

CWIS CITY SNAPSHOT

**CWIS** | CITYWIDE  
INCLUSIVE  
SANITATION



**WARANGAL**





# WARANGAL CWIS CITY SNAPSHOT

*The Citywide Inclusive Sanitation (CWIS) City Snapshots are designed to provide compact summaries of initiatives that are being implemented in eight cities, namely Lusaka, Kampala, Dakar, Khulna, Trichy, Warangal, Narsapur and Wai. Each of these cities has active investments designed to achieve the CWIS goals of equitable, safe, and sustainable sanitation service delivery. These city snapshots are part of the CWIS Monitoring and Learning initiative led by Athena Infonomics with support from the Bill & Melinda Gates Foundation.*

*This snapshot focuses on the city of Warangal where the Administrative Staff College of India (ASCI) is the lead implementing partner. This city snapshot outlines the pathway that Warangal is taking to achieve its CWIS goals and tracks the progress being made, including key shifts in institutional and service delivery models to support safe, equitable and sustainable delivery of services.*

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GATES *foundation*

## 1. City Sanitation Overview

Category	Indicator	Value
<b>Demographic</b>	Administrative boundary	In 2015, Warangal municipality was upgraded to Greater Warangal Municipal Corporation (GWMC) with the area extending from 110 sq. km to 407 sq. km by merging surrounding villages. The number of wards increased from 42 to 58. No change has happened on GWMC's administrative boundary since 2014. All information and statistics in this snapshot are based on the same administrative boundary.
	Population	817,959 <sup>1</sup>
	% of population living in informal settlements	30% <sup>2</sup>
<b>Geographic</b>	Topography	The major soil types found in the district are red chalka (55%), black cotton soil (22%), loamy soil (14%) and sandy loams (9%). Due to the hills and the general rocky terrain, laying a piped network is a challenge in Warangal. The sloped areas also cause a hindrance to sanitation planning - movement of desludging vehicles, for instance.
	Groundwater table	The groundwater level ranges from 5-20 m below ground level. <sup>3</sup> This relatively high-water table increases the risk of groundwater contamination.
<b>Basic Sanitation Statistics (as of 2020)</b>	% of population practicing open defecation	0% <sup>4</sup>
	% of population relying on onsite sanitation	100%
	Treatment infrastructure (capacity) and utilization	2 Fecal Sludge Treatment Plants (FSTP) with a combined 25 KLD (15KLD and 10 KLD) operational capacity, 33% of which is currently utilized.

<sup>1</sup> City Sanitation Plan 2018 (projection), Chapter 3 Population Projections (pp32)

<sup>2</sup> ASCI 2020

<sup>3</sup> <http://cgwb.gov.in/Regions/GW-year-Books/GWYB-%202016-17/Telangana.pdf>, pp26

<sup>4</sup> Warangal has been declared ODF++ as of February 2019. Available at <https://telanganatoday.com/warangal-declared-odf>

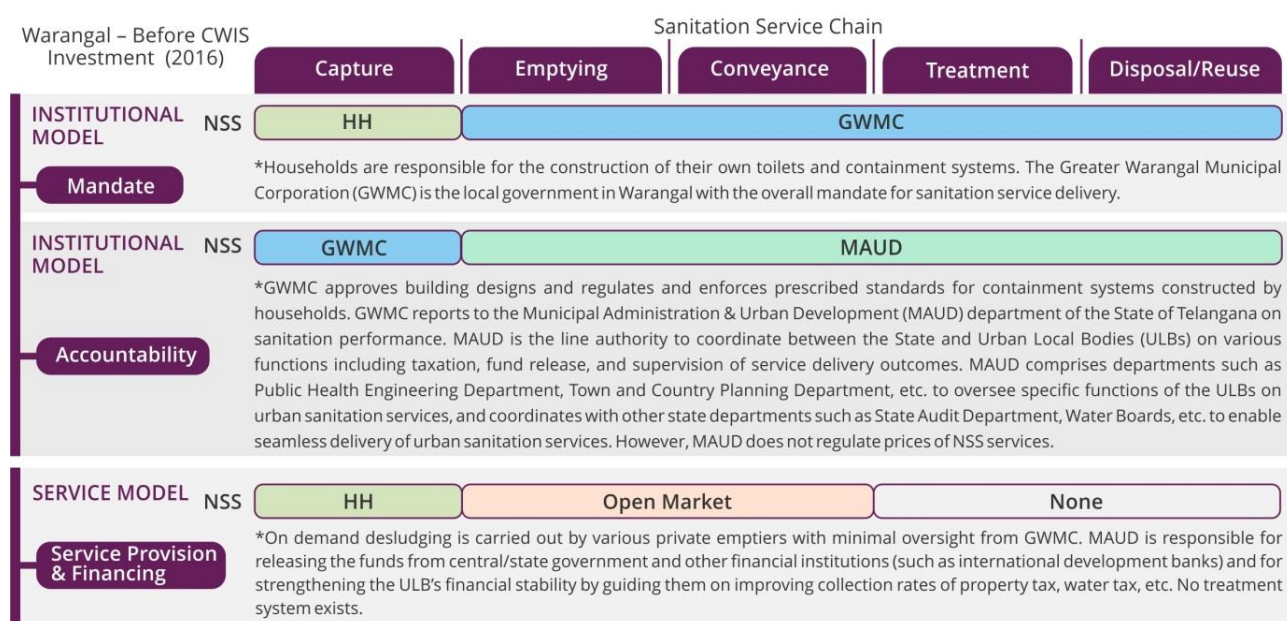


## 2. Institutional and Governance Framework of City Sanitation Service Delivery

The graphics below show the institutional mandate, accountability and service provision models for Warangal before the CWIS program started and the current scenario as of 2020. The full institutional model of urban sanitation service delivery covers all three of the systems functions under CWIS—Responsibility<sup>5</sup>, Accountability<sup>6</sup>, and Resource Planning/ Management (financing framework)<sup>7</sup>. The illustration in this section presents only responsibility and accountability, as financing framework is complex and varies widely across cities. The section on service model illustrates how sanitation services are being delivered. The service model includes a wide range of options such as direct provision by the mandated service authority, public private partnerships, and direct provision by the private sector but with oversight/ regulation by the service authority or through open markets with limited oversight/regulation.

In Warangal, the main change over the past few years is the operationalization of two FSTPs, which filled in the previous vacancy in treatment and disposal/reuse. Establishment of the FSTPs also obliged the municipality to report to the state pollution control board (accountability) on compliance with discharge and disposal standards. In addition, all desludging operators have been registered and licensed, allowing the municipality more oversight over desludging service provision.

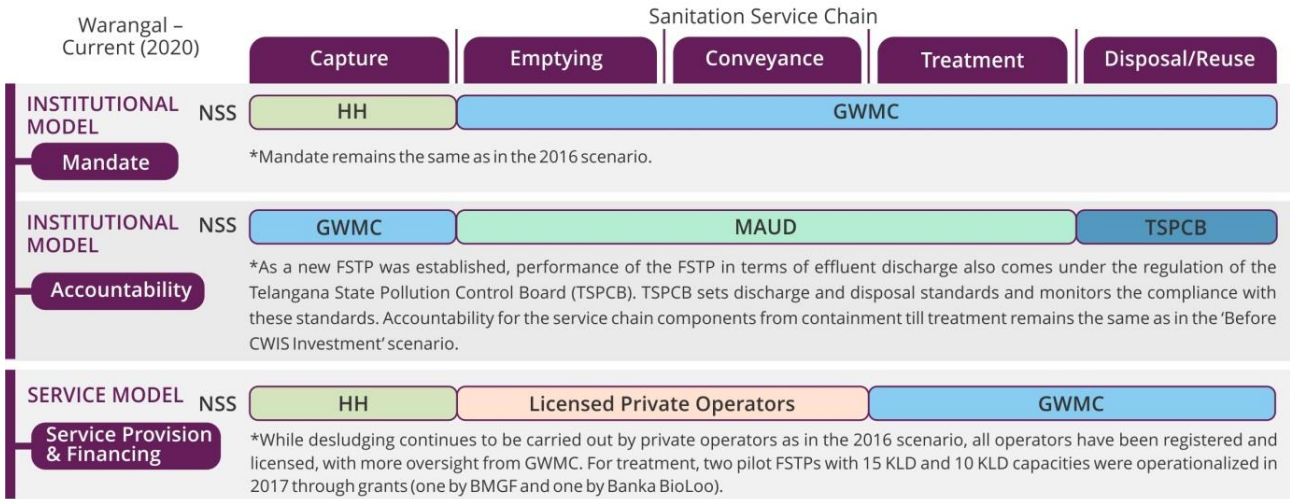
**Legends:** SS - Sewered Sanitation; NSS - Non-Sewered Sanitation



<sup>5</sup> Responsibility means that authority (ies) executes a clear public mandate to ensure safe, equitable, and sustainable sanitation for all.

<sup>6</sup> Accountability means that authorities' performance against their mandate is monitored and managed with data, transparency and incentives.

<sup>7</sup> Resource Planning/ Management means that resources – human, financial, natural, assets – are effectively managed to support execution of mandate across time / space.



### 3. List of CWIS Interventions

This section seeks to capture Warangal's path to CWIS goals of equity, safety and sustainability and its performance on key functions such as clarity of mandate/responsibility, accountability and resource planning/ management. The table below is a list of Key Performance Indicators (KPIs)<sup>8</sup> used to gauge changes towards CWIS, followed by another table detailing the scenario in Warangal. The KPIs EQ-1 and SF-1 specifically follow the definitions as laid out in the Shit Flow Diagram (SFD) manual<sup>9</sup>.

#### KPIs for Interventions

	<b>Equity</b> <i>Services reflect fairness in distribution and prioritization of service quality, prices, and deployment of public finance/ subsidies</i>	<b>Safety</b> <i>Services safeguard customers, workers, and communities from safety and health risks—reaching everyone with safe sanitation</i>	<b>Sustainability</b> <i>Services are reliably and continually delivered based on effective management of human, financial and natural resources</i>
<b>Service Outcomes</b>	<ul style="list-style-type: none"> <li>• <b>EQ-1:</b> % safely managed sanitation in low income areas               <ul style="list-style-type: none"> <li>○ % wastewater (WW) contained</li> <li>○ % supernatant (SN) contained</li> <li>○ % FS contained</li> <li>○ % FS emptied</li> </ul> </li> <li>• <b>EQ-2:</b> Women's participation in sanitation related matters</li> <li>• <b>EQ-3:</b> Gender friendly PT/CT design</li> <li>• <b>EQ-4:</b> % of sanitation workers covered by social security and health insurance</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SF-1:</b> % safely managed sanitation               <ul style="list-style-type: none"> <li>○ % WW contained</li> <li>○ % WW contained delivered to treatment</li> <li>○ % SN contained</li> <li>○ % FS contained</li> <li>○ % FS emptied (contained + not contained)</li> <li>○ % WW treated</li> <li>○ % FS treated</li> </ul> </li> <li>• <b>SF-2:</b> Health and safety standards and SOPs exist to protect sanitation workers from occupational hazards, and compliance is monitored</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SS-1:</b> % of treated wastewater that is reused</li> <li>• <b>SS-2:</b> % of treated biosolids that is reused</li> <li>• <b>SS-3:</b> % of utility capital investments covered by budget line/ government transfers</li> <li>• <b>SS-4:</b> % of O&amp;M cost recovered for sanitation infrastructure (STPs/WWTPs, FSTPs, CT/PTs, desludging trucks, etc.)</li> </ul>
	<b>Responsibility</b> <i>Authority (ies) executes a clear public mandate to ensure safe, equitable, and sustainable sanitation for all.</i>	<b>Accountability</b> <i>Authorities' performance against their mandate is monitored and managed with data, transparency and incentives.</i>	<b>Resource Planning/ Management</b> <i>Resources – human, financial, natural, assets – are effectively managed to support execution of mandate across time / space.</i>
<b>System Functions</b>	<ul style="list-style-type: none"> <li>• <b>RS-1:</b> Policy mandate for service delivery covers both sewered and non-sewered sanitation across the entire sanitation service chain               <ul style="list-style-type: none"> <li>○ Mandate has no exclusions</li> <li>○ Mandate is explicitly pro-poor</li> <li>○ Mandate is gender intentional and inclusive of vulnerable groups</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-1:</b> Service authority performance is monitored externally with clear KPIs and targets</li> <li>• <b>AC-2:</b> Performance data is sufficiently collected and reported, representative, and transparent</li> <li>• <b>AC-3:</b> Incentives and/or penalties tied to performance exist for sanitation service authority</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-1:</b> Clear financing framework</li> <li>• <b>RPM-2:</b> Staff are in place and capable to execute mandate</li> <li>• <b>RPM-3:</b> Quality of investment decision-making</li> <li>• <b>RPM-4:</b> Integrated citywide sanitation plan</li> </ul>

<sup>8</sup> The KPIs are based on the list of CWIS indicators, which are more detailed and intended to offer comprehensive insights into a city's progress towards CWIS. This KPI list focuses on a subset of CWIS indicators and seeks to highlight interventions that can contribute to improved outcomes, as most cities are still in early stages of investment maturity. For example, the CWIS indicators measure women's usage of PT/CTs as quantitative outcomes, while the KPI EQ-3 focus on gender friendly PT/CTs as an intermediate outcome that can lead to more women using PT/CTs.

<sup>9</sup> Definitions as per the [SFD Manual](#) i.e., %SN contained = 0.5 \* %Septic tank/ fully lined tank (sealed)/ lined tank with impermeable walls and open bottom connected to a centralized/decentralized combined sewer or foul/separate sewer; %WW contained = %Toilet discharges directly to a centralized/decentralized combined sewer or foul/separate sewer; %FS contained (all conditions when there is 'low risk' of groundwater pollution) = %Toilet discharges directly to soak pit + %Septic tank/ fully lined tank (sealed)/ lined tank with impermeable walls and open bottom connected to soak pit or no outlet + % Lined/ unlined pit, no outlet or overflow + % Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow + %SN contained.

## Warangal Scenario

The table below presents the scenario in Warangal before the CWIS program was initiated, the target that needs to be achieved, and the reforms and interventions made to reach this target. The table seeks to cover key interventions, both those completed over the past few years and those under way, by all stakeholders that contribute to goals aligned with the CWIS idea. The table is not restricted to interventions that are part of the BMGF funded CWIS program or the CWIS grantee.

\*NOTE: Acronyms are available at the end of the section.

Service Outcomes	Starting Scenario (2017)	Equity	Safety	Sustainability
		<ul style="list-style-type: none"> <li>● <b>EQ-1:</b> 0% safely managed sanitation in low income areas                             <ul style="list-style-type: none"> <li>○ 0% SN contained;<sup>10</sup></li> <li>○ 51.1% FS contained;<sup>11</sup></li> <li>○ 0% FS emptied.</li> </ul> </li> <li>● <b>EQ-2:</b> Limited women’s participation in sanitation related matters through SHGs.</li> <li>● <b>EQ-3:</b> No gender friendly PT/CT exists.</li> <li>● <b>EQ-4:</b> No information on the status of social security and health insurance coverage for sanitation workers.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>SF-1:</b> 42% safely managed sanitation.<sup>12</sup> <ul style="list-style-type: none"> <li>○ 0% WW contained (no sewer network);</li> <li>○ 0% SN contained;<sup>13</sup></li> <li>○ 76% FS contained;<sup>14</sup></li> <li>○ 42% FS treated.</li> </ul> </li> <li>● <b>SF-2:</b> Health and safety standards and SOPs to protect sanitation workers from occupational hazards exist at the national level<sup>15</sup> and ULB level<sup>16</sup>. GWMC enforces these regulations via licensing document for private operators and monitors compliance of the licensing terms.<sup>17</sup></li> </ul>	<ul style="list-style-type: none"> <li>● <b>SS-1:</b> 0% of treated wastewater/ effluent is reused.</li> <li>● <b>SS-2:</b> 0% of treated biosolids is reused.</li> <li>● <b>SS-3:</b> 100% of capital investment covered by government transfers for Community Toilets.</li> <li>● <b>SS-4:</b> A few Public Toilets in the city are financed by the private sector under a PPP model (Design-Build-Operate-Transfer). 0% of O&amp;M cost is recovered for the remaining PT/CTs as no user charge is collected. 0% of O&amp;M recovered for FSTPs (funded by grant and CSR funding).</li> </ul>

<sup>10</sup> Supernatant (SN), partially treated effluent flowing from septic tanks, is discharged directly into open drains.

<sup>11</sup> This includes 15.7% FS contained from septic tanks, 19.6% FS contained from twin pits, and 15.8% from single pits.

<sup>12</sup> All data points are from the 2017 Warangal SFD created by ASCI.

<sup>13</sup> Following the methods in the SFD manual, supernatant/effluent is considered for systems (septic tanks, fully lined tanks and partially lined tanks) which are either connected to an open drain, storm sewer or a centralized or decentralized sewer system. In the case of Warangal, of all sanitation systems, 10% are IHHL septic tanks connected to open drains.

<sup>14</sup> This includes 55.35% of FS safely contained from septic tanks, 18.49% FS safely contained from twin pits and 1% FS safely contained from PT.

<sup>15</sup> Manual scavenging Act of 2013 prohibits manual emptying of septic tanks; CPHEEO Manual on Sewerage and Sewage Treatment Systems – 2013 (Chapter 9 on occupational health hazards and safety measures).

<sup>16</sup> GWMC’s “Septage Management (Capture to disposal)- Regulations 2016

<sup>17</sup> The sanitary inspector from GWMC is responsible for monitoring the compliance of PPE usage by sanitation workers and carries out daily checks on the desludging operators in the city.

	<p>Reforms &amp; Interventions</p>	<ul style="list-style-type: none"> <li>• MEPMA<sup>18</sup> and ASCI conducted slum vulnerability mapping to capture data on physical and social infrastructure conditions of toilets in slums.</li> <li>• WABAG<sup>19</sup> utilized its CSR funds to build a decentralized wastewater treatment system for a slum in Warangal and plans to scale up this model to more slums.</li> <li>• GWMC and ASCI formed a gender subgroup under the City Sanitation Task Force and groups of slum sanitation committees in the form of Slum Level Federations. These act as information dissemination platforms for sanitation services in LICs.</li> <li>• ASCI conducted workshops to inspire and train interested women to become masons and desludging operators in the city. 12 women were trained in these workshops.</li> <li>• ASCI conducted a study on CT/PT usage by women to identify features that should be added to existing CT/PTs. Based on the features identified, GWMC assigned a budget for retrofitting PTs and constructing gender friendly CTs and SHE toilets<sup>20</sup>. The funds are utilized on demand basis.</li> </ul>	<ul style="list-style-type: none"> <li>• ASCI operationalized two FSTPs-15KLD based on pyrolysis technology (BMGF funded); 10KLD based on geo-bag (by Banka BioLoo).</li> <li>• ASCI finalized DPR and RFP documents for a new 150 KLD FSTP to be financed by the Greater Warangal Smart City Corporation through a Hybrid Annuity Model (PPP).</li> <li>• GWMC with the support of ASCI began construction of a 40 KLD Johkasou<sup>21</sup> packaged treatment plant in one of the government residential schools.</li> <li>• GWMC with the support of ASCI began construction of a 750 KLD WWTP in MGM hospital using GWMC's own funds.</li> <li>• ASCI supported GWMC in developing guidelines on design of toilet superstructure and containment and trained masons to convert insanitary to sanitary (safe containment) OSS in the city.</li> <li>• GWMC enforced a standard license agreement for private desludging operators and uses a GPS based monitoring system (FSM Tracker) to regulate operations and disposal of FS.</li> <li>• ASCI and Dalberg trained 290 sanitation workers and desludging operators on the MoHUA's Standard Operating Procedures on Cleaning of Sewers and Septic Tanks.</li> </ul>	<ul style="list-style-type: none"> <li>• Private FSTP operator (Tide Technocrats and Banka Bioloo) is currently exploring the reuse potential of biosolids for agricultural and brickmaking purposes.</li> <li>• 3 STPs with a combined capacity of 120 MLD will be financed entirely under the Smart City mission<sup>22</sup>. The STPs are currently under tendering process.</li> <li>• ASCI scaled up the PPP model to all PTs in the city (47 as of now, 12 more being planned), and integrated into the PPP model well-defined service level standards for safe and financially sustainable services across the value chain (PT management, desludging services and for construction and O&amp;M of FSTP, etc.).</li> </ul>
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<sup>18</sup> Mission for Elimination Poor in Municipal Areas, a parastatal agency in Telangana which works towards eliminating poverty and vulnerability of the urban poor.

<sup>19</sup> A multinational company that focuses on Water and Wastewater treatment. The project is currently under implementation. Once operational, the OPEX will be covered by WABAG for a duration of one year.

<sup>20</sup> SHE toilets are public toilets designed exclusively for women and are maintained by women. It has additional features like CCTV camera, safety grills, sanitary vending machines, cloak room and child friendly seat (for women with babies).

<sup>21</sup> A Japanese onsite wastewater treatment technology. While this is currently at the pilot stage, there are plans to scale up this technology in the slum areas.

<sup>22</sup> National Smart Cities Mission is an urban renewal and retrofitting program by the Government of India with the mission to develop smart cities across the country, making them citizen friendly and sustainable



	Target Scenario (2021 & beyond)	<ul style="list-style-type: none"> <li>• <b>EQ-1:</b> 100% safely managed sanitation in LICs<sup>23</sup> achieved through a comprehensive sanitation improvement plan for slums that will be overseen by a GWMC officer on special duty.</li> <li>• <b>EQ-3:</b> All CT/PTs to be gender sensitive, with essential features such as safety and privacy, MHM and hygiene requirements, accessibility, maintenance, provision for caregivers and parents and design specifications and standard dimensions of toilet units for differently abled.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SF-1:</b> 100% safely managed sanitation and treatment of WW and FS as per the National Green Tribunal standards.</li> <li>• <b>SF-2:</b> 100% compliance with worker safety standards prescribed at the national level.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SS-1:</b> 20% of treated effluent is reused.<sup>23</sup></li> <li>• <b>SS-2:</b> 20% of treated sludge is reused.<sup>23</sup></li> <li>• <b>SS-4:</b> 100% O&amp;M cost recovery for the FSTP.</li> </ul>
System Functions	Starting Scenario (2017)	<b>Responsibility</b>	<b>Accountability</b>	<b>Resource Planning/ Management</b>
		<ul style="list-style-type: none"> <li>• <b>RS-1:</b> GWMC has the mandate for overall sanitation service delivery in Warangal.                             <ul style="list-style-type: none"> <li>○ Mandate does not explicitly mention pro-poor as a focus;</li> <li>○ Mandate does not explicitly mention the needs of women or other vulnerable groups.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-1:</b> MAUD is the performance and environmental regulator for GWMC; no economic regulation exists.                             <ul style="list-style-type: none"> <li>○ No grievance redressal system in place;</li> <li>○ GWMC's performance is assessed by three national level performance monitoring mechanisms: Swachh Bharat Mission (SBM) MIS, Swachh Survekshan (SS), Service Level Benchmarks (SLBs).</li> </ul> </li> <li>• <b>AC-2:</b> Sanitation performance data is available only for toilet access and FS emptying, no data is collected for FS treatment.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-1:</b> No dedicated budget for FSSM.</li> <li>• <b>RPM-2:</b> No dedicated staff for NSS.</li> <li>• <b>RPM-3:</b> GWMC's investment decision making is based on evaluation of different technologies to meet service delivery gaps.<sup>25</sup> <ul style="list-style-type: none"> <li>○ Detailed financial analysis (incl. the CAPEX and OPEX requirements and the lifecycle cost analysis) is conducted for the technologies shortlisted;</li> <li>○ For the FSTP implemented, environmental impact assessment was conducted in order to receive consent of implementation certificate from the state pollution control board.</li> </ul> </li> </ul>

<sup>23</sup> While there are no specific targets defined by GWMC, the city follows the overall program/scheme level goals such as achieving open defecation free (ODF) status or safe management of FS to achieve ODF++ status under SBM. In this case the targets mentioned are as per the WW benchmark referred from Service Level Benchmark (MoUD, 2009). With respect to the reuse standards, while the SLBs have a specific focus towards reuse of sludge from the treatment of sewage, the same benchmarks have been extended for the reuse of treated biosolids and effluent from faecal sludge.

<sup>25</sup> For instance, when the Johkasou technology or the upcoming 150 KLD treatment plant, discussions are conducted at the state and the town level regarding the shortlisting of the technology from a menu of options based on the local context (geographical context, financial and technical feasibility)

			<ul style="list-style-type: none"> <li>• <b>AC-3:</b> All cities in India are eligible for 14th Finance Commission grant<sup>24</sup> contingent on meeting minimum performance threshold.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-4:</b> No integrated city sanitation plan exists.</li> </ul>
	Reforms & Interventions	<ul style="list-style-type: none"> <li>• The State Government of Telangana has revised the Telangana Municipality Act of 1965 to enable more decentralized governance. The new Telangana Municipality Act of 2019 gives the city more freedom to operate and makes the mandate more inclusive.<sup>26</sup></li> </ul>	<ul style="list-style-type: none"> <li>• ASCI developed ICT tools and systems for the provision and monitoring of sanitation services.             <ul style="list-style-type: none"> <li>○ Maintain an FSTP logbook with notes on truck details, in addition to recording the truck plate number through an RFID scanner;</li> <li>○ Established S-line<sup>27</sup> (helpline) as a call center for desludging requests and for complaint redressal;</li> <li>○ Collect citizen feedback on PT through punching machines with 1-5-star ratings. PT monitoring app maintained by municipality for weekly monitoring;</li> <li>○ Fortnightly report on FSTP performance to Commissioner.</li> </ul> </li> <li>• ASCI is conducting a GIS based sanitation situation assessment of the entire city to plan for scheduled desludging. This includes mapping of all the OSS in the city with the size of their containment units.</li> </ul>	<ul style="list-style-type: none"> <li>• GWMC allocated 25% of the total municipality budget towards sanitation related activities for 2020-21. ASCI worked with GWMC to include FSSM and gender in the budget, which initially was focused mainly on solid waste management.</li> <li>• GWMC and ASCI involve the gender sub-group of CSTF in planning decisions on construction of CT/PT, O&amp;M of existing CT/PT, conversion of insanitary toilets to sanitary toilets and construction of gender inclusive CT/PT.</li> <li>• ASCI established a dedicated NSS cell to oversee non-sewered sanitation services and respond to the state government.</li> <li>• ASCI is developing a city sanitation plan with an action plan and budget requirements including a gender component.</li> </ul>

<sup>24</sup> The Fourteenth Finance Commission (14FC) of Government of India disburses Performance Grant to urban local bodies (ULBs), subject to certain eligibility criteria. This is for a time period of five years, from 2015-2020 wherein 80% forms the Basic Grant and 20% forms the Performance Grant. These funds are devolved only for basic services and their O&M purposes.

<sup>26</sup> For instance, every municipality is recommended to have ward committees which shall be constituted for every ward separately representing (i) youth, (ii) women, (iii) senior citizens and (iv) other eminent people from the ward to consider and advise on the issues referred to them. The 2019 Act also mentions that all public places should have adequate toilet facilities for women, children, the elderly, and disabled.

<sup>27</sup> Sanitation Line - a dedicated sanitation helpline where trained staff support citizens on all aspects of septage management.

	Target Scenario	<ul style="list-style-type: none"> <li>• <b>RS-1:</b> Policy mandate for sanitation service delivery is clearly inclusive of women and vulnerable groups.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-1:</b> Citizen grievance redressal system for sanitation is in place, and performance data is reported to MAUD.</li> <li>• <b>AC-2:</b> Sanitation related data is comprehensively collected and captured in an MIS.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-1:</b> FSSM is introduced as a separate budget line item in the city government budget with annual enhancements.</li> <li>• <b>RPM-2:</b> Dedicated staff for NSS exists and are adequate to meet the needs of sanitation service delivery. a dedicated environment sanitation department is formed within GWMC with skilled and dedicated staff to treat sanitation services in a holistic environmental management approach.</li> <li>• <b>RPM-4:</b> An integrated city-wide sanitation plan exists, covering blackwater, greywater, and solid waste management.</li> </ul>
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## Acronyms:

**ASCI** - Administrative Staff College of India

**CSTF**- City Sanitation Task Force

**CT/ PT** - Community Toilet/ Public Toilet

**DPR** - Detailed Project Report

**FSSM** - Fecal Sludge and Septage Management

**FSTP** - Fecal Sludge Treatment Plant

**GWMC** - Greater Warangal Municipal Corporation

**IHHL** - Individual Household Latrine

**LIC** - Low Income Community

**MAUD** - Municipal Administration and Urban Development

**MBBR** - Moving Bed Bio Reactor

**MEPMA** - Mission for Elimination of Poverty in Municipal Areas

**MHM** - Menstrual Hygiene Management

**MoHUA** - Ministry of Housing and Urban Affairs

**PPP** - Public Private Partnership

**RFP** - Request for Proposal

**SHG** - Self Help Group

**SN** - Supernatant

**SOP** - Standard Operating Procedure