



Ministry of Housing and Urban Affairs
Government of India

SUSTAINABLE CITIES INTEGRATED APPROACH PILOT IN INDIA

Training and Assistance Need Analysis Report

2020-21





सत्यमेव जयते

Ministry of Housing and Urban Affairs
Government of India

SUSTAINABLE CITIES INTEGRATED APPROACH PILOT IN INDIA

Training and Assistance Need Analysis Report

For the provision of services and activities related to the delivery of tailored training and relevant capacity building activities to city managing authority of Guntur

Component 3:

Partnerships, Knowledge Management
and Capacity Building

2020-21

GUNTUR



TITLE

SUSTAINABLE CITIES INTEGRATED APPROACH PILOT IN INDIA
Training and Assistance Need Analysis Report for Guntur

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*Note- In this report Used Water is referred to as Wastewater

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Paramita Datta Dey
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List of Abbreviations

APCRDA	Andhra Pradesh Capital Region Development Authority
APUFIDC	Andhra Pradesh Urban Finance and Infrastructure Development Corporation
AE	Assistant Engineer
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AEE	Assistant Executive Engineer
CHO	Corporation Health Officer
C&D	Construction and Demolition
CE	Chief Engineer
CMOH	Chief Medical Officer of Health
DMA	Directorate of Municipal Administration
DEE	Deputy Executive Engineer
EIA	Environmental Impact Assessment
EE	Executive Engineer
Env. Er.	Environmental Engineer
FSTP	Faecal Sludge Treatment Plant
GMC	Guntur Municipal Corporation
GoAP	Government of Andhra Pradesh
IUWM	Integrated Urban Water Management
IEC	Information, Education and Communication
ICT	Information and Communications Technology
JE	Junior Engineer
MLD	Million Litres per Day
MT	Million Tonnes
MA&UD	Department of Municipal Administration and Urban Development
MHO	Municipal Health Officer
MoHUA	Ministry of Housing and Urban Affairs
NRW	Non-Revenue Water
NGOs	Non-Government Organizations
O&M	Operation and Maintenance
PHMED	Public Health & Municipal Engineering Department
PH	Public Health
SC-IAP	Sustainable Cities Integrated Approach Pilot Project
SWM	Solid Waste Management
SOPs	Standard Operating Procedures
SI	Sanitary Inspector
SS	Sanitary Supervisor
SE	Superintending Engineer
TANA	Training and Assistance Need Analysis
ULB	Urban Local Body
UGD	Underground Drainage
UNIDO	United Nation Industrial Development Organization
UN	United Nations
UFW	Unaccounted For Water
VGTMUDA	Vijayawada Guntur Tenali Mangalagiri Urban Development Authority
WS	Water Supply

1

INTRODUCTION



1. Introduction

1.1 About Sustainable Cities Integrated Approach Pilot

The Global Environment Facility (GEF) launched the Sustainable Cities Integrated Approach Pilot (SC-IAP) to help cities address the challenges posed by mega-trends (urbanization, rising middle class and population growth) of global environmental degradation in an integrated manner. UNIDO is one of the specialized agencies assisting countries in accessing GEF SC-IAP set aside funds, primarily building on the country allocations the focal areas of climate change and chemicals and waste. The SC-IAP programme currently engages 28 cities in 11 developing nations. UNIDO-GEF projects under this initiative include the Sustainable Cities Integrated Approach Pilot in India.

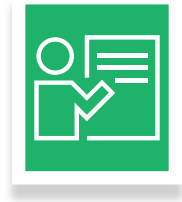
The United Nations Industrial Development Organization (UNIDO) implements the SC-IAP programme in India along with the Ministry of Housing and Urban Affairs (MoHUA). The core objective is to build resilience in five pilot cities – Jaipur, Bhopal, Mysuru, Vijayawada and Guntur – by integrating sustainability concepts into urban planning and management strategies. One key component is the identification of investment projects and technology demonstrations that encourage the development of low carbon urban infrastructure and help reduce greenhouse gas (GHG) emissions.

The main components of the project include:

Component 1 - Sustainable urban planning and management; handled by UN-Habitat,

Component 2 - Technology and investment support for innovative, low carbon pilot projects; handled by UNIDO, and

Component 3 - Partnerships, knowledge management and capacity building, handled by NIUA.



1.2 Role of NIUA

The main role of NIUA is to undertake the implementation of Component 3 – Partnerships, Knowledge Management and Capacity Building. NIUA will contribute towards building the multi-sectoral partnership platform to ensure the implementation of sustainable city strategies, by understanding various issues and challenges of technical, financial, political, social stakeholders/partners. To solve these major issues and challenges, NIUA will prepare the integrated training curriculum modules for various stakeholders in five cities. These modules will help in the implementation of the projects in the pilot cities. The training program outcomes from these cities will then be scaled up to 25 Indian cities, which share similar scale and complexity of issues in implementing sustainable strategies.

1.3 About TANA

The Training and Assistance Need Analysis (TANA) is designed and developed in coordination with UNHABITAT and UNIDO. The TANA assessed the current status of the five cities in the field of sustainability, with particular reference to water, sanitation and solid waste management. The results were shared with UNIDO and UNHABITAT for review, approval and finalization.

The results of TANA will constitute the basis for a detailed training and technical assistance program. It will include the following:

1. Baseline status of current projects on Water, Sanitation and Solid Waste Management in five pilot cities
2. Baseline assessment of the current level of knowledge of stakeholders and their training needs
3. Collection of information from stakeholders in five cities through Semi Structured Interview (SSI), Focus Group Discussion (FGD), Personal Interviews (PI)
4. Corroborating, compiling and analysing data collected from various sources
5. Conducting validation and triangulation workshop on findings of TANA
6. Review and update of TANA findings in coordination with experts, UNIDO and UNHABITAT

Based on the results of TANA, the training curriculum on Solid Waste Management, Waste Water and Water Management will be developed by NIUA in close coordination with UNIDO and UNHABITAT. This will include the following tasks:

1. Based on TANA results, modules on water, waste water and solid waste management will be prepared for relevant stakeholders
2. For developing the module & pedagogy NIUA will synergize the experience of institutional and sector experts and trainers from relevant training institutes
3. Finalizing module in coordination with UN/experts/local resources/city officials.

As per prior experience in conducting capacity building workshops, it has been identified that one curriculum fails to achieve desired outcomes for different stakeholder groups due to their varied roles, responsibilities and aspirations. Hence, we seek to curate customised training sessions for various stakeholders. A tentative curriculum outline structure is shared as below in Figure 1 and Figure 2.

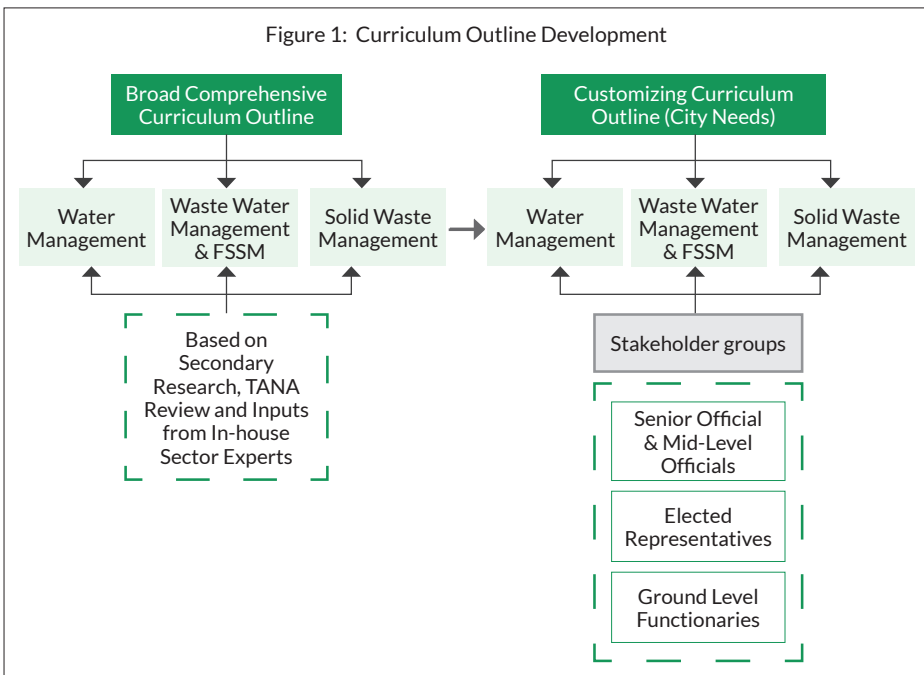


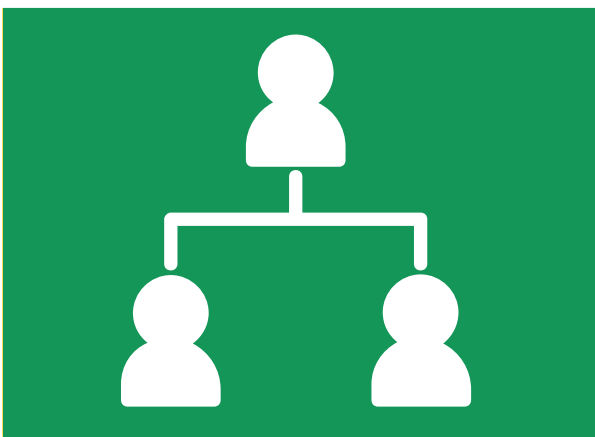
Figure 2: Broad Curriculum Outline

Chapter 1	Overview	Chapter 5	Project Management
Chapter 2	Legislations, Policies and Programmes	Chapter 6	Financial Management
Chapter 3	Technical Concepts, Available Approaches and Technologies	Chapter 7	Stakeholder Engagement
Chapter 4	Operation, Maintenance & Monitoring	Chapter 8	Good Practices
Chapter 9	Disaster Preparedness and Emergency Response		

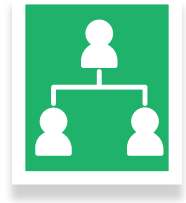


2

FRAMEWORK OF TRAINING AND ASSISTANCE NEED ANALYSIS



2. Framework of Training and Assistance Need Analysis



2.1 Objectives

The Training and Assistance Need Analysis (TANA) aims to understand the existing knowledge of the municipal corporation employees, across the hierarchy of the Urban Local Body (ULB). The findings of this study provide direction to the designing of the training curriculums customised for the needs of the five pilot cities. The specific objectives of the study are as follows:

1. To understand the focus of the ULB among the three sectors.
2. To understand the job roles of the officials, performed at various designations.
3. To determine the existing knowledge and understanding of the Municipal Corporation officials dealing with the three sectors at various designations.
4. To find the gaps in the existing knowledge of the ULB employees.
5. To determine the preferences of the ULB officials with respect to the content of the training programme.
6. To determine the preferences of the ULB officials for the training programme.
7. To provide a baseline understanding of knowledge to design the training curriculum.

2.2 Scope

With regards to this project, majorly ULBs are taken into account while trying to understand the needs of the city. The scope of this project spans over the three sectors of Solid Waste Management, Water Supply and Waste Water Management. The employees of the Municipal Corporations of the five pilot cities were interviewed. The assessment tries to cover the complete hierarchy of the employees, and hence, several members of Municipal Corporations at various

designations have been interviewed. Other parastatal agencies were also interviewed, with an intent to help city officials to plan, implement, operate and maintain sustainable city strategies and low carbon investment projects which are technically and financially viable.

2.3 Limitations

The interviews and primary data collection was anticipated to be done on-site in the five cities. However, the COVID-19 crisis and the lockdown that followed as a response to it disrupted the activities. It had a two fold impact- firstly, the transport services across the country were brought to halt thereby limiting the movement of people. Hence, the research team could not interact with the Municipal Corporations in person. Secondly, during the lockdown that continued for about 2 months, municipal services of Water, Drainage, Sanitation and Solid Waste Management were marked as essential services. As a result of this, the members of the Municipal Corporation that were planned to be interviewed were very occupied with their duties and responding to the crisis. Considering the circumstances, the interviews were conducted through video or audio conferencing and online mediums, coordinated with the City Representatives of UNIDO.

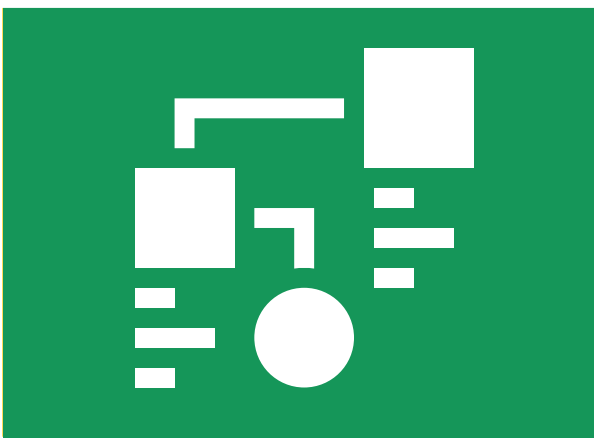
2.4 Structure of the Training and Assistance Need Analysis Report

This document has been structured into various chapters. Chapter 1 provides a basic understanding of the SC-IAP Project, a part of which is the TANA. Chapter 2 provides a framework for the TANA conducted, specifying the objectives of the analysis, defining the scope and the limitations of the process. Chapter 3 illustrates in detail the methodology adopted for the study. The following chapter is dedicated to one of the five pilot cities, providing the baseline status of the cities for the three sectors of Solid Waste Management, Water Management and Waste Water Management, followed by the stakeholder wise Training and Assistance Need Analysis findings. Chapter 5 provides a summary of the gap analysis and an outline of the curriculum that will be delivered in the city, according to the needs highlighted by various stakeholder groups. The Annexures at the end of this document can be referred to for the detailed questionnaires, followed by the detail findings of TANA for Mid-level Officials of Guntur.

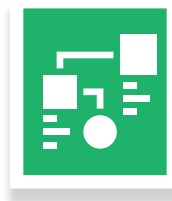


3

METHODOLOGY



3. Methodology



For understanding the training needs of the Urban Local Bodies, primary and secondary research approach was adopted to gather data of the five pilot cities in the three sectors i.e. Water Management, Waste Water Management and Solid waste management. The results of TANA will constitute the basis for a detailed training and technical assistance program. TANA includes the following:

1. A Baseline compilation of the status and relevant projects of Water, Sanitation and Solid waste management in five pilot cities.
2. Gathering information from stakeholders through Structured and Semi-Structured Interview (SSI), Focus Group Discussion (FGD), Personal Interviews (PIs) about their understanding and preferences.
3. Baseline assessment of the current level of knowledge of stakeholders and their training needs.
4. Corroborating, compiling and analysing data collected from various sources.
5. Conducting validation and triangulation workshop on findings of TANA.
6. Review and update of TANA findings in coordination with UNIDO and UNHABITAT experts.

The methodology adopted in each of these sections is detailed in the following sections. Figure 3 details the process adopted to prepare the TANA. The first step in the process was to gather the secondary data from various sources and prepare a framework for the primary data collection.

3.1 Secondary Research

To understand different aspects of the target groups and to identify their training needs, a literature review of various existing TANA reports and a baseline study of each city was done. With the help of UNIDO representatives and from the review findings, stakeholder

mapping and sampling for each city were done which is explained in Figure 4. Considering various aspects of ULBs of each city, stakeholder mapping was formulated to streamline the stakeholders into three groups, viz., i.e. Senior officials, Mid-level officials and Ground-level Functionaries. After the Stakeholder grouping, a response matrix was created for the three sectors. Accordingly, sampling was done. This was followed by primary data collection, detailed in the following section.

3.2 Primary research

The Primary data collection included various research tools, depending on the requirements and needs of the stakeholder groups. In order to understand the training needs of senior officials, personal Interviews were conducted on virtual platforms like Microsoft-Teams, Zoom or conference calls. This was done as per the availability of the interviewees. Mid-level officials were interviewed through structured questionnaires whereas, a semi-structured questionnaire was used to conduct focus group discussions with ground-level functionaries.

Figure 3: Methodology adopted for the TANA

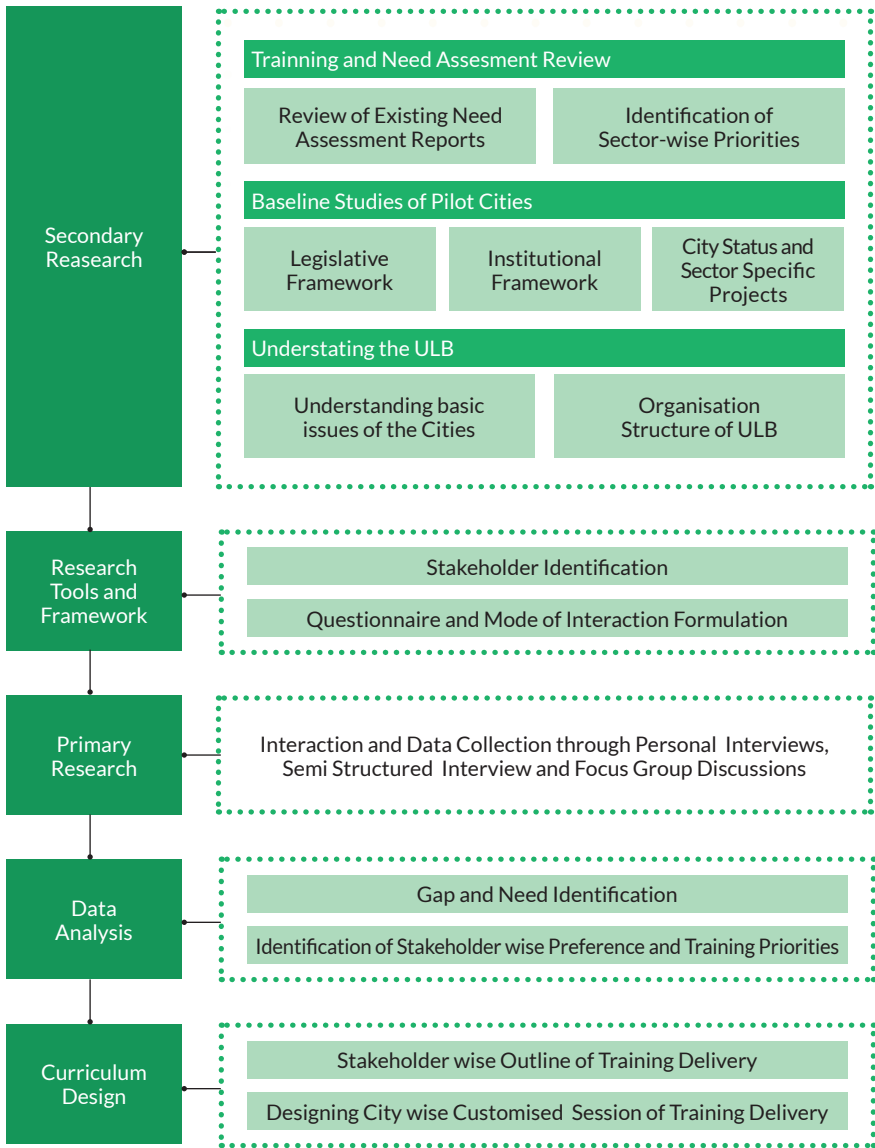
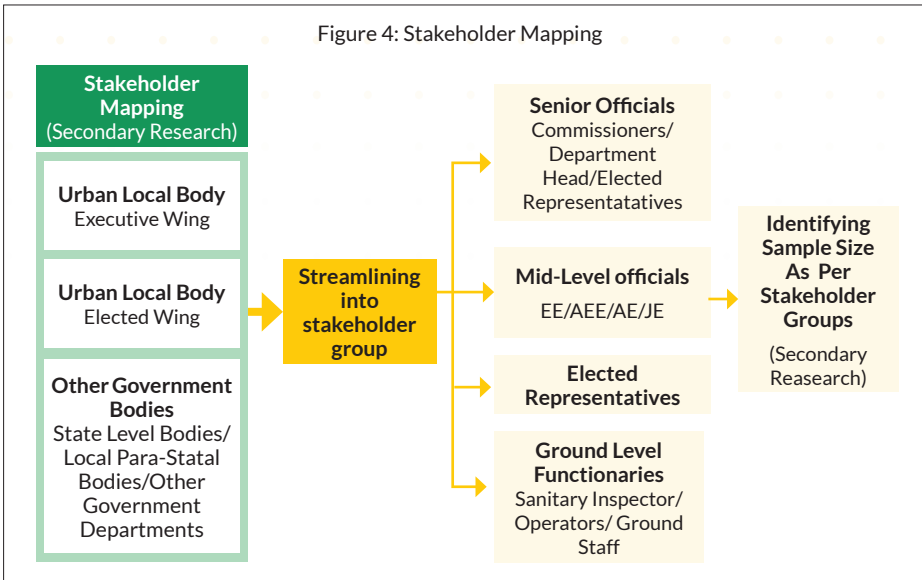


Figure 4: Stakeholder Mapping



3.2.1 Research Instrument

For this study, three main data collection instruments were deployed to collect the data from the respondents. These are as follows:

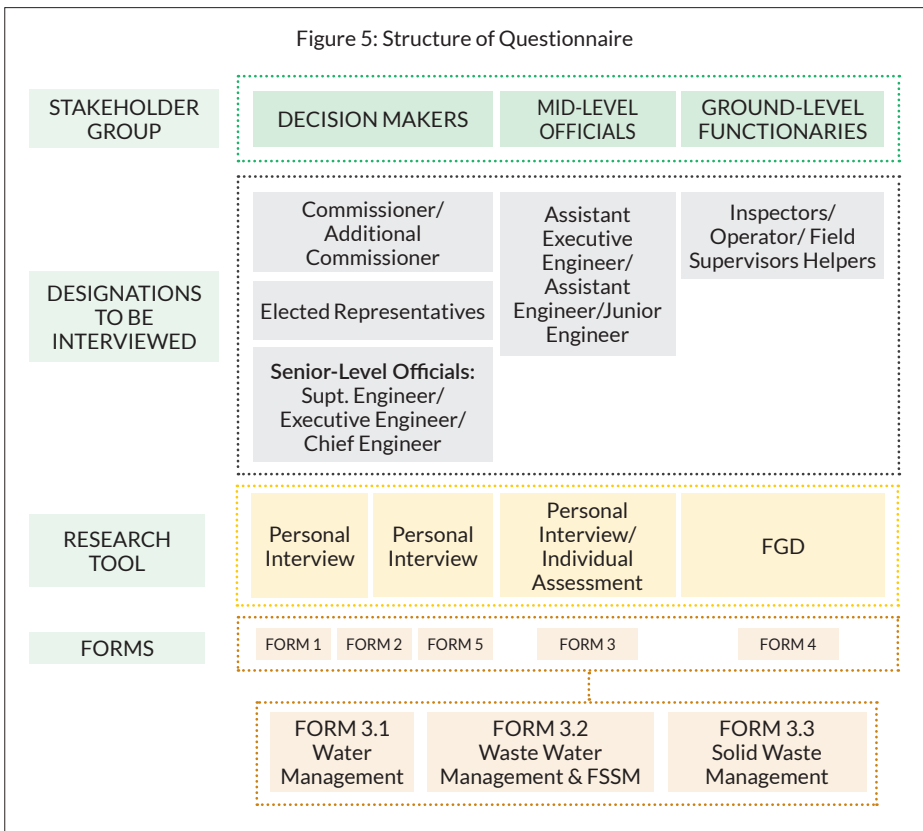
1. Semi Structured Interviews (SSI) - These were used to interact with the senior officials to understand their needs and expectations of the project. It was done with the help of a few open-ended questions considering the limited time they have.
2. Personal Interviews and Individual Assessment- Personal Interview (PI) and Individual Assessment (IA) was used for interaction with the mid-level officials. The objective of the IA was to assess the gaps in their knowledge concerning the sector that they work in, while the PI attempted to understand the preferences of the respondents with respect to the training delivery medium.
3. Focus Group Discussions- Focus Group Discussion (FGD) was the mode of understanding the training needs of the ground-level functionaries. In cities where the language was different or the respondents did not understand Hindi and English, a local translator facilitated the FGD.

3.2.1.1 Research Questionnaires

To analyse the needs of the identified stakeholders from each functional group, customized questionnaires were prepared for each stakeholder group. Five sets of forms each dedicated to a specific stakeholder group were developed. The overview of the structure of the questionnaire set is depicted in Figure 5.

The questionnaires covered various aspects ranging from individual and professional details like the designation of the officials, their current job responsibilities and future demands for the post, their strengths and existing skill gaps and their needs and expectations from the training programs.

The questionnaires have been developed in consultation with in-house sector experts and city representatives from UNIDO to keep a check on the validity of the questions with respect to the context

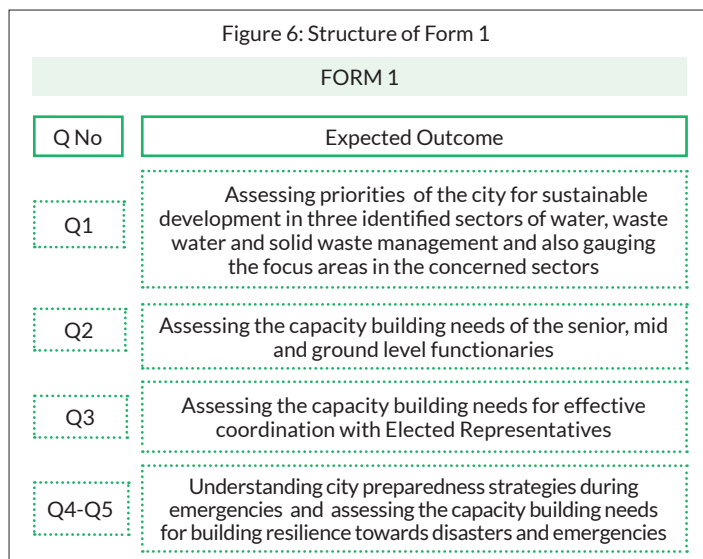


of the city. The questionnaire set was designed considering the clarity of the questions and the time needed for responding to the questions. Each questionnaire is provided with a brief description of the project.

For ethical approval, a consent form is also attached with the questionnaire which is read to the respondent before gathering any information. The interview is conducted only after the respondent has given his/her consent. Considering the limitations of the mode of interaction, consent was taken for recording the proceedings of the interview for documentation purposes. The approximate estimated time needed for conducting the interview is conveyed to the respondent at the outset. The details of questions covered under each form in the questionnaire are discussed in detail in the following sections.

Form 1

Form 1 of the questionnaire set is specially designed for conducting a one-on-one structured or semi-structured interview with the stakeholder group of senior officials. The questions are framed to gauge the perspective of the decision-makers towards the capacity building needs of the officials and staff with respect to the three sectors of water, waste water and solid waste management.



The assessment from Form 1 helped to understand the current status and future strategies of the city in water, waste water and solid waste management. This, in turn, would help assess the capacity building needs of the city officials for efficient performance. The overview of the form structure is explained in Figure 6.

Form 2

Form 2 of the questionnaire set is designed for conducting a one-on-one structured or semi-structured interview with the senior officials under the stakeholder group of Decision Makers. The questions towards the senior officials and department heads are framed to understand the key focus areas of their particular departments and elicit their suggestions to improve the identified issues and challenges. The interview also helped in gauging the perspective of the senior officials towards the capacity building needs of their team of mid and junior officials and staff.

Assessment from Form 2 helped to gauge the needs and expectations of each department working in the three sectors. It also helped to understand the current status of the city in each sector and the corresponding training needs. The overview of the form structure is explained in Figure 7.

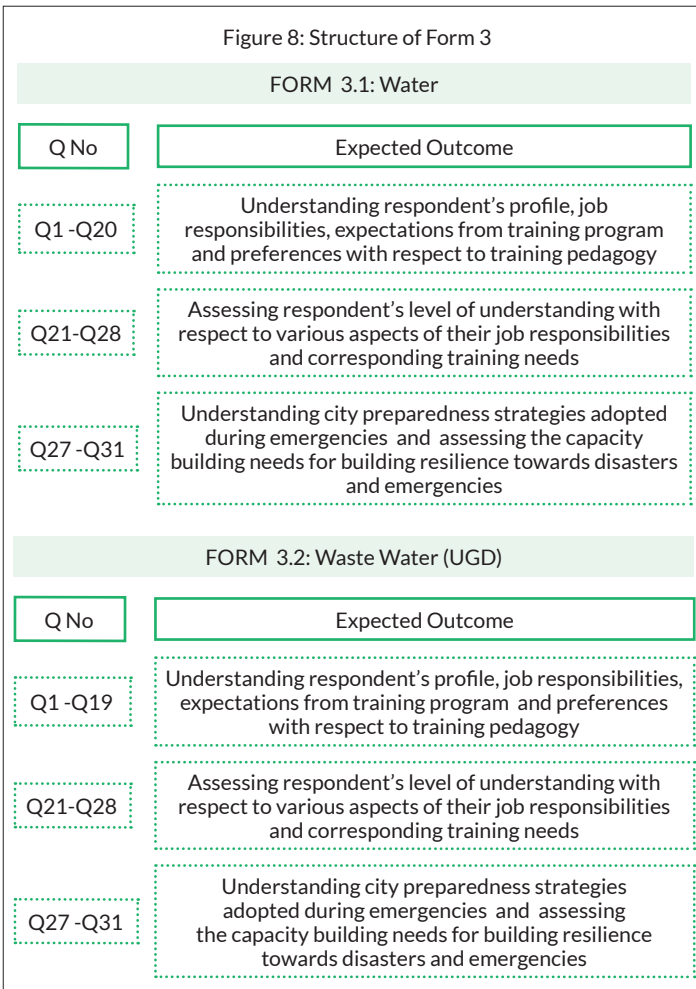
Figure 7: Structure of Form 2

FORM 2	
Q No	Expected Outcome
Q1-Q2	Identifying the key focus areas of the concerned sector and understanding strategies for strengthening the gaps in the identified focus areas
Q3-Q4	Assessing past training experiences , understanding the current needs and gauging expectations from future training programs
Q5-Q6	Assessing the capacity building needs for effective coordination with Elected Representatives and other stakeholders
Q7	Identifying sector specific innovative and good practices adopted by the city
Q8-Q10	Understanding city preparedness strategies adopted during emergencies and assessing the capacity building needs for building resilience towards disasters and emergencies
Q11-Q12	Sector specific questions assessing current status

Form 3

Form 3 is designed for conducting a one-on-one interview with the mid-level officials of the various departments in each sector. The form has three sets - one for each sector i.e. water, waste water and solid waste management. Through this interview, information is elicited from various mid-level officials with respect to their current job responsibilities, their future aspirations and also their expectations from the training program. Since the mid-level officials have to interact with both the ground level functionaries and the senior officials for smooth functioning of the day-to-day tasks, understanding their training needs is essential for efficient service delivery.

The assessment from Form 3 helped to gauge the needs and expectations of the Mid-level Officials of each department working in the three sectors. The form is specially designed to help the officials assess their current level of understanding on various aspects relevant to their job roles and in turn assess their needs for attending training for the same. The overview of the three sets of the form is explained in Figure 8.



FORM 3.3: Solid Waste Management	
Q No	Expected Outcome
Q1-Q19	Understanding respondent's profile, job responsibilities, expectations from training program and preferences with respect to training pedagogy
Q21-Q28	Assessing respondent's level of understanding with respect to various aspects of their job responsibilities and corresponding training needs
Q27-Q31	Understanding city preparedness strategies adopted during emergencies and assessing the capacity building needs for building resilience towards disasters and emergencies

Form 4

Form 4 is designed for conducting a focus group discussion with the ground-level functionaries of the various departments in each sector. Through this focus group discussion, information with respect to their current job responsibilities, their future aspirations and also their expectations from the training program is assessed. Since the ground-level functionaries understand the issues and challenges at the ground level, understanding their perspective is essential for effective planning and implementation of any project.

The assessment from Form 4 helped to gauge the needs and expectations of the ground-level functionaries of each department working in the three sectors. The questions in the form are kept intentionally flexible to help gather anecdotal information from the ground- functionaries with respect to various issues and challenges faced on a day-to-day basis on various aspects. The overview of the form structure is explained in Figure 9.

Figure 9: Structure of Form 4

FORM 4	
Q No	Expected Outcome
Q1	Assessing the status of the service delivery in the given sector
Q2-Q3	Assessing the capacity building needs for effective engagement with citizens
Q4-Q5	Assessing respondent's expectations from senior officials for effective service delivery
Q6-Q7	Understanding the challenges and issues faced by respondent with respect to day-day job responsibilities
Q8-Q13	Assessing past training experiences, understanding the current needs and gauging expectations from future training programs

Form 5

Form 5 is specially designed for the elected representatives of the city. Since the elected representatives act as a link between the citizens and the Municipal Corporation, understanding their perspective and needs is essential. The questions are framed to gauge the perspective of the elected representatives towards the key focus areas for development in the city. The information gathered through this form would help identify the various activities currently being conducted by elected representatives in the city and the need for further support from citizens and other stakeholders. The assessment would also highlight the need and expectations of the elected representatives from the training program. The overview of the form structure is explained in Figure 10.

The questionnaires are attached as Annexures 1, 2, 3 and 4 at the end of this document. These questionnaires provided a template for the five cities. However, a few questions have been added or deleted depending on the context of the city. The information thus obtained was analysed following the methodology detailed in the following section.

Figure 10: Structure of Form 5

FORM5	
Q No	Expected Outcome
Q1-Q2	Assessing priorities of the city in three identified sectors of water, waste water and solid waste management and also gauging the focus areas in the concerned sectors and various issues in terms of service delivery
Q3-Q5	Understanding respondent's role and their expectations from other stakeholders
Q6	Understanding the expectations from the training program
Q7	Understanding the respondent's perspective and suggestions towards city preparedness strategies during emergencies

3.3 Data Analysis Methodology

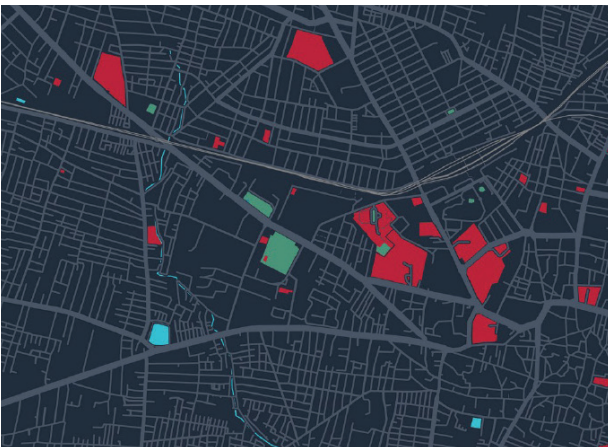
After the interviews were conducted, the responses were tabulated in Excel worksheets. The Analysis was done separately for the identified stakeholder groups. The responses of the Senior officials, Ground Level Functionaries and the Elected Representatives were coded and qualitatively descriptively analysed, while the responses of the Mid-level Officials were analysed quantitatively.

The aim of the analyses was to understand the contents of the training considering the topics of interest and needs to conduct their roles more efficiently and effectively. Their requirements with respect to the mode and attributes of training delivery such as duration, language, location, etc. were also analysed. The results are quantified and described in the training findings for each city. A summary of training needs is prepared for each stakeholder, mentioned at the end of TANA for the city.

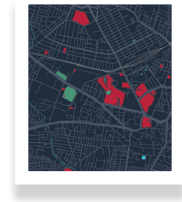
Based on the analyses and training findings, training priorities have been detailed for the Mid-level Officials for the three sectors of Water, Waste Water and Solid Waste Management. The tables at the end of the chapters are a summary from the detailed tables of training priorities attached in Annexure 5. The Priorities have been marked as “High” if the majority of aspects under a particular parameter were preferred by the participants. The Priority has been marked as “Medium” if brief training was preferred by the respondents on about half of the aspects under a parameter. The Priority has been marked as “Low” if the respondents suggested no training is required for a parameter.

4

GUNTUR – NEED ASSESSMENT AND FINDINGS



4. Guntur – Need Assessment and Findings



4.1 City Profile

Guntur is the third-largest city of Andhra Pradesh, after Vishakhapatnam and Vijayawada. It is 37 km from Vijayawada and 35 km from Amravati, the capital city of Andhra Pradesh. It has a warm and humid climate and an altitude of 30 metres above sea level. Guntur is known for its abundance of natural tanks.

The city is spread in an area of 48.50 sq. km, under the Guntur Municipal Corporation (GMC) limits. There are 62 wards divided among five zones, under the GMC. According to the Census of India 2011, GMC has a total of 1,82,547 households and a population of about 7,44,000. There are 187 slums in the city housing 2,89,001 residents. Of these 187, 133 are notified slums and the rest are non-notified. The urban outgrowth beyond the municipal limits including GMC area falls within the limits of Andhra Pradesh Capital Region Development Authority (APCRDA).

4.2 Status of Water, Wastewater, FSSM and Solid Waste Management

The following sections present an overall picture with numbers and statistics, of the city of Guntur concerning Water, Waste Water and Solid Waste Management. .

4.2.1 Water

The city of Guntur has a daily demand of 180 MLD of water split among domestic, industrial, agricultural and other needs, out of which, the GMC supplies about 150 MLD per day. The water is withdrawn from Krishna River. There are 1,02,740 domestic connections in the city for water supply. Water is supplied for 1 hour daily throughout the city.

4.2.2 Waste Water

The city generates about 78 MLD of wastewater daily. About 21 per cent of the city is networked with drains for the conveyance of the wastewater. Out of the total wastewater generated, about 63.6 MLD, gets treated every day at Sewage Treatment Plants (STP) at Suddapalli. There are no Faecal Sludge Treatment Plants (FSTP) in the city.

4.2.3 Solid Waste

The city generates about 168 metric tonnes of dry waste and 252 metric tonnes of wet waste every day. The door-to-door collection system covers 100% of the city. There is a reported 18% of source segregation of the waste. The total treated waste is 18 MT. There is a Waste to Energy plant established by M/s Jindal as part of municipal solid waste management, on cluster basis (9 ULBs) near the existing solid waste dumping yard with a capacity of 1650 MT per day. The project was scheduled to commission its operations from October 2020.

4.3 Legislative Framework

Several legislations enacted by the Government of Andhra Pradesh (GoAP) dictate the governance of urban areas in Andhra Pradesh. The Andhra Pradesh (Andhra Area) Town - Planning Act, 1920 invests the right and duties of overall planning for the state to the Department of Town and Country Planning (GoAP, 1920).

The Andhra Pradesh Urban Areas (Development) Act, 1975 enforced the constitution of Urban Development Authorities for 28 urban areas (GoAP, 1975). The Andhra Pradesh Capital Region Development Authority Act, 2014 was introduced to develop the region around Amravati, that was declared as the capital of the State. Both Vijayawada and Guntur are a part of the Capital Region.

The governance of large urban areas has been brought into effect with the Andhra Pradesh Municipal Corporation Act, 1994 (GoAP, 1994). It formulated the establishment of Municipal Corporations in the large cities and laid down their rights and responsibilities, giving them administrative, financial, and implementation powers.

In 2016, the Andhra Pradesh Metropolitan Region and Urban Development Authority Act, 2016 (GoAP, 2016) was enforced, which overrides all the relevant provisions of the Andhra Pradesh Urban Areas (Development) Act, 1975, Andhra Pradesh Municipal Corporation Act, 1994, among others.

The GoAP also notified the Andhra Pradesh State Water Policy in 2009 as an impact of the National Water Policy 2002.

4.4 Institutional Framework

The Andhra Pradesh (Andhra Area) Town – Planning Act, 1920 awards the Directorate of Town and Country Planning in the state to plan for urban and rural development. The Director, reporting to the Principal Secretary to the government, heads the directorate.

In Andhra Pradesh, the Department of Municipal Administration and Urban Development (MA&UD) leads urban governance and urban infrastructure development. The Directorate of Municipal Administration (DMA) is the apex authority of MA&UD, which guides the ULBs in performing their day-to-day activities and coordinates with other departments regarding the delivery of urban civic services to the population. Andhra Pradesh Urban Finance and Infrastructure Development Corporation (APUFIDC) is under the administrative control of the MA&UD.

APUFIDC acts as the nodal agency for planning and implementation of urban infrastructure projects in the ULBs that are funded by the GoI, GoAP and externally funded projects. APUFIDC also provides technical assistance to the ULBs in implementation of such projects. The Public Health & Municipal Engineering Department (PHMED) is under the administrative control of MA&UD and is responsible for the implementation of new water supply and sewerage schemes in the ULBs. After completion of the water supply and sewerage schemes under the supervision of the PHMED, the water supply schemes are handed over to the concerned ULBs.

The Vijayawada Guntur Tenali Mangalagiri Urban Development Authority (VGTMUDA) was established in 1978 and covered the Municipal Corporations of Vijayawada and Guntur, along with the municipalities of Mangalagiri and Tenali and the area of Vijayawada

Guntur Urban Agglomeration. It was dissolved in 2014 when upon the reorganisation of the state of Andhra Pradesh, the Andhra Pradesh Capital Region Development Authority Act, 2014 was introduced and Amravati was declared as the capital of the State. The Andhra Pradesh Capital Region Development Authority (APCRDA) looks after the planning of the Amravati, Vijayawada, Guntur, Tenali, Mangalgi, etc. and its surrounding settlements.

The Guntur Municipal Corporation (GMC), the ULB functional in Guntur, is responsible for the operation and maintenance, and delivery of various services and amenities in the city. It has various financial and administrative powers as vested in by the Andhra Pradesh Municipal Corporation Act, 1994.

To understand the functional responsibilities with respect to planning, funding, implementation, O&M and monitoring of the services of the three sectors in Guntur by various agencies, a mapping of responsibilities was done. This was helpful in customising the questionnaires for the agencies making it relevant to their functions. The Table 1 represents the mapping of responsibilities for the three sectors across agencies. Based on this mapping, it was found that GMC handles all the responsibilities concerning the three sectors within the city limits, in tandem with a few other state level agencies responsible for handling planning and financing of certain flagship and large scale projects. Therefore, for the needs assessment all the agencies were interviewed and GMC was assessed in detail.

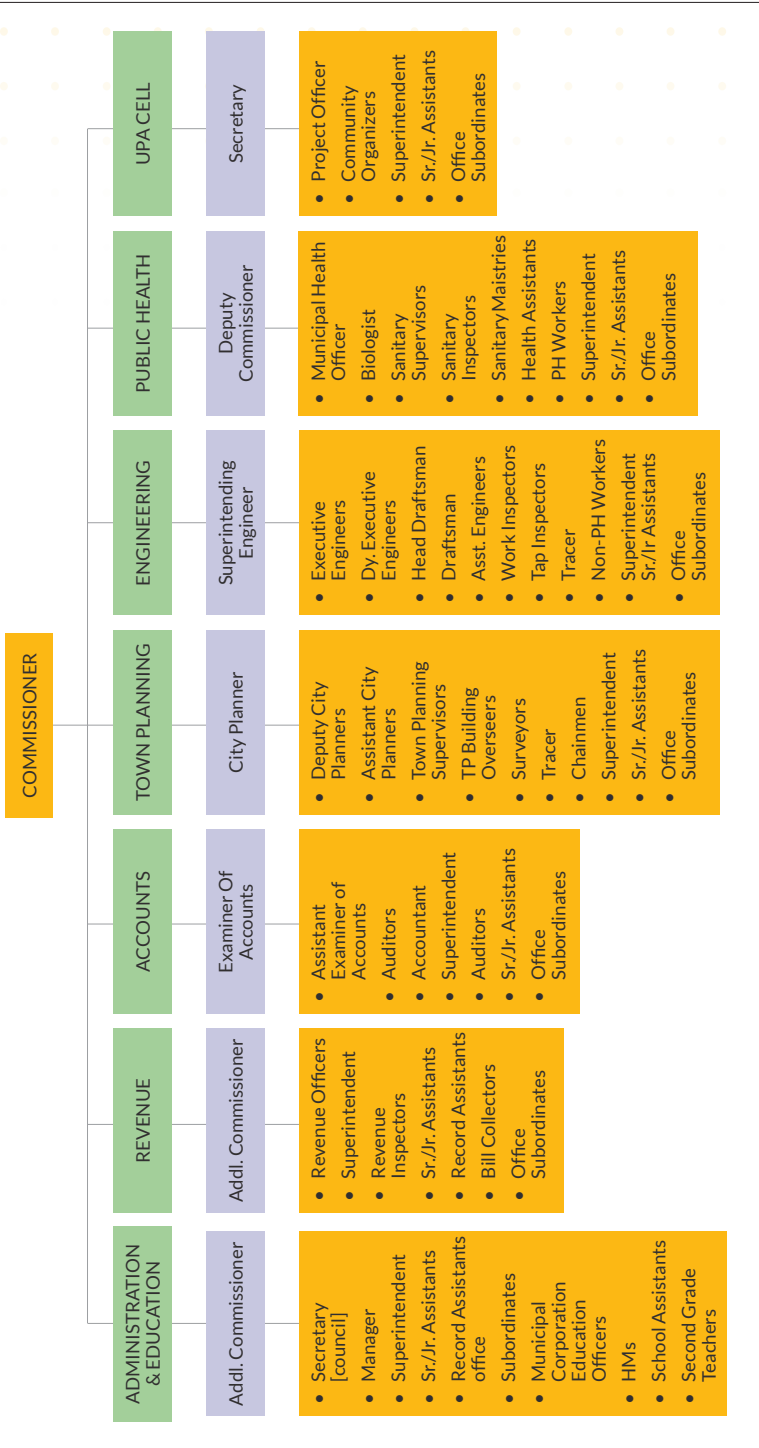
Table 1: Responsibility mapping of agencies for the three sectors in Guntur

Agency name	Jurisdiction	Water Management and Drainage	Solid Waste Management
GMC	City Level	● ● ● ●	● ● ● ●
PHMED	State Agency	● ●	
Swachh Andhra	State Agency		●

Key

- Planning and Funding
- Implementation / Execution
- Operation and Maintenance
- Monitoring

Figure 11: Organogram of GMC

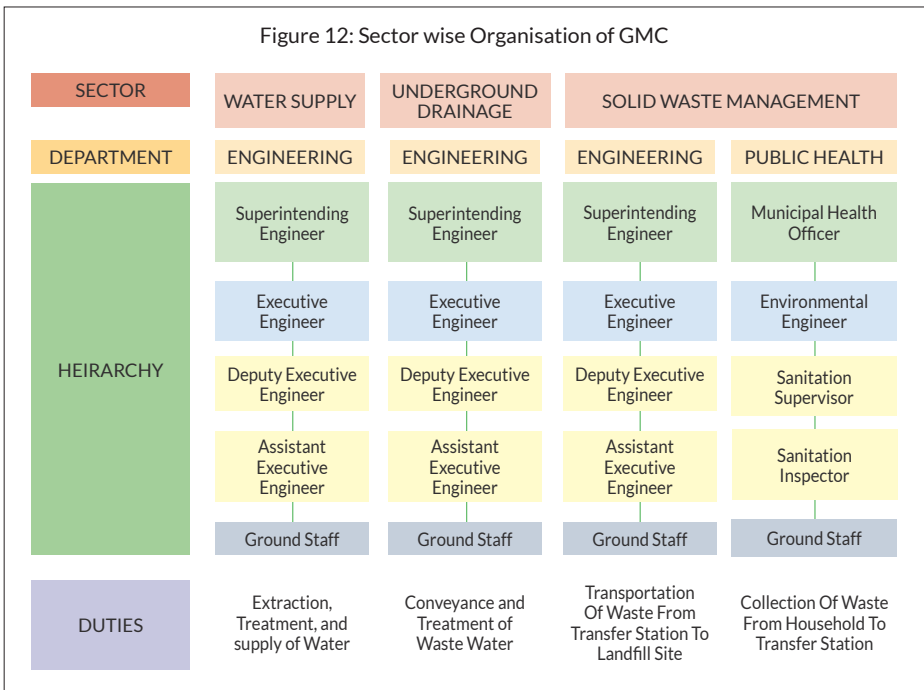


Source: Guntur Municipal Corporation

The GMC has 62 wards divided among five zones. The GMC has an executive body and an elected body. The Commissioner of the Municipal Corporation heads the executive body. The detail organogram of the GMC is described in Figure 11.

The Water Supply and Drainage sector is looked after by the Superintending Engineer (SE) of the Engineering Department. The SE of Engineering reports to the Commissioner. The Engineering Department is also responsible for the Solid Waste Management, from the transfer station to landfill site. The work is further divided into separate offices of Executive Engineer (EE) for Works and Projects each. EEs oversee the implementation of projects, water supply, and waste management through respective Deputy Executive Engineers (DEE) in their respective locations. Deputy EE is responsible for the implementation of engineering activities assigned in the respective area/location. Deputy EEs assign the works to Assistant Engineer (AEs), who finally implements it on the field through Work Inspectors, Drivers, NGOs, Contractors, etc.

Figure 12: Sector wise Organisation of GMC



Source: Author

Public Health (PH) Department is responsible for the primary collection, secondary collection and segregation of municipal solid waste, cleaning of drainage channels and road sweeping. The Municipal Health Officer (MHO) heads the PH Department. Sanitary Supervisors takes the instructions of MHO and oversee the implementation of sanitation and SWM activities through Sanitary Inspectors (SI). Each SI has Sanitary Maistries under him and each Sanitary Maistry has 10-20 Public Health workers (field workers) for implementing SWM and Sanitation in their respective allocated areas. Each SI allocates areas to each Sanitary Maistry and allocates works on a day-to-day basis (based on complaints received from the public and/or instructions from higher officials) apart from regular sanitation. Sanitary Maistries implements works on the ground with the help of PH workers. SIs inspects the work of SMs and PH workers daily and reports to Sanitary Supervisors. Figure 12 shows the sectoral organisation and their duties in GMC.

In June 2019, the Chief Minister of Andhra Pradesh Y. S. Jaganmohan Reddy launched the Ward Secretariat and Volunteer system for Andhra Pradesh urban areas. About 3775 Ward Secretariats were established with each Ward Secretariat monitoring about 4000 people. To bring transparency and accountability in the delivery of government services to the citizens, the government of Andhra Pradesh has announced the creation of Ward Secretariats in Urban Areas, consisting of about 10 functional assistants to work in co-ordination with the ULBs. The 10 Ward Secretaries in the secretariat are mentioned in Table 2. These Secretariats are established to revamp the service delivery system of the government. Apart from the Secretaries, the system also has volunteers to reach out to the citizens. The volunteers perform various tasks and are appointed to deliver those in 50 Households each.

Table 2: List of Secretaries in the Ward Secretariats

Ward Administrative Secretary	Ward Welfare & Development Secretary
Ward Amenities Secretary	Ward Energy Secretary
Ward Sanitation & Environment Secretary	Ward Health Secretary
Ward Education Secretary	Ward Revenue Secretary
Ward Planning & Regulation Secretary	Ward Women & Weaker Sections Protection Secretary

Source: <http://www.apteachers.in/2019/07/qualifications-eligibility-for-ward-secretariat.html>

4.5 Stakeholder Mapping

Based on the organogram of the Guntur Municipal Corporation, stakeholders were identified for providing training and technical assistance in the field of Water, Waste Water Management, and Solid Waste Management. The two concerned departments are Engineering Department and Public Health Department. The executive staff of GMC was divided into 3 stakeholder groups, viz. Decision-makers, Mid-level Officials, and Ground-level functionaries.

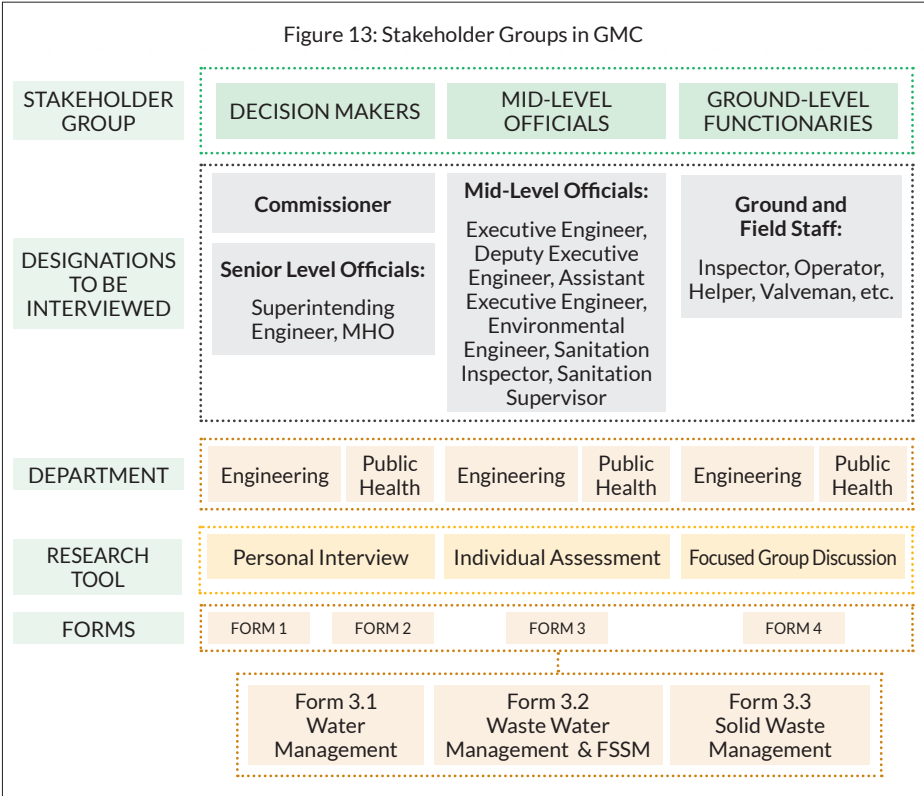
The Decision Makers involve the Commissioner of GMC, and the heads of the department looking after the Waste Water, Water and Solid Waste Management sectors. The Mid-level Officials comprise of the SE, EE, AE, Environmental Engineers, SI, etc. The Ground-level functionaries include all the field staff and members of GMC working as plumbers, UGD Operators, Public Health workers, Sanitary Maistries, etc. The GMC does not have any Elected body since a few years, due to delay in elections for various reasons. Hence, no elected representatives could be interviewed in Guntur. Figure 13 shows the stakeholder groups for the GMC.

According to the stakeholder groups, various questionnaires were prepared in consultation with sector experts and UNIDO and UN-Habitat city representatives.

Table 3: Responses for GMC

Form Number	Stakeholder Groups	Mode of Interaction	Number of Interviews Conducted
Form 1	Decision Makers	Personal Interview	3
Form 2			
Form 3.1	Mid-Level Officials	Individual Assessment	9
Form 3.2			
Form 3.3			
Form 4	Ground- Level Functionaries	Focus Group Discussion	12
-	Additional	Personal Interviews	1

A Response Matrix was prepared, mapping the stakeholder groups and the mode of interaction with the interviewees. Due to the national lockdown and hectic schedule of the officials, online interviews were conducted as per the availability. Table 3 shows the total number of interviews conducted from each stakeholder group.



Source: Author

4.6 Training Needs Key Findings

The findings of the TANA study have been categorised stakeholder wise and mentioned below. The detail findings of TANA have been represented at the end of this document as annexure.

4.6.1 Training Needs- Decision Makers in Executive body of ULB

The Commissioner heads the executive body of the GMC. Additional Commissioners, Superintending Engineer and Secretaries to supervise and coordinate the various functions of the Corporation assist the Commissioner.

The Engineering Department of the GMC is responsible for the implementation of various schemes concerning water supply, laying of roads, underground sewerage, solid waste disposal etc. The head of the Engineering Department i.e. the Superintending Engineer, reports to the Commissioner. The stakeholder group of Decision Makers included the Commissioner of GMC, the Superintending Engineer and the Municipal Health Officer. The findings of the interviews are discussed below.

4.6.1.1 Commissioner

For understanding the status and future development plans of Guntur city in the sectors of water, wastewater and solid waste management, an interview was held with the present Commissioner of the Guntur Municipal Corporation Ms C Anuradha.

The interview broadly aimed at understanding the perspective of the Commissioner concerning the training needs of the corporation officials working in the sectors of water, wastewater and solid waste management. The Commissioner also discussed the various projects handled by the corporation at present and the issues and challenges faced in implementing the same. The interