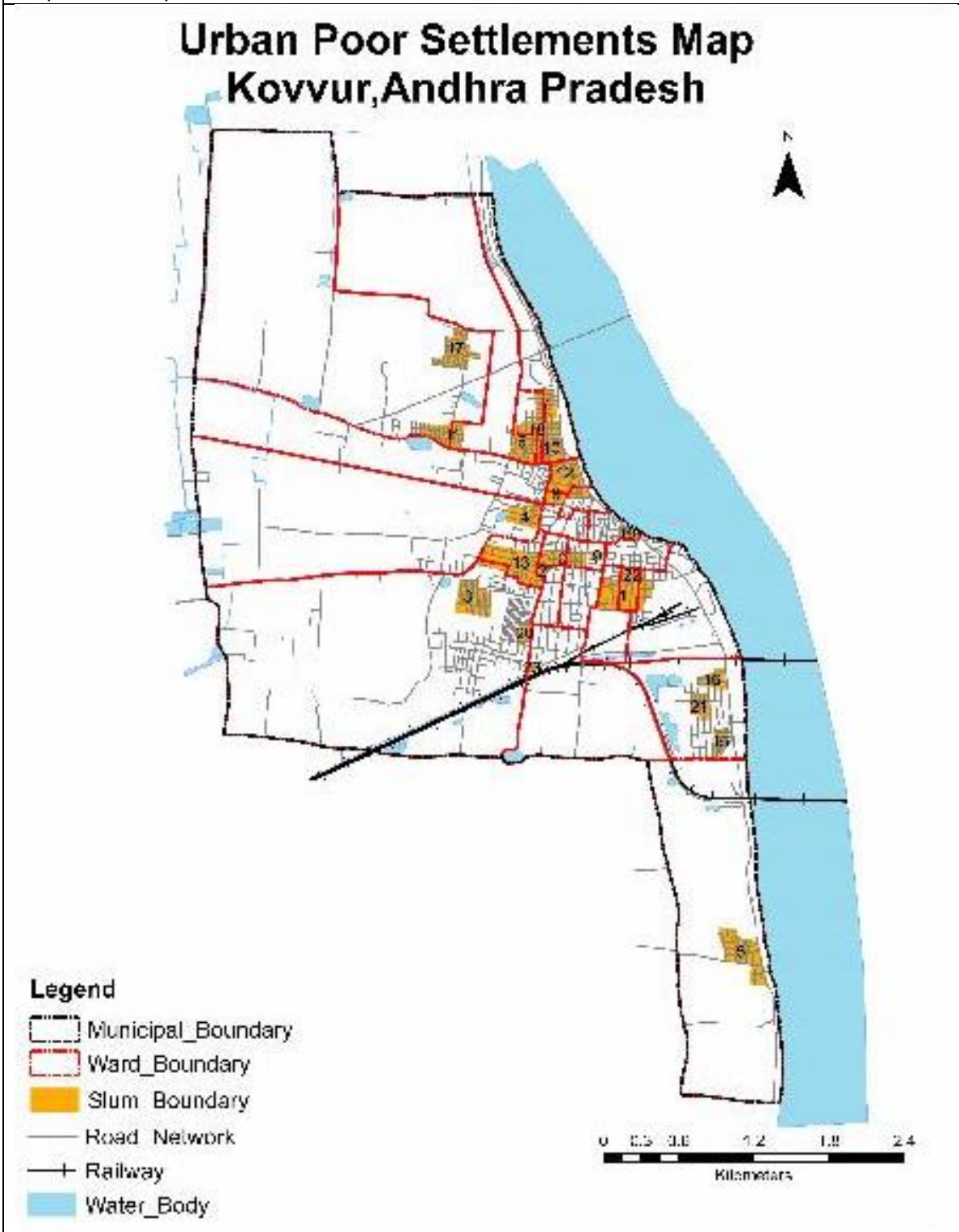
The urban poor population in the town is 25,219 in 6,042 households. They constitute to about 63.6 percent of the total population. The urban poor currently reside in 23 notified slum settlements in the town, details of the same are presented in the Table 1 3 below. The settlements in the old 7th & 8th wards and Chakalimanyam are the largest slums housing more than one third of the urban poor population in the town. Information on urban poor households that are headed by women, is yet to be collected.

Table 1-3 Details of urban poor settlements

Sl. No.	Slum Name	Location / Ward No.	Population	No. of HHs
1	Old 7th and 8th wards	10, 11 & 12 (partly)	2,686	653
2	Chakalimanyam	18	2,520	595
3	Atchayamma, Taxi and Library colonies	20	1,994	337
4	Old 13th and 14th wards	18 & 19 (partly)	1,451	443
5	Aurangabad	16	1,440	337
6	1st ward other than Sri Rama Colony	2	1,410	361
7	Christianpeta	4	1,407	381
8	Old 4th Ward	5, 6 & 4 (partly)	1,404	348
9	Old 12th and 13th wards	18 & 13 (partly)	1,380	340
10	Harijanapeta	3 & 4	1,293	300
11	Sri Rama colony	1 & 2	1,216	298
12	Old 3rd and 4th wards	5 & 4	1,158	289
13	Vegi vari chavidi	20	792	174
14	Rellipeta	12 & 11 (partly)	742	204
15	Vambay colony (new Bridgepeta)	15	731	102
16	Old Bridgepeta	15	702	152
17	Rajeev colony	1	598	162
18	Avula vari colony (old 1st ward)	2	527	112
19	Uta lanka	9	463	141
20	Yanadi colony	20	449	109
21	New Bridgepeta	15	426	92
22	Old 11th ward	13	270	78
23	Old 10th ward	17	160	34
	Totals	---	**25,219**	**6,042**

Source: Kovvur Municipality, 2017

Map 3 – Urban poor settlements in Kovvur

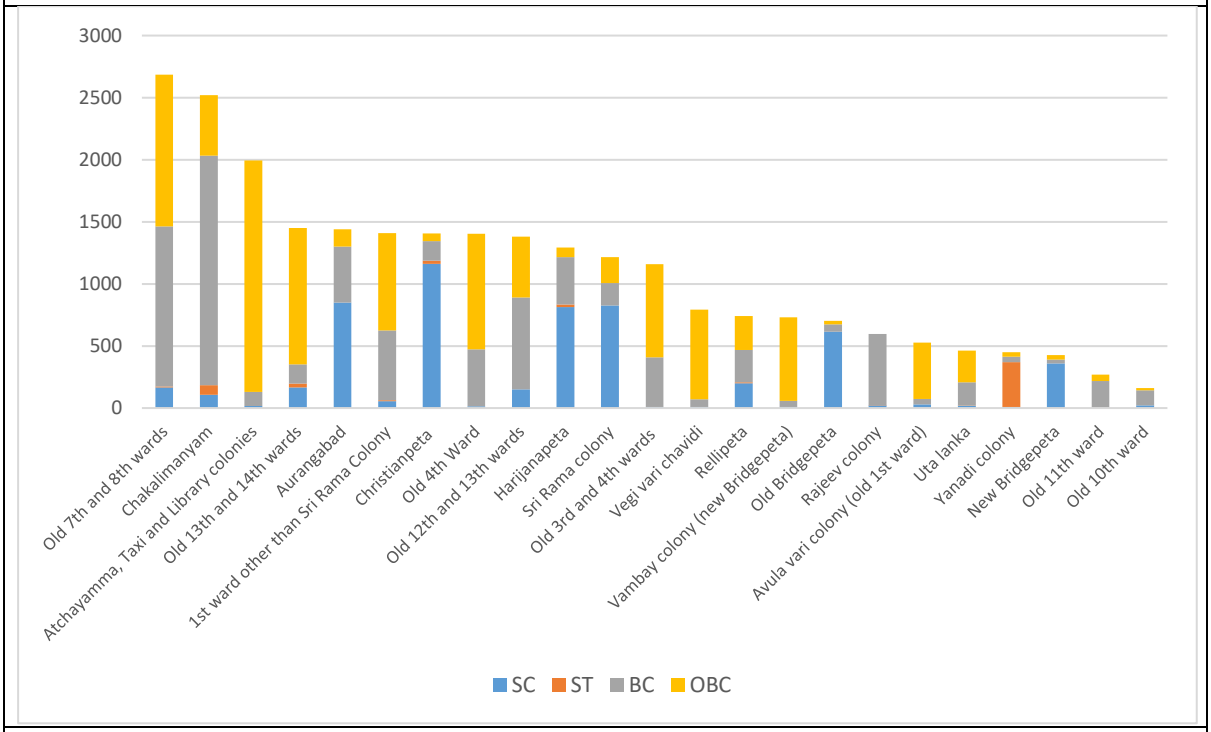


There are 23 notified slums in Kovvur. The ODF slippage vulnerable points are situated in or near these settlements

Source: Kovvur Municipality and S3 team GIS analysis

75 percent of the urban poor population belong to the backward castes (42% OBC and 33% BC), 23 percent belong to scheduled castes and the remaining 2 percent are schedule tribes. There is no other/forward caste population in the slums.

Figure 1-2 Social Composition of Wards



Source: Kovvur Municipality, 2017

Only 6 out of the 23 wards in the town i.e. 7, 8, 14, 21, 22 and 23 do not have any urban poor settlements.

1.3.4.3 Floating population

Daily floating population

Kovvur town being the taluka headquarter has many government institutions like the court complex, RDO office, MRO office and a government area hospital. In addition to this, Kovvur town is has the main market areas for surrounding villages therefore employees working in the government offices, people visiting these offices and the ones coming to the market contribute to the daily floating population of the town. It is estimated that about 3000 to 5000 people visit the town every day.

Seasonal floating population

As described in the introductory chapters, Kovvur is a town of religious importance. Goshpadakshetram situated along River Godavari attracts large numbers of visitors and pilgrims due to the presence of numerous temples, yoga and meditation centers. It is estimated that about 80,000 people visit Goshpadakshetram annually. The details of the seasonal floating population (month-wise) is presented in the Table 1-4 below.

Table 1-4 Details of seasonal floating population at Goshpadakshetram

Month	Date	Festival	Expected floating population
January	13	Bhogi festival	1,000
	14	Sankranthi	2,000

Table 1-4 Details of seasonal floating population at Goshpadakshetram			
Month	**Date**	**Festival**	**Expected floating population**
February	10	Magha full moon day	3,000
	24	Sivaratri	30,000
March	29	Ugadi	3,000
April	05	Sri Ramnavami	1,000
	29	Akshaya Tithiya	1,000
May	10	Full moon day (Vaisakha)	2,000
July	04	Toli ekadasi	2,000
August	04	Varalakshmi Vratam	2,000
	25	Vinayaka Chavithi	2,000
September	30	Vijayadasimi	5,000
October	20	Kartika Masam/ Monday	2,000
November	04	Rituals during Kartika Masam	20,000
	24	Subramanyeswara Shasti	2,000
December	29	Vykunta Ekadasi	2,000
		Totals	**80,000**
Source: Kovvur Municipality, 2017			

February and November months attract large numbers of pilgrims and visitors at Goshpadakshetram. Currently, the ULB deploys the sanitation staff to carryout gang work during the peak flow days to keep the surrounds clean.

1.3.4.4 Population forecast

The Census data indicates a very less growth rate of population in the last decade compared to the previous decade. Below are the details:

Table 1-5 Decadal growth rate of population			
Year	**Population**	**Increment**	**Decadal GR**
1991	29863	-	-
2001	39372	9509	31.84
2011	39706	330	0.84
Source: Census data			

Considering low growth rate, the Arithmetical Increase method is best suitable for the town compared to other population projection methods. As per this method the following are the projection details for the next 25 years.

Table 1-6 Population projection			
Year	**Population**	**Year**	**Population**
2017	42654	2030	49050
2018	43146	2031	49542
2019	43638	2032	50034
2020	44130	2033	50526
2021	44622	2034	51018
2022	45114	2035	51510

2023	45606	2036	52002
2024	46098	2037	52494
2025	46590	2038	52986
2026	47082	2039	53478
2027	47574	2040	53970
2028	48066	2041	54462
2029	48558	2042	54954
Source: DPR prepared for SWM, 2016			

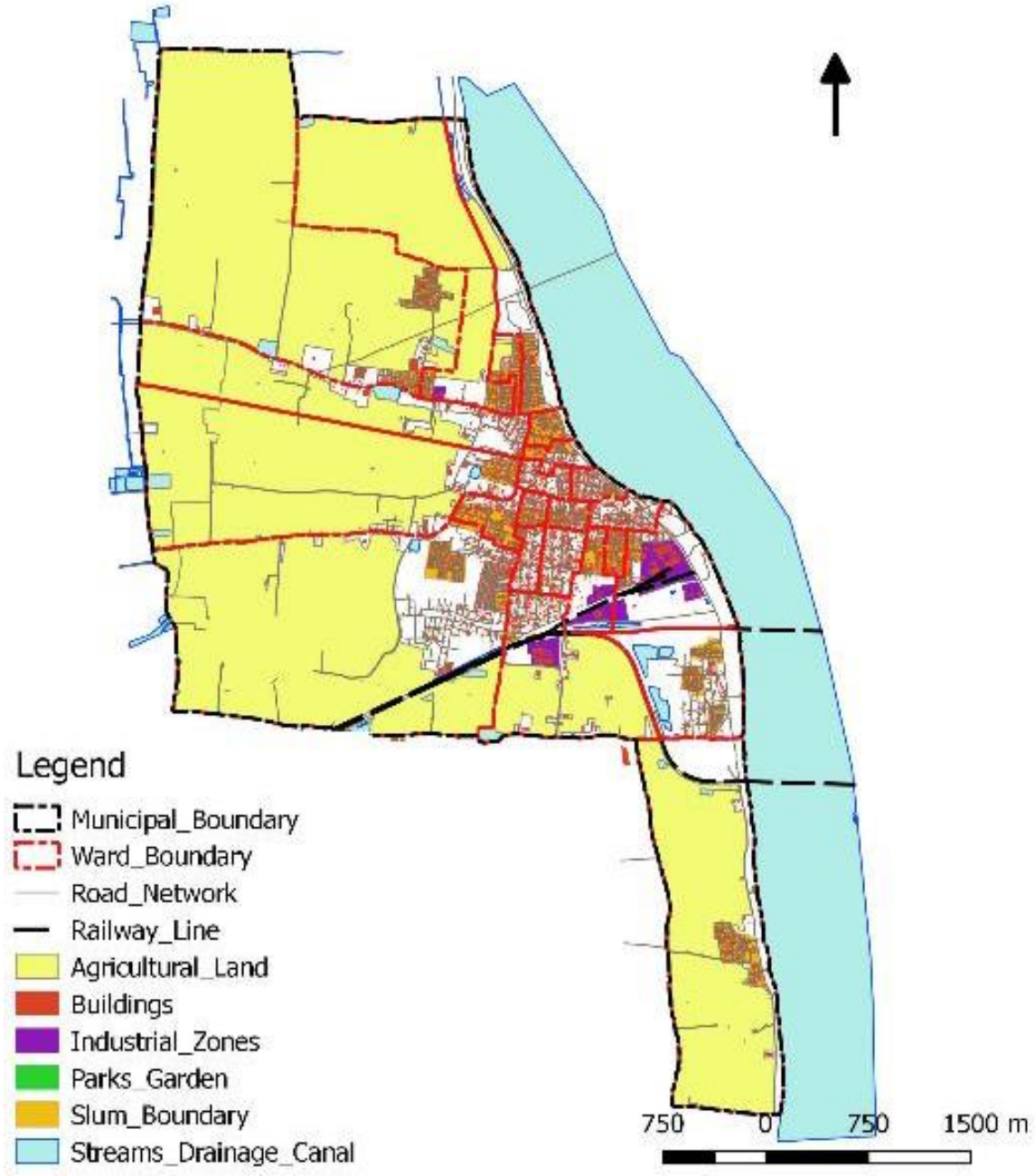
1.3.5 Land-use pattern

Majority of the land area in the town is put to residential and agricultural use, 34 and 36 percent respectively. Due to presence of industrial establishments like the Chemical Division of Andhra Sugars and Avanti Feeds etc. 10 percent of the land is covered by industries. Commercial areas contribute to about 2 percent of the land. Open areas and water bodies occupy 2 percent of the land. As per the Town Planning Section of the ULB, 9 per of the land is demarcated as urbanisable.

Table 1-7 Land-use classification of the town

Sl. No.	**Type of Land-use**	**Area** (in Acres)
1	Residential	2081.30
2	Industrial	596.08
3	Commercial	94.36
4	Public open spaces	57.62
5	Graveyards	0.10
6	Roads and communication	437.22
7	Water bodies	35.65
8	Urbanisable area	573.70
9	Agricultural lands	2192.87
	Total	**6068.90**
Source: Kovvur Municipality, 2017		

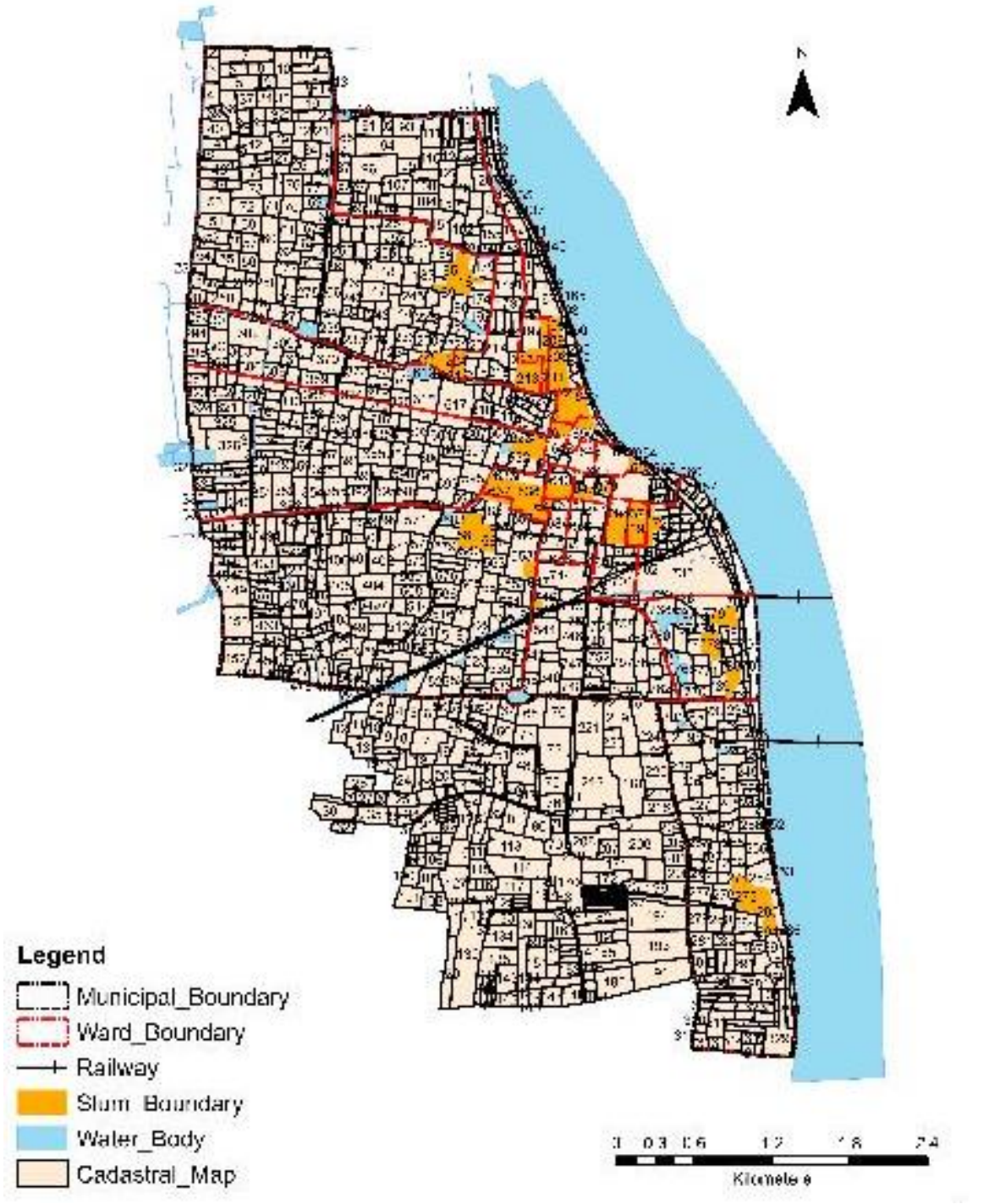
Map 4 – Landuse map of Kovvur



Over sixty percent of land is denoted as agricultural land — in the western, northern and southern peripheries. Settlement is concentrated at the centre of the city and along the bank of the Godavari in the East.

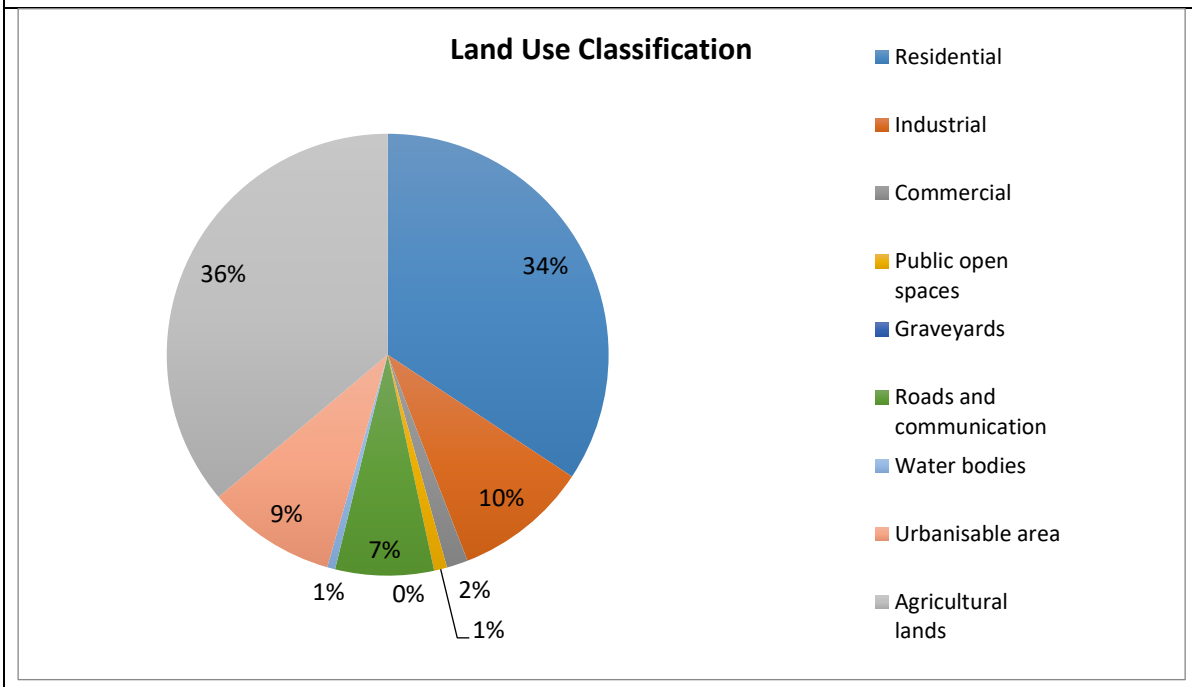
Source: Kovvur Municipality and S3 team GIS analysis

Map 5 – Cadastral map of Kovvur



Source: Kovvur Municipality and S3 team GIS analysis

Figure 1-3 Land Use Classification pie-chart



Source: Kovvur Municipality

1.3.6 Climate and Rainfall

Kovvur experiences tropical weather with hot and highly humid summers. With the onset of the south-west monsoon which tapers off by the end of September and north-east monsoon by the end of the November, winter months are milder. The temperature varies from 36.0 °C to 21.0 °C . The average annual rain fall is about 1136 mm.

1.3.7 Soil and Groundwater

The type of soil in the town is sandy alluvial soil due to its proximity to the River Godavari. The depth of the groundwater in the town varies between 10 ft. to 30 ft.

Section 2. Technical Sectors

2.1 Water supply

2.1.1 Baseline status

2.1.1.1 Source and treatment

The main source of water for municipal supply is groundwater. The groundwater is extracted using nine main bore wells (capacity of each is 15 hp) situated at the water works area on the either sides of the new fourth bridge built across River Godavari. There are two main collection wells with a total installed capacity of 6 MLD in which the extracted water is stored. The raw water is treated using simple chlorination technique and is pumped to the supply reservoirs using 9 pumps of 15hp capacity each. The municipal officials estimate that about 4.5 MLD of water is being put into distribution currently.

2.1.1.2 Storage and distribution

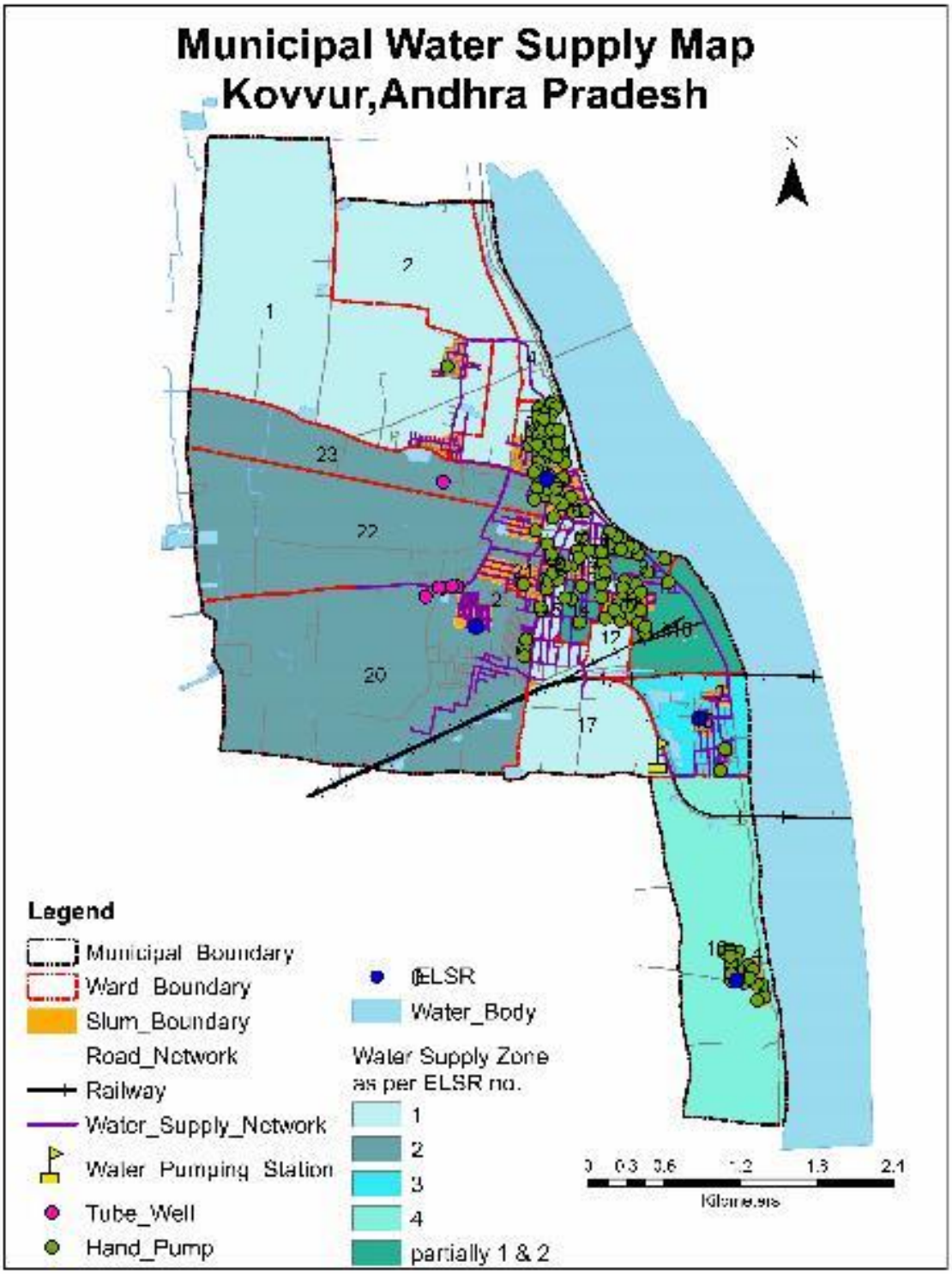
Kovvur being a small town, there are no water supply zones. There are four elevated service reservoirs (ELSRs) with a total installed capacity of 5.5 MLD. The distribution network under each ELSR is considered as one zone for managing the daily operations. Details of each ELSR and their service areas are presented in the Table 2-1 below. The total length of the existing distribution network is about 42 km. The ELSR at Rajiv colony is the largest (3.5 MLD), supplying water to about 60 percent of the population. The water is supplied daily with an adequate pressure, but for about 4 hours only.

Table 2-1 Details of water storage infrastructure in the town

Sl. No.	Reservoir type	Location	Capacity (ML)	Wards served
1	ELSR	Rajiv colony	3.5	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 17, 18 completely and partially in 9, 10 and14
2	ELSR	Achayamma colony	0.75	19, 20, 21, 22, 23 completely and partially in 9, 10 and 14
3	ELSR	Bridgepeta	0.75	15
4	ELSR	Aurangabad	0.5	16

Source: Kovvur Municipality, 2017

Map 6 – Water supply map of Kovvur



Only a third of households have access to municipal piped water in their homes. A majority relies on public stand posts and hand pumps.

Source: Kovvur Municipality and S3 team GIS analysis

2.1.1.3 Water supply connections

Currently there are only 3,782 household connections and 45 commercial connections in the town. It indicates that the coverage of household connections is only 33 percent. It is assumed that the

remaining 67 percent of the households depend on the existing 100 public stand posts installed at various locations in the town. The municipal officials estimate 100 LPCD availability at the user end.

2.1.1.4 Water tariff

Currently there is no metering system being implemented in the town for individual/household tap connections. Therefore, a flat rate of Rs. 100 per month per household connection is levied by the municipality. Only the commercial connections are metered. They are being charged Rs.0.45 per liter of water supplied.

Consumers generally pay these user charges on half yearly basis along with the property tax.

2.1.1.5 Other Municipal sources

In addition to the above-mentioned water supply system, there are 147 hand bores installed by the municipality at various locations to cater to urban poor or non-serviced areas.

2.1.1.6 Alternate arrangements by households and establishments

Though there is a municipal water supply system, it has been observed that, due to abundant groundwater availability in the town most of the non-slum households (approximately 4000 HHs) and establishments have a private bore well or a hand pump as an alternate source of water. Generally, the municipal water is used for drinking purposes and the water from bore wells is used for non-potable purpose. Increasing issues of the quality of municipal water are leading to citizens switching to bottled/canned mineral water for drinking.

According to Census data, 3334 households do not have the access to drinking water in their homes and rely on public stand posts for water.

2.1.1.7 Access to water for women headed households

There are 1387 women headed HHs in Kovvur. Census data indicates that 1155 of those households have a drinking water facility within the house. Information for the intervening years is unavailable and as per this information, 232 women headed HHs do not have access to drinking water within their homes. These households are to be identified and access to water is to be provided on a priority basis.

2.1.1.8 Responsibility of service delivery

The Public Health Engineering Department (PHED) at the state level is responsible for planning and asset creation/construction of the water supply related infrastructure. The Engineering section of municipality is responsible for the regular operation and maintenance of the water supply systems. An Assistant Engineer is deployed to supervise these activities. Cost recovery (collection of user charges) of water supply in the town is carried out by the revenue section.

2.1.1.9 Ongoing / upcoming water supply projects

Since the town is currently dependent of groundwater, it is a challenge in the summer months to supply water due to less yield from the existing bore wells. To reduce dependency on groundwater and improve quantity and quality of water supply, a Detailed Project Report has been prepared by PHED Eluru for augmenting water supply in the town to cater to the needs of the population till the year 2047. The estimated project cost is about Rs. 42 Crore (as per SSR 2017).

The main source of water will from River Godavari. The key components of the DPR include development of physical infrastructure, O&M costs for 5-7 years and capacity building.

Table 2-2 Abstract of the water supply DPR proposed for the town		
Sl. No.	**Description**	**Total Rs.** (in Lakh)
A	**Capital infrastructure:**	
1	Intake well to extract water from River Godavari	780.61
2	Head water works (8MLD capacity WTP)	1108.69
3	ELSRs	170.3
4	Distribution system	1513.82
5	HSC Shifting and provision for new HSCs	231.02
6	Sub-Total for Capital infrastructure	3804.46
7	Contingences and unforeseen items L.S (3%)	114.13
8	**Total for Capital infrastructure**	**3918.59**
B	**Operation & Maintenance:**	
1	Operation and maintenance plan for post scheme for 7/5 years (7years consumables and without power charges, 5 years establishment charges)	**196.40**
C	**Capacity building**	**15.22**
	Grand Total	**4130.21**
Source: Water Supply DPR prepared by PHED, 2017		

Both administrative and technical sanction to be accorded by the government is awaited, based on which the DPR shall be implemented.

2.1.2 Gaps & Issues

2.1.2.1 Water demand

Considering the present population of the town the current water demand at the rate of 135 lpcd is about 5.35 MLD. However, the town currently producing and distribution only 4.5 MLD of water. Therefore, there is a gap of 0.85 MLD.

Table 2-3 Water demand projection			
Sl. No.	**Year**	**Population**	**Water Demand @ 135 lpcd**
1	2022 (5 years)	45114	6.09 MLD
2	2032 (15 years)	50034	6.75 MLD
3	2042 (25 years)	54954	7.42 MLD
Source: Calculations based on population projections			

The proposed augmentation scheme as described in section 2.1.1.9 above will cater to the water demand of the town until the year 2047.

2.1.2.2 Zonal level water supply

Ward-wise data on water supply is unavailable as the municipality does not currently collect this data. This data is important for planning improvements in revenue water and filling gaps in supply.

2.1.2.3 Non-Revenue Water

The ULB officials claim that the distribution losses in water supply are negligible. To understand cost recovery in water supply, the historic disintegrated data on income and expenditure related to water supply is currently not available in the ULB. A detailed analysis of the audited financial statement for the last 5 years is in progress.

2.1.3 Main issues of Water Supply

1. Low coverage of house service connections
2. High dependency of ground water in majority of the households
3. High dependency on public stand posts in urban poor settlements
4. Availably of water at user end is not as per the norms
5. Raw water treatment method is unscientific and adhoc
6. Very low coverage of metered connections

Note: The issues mentioned above are as per the current situation. If the proposed DPR is implemented, it will address all the key issues mentioned above.

2.2 Access to Toilet

2.2.1 Baseline status

2.2.1.1 Individual toilets

The coverage of individual household toilets as per Census of India, 2011 was 92 percent. Out of the remaining 8 percent households, 1 percent depended on community toilets and the remaining 7 percent i.e. about 798 households used to practice open defecation. However, since the inception of Swachh Bharat Mission (SBM) in 2014, efforts to eliminate open defecation in urban areas across the state resulted in construction of 770 individual household latrines in the town increasing the IHHT coverage to nearly 99 percent.

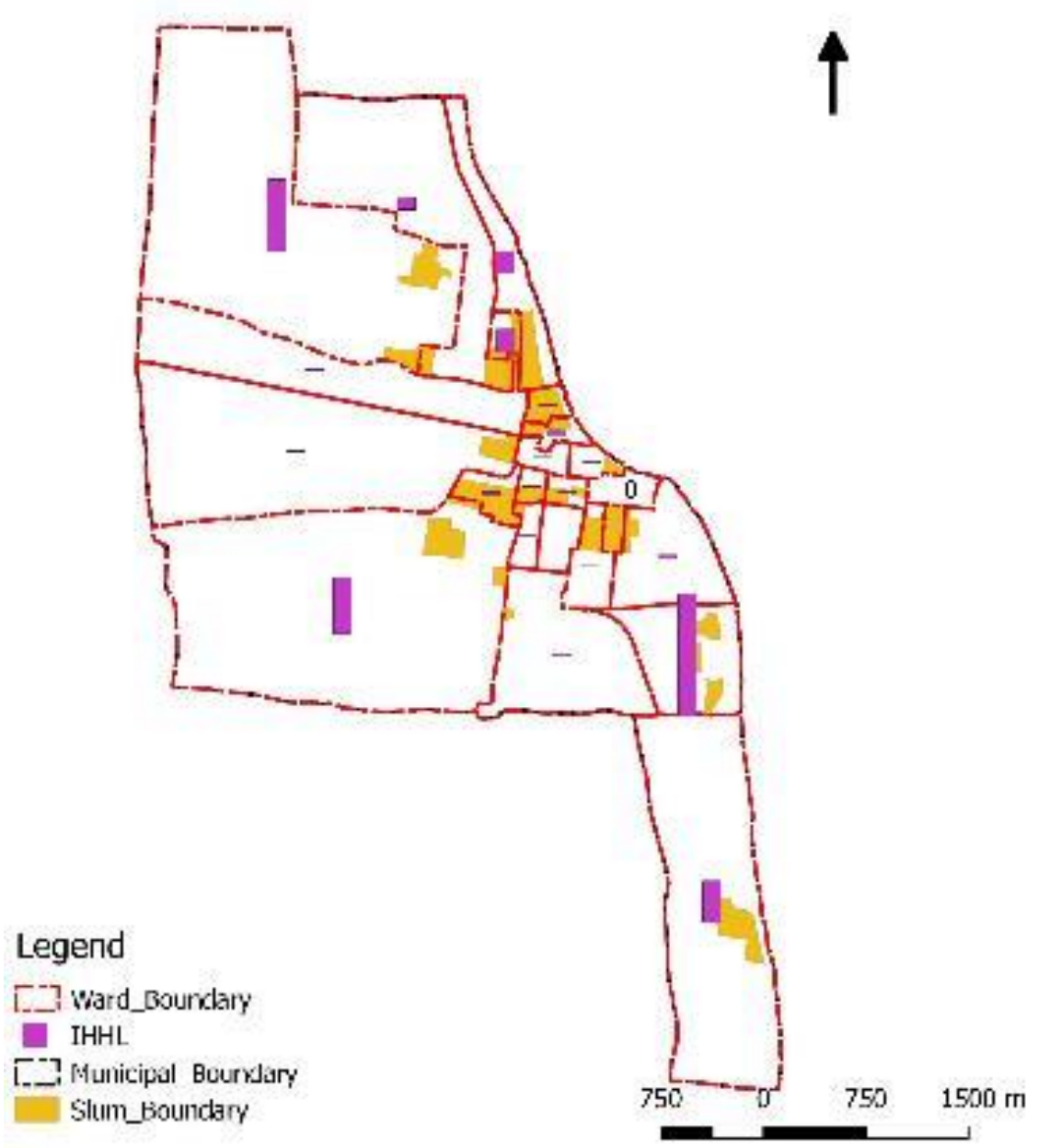
Out of the 770 toilets constructed, 706 were in slum settlements and the remaining 64 were in non-slum settlements. The table below shows details if IHHTs constructed under SBM. As per the municipal officials, the remaining households without individual toilets had no place to construct the toilet therefore depend on the nearest community/public toilet with some reports of open defecation. Efforts at constructing more community toilets & BCC activities are in progress to address slippage.

Table 2-4 IHHL constructed under SBM

Sl. No.	**Ward Number**	**Total No. of IIHL constructed**
1	1	145
2	2	25
3	3	46
4	4	46
5	5	3
6	6	10
7	7	1
8	8	1
9	10	9
10	11	2
11	12	1
12	13	5
13	14	1
14	15	248
15	16	85
16	17	6
17	18	5
18	19	3
19	20	113
20	21	8
21	22	2
22	23	5
	Total	770

Source: Website of SAC, data downloaded on 25-04-2017

Map 7 – Coverage of SBM toilets constructed in Kovvur



Over 770 IHHLs were constructed newly under SBM, extending toilet coverage to 99 percent.

Source: Kovvur Municipality and S3 team GIS analysis

Photo 2-1 IHHTs constructed under SBM


Source: Field study, Dec 2016

2.2.1.2 Community toilets

There is one Community Toilet (CT) in Kovvur situated at Yanadi colony (ward no. 20) to service households without IHHLs. In Yanadi colony, though a number of IHHTs were constructed under SBM, there is still need for the community toilet as a large number of households did not have space for construction of toilet. Currently, about 40 households (150 to 200 people) depend on this community toilet.

The toilet complex was completely renovated in November 2016 by the ULB and is fully functional now. It has a total of eight seats, four for women and four for men. There are no bathrooms or common was areas. There is ample water supply and lighting arrangement by the municipality. There is a separate entry for women to protect their privacy.

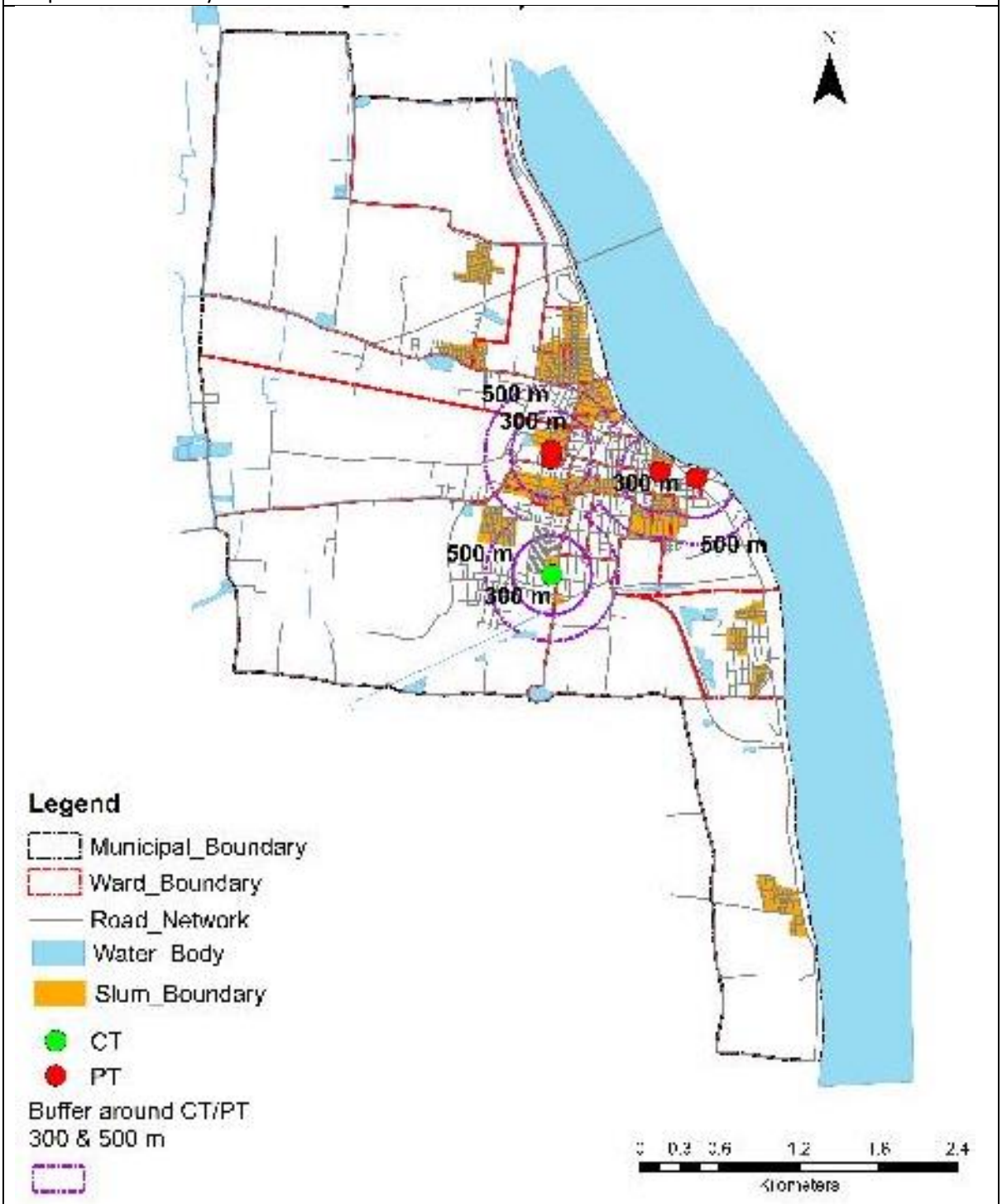
The community toilet is owned by the municipality and it undertakes the major repairs and maintenance. However, daily maintenance such as filling water, lighting and cleaning of toilets are carried out by local residents – there is a system in place currently whereby responsibilities are taken up by rotation. Cleaning supplies are provided by the municipality on need basis.

Photo 2-2 IHHTs constructed under SBM


Source: Field study, Dec 2016

In terms of disposal, the outlet is connected to a large septic tank adjacent to the complex. However, the outlet of the septic tank into the surface drain right in front of the toilets block along the road. The residents often complain about the foul smell due to the effluent flowing in the open drain. It was also said that in monsoon, the situation is worsened as the wastewater overflows from the drains on to the road and even into their houses.

Map 8 – Community and Public Toilets in Kovvur



There are three public toilet (at the court complex, municipal office and Goshapadakshetram) and one community toilet.

Source: Kovvur Municipality and S3 team GIS analysis

2.2.1.3 Public toilets

Currently, there are four Public Toilets (PTs) in the town to cater to the floating population. The details of the same are presented in the table below.

Sl. No.	Location / Ward	Floating Population	No of Seats		Waste disposal arrangement	Functional status (water, lighting, etc.)	Design consideration for men & women (privacy)	Complaint redressal system available	Owned & Maintained by	User charges (Rs)
			M	F						
1	Goshpadakshetram	300 to 400	4	4	Septic tank	Yes	Yes	No	Municipality	5 per usage
2	Bus stand	200 to 250	4	4	Septic tank	Yes	Yes	No	APSRTC	Nil
3	Behind municipal complex	~25	3	3	Septic tank	Yes	Yes	Yes	Municipality	Nil
4	Court Complex	200	3	3	Septic tank	Yes	Yes	Yes	Municipality	5 per usage

Photo 2-3 Public toilets in Kovvur

Source: Field study, Dec 2016, Sep 2017

2.2.1.4 Open defecation & open urination

Despite of high coverage of individual toilets after implementation of Swachh Bharat Mission, traces of open defecation(OD) is still practiced in various places in the town due to behavioral issues among fishermen communities in the town. OD is higher among men and children. Some of the hotspots of open defecation are along the banks of River Godavari like the Eranamma Ghat and Srinivasa Ghat near Toll Gate and Venkamma Cheruvu opposite to Srirama colony (Ward No. 1).

Open urination is also a key issue in the town. It is observed to be maximum at the Ghat areas along the river.

2.2.1.5 Menstrual Hygiene and Women's Toilets

Sanitary pad dispensers and incinerators are to be installed in all public and community toilets. A survey on menstrual hygiene practices in the town is to be done to understand the baseline and efforts are to be made for providing sanitary pad dispensers in public toilets and provision for incineration.

In addition to the list of proposed public toilets, special efforts are to be made in providing women and children access to toilets in commercial establishments -- hotels shops with toilets can be asked to open their toilets up for women, children and persons with special needs (similar to the step that allowed public access to toilets at petrol stations).

2.2.1.6 Ongoing/upcoming projects to improve toilets access

The ULB proposed to construct seven new public toilets at various locations in the town to cater to the floating population. Administrative approval has been obtained to construct public toilet in Satyavathi nagar near Indoor stadium. Details of these public toilets are provided in below table:

Table 2-5 Proposed public toilets in the town

Sl. No.	**Location**	**No. of toilet seats proposed**		**No. of urinal units proposed**	
		Male	Female	Male	Female
1	Near tollgate	2	2	4	4
2	Near indoor stadium	2	2	2	2
3	Near Railway Station	2	2	2	2
4	Sivananda municipal park	1	1	2	2
5	Bapuji Vegetable market	2	2	2	2
6	Goshpadakshetram	2	2	2	2
7	Aurangabad Sand Ramp	4	1	4	2
	Total	15	12	18	16

Source: Kovvur Municipality, 2017

2.2.2 Gaps & Issues

2.2.2.1 Coverage of Toilets (Individual, Community & Public)

The coverage of individual toilets is very high in the town. IHHLs were sanctioned and constructed for all possible urban poor households. However, as per the field observations, it is felt necessary to construct a community toilet in Srirama Colony (Ward No. 1) since few households do not have space for construction of individual toilets.

As described in the section 2.2.1.6 above, the need for public toilets in the town will be met on completion of the ongoing public toilet construction and the proposed ones.

2.2.2.2 Community Toilets

The only community toilet block in the town is in Yanadi colony and is currently being maintained by the community itself. There are few infrastructure gaps in this toilet block such was hand washing stations, flushing system etc. A detailed checklist has been developed and gaps have been identified for its improvement. The checklist and the details regarding gaps and cost estimates is presented in *Annexure 2*.

2.2.2.3 Public Toilets

Similar to the intervention mentioned above, the infrastructure gaps in the two existing public toilets, one in bus stand and the other at Goshpadakshetram have been identified. Details of the same are presented in *Annexure 2*.

2.2.2.4 School Sanitation

There is only one municipal school in Kovvur, and a benchmarking exercise (that considered 20 indicators including handwashing, water availability, no. of seats and type of pan) was undertaken in December 2016. The school was found to be a two star school. The school has a strength of 341 students with 167 boys and 174 girls.

Results of the benchmarking exercise presented below shows that municipal school has better access to water supply, functional toilets, hand wash facilities and hygiene practices.

- At least 1 functional source of water, inside the school premises and sufficient safe drinking water (at least 1.5 litres per student per day).
- Access to running water is present inside each toilet
- The school has separate functional toilets for boys and for girls
- Functional hand washing facility, close to the toilet either with: tap/wash basin, soap is compulsorily available everyday
- Wash basins at the ratio of 1 per 30 students close to the dining area is available, with soap.
- School staff ensure that children specifically wash their hands prior to the mid day meal.
- Cooks and helpers wash their hands with soap before cooking and serving food.
- At least 10 hours of hygiene education coursework during an academic year, covering general cleanliness, hand washing during critical times, brushing teeth, combing hair, keeping ears and nails clean etc.,
- Adolescent education and menstrual hygiene (upper primary schools and above) and hygiene awareness activities like drawing competitions, rallies, quiz, etc. are periodically conducted.

Recently, a sanitary pad incinerator has also been installed in the school premises.

Photo 2-4 State of sanitation in Municipal high school, Kovvur

Source: Field study conducted by S3 team, December 2016

2.2.3 Main issues of Access to Toilets

On detailed understanding of assess to toilets in the town, the following are the key issues:

- *Practice of open defecation:* among few urban poor communities due to lack of awareness on use of toilets and behavioral issues
- *Improper design of on-site sanitation systems:* Household toilets seldom adhere to specification standards for construction of pits and tanks
- *Lack of awareness about the correct use of a twin pit system:* Interviews suggest that a leading cause for slippage is that users are unaware of the correct use of a twin pit system.
- *Traffic Issues:* Non-functional status of public toilet in Goshpadakshetram where the visitors are very high, low footfall at the court complex and municipal toilets.
- Improper wastewater disposal system in Yanadi colony community toilet
- *Absence of a cost recovery model:* Unwillingness of PPP operators to maintain the public toilets in the town leading to the lack of proper O&M mechanism in place for public toilets
- Awareness about scheduled desludging amongst households and PT/ CT operators/ Municipality

2.3 Liquid Waste Management

The quantity of wastewater currently generated in the town is estimated to be 3.6 MLD assuming 80 percent of the water supplied in the town is converted into wastewater. Wastewater which is combination of black water (sewage) and greywater (sullage) is currently being managed separately in the town since there is no underground drainage network (sewerage) system. The black water from the toilets in households and various establishments in the town are connected to on-site containment systems like single pits, twin-pits and septic tanks. Largely, the black water percolates into the ground since pits are not watertight. In few cases, outflow from on-site systems is connected to the surface drains built along the road due to lack of soak pits.

Greywater from the households and establishments is currently being discharged into the surface drains directly. Therefore, majority the black water is percolating into the ground, some portion of it discharged out of the on-site systems enter the surface drains and all the greywater generated in the town is conveyed through a hierarchy of surface storm water drains and finally discharged into large natural storm drains in the town. Since there is no sewerage system in the town and high groundwater table in the town, Faecal Sludge Management (FSM) and Greywater Management play a key role in effective wastewater management.

2.3.1 Faecal sludge management

The current situation in the town across the FSM value chain i.e. containment, emptying, transportation, treatment and reuse/safe disposal is presented in the sections below.

2.3.1.1 Containment

Though the Census of India, 2011 data indicates that 15 percent of the households are connected to piped sewer system and 82 percent to septic tanks and 3 percent to improved pits and other systems, the field verification indicated a contracting situation. There is no underground sewerage system existing in the town and majority of the on-site systems are not scientific septic tanks as per the standards (IS 2470 Part I - 1985).

A sample survey conducted in the year 2015 indicated that 71 percent of the household toilets are connected to a single pit made out of bricks or concrete rings with percolating base, 12 percent are twin-pit systems, 10 percent are tanks with outlets connected to surface drains, 4 percent are septic tanks discharging into surface drains and 3 percent are single or double chambered septic tanks connected to soak away pits. All new IHHLs (770 nos.) constructed under SBM have a twin-pit system, however there are few gaps in technical conformity and lack of awareness on how to use a twin-pit system.

2.3.1.2 Emptying & Transportation

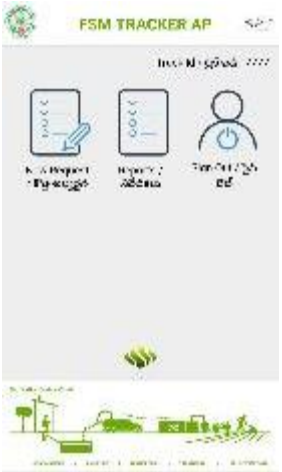
The emptying and transportation of faecal sludge from on-site systems in the town is carried out by private operators using vehicle mounted vacuum suction tanks in the town. There is no cesspool vehicle owned by the ULB. There are two private operators in the town, details are presented in the table below.

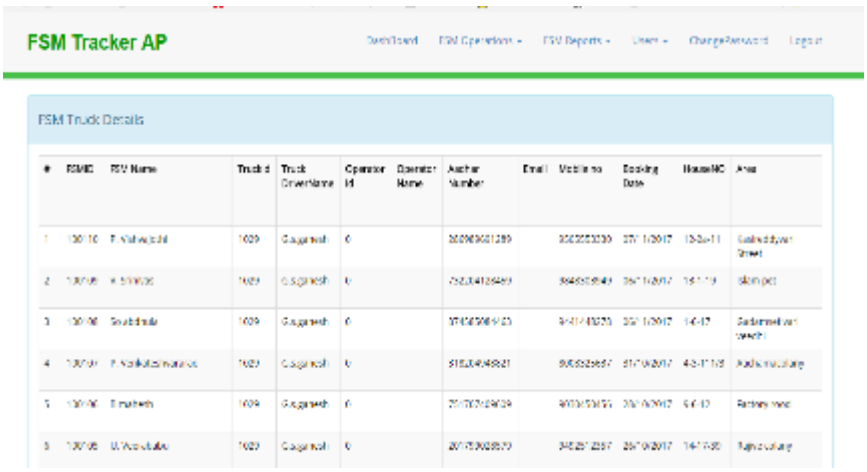
Table 2-6 FSM operators in the town				
Sl. No.	**Name of the operator**	**No. of vehicles**	**Capacity**	**No. of trips/day**
1	Vijayadurga septic cleaners, Kovvur	1	5 KL	1 to 2
2	Tejasri Septic tank cleaners, Nidadavolu	16 (One is sent to Kovvur as per requirement)	4 KL	1 to 2
Source: Kovvur Municipality, 2017				

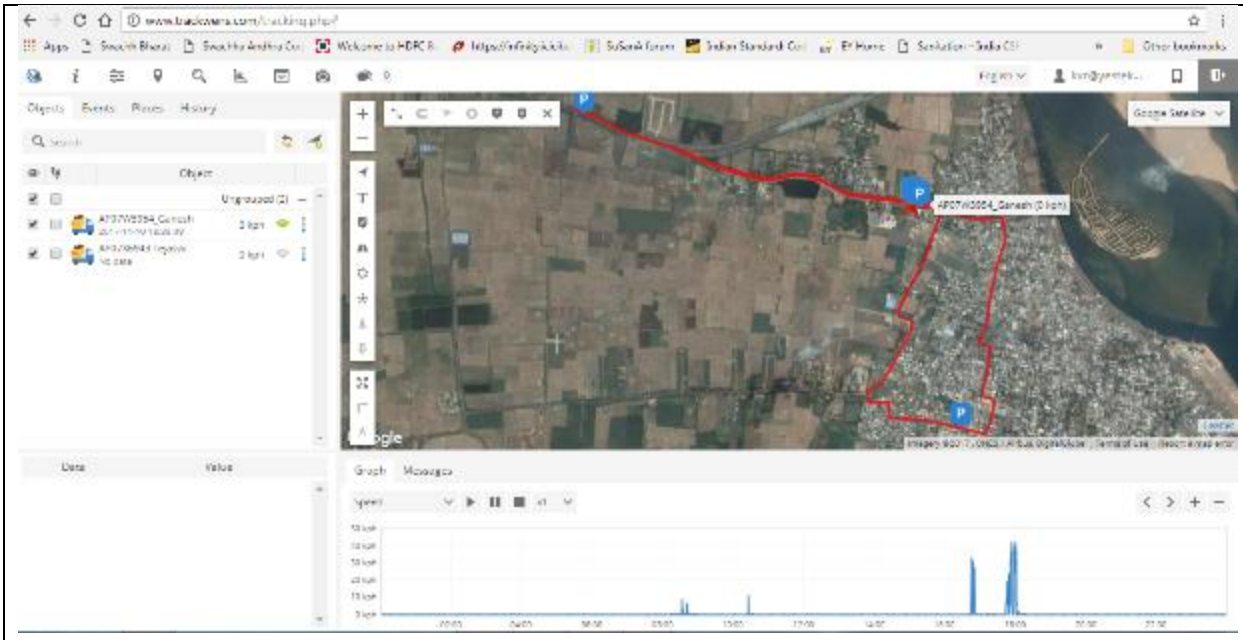
These private players operate on demand basis, i.e. based on the advertisements displayed in the town, the households or establishment call them to empty their on-site systems. These two operators have been empanelled with the municipality – licenses have been issued, operators have purchased and regularly use personal protective equipment (PPE) and are have affixed GPS devices to their vehicles for tracking by the municipality.

Operators have adopted an FSM tracker in which data is collected for each desludging operation. An analysis of 30 days of data estimates the volume of faecal sludge collected each day is 10-12kL per day.

Photo 2-5 : FSM Tracker Application, GPS tracking & Use of PPE by operators







Source: Field visit during February 2017

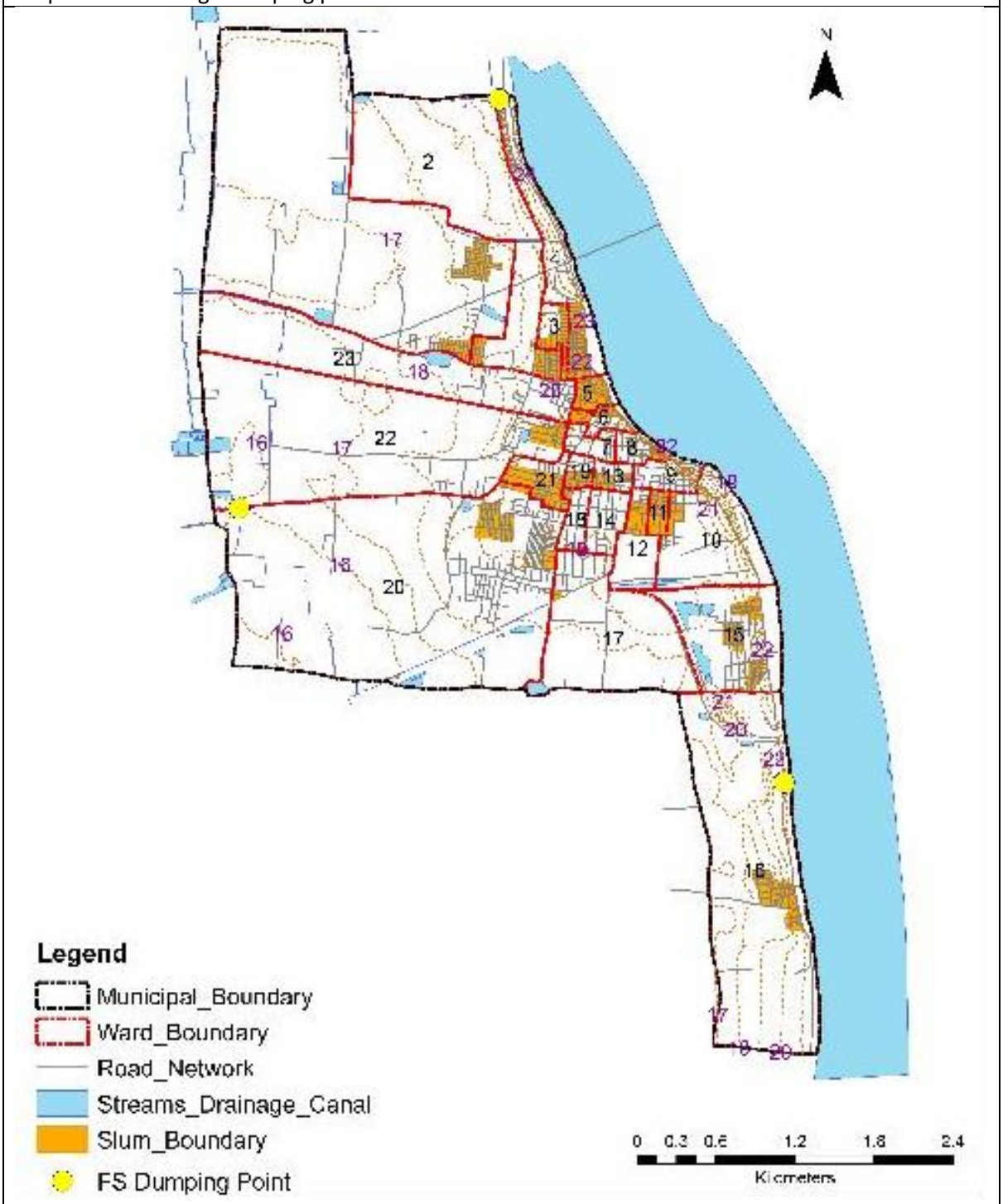
A survey conducted in the town indicates that, currently a majority of the households and establishment in the town empty their on-site systems only if there is a problem, i.e. overflowing, clogging or foul smell. Only few empty periodically but the periodicity ranges from 2 to more than 6 years. Interaction with the operators indicates that only 2 to 4 desludging operations take place in the town daily i.e. about 10 to 14 KL of faecal sludge is being generated. Operators charge between Rs. 1500 to 3000 per trip from their costumers as per the complexities involved in emptying. Therefore, it is evident that the emptying and transportation operations in the town are highly unorganised and unregulated.

Faecal sludge operators have begun using personal protective gear during desludging to mitigate the risk of infection and have fitted their trucks with a GPS tracker that provides location on their movement patterns and potential dumping sites.

2.3.1.3 Treatment and Reuse/Safe Disposal

Currently, there is no facility available in the town for the treatment of faecal sludge. The waste collected by the private operators is indiscriminately being disposed into natural storm water drains, agricultural fields and open areas in the periphery of the town.

Map 9 – Fecal sludge dumping points in Kovvur



In the absence of a treatment facility, septic tank operators currently empty their trucks into irrigation canals at the outskirts of the town.

Source: Kovvur Municipality and S3 team GIS analysis

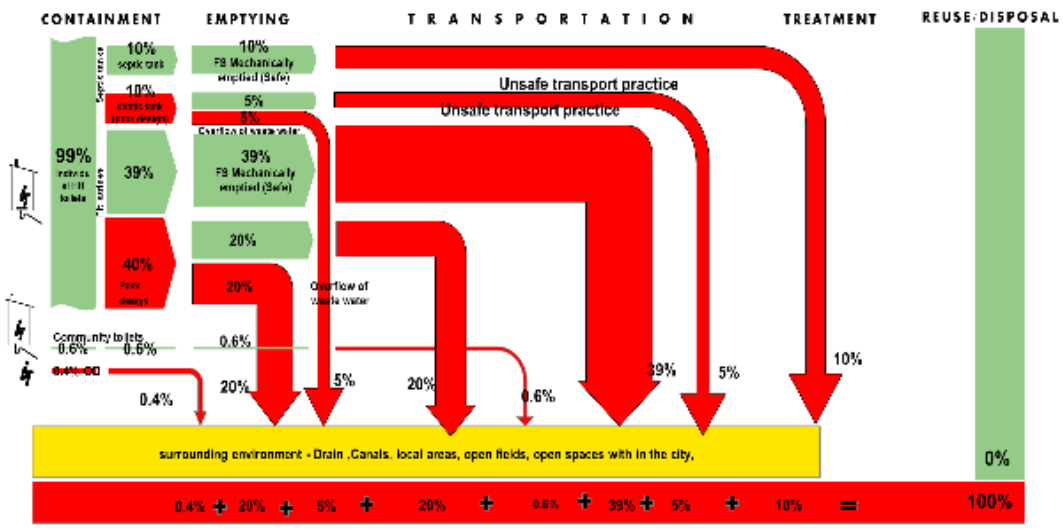
Photo 2-6: Disposal of collected slduge into open fields

Source: Field visit during February 2017

2.3.1.4 Shit Flow Diagram (SFD)

An excreta flow diagram (also often described as shit flow diagram, SFD) is a tool to readily understand and communicate visualizing how excreta physically flows through a city or town. It shows how excreta is or is not contained as it moves from defecation to disposal or end-use, and the fate of all excreta generated. An accompanying report describes the service delivery context of the city or town (Susana 2015).

Figure 2-1 Shit Flow Diagram (SFD) of Kovvur



The quick analysis of the SFD shows that the faecal matter is almost completely contained in the town due to high coverage of sanitary toilets (including a recent addition of about 770 IHHL under

SBM). Also about 75 percent of the waste is safely emptied using mechanical vacuum trucks, all of the collected waste is entering open environment since these operations are not regulated. To avoid such practice, interventions across transportation, treatment and reuse/safe disposal need to be initiated in the town.

2.3.2 Greywater management

Majority of the households and establishments (92%) discharge the greywater generated into surface drains and the rest leave them into open and low-lying areas nearby. The accumulation solid waste in these surface drains and open areas creates unhealthy living conditions in various places in the town.

Open drains carry storm water as well as grey water and are taken out of the city and connected to agricultural canals. A map of the disposal points is presented below.

2.3.3 Gaps & Issues

The key gaps and issues related to FSM across the value chain are listed below.

2.3.3.1 Containment systems

Some of the key gaps and issues related to containment/on-site sanitation systems are:

- Non-conformity of the design of existing septic tanks in the city to IS 2470 (Part 1)-1985
- On-site systems are predominantly single chambered and are not water tight
- The on-site systems are mostly oversized to avoid regular emptying
- The on-site systems are inaccessible for cleaning
- Design of septic tanks is not controlled through building / planning rules
- Limited coverage of secondary treatment systems (e.g. soak pits) for disposal of grey water & septic tank effluent

2.3.3.2 Emptying and transportation

Some of the key gaps and issues related to emptying and transportation are:

- Emptying of septic tanks is not carried out periodically (once in every 2-3 years) as prescribed by CPHEEO
- Lack of standard operating procedures for emptying and transportation of fecal sludge

2.3.3.3 Treatment & reuse / safe disposal

- Absence of treatment facility
- Lack of municipal land for establishing treatment facility for fecal sludge

2.4 Solid Waste Management

Sanitation section within the ULB is responsible for collection and transportation of waste from the city. Total wards in the town are divided into two zones for ease of administration and operations. Each zone is headed by a sanitary inspector, therefore there are 2 sanitary inspectors and are supported by 8 (4 regular, 4 contractual) of Sanitary Mastries who deploy work and monitor the sanitation workers involved in solid waste management. Total solid waste collected by the Municipality is about 25.06 MT comprising 17.16 MT of wet waste and 7.90 MT of dry waste.

2.4.1 Street sweeping

Municipal sanitation workers are deployed to perform street sweeping. On a regular basis one sanitation worker for tri-cycle, 2 persons for an auto-rickshaw and 3 persons per tractor are being deployed for collection of solid waste. One sanitation worker has been deployed for street sweeping in respective ward.

2.4.2 Primary collection

Door-to-Door collection is being practiced in the town. The town has a very high coverage of door to door collection system (98%). Door-to-Door collection is being implemented in all 23 wards of the town on a daily basis. The municipal sanitation workers collect waste once in a day preferably during the morning hours from the households. The sanitary inspectors deploy tri-cycles, auto-rickshaws and tractors, as per the requirement, to collect waste.

Segregation at source is currently not in practice in the town.

Photo 2-7 Door to Door collection of solid waste in the town

Source: Field visit during February 2017

Table 2-7 Door to door collection in the town				
Ward No. & Name	**No. of HHs**	**No. of HHs covered**	**Source segregation (Yes/No)**	**Waste collection frequency**
1	531	531	No	Daily
2	477	477	No	Daily
3	515	515	No	Daily
4	547	547	No	Daily
5	543	543	No	Daily
6	309	309	No	Daily
7	410	410	No	Daily
8	382	382	No	Daily
9	596	596	No	Daily
10	211	211	No	Daily
11	331	331	No	Daily
12	328	328	No	Daily
13	411	411	No	Daily
14	590	590	No	Daily
15	649	649	No	Daily
16	510	510	No	Daily
17	564	564	No	Daily
18	532	532	No	Daily
19	209	209	No	Daily
20	1557	1557	No	Daily
21	417	417	No	Daily
22	333	333	No	Daily
23	343	343	No	Daily
Source: Kovvur Municipality, 2017				

Note: Ward-wise details on manpower deployment and equipment used is unclear and there is no specific data available on the same.

2.4.3 Secondary collection

Waste collected through the tri-cycles and auto-rickshaws is dumped at identified point (secondary collection point) in the ward which is again lifted by the tractor and transported to the dumping yard situated near Srirama colony in Ward no. 1. Sanitation section has identified a total of 9 secondary collection points from where the waste is collected and transported by tractors.

Table 2-8 List of secondary collection points

Ward No. & Name	Ward population	If Community bins are not available for secondary collection			Remarks
		Reason for unavailability of bins	Disposal arrangement	Location of disposal	
4	1846	-	Dumping at identified location	Merakaveedhi	ULB removed all bins under bin free city program. But due to lack of staff and vehicles for collection and transportation, waste is being dumped at identified locations and transported to dumping location`
8	1210	-		Kovvuramma temple road	
9	1871	-		Ashram street	
10	1044	-		Factory quarters	
11	1084	-		Nukalamma temple street	
14	1809	-		Neredu tree	
18	1845	-		NGO home road	
20	4560	-		Achayamma Colony and Indiramma colony	

2.4.4 Transportation

The municipality has deployed tri-cycles, auto-rickshaws and tractors to collect and transport waste from the streets and households of the town. Tri-cycles are used for streets which are narrow, autos where there is no possibility of tractor to pass on. A route plan is in place, List of vehicles available with the ULB is presented in table below.

Table 2-9 SWM vehicles in the town

Sl. No.	Type of vehicle	Number	Capacity (MT)
1	Tractor	4	1.2 to 1.5
2	Auto-rickshaw	3	0.5
3	Tri-cycles	33	0.15 - 0.20
	Total	40	

Source: Kovvur Municipality, 2017

2.4.5 Treatment and disposal

The Municipality does not have a dedicated and scientific dumping site. The waste is dumped at an open site close to agricultural fields without any processing and treatment. The Municipality has

acquired 1.96 acre of land for developing a dumping yard and initiated development work. However, the process is stalled as the high court issued injunction orders to stop the process in response to the petition filed by households living adjacent to the dump site.

Photo 2-6 Dumping site in the town

Source: Field visit conducted by S3 team

2.4.6 Ongoing / upcoming Solid Waste Management projects

A Government Order (GO 279) has been issued by the MA&UD Department, GoAP issuing guidelines for effective micro-planning and out-sourcing of solid waste collection and transportation in all ULBs. In line with the guidelines, the sanitation section divided the town into 48 micro-pockets. With its existing manpower and equipment, the sanitation section has proposed to manage only 14 of them and outsource the remaining 34 micro-pockets to a private operator for effective collection and transportation. Below are the details.

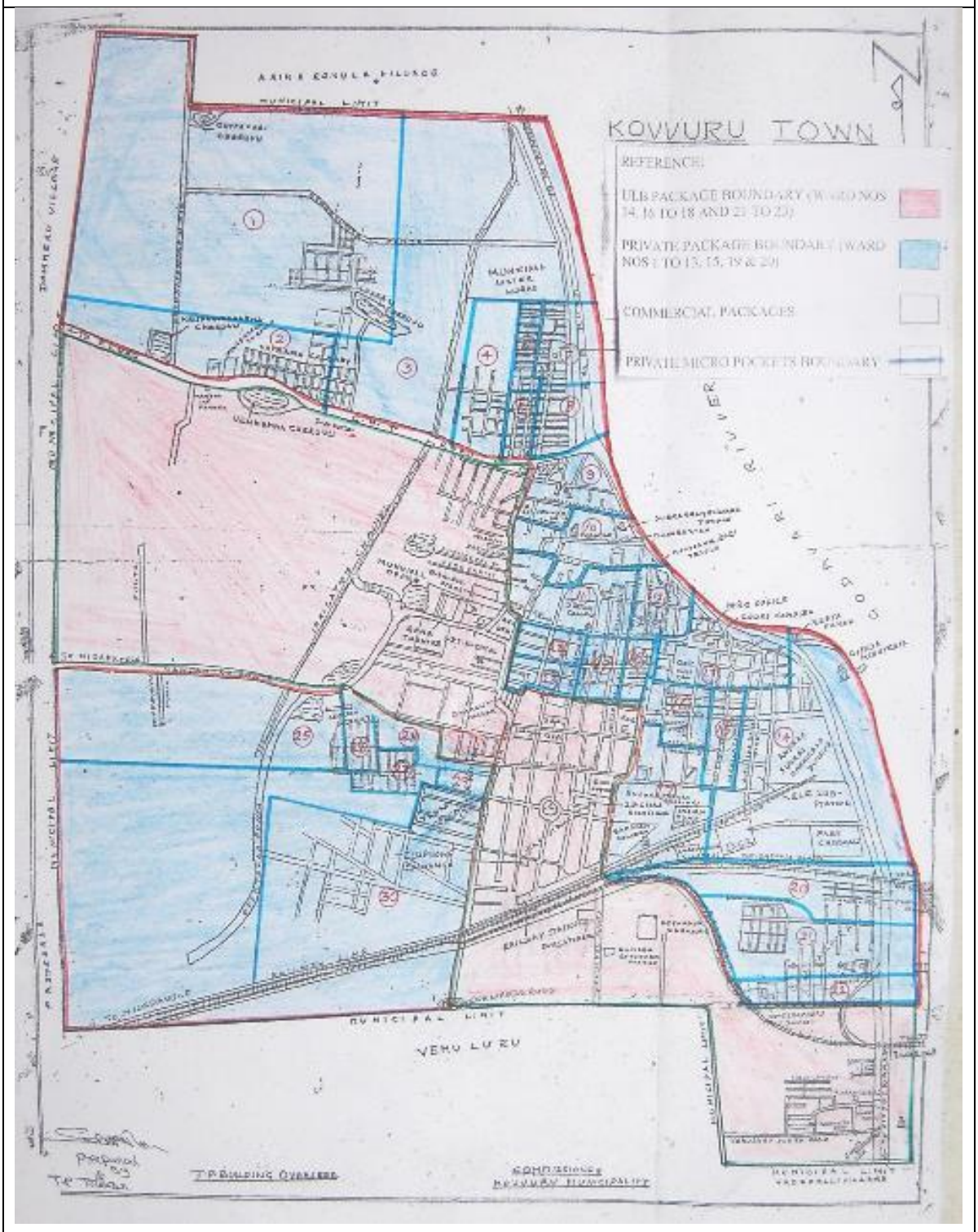
Table 2-10 Micro plan as per GO 279

Description	**Total**	**Total Quantities Required**	**to be Managed by the ULB**	**To be outsourced**
No of Micro Pockets	48		14 Micro Pockets	34 Micro Pockets
Number of wards	23		14,16,17,18, 21,22,23	1 To 13 and 15,19,20
No of Waste Generators in the Work Packages (HH + Petty Shops and Street Vendors)	12735		5715	7020

Available temporary Workers	87			87
Vehicles and Material:				
Tractors / Tippers in Working Condition	4	2	2	0
Pushcarts in Working Condition	48	33	16	17
HDPE Bins	384	400	112	288
Tarpaulin Bags	96	-	-	-
Source: Kovvur Municipality, 2017				

For treatment of solid waste, the waste from Kovvur Municipality is to be transported to the proposed regional Waste to Energy (WTE) plant at Rajahmundry which is about 15 km away.

Photo 2-7 Micro-pockets to be out-sourced to private agencies for sweeping and door to door collection under GO 279



Source: Kovvur Municipality, 2017

2.4.7 Gaps & Issues

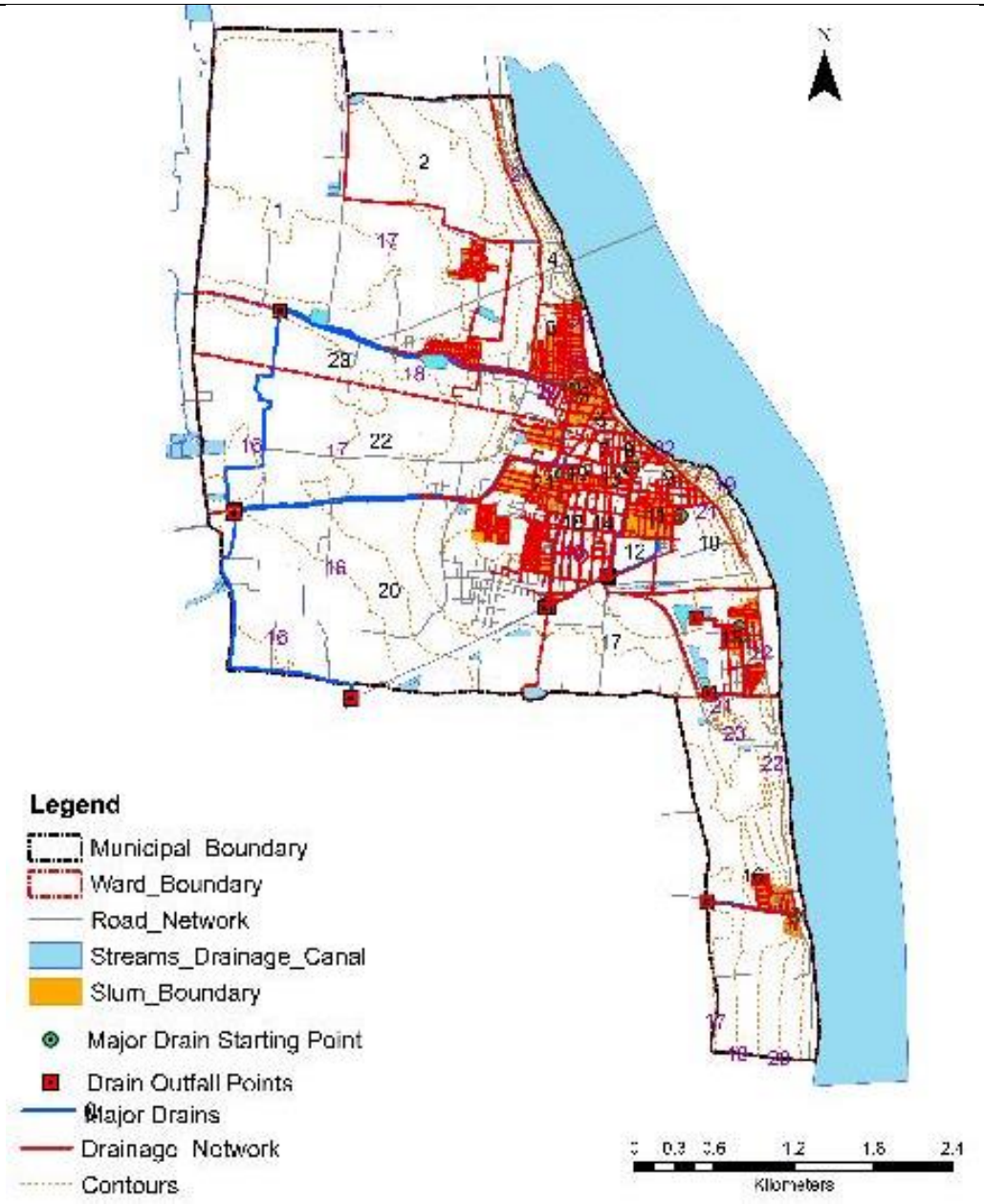
- No source segregation of waste is practiced by households
- Lack of awareness among households towards segregation of waste at source
- Collection of waste from commercial establishments is being done on adhoc basis
- Lack of required infrastructure such as tri-cycles, auto-rickshaws, tractors and man power to collect the waste generated.
- Poor operational, health and safety standards
- Street sweeping along main commercial roads
- The waste collected by the tri-cycles and auto-rickshaws is again dumped on the ground at secondary transfer points and it lifted again manually by the workers which is an unsustainable practice
- There is no route planning in place for the vehicles for efficient collection and transportation
- Currently there is no treatment infrastructure for solid waste in the town

To include description on SS-2018 and efforts made under it.

2.5 Storm Water Drainage

Kovvur is located at a lower elevation relative to the Godavari river and hence waste water from the town is not discharged into the river and flows in the opposite direction. There are three major drains in the town which carry most of the household waste water to the outskirts of the city to Kongalapadu canal which flows towards the sea through various towns. Some of the waste water flows into ponds which are used for agricultural purposes. Around 3.15 MLD of waste water is estimated to be generated. The total length of drains in the town is 52 km out of which 50% are pucca and open drains. Around 37 km of drains constituting one-third of drains are masonry drains and remaining are kutcha drains.

Map 10 – Storm water drainage map of Kovvur



Storm water drains in Kovvur empty out into the Kongalapadu canal in the south west of the city.

Source: Kovvur municipality an S3 team GIS analysis

Photo 2-5: Discharge of drainage water at Kongalapadava area

Source: Field visits conducted by S3 team

Section 3. Cross-cutting aspects

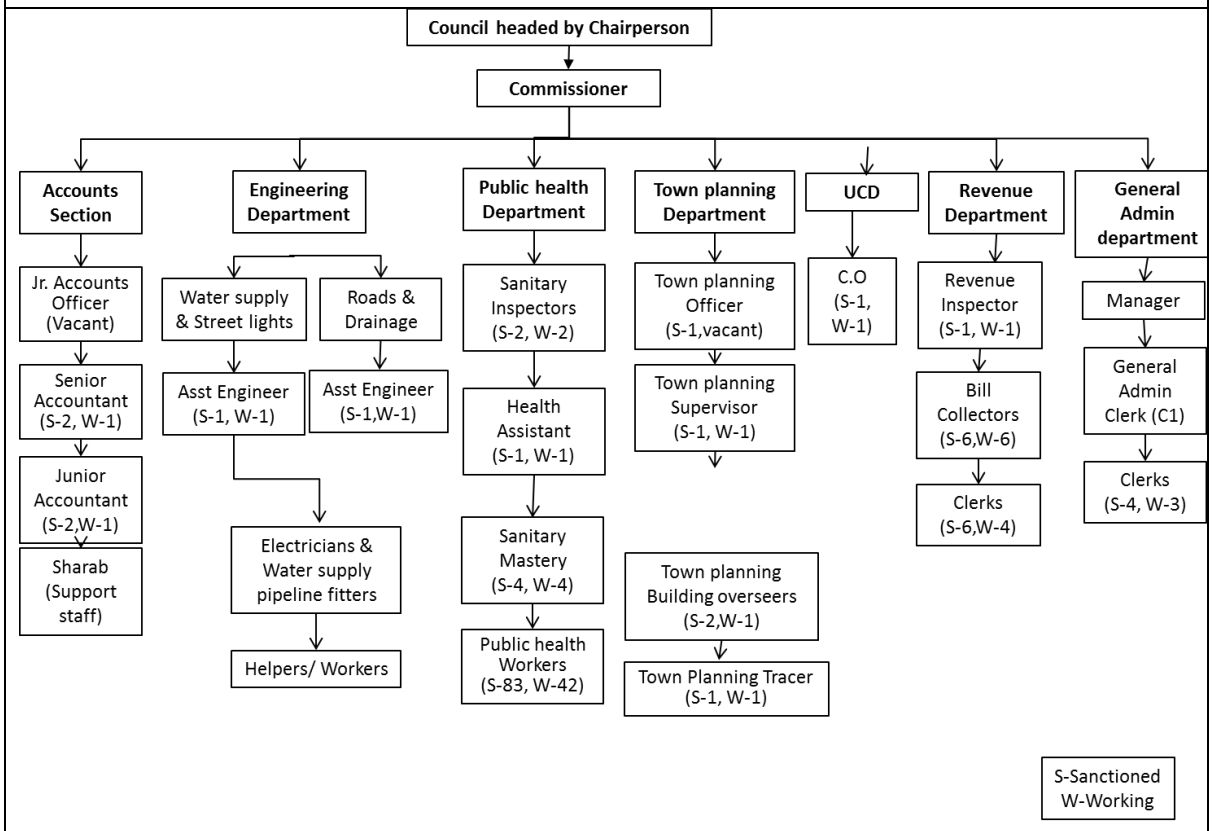
3.1 Institutional & Governance

3.1.1 Institutional arrangement

3.1.1.1 Urban local body (ULB)

A total of 187 posts are sanctioned for Kovvur Municipality out of which 67 are vacant, i.e. the ULB is working at only 65 percent manpower capacity. The key departments of the Municipality are administration, accounts, sanitation, UCD, engineering wing and town planning sections. Organization structure and the total number of posts sanctioned and working are presented in Figure 3-1 below.

Figure 3-1 Organogram of the Kovvur Municipality



Source: Kovvur Municipality, 2017

The Municipal Commissioner is overall in-charge of the functioning of the Municipality, Manager is responsible for administration, accounts section is headed by the Senior Accountant, public health section is headed by the Sanitary Inspector, engineering wing is headed by the Assistant Engineer and the town planning wing is headed by the Town Planning Officer.

The sanitation activities fall under the purview of public health department. Construction of sanitation related activities is looked after by the engineering department; town planning department is responsible for identification of land and related issues and the UCD is responsible for working with slums. There is a need for coordination among these departments for implementing sanitation activities.

Table 3-1 Institutional Responsibility for Sanitation

Urban Services	Institutions in charge of planning	Institutions in charge of implementation	Institutions in charge of O&M	Institutions in charge of collecting user charges
Water Supply	PHED/ ULB	ULB	ULB	ULB
Sewerage	PHED/ ULB	ULB	ULB	ULB
Septage management	ULB	ULB	ULB	ULB
Storm Water Drainage	ULB	ULB	ULB	ULB
Solid waste management	ULB	ULB	ULB	ULB
Public Toilets	ULB/ SAC	ULB	ULB/ private operator	ULB/ private operator

3.1.1.2 Urban community development (MEPMA)

The Mission for Elimination of Poverty in Municipal Areas (MEPMA) is active in Kovvur with 23 Slum Level Federations (SLFs) organized by two Community Organizers (COs). There are total of 674 SHGs in Kovvur. Resource persons (RPs) are a key lever of support to the municipal administration in gathering local information and enabling government schemes to reach urban poor communities. MEPMA in Kovvur does not maintain separate figures for sanitation related loans, the table below has figures of their total lending.

Table 3-2 MEPMA Lending Data

		Target	Actual
2015-16	**SHGs**	343	279
	Amount (cr.)	705.72	838.43
2016-17	**SHGs**	431	227
	Amount (cr.)	803.04	739.4
2017-18	**SHGs**	425	64
(Upto October ’17)	**Amount (cr.)**	865.14	253.4

MEPMA RPs play an important role in compiling lists of HHs that lack access to sanitation and enabling action in their communities.

3.1.1.3 Women's representation in the system with respect to sanitation

The chairperson of the ULB is Ms. Radha Rani and half the elected representatives in the council are women, due to affirmative action.

There are only 21 women who work in the ULB premises, out of a total staff strength of 120 (17.5%). This includes both temporary and outsourced staff and excludes public health workers. Among the women, seven are in senior positions, three of whom work in the MEPMA section.

Of the 117 outsourced public health workers in the ULB, only 25 (21%) are women.

In faecal sludge collection and transportation, all individuals are male and there is no representation of women in the chain.

3.1.2 Gaps & Issues

3.1.2.1 Institutional arrangement

- 35% of the sanctioned posts are vacant in the ULB,
- Lack of role clarity and coordination between various sections on sanitation related activities
- Poor inter-institutional coordination mechanism (ULB, Parastatals, PHED, NGOs, SPCB),
- Overlapping / diffused / unclear roles & responsibilities (with respect to planning, implementation, O&M and M&E) concerning water supply, public toilets, waste water, septage management, storm water, water bodies & solid waste management.

3.1.2.2 Governance

- Weak regulations & its poor enforcement,
- Improper management of private service providers,
- Lack of e-governance,
- Absence of reforms leading to poor services
- Absence of required municipal bye-laws

3.2 Municipal finance

Table 3-3 Municipal Finance of Kovvur town						
S. No.	Particulars	Amount (Rs. in Lakh)				
		2012-13	2013-14	2014-15	2015-16	2016-17
Revenue Income						
1	Income from Taxes	134.09	123.55	131.2	146.48	151.28
2	Income from Non-Taxes	182.99	51.92	122.2	106.72	107.87
3	Income from Assigned Revenue	55.98	53.79	73.61	93.23	89.48
	Total Revenue Income (1+2+3)	373.06	229.26	327.01	346.43	348.63
Capital Income						
4	Grants and Loans	131.33	230.97	2481.39	146.64	1030.66
	Total Capital Income (4)	131.33	230.97	2481.39	146.64	1030.66
	Total Income (1+2+3+4)	504.39	460.23	2808.4	493.07	1379.29
Revenue Expenditure						
5	General, Establishment and Other Revenue Expenditure	52	49.57	65.87	91.46	36.72
6	O&M of Sanitation including SWM	443.94	252.71	216.45	1053.35	484.35
	Total Revenue Expenditure (5+6)	495.54	302.28	282.32	1144.81	521.07
Capital Expenditure						
7	Capital Expenditure	186.53	69.01	134.29	2141.53	245.63
	Total Capital Expenditure (7)	186.53	69.01	134.29	2141.53	245.63
	Total Expenditure (5+6+7)	682.47	371.29	416.61	3286.34	766.7
	Revenue Surplus/Deficit (1+2+3-5-6)	-122.8	-73.02	44.69	-798.38	-172.4
	Capital Surplus/Deficit (4-7)	-55.2	161.96	2347.1	-1994.8	785.03
	Overall Surplus/Deficit (1+2+3+4-5-6-7)	-178.0	88.94	2391.79	-2793.2	612.59
Source: Kovvur Municipality, 2017						

There is a sharp rise in the capital income and capital expenditure in the financial years 2014-15 and 2015-16 because of the State grants for organising Godvari Mahapushkaralu. The impact of the same is also seen in the revenue expenditure in Financial Year (FY) 2015-16.

3.3 Capacity Enhancement

The above table includes only staff who are on permanent pay rolls with the municipality. Municipality has deployed a total of 142 number of outsourced staff for various activities such as sanitation, support staff, Data Entry Operators (DEO) to various section, etc. on a contract basis.

Department	Tasks to be performed	Permanent Staff - Sanctioned	Gaps in Number	Gaps in Skills
Engineering	Creation of assets, maintenance of infrastructure such as water supply, storm water drainage, roads and buildings, electricity.	8	2	Capacity building plan is proposed to identify the skill gaps and required capacity enhancement modules.
Town Planning	Implementation of land-use and building regulations as per Master plan, issuance of building construction permissions, collection of advertisement fee.	6	2	
Sanitation	Over all responsibility of maintenance of sanitation in town. Involved in street sweeping, collection of solid waste, drain desilting, issuance of trade license	84	38 (This gap is serviced through temporary PH workers)	
Accounts	Collection of user charges, maintenance of funds and grants, preparation and implementation of annual budgets, auditing of final expenditure	5	2	

Revenue	Issuance and collection of of property tax and water charges demands. Collection of trade license	17	2	
General Administration	Responsible for overall administration within the municipality.	22	3	
	Monitor staff attendance, leaves and their transfers			

Section 4. Key Issues, Action Plan & Investment Plan

4.1 City-wide Key Issues

Based on the issues identified in sections 2 and 3 above the following are the key issues identified in the town that need to be addressed.

Key Issue 1	**Low coverage of household piped water supply connections in the town**
Rational for this key issue	• Access to individual piped water supply connection rather than depending on public stand posts plays a key role in improving sanitation in the town due to ease of access to water • Only 33 percent of the households (3,782) have piped water supply connection • Rest 67 percent depend on 100 public stand posts and individual bore wells

Key Issue 2	**Lack of comprehensive data on sanitation systems in the town**
Rational for this key issue	• Ward-wise data on water supply connections is not available • There is no data available with the ULB on the specifications of on-site sanitation systems to plan FSM • There is no segregated data available on solid waste collected and transported • There is no detailed data available on specifications and wastewater flows in surface drains

Key Issue 3	**Faecal Sludge Management not implemented in the town**
Rational for this key issue	• Unscientific on-site sanitation systems • Lack of awareness about scheduled desludging • Lack of treatment facility for faecal sludge in the town

Key Issue 4	**Greywater and effluents from on-site systems polluting the surface water bodies**
Rational for this key issue	• Wastewater from households through two major storm water drains is entering into two lakes in the town • Lack of treatment facility for wastewater at the final disposal point (near Kongalapadu)

Key Issue 5	Lack of resources and infrastructure for collection and transportation of solid waste generated in the town
Rational for this key issue	• Manpower shortfall for door to door collection • Shortage in collection vehicles (tri-cycles and auto-rickshaws) • Shortage of and lack of awareness on the use of protective gear and equipment • There is no segregation of waste happening in the town • Mixed solid waste collected from households and establishments is being directly dumped at the disposal site • No provision for processing/scientific disposal of solid waste has been planned

Key Issue 6	Poor capacities of ULB staff, elected representative and other key stakeholders on sanitation
Rational for this key issue	• The ULB staff have limited understanding on FSM since it is a new approach • The capacities of the ULB staff is limited with respect to micro-planning for SWM • There is limited awareness of key stakeholders (CSTF members) on sanitation planning

Key Issue 7	Lack of awareness among citizens on FSM, source segregation and greywater management
Rational for this key issue	• Cultural and behavioural aspects among men and children from fishermen communities is still leading to open defecation along the river bed • Households and establishments either oversize or undersize their on-site sanitation systems not confirming to the standards • Households and establishments empty their on-site systems only when there is an issue, awareness on periodic emptying is limited • Public are unaware of the importance of source segregation and 3R principle regarding solid waste

Key Issue 8	Lack of community engagement platform for participatory planning
Rational for this key issue	• Ward sabhas are not conducted • Sanitation is not a priority for MEPMA members • No RWAs or NGO actively working in the town

Key Issue 9	Poor participation of women in sanitation activities and the lack of a gender lens
Rational for this key issue	• Opportunities and forums for ensuring gender equity and representation. • Need for Identification of exclusion and discrimination - occupationally, socially, spatially or in terms of gender or age.

4.2 City-wide Sanitation Vision

The vision of Kovvur town is to become a 100% sanitised town by ensuring adequate water supply and effective wastewater management through effective faecal sludge management, greywater treatment and solid waste management.[4]

4.3 Goals corresponding to city wide key-issues

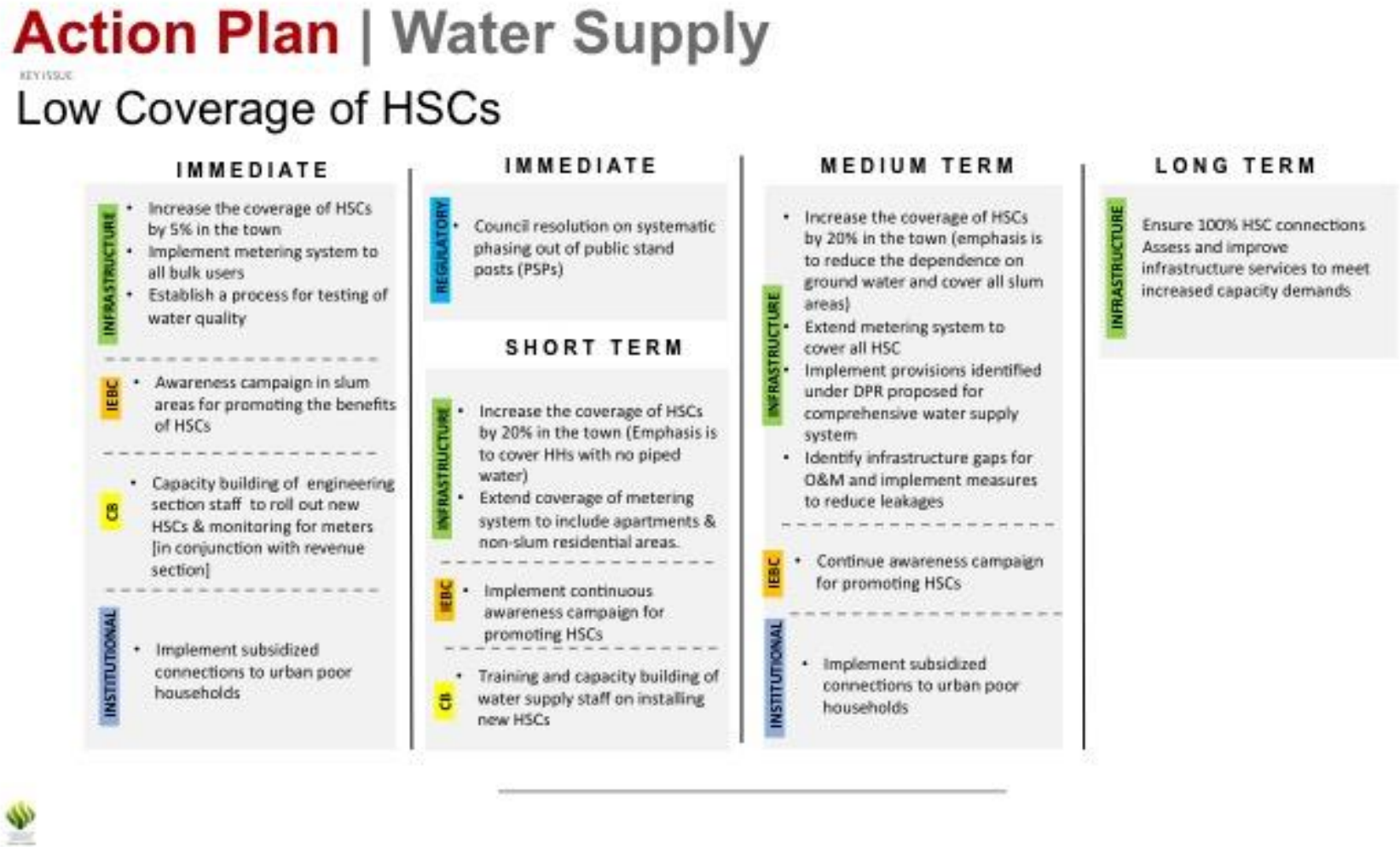
Key Issue	Goal
Low coverage of household piped water supply connections in the town	Achieve 100% coverage of piped water supply connections to households in the town
Lack of comprehensive data on sanitation systems in the town	Conduct a detail survey for information on water supply connections, on-site sanitation systems and SWM in the town by the end of 2017 and establish continuous updating mechanism
Faecal Sludge Management not implemented in the town and No facility available for faecal sludge treatment in the town	Implement interventions for safe collection and transportation of faecal sludge by 2017. Establish faecal sludge treatment plant and treat and reuse faecal sludge generated in the town by 2018.
Greywater and effluents from on-site systems polluting the surface water bodies	Establish greywater treatment plants at final disposal points to conserve water bodies by 2019
Lack of resources and infrastructure for collection and transportation of solid waste generated in the town and No solid waste treatment facility in the town	Implementation of GO 279 in the town for effective collection and conveyance of solid waste by 2018; Establish an interim solid waste treatment facility by 2018 to cater to the town until the regional treatment facilities are commissioned
Poor capacities of ULB staff, elected representative and other key stakeholders on sanitation	Enhance the capacities of the ULB staff, elected representatives and key stakeholders in the town on sanitation by 2018
Lack of awareness among citizens on Sanitation, source segregation and greywater management	Create 100% awareness among the citizens on sanitation in the town

[4] Vision statement shall be discussed with CSTF and improvised accordingly

Lack of community engagement platform for participatory planning	Activate the community structures (MEPMA, NGOs and SHGs) to participate in sanitation improvement programs
Lack of community engagement platform for participatory planning	Start gender resource centre(s) to ensure gender mainstreaming in sanitation

4.4 Action Plan

Below is the draft action plan for sanitation improvement in the town:



Action Plan | Access to toilets

KEY ISSUE

Sustaining ODF

IMMEDIATE

INFRASTRUCTURE
- Construct 2 CTs (Sri Rama Colony + Rajiv Colony) to avoid slippage
- Improve service levels of all toilets (water supply, lights, caretaker for PTs)
- Deploy caretaker for all PTs and implement sustainable O&M model
- Identify and develop a plan for conversion of insanitary latrines
- Develop O&M model, SLAs, SOPs for PTs.

IEBC
- Awareness campaign on hand washing, focusing on slum areas
- Target SBM toilets and conduct IEBC on the use of twin pit system.

CB
- Masons: Consultation & sensitization on implementing standards

IMMEDIATE

INSTITUTIONAL
- Cover data gap on OSS systems through 100% survey and identify gaps for further action

REGULATORY
- CR mandating that building plan has to include a septic tank design

SHORT TERM

INFRASTRUCTURE
- Construct PTs in commercial areas (to meet the needs of floating population) and identify locations to construct SHE toilets

IEBC
- Continue awareness programs on health & hand washing

SHORT TERM

INSTITUTIONAL
- Encourage entrepreneurs to handle PTs (O&M)

MEDIUM TERM

INFRASTRUCTURE
- Renovation & upgradation of existing PTs.

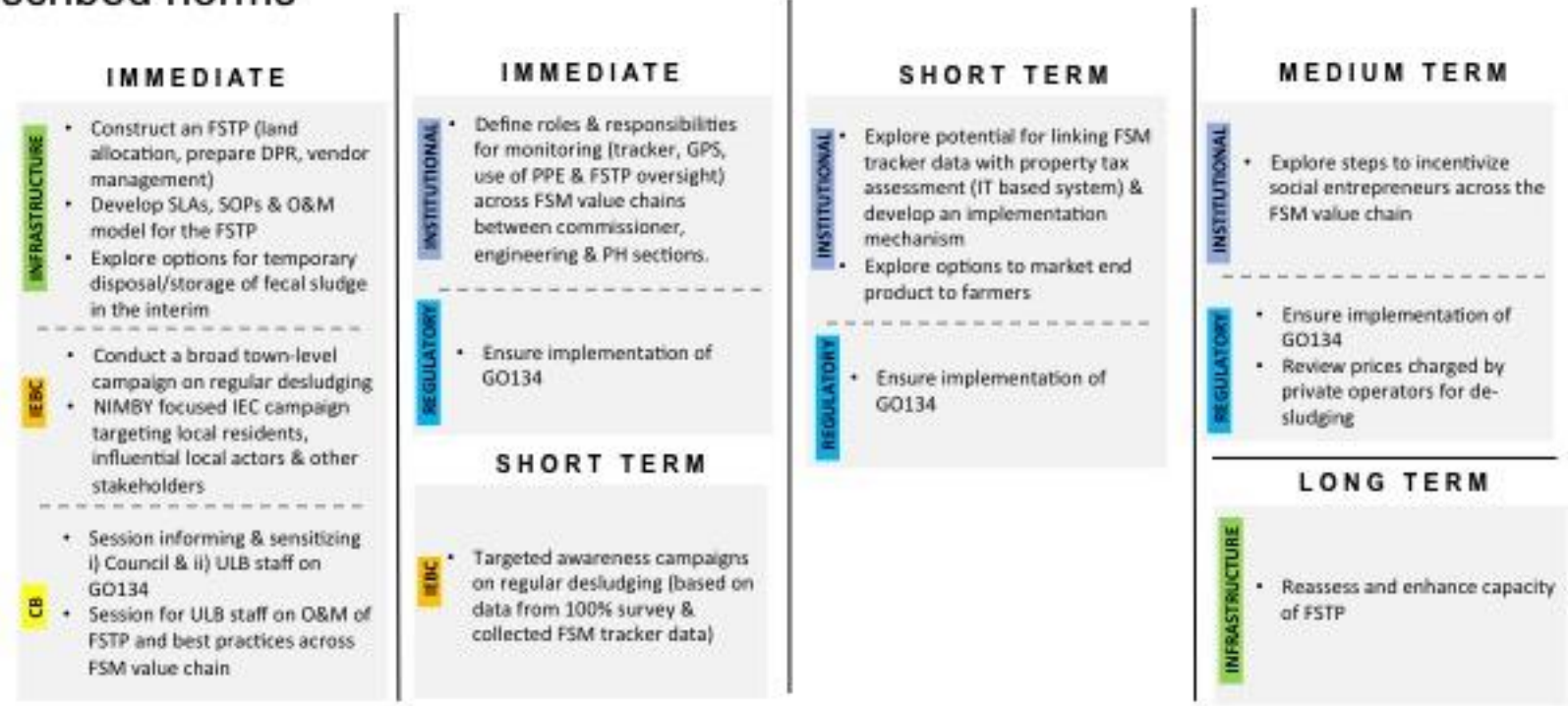
LONG TERM

INFRASTRUCTURE
- Assess toilet accessibility on a regular basis and plan to construct PT in the needy locations.

Action Plan | Faecal Sludge Management

KEY ISSUE

Lack of a treatment system, irregular de-sludging, OSS not according to prescribed norms



Action Plan | Solid Waste Management

KEY ISSUE

Lack of source segregation & absence of treatment facility

IMMEDIATE

INFRASTRUCTURE
- Establish Dry Waste Resource Center (DWRC) in identified land in Ward No. 2
- Procure reqd. infra for implementing 100% source segregation
- Implement windrow composting in the existing dump site to partially reclaim it
- Implement waste treatment (vermin-composting/wind-row) for segregated waste

IEBC
- Ward-wise sensitization for residents on source segregation in all wards (starting with bulk generators – apartments & commercial establishments)
- Sensitize PH workers on using PPE

CB
- Establish SOP & hold sessions for PH workers/sanitary mastries on source segregation.

IMMEDIATE

INSTITUTIONAL
- Implement Swachhata ranking framework for all institutions functioning within the town
- Develop route map for waste collection & transportation for 100% coverage
- Institutionalize performance incentive system (attendance award + best worker) on a monthly basis

REGULATORY
- Ensure route map is followed
- Implement SWM Rules 2016

SHORT TERM

INFRASTRUCTURE
- Introduce GPS devices in secondary collection vehicles to track the dumping of waste

SHORT TERM

PLANNING
- Develop and implement SOPs for waste treatment
- Identify and engage private actors for running DWRC

REGULATORY
- Push bulk generators to implement on-site composting
- Ensure use of PPE by PH workers

IEBC
- Sensitize farmers within ULB limit (40%) on the use of compost to create a local market
- Continued awareness campaigns (for residents + PH workers) to ensure 100% source segregation

INSTITUTIONAL
- Monitor the PH workers incentive system – constitute an annual award, felicitation & consider maternity benefits for women PH workers.

MEDIUM TERM

INFRASTRUCTURE
- Introduce RFID tags for primary collection vehicles to monitor route & time adherence

REGULATORY
- Implement decentralized waste management systems at the locality level.

Action Plan |

Grey & Storm Water Management

KEY ISSUE

Open drains clogged with solid waste & irregular desilting

IMMEDIATE

INFRASTRUCTURE
- Identify water-logging spots and develop a comprehensive drainage map
- Identify factories and small-scale polluters and develop a plan of action

INSTITUTIONAL
- Develop and institutionalize SOP and schedule for de-silting of open drains

IEBC
- Identify hot spots and conduct awareness campaigns targeting residents disposing Solid waste in open drains
- Sensitization workshop for PH workers focused on PPE usage (explore linking performance incentives to PPE usage)

IMMEDIATE

CB
- Train PH staff on drain desilting and disposing.

REGULATORY
- CR on converting open drains to covered pucca drains

SHORT & MEDIUM

INFRASTRUCTURE
- Convert all open drains to covered pucca drains for storm water management
- Establish a waste water treatment plant at disposal point of the town's drainage system.

Environmental Management Of Water Bodies

KEY ISSUE

No system in place currently

IMMEDIATE

PLANNING
- Initiate a study on existing water bodies within ULB limits (to test water quality, land use patterns around & water usage)

A conscious effort has been made at including gender related aspects in the city sanitation plan. This means looking particularly at the needs of women as well as vulnerable groups (demographically vulnerable, disabled, elderly and the needs of children). Due to limited data availability on several indicators developed for gender lens, few sections within water supply and access to toilets sectors, participation of women in CSTF meetings attempt has been made to include these aspects relating to sanitation outcomes for these groups. The following aspects shall be included in the CSP after carrying out thorough research, studies, surveys and stakeholder interviews in future and hence this is one of the action points for the CSP.

- Women or children or elderly involved in fetching water from public taps/wells.
- Average quantity of water carried for non-potable purposes including sanitation
- Issues faced by women/relevant groups in collecting water
- Level of access to household toilets among women, children, men and elderly/differently abled
- Level of access to community toilets among women, children, men and elderly/differently abled
- Level of access to public toilets among women, children and elderly/differently abled
- Waiting times for use of IHHL or public sanitary conveniences
- Barriers to usage of IHHL or public sanitary conveniences
- Requirement of SHE toilets in the town
- Design integration in public sanitary conveniences for better accessibility and usage
- Slippage related to ODF - Frequency of incidence across all gender
- Issues that women PH workers
- Insights on sanitation related diseases/common vectors/gender numbers on incidence
- Homeless and their access to public toilets
- Manual scavengers/drain cleaners and their rehabilitation
- No. of latrine sanctions (SBM) issued to women

- No. of seats available for differently abled in public sanitary conveniences
- Sensitization of girls in high schools to safe menstrual hygiene practices
- Percentage of women in ULB workforce across various levels
- Maternity benefits to permanent/contractual PH workers

4.5 Cost estimates and Investment Plan for CSP

4.5.1 Cost estimates for CSP

The cost estimates for implementing the CSP is presented below.

no	Projects (taken from CSP Action Plan)	Description (All actions included in this project)	Cost in Rs.				Source for funding (ULB own revenues, Grant under SBM, AMRUT, etc.)
			Immediate	Short Term	Medium Term	Long Term	
1	Improving coverage of piped water supply connection to households	Provide new HSC connections – phase wise	-	To be estimated	To be estimated	To be estimated	Households
2	Reducing non-revenue water	Identify the reasons for non-revenue water through a study and develop action plan	20,000	-	-		ULB
		Implement water metering system		-	To be estimated	-	ULB/Households

no	Projects (taken from CSP Action Plan)	Description (All actions included in this project)	Cost in Rs.				Source for funding (ULB own revenues, Grant under SBM, AMRUT, etc.)
			Immediate	Short Term	Medium Term	Long Term	
3	Construction of community toilets for HHs with no place for construction of IHHL under SBM	Identifying suitable location and construction of community toilet	5,40,000	-	-	-	SBM (SAC)
4	Streamlining collection and transportation of faecal sludge	Creation of city-wide database on on-site sanitation systems.	15,00,000	-	-	-	S3 project
		Implementation of GO MS 134 - Empanel existing septic tank operators and regulate their activity	-	-	-	-	ULB
		Implement and monitor scheduled desludging	-	-	-	-	ULB

no	Projects (taken from CSP Action Plan)	Description (All actions included in this project)	Cost in Rs.				Source for funding (ULB own revenues, Grant under SBM, AMRUT, etc.)
			Immediate	Short Term	Medium Term	Long Term	
		Build capacities of key stakeholders to monitor activities implemented	-	-	To be estimated based on CENA and consultation with ULB	-	ULB
5	Establish faecal sludge treatment plant and treat the entire faecal sludge generated in the town	Identify suitable land and prepare DPR for establishing FSTP	1,00,000 (DPR preparation)	-	-	-	SAC / S3 project / External funding
		Construction and commissioning of FSTP	-	1,50,00,000	-	-	CDMA / SAC / External funding
6	Establish greywater treatment plants at final disposal points to conserve water bodies	Conduct a study on existing situation of wastewater flow and prepare a DPR for grey water treatment	50,000	-	-	-	S3 project

no	Projects (taken from CSP Action Plan)	Description (All actions included in this project)	Cost in Rs.				Source for funding (ULB own revenues, Grant under SBM, AMRUT, etc.)
			Immediate	Short Term	Medium Term	Long Term	
		Establishing greywater treatment plants	-	To be estimated based on DPR prepared	-	-	CDMA / SAC / External funding
7	Improvement of storm water drainage system	Construction of 100 % pucca covered drainage	-	To be estimated in consultation with ULB	-	-	ULB / State Funding
		Implement lake conservation program	-	To be estimated in consultation with ULB	-	-	ULB / State Funding
8	Solid Waste Management	Implementation of GO 279 on micro-planning	To be estimated based on the PPP arrangement	-	-	-	ULB
		Establish an interim solid waste treatment facility	-	To be estimated in consultation with ULB	-	-	ULB / SAC / External funding
		Establishment of Dry resource center and windrow treatment technologies	-	To be estimated in consultation with ULB and Anil			ULB

no	Projects (taken from CSP Action Plan)	Description (All actions included in this project)	Cost in Rs.				Source for funding (ULB own revenues, Grant under SBM, AMRUT, etc.)
			Immediate	Short Term	Medium Term	Long Term	
		Transportation of waste to waste to energy plant to be established at regional level.	-	To be estimated in consultation with ULB	-	-	ULB

Annexures

Annexure 1 – City Sanitation Task Force (CSTF)

Table 0-1 Members of the first CSTF constituted in May 2016			
Sl. No.	**Name**	**Designation**	**Role in CSTF**
1	Mr. Surapaneni Suryabhaskar	Chairperson, Kovvur Municipality	Chairperson
2	Mr. T Nagendra Kumar	Commissioner, Kovvur Municipality	Convener
3	Mr. P Sudhir	Civil Surgeon, Govt. Hospital	Chairman, Health Standing Committee
4	Mr. P V Prabhakar Rao	Assistant Engineer, Kovvur Municipality	Chairman, Sanitation Standing Committee
5	Mr. B Gangaraju	Sanitary Inspector, Kovvur Municipality	Chairman, Solid Waste Management Committee
6	Mr. Naidu Venkateshwara Rao	12th Ward Councilor	Chairman, Standing Committee for Strategy, Planning & IEBC activities
7	Mr. Matte Narayan Murthy	Chamber of Commerce	Member
8	Mr. A. Chinna Rao	Secretary, Rotary Club	Member
9	Mr. Raja	Principal, SRK High School	Member
10	Mr. Akula Raman	President, Rotary Club	Member
11	Mr. Goli Venkata Ratnam	President, Lions Club	Member
12	Mr. Misala Prasad	PH Worker	Member
13	Ms. Misala Satya Devi	11th Ward councilor	Member
14	Mr. Potru Srinivasa Rao	21st Ward councilor	Member
15	Mr. Prasad	Circle Inspector of Police, Kovvur	Member
16	Mr. Y. Chalapati Rao	President, BAR association	Member
17	Mr. Murukonda Ramesh	President, Town Telugu Youth Association	Member
18	Mr. Y. Markendeyulu	Ex-Councilor, Kovvur	Member
Source: Kovvur Municipality, May 2016			

Project name	*Sampoorna Swachha Sankalap (S3)*		
Date	22-05-2017	**Location**	Commissioner Chamber, Kovvur Municipality
Members Present			
Name	List is placed at Annexure		
Purpose of the meeting	To explain role of CSTF and plan for city sanitation improvement		

Minutes of Meeting

- The City Sanitation Task Force met on 22 May 2017 to discuss their role and plan for sanitation improvement on the town.
- S3 team presented brief about the project, key sanitation challenges in the town, need and role of women sub-committee under CSTF
- CSTF agreed to constitute women-subcommittee to discuss and monitor the menstrual hygiene and gender related activities in town. Municipal Chairperson will be the chairman of sub-committee with women CSTF members, Head Mistress, Mpl High school and a girl representative from any of 8th, 9th and 10th class as members of the sub-committee.
- It is agreed that the CSTF will meet on regular monthly basis during the fourth week with prior intimation to all members.
- For SWM, a pilot ward No_____ has been identified and agreed to implement door-to-door waste segregation and collection in accordance with MSW Rules 2016.
- S3 team is requested to provide technical support in this initiative.
- A formal meeting of Chairperson with women sub-committee members should be conducted in the next week to discuss about menstrual hygiene in Municipal School and at Public/ community toilets in the town
- CSTF will review and guide the process of City Sanitation Plan preparation for Kovvur town.
- It is decided to CSTF meetings on every month to review and discuss the progress made sanitation situation improvement.
- S3 team is requested to extend support in monitoring the construction of public toilets in Kovvur.

Next steps/ Action items

- Office circular on formation of women sub-committee and intimate the members for its first meeting
- Develop an action plan for implementation source segregation and IEC activities in the identified pilot ward
- Empanelment of septic tank operators to be completed by end of May and a training programme for operators to be conducted to create awareness on safe collection and disposal faecal waste.

Annexure 2 – Public and Community Toilets

Name of the CT/PT: Yanadi colony Community Toilet

Location: Yanadi colony, Ward No. 20

Details:-

No. of toilet seats			**No. of Bathrooms**		**No. of Urinals**	
Male	Female	PHC	Male	Female	Male	Female
4	4	-	-	-	-	-

Sl. No.	**Checklist item**	**Gaps**	**Requirements**	**Cost estimate (in Rs.)**
A	**Toilet stalls:**			
1	Clean squatting pans with functional water seal	-	-	-
2	Flush	None of the toilets is having flushing facility	8 nos.	14,800 (1850 per unit)
3	Tap with continuous water	-	-	-
4	Bucket	No buckets	8 nos.	2,400 (300 per unit)
5	Mug	No mugs	8 nos.	400 (50 per unit)
6	Ventilator	-	-	-
7	Light	-	-	-
8	Support bars	There are no supporting bars	6 nos.	15,000 (lumpsum)
9	Door with latches, hooks (for hanging clothes) and adequate privacy	-	-	-

Sl. No.	Checklist item	Gaps	Requirements	Cost estimate (in Rs.)
10	Clean floor and walls	The flooring and wall tiles are dirty	All floor and wall tiles need to be cleaned	1,000 (lumpsum)
B	**Elderly & PHC toilets:**			
1	At least one western commode for elderly	There are no western commodes in the toilet block	2 WCs	8,800 (2200 per unit)
2	Support bars at relevant locations	Supporting bars to be provided in new WC stalls	2 nos.	5,000 (lumpsum)
3	At least one universal access toilet for PHC	Not required since there are no PHC residents dependent on it	-	-
C	**Accessibility:**			
1	Separate entrances for men and women	-	-	-
2	Ramp	Not required – the toilet plinth level is almost equal to the road level	-	-
D	**Utilities:**			
1	Electricity	-	-	-
2	Water supply	-	-	-
3	Lighting (entrance and common areas)	-	-	-
4	Ventilation for common areas (natural or artificial)	-	-	-
E	**Hand washing station:**			
1	Washbasin (at least one per section)	No wash basin existing	2 nos.	5,000 (2500 per unit)

Sl. No.	Checklist item	Gaps	Requirements	Cost estimate (in Rs.)
2	Towel ring / Paper napkin dispenser	No towel rings	2 nos.	1,000 (500 per unit)
3	Liquid soap dispenser / Soap stand	No soap station	2 nos.	800 (400 per unit)
4	Grooming mirror	No mirrors	2 nos.	1,200 (600 per unit)
5	Dust bin	No dust bins	2 nos.	600 (300 per unit)
F	**Menstrual Hygiene Management:**			
1	Electric incinerator	There is no facility	1 nos.	25,000
2	Sanitary napkin vending machine	There is no facility	1 nos.	16,000
G	**Security:**			
1	Is vandalising a problem, if Yes	No	-	-
2	Security camera (for monitoring, at suitable location not effecting the privacy)	Not required	-	-
H	**Other facilities:**			
1	Caretaker room / desk	Not required as it is maintained by community	-	-
2	Storage facility	-	-	-
3	Record Keeping (cleaning schedule & stock)	1	1	500
4	Feedback machine	1	1	5,000
I	**Signage:**			
1	Signboards	-	-	-

Sl. No.	Checklist item	Gaps	Requirements	Cost estimate (in Rs.)
2	Direction boards at relevant locations	4	4	20,000 (5000 per unit)
J	**Aesthetics:**			
1	Cleanliness of floor and wall tiles	1	1	500
2	Painting (exterior and interior walls)	1	1	5,000 (lumpsum)
3	Potted plants (inside)	-	-	-
4	Landscaping (around the toilet)	Yes	Need to be developed	3,000 (500 per pot)
K	**Other requirements:**			
1	Shed	There is no covering over the common areas	Shed over the common spaces on both sides to prevent sun, rain and dry leaves and enhance use of wash basins	
Total Estimated budget				**1,51,000**

Name of the CT/PT: Goshpadakshetram Public Toilet

Location: Goshpadakshetram, Godavai Bund Road, Ward no. 10

Details:-

No. of toilet seats			**No. of Bathrooms**		**No. of Urinals**	
Male	Female	PHC	Male	Female	Male	Female
4	4	-	-	-	-	-

Sl. No.	**Checklist item**	**Gaps**	**Requirements**	**Cost estimate**
A	**Toilet stalls:**			
1	Clean squatting pans with functional water seal	Cleaning and minor repairs	6 nos.	8,000 (1000 per unit)
2	Flush	None of the seat is having flush	8 nos.	14,800 (1850 per unit)
3	Tap with continuous water	-	-	-
4	Bucket	No buckets	8 nos.	2,400 (300 per unit)
5	Mug	No mugs	8 nos.	400 (50 per unit)
6	Ventilator	-	-	-
7	Light	-	-	-
8	Support bars	There are no supporting bars	6 nos.	3,000 (500 per unit)
9	Door with latches, hooks (for hanging clothes) and adequate privacy	All the doors are broken	8 nos. (new doors)	8,000 (1000 per unit)
10	Clean floor and walls	Floor and wall tiles are dirty	Needs to be cleaned	1,000 (labour cost)
B	**Elderly & PHC toilets:**			
1	At least one western commode for elderly	There are no western commodes in the toilet block	2 WCs	8,800 (2200 per unit)

Sl. No.	Checklist item	Gaps	Requirements	Cost estimate
2	Support bars at relevant locations	Supporting bars to be provided in new WC stalls	2 nos.	5,000 (lumpsum)
3	At least one universal access toilet for PHC	There is no toilet for PHC	It is very important to alter the design and construct one universal access toilet	25,000 (lumpsum)
C	**Accessibility:**			
1	Separate entrances for men and women	There is no segregated entrance for women and men	Construction of partition wall / foldable partition	15,000 (lumpsum)
2	Ramp	There is no ramps existing	Construction on ramp on both sides with railing	20,000 (lumpsum)
D	**Utilities:**			
1	Electricity	-	-	-
2	Water supply	-	-	-
3	Lighting (entrance and common areas)	-	-	-
4	Ventilation for common areas (natural or artificial)	-	-	-
E	**Hand washing station:**			
1	Washbasin (at least one per section)	No wash basin existing	2 nos.	5,000 (2500 per unit)
2	Towel ring / Paper napkin dispenser	No towel rings	2 nos.	1,000 (500 per unit)
3	Liquid soap dispenser / Soap stand	No soap station	2 nos.	800 (400 per unit)
4	Grooming mirror	No mirrors	2 nos.	1,200 (600 per unit)
5	Dust bin	No dust bins	2 nos.	600 (300 per unit)
F	**Menstrual Hygiene Management:**			
1	Electric incinerator	There is no facility	1 nos.	25,000

Sl. No.	Checklist item	Gaps	Requirements	Cost estimate
2	Sanitary napkin vending machine	There is no facility	1 nos.	16,000
G	**Security:**			
1	Is vandalising a problem, if Yes	No		
2	Security camera (for monitoring, at suitable location not effecting the privacy)	Not required		
H	**Other facilities:**			
1	Caretaker room / desk	Available but is in a bad shape and non-liveable	To be renovated	15,000 (lumpsum)
2	Storage facility	1	1	5,000
3	Record Keeping (cleaning schedule & stock)	1	1	500
4	Feedback machine	1	1	5,000
I	**Signage:**			
1	Signboards	2	2	2,000 (1000 per unit)
2	Direction boards at relevant locations	4	4	20,000 (5000 per unit)
J	**Aesthetics:**			
1	Cleanliness of floor and wall tiles	1	1	500
2	Painting (exterior and interior walls)	1	1	10,000 (lumpsum)
3	Potted plants (inside)	-	-	-
4	Landscaping (around the toilet)	There is no landscaping	8 potted plants	4,000 (500 per pot)
Total Estimated budget				2,23,000

Prepared by:

S3 Andhra Project Team

This report has been prepared within the context of SNUSP CSP template. Herein, the S3 Andhra team have assessed all the sectors (i.e. Water Supply, Access to Toilets, Wastewater management, Solid Waste Management and Storm Water Drainage) based on a review of the existing situation in the sector and evaluating demand for each sector. The demands have been understood based on discussion with city level stakeholders and through assessment of the secondary data resources made available to the project team. The final section of the report aims to identify the way forward in terms of action points and an investment plan for the same.

About S3 Andhra Project

Sampoorna Swachhta Sankalp (S3) is a project of the Administrative Staff College of India (ASCI), Ernst & Young (EY) and University of Chicago to design, implement, and monitor improved decentralized sanitation systems in Andhra Pradesh. S3 aims to improve sanitation, safety and health across the state by going beyond curbing open defecation and ensuring safe and effective faecal sludge treatment and management.

Currently Technical Support to Government of Andhra Pradesh for Decentralized Sanitation Improvement and Faecal Sludge Management is being provided in three Towns viz. Palacole, Kovvur, Narsapur.

sampoorna swachhta sankalp

Andhra Pradesh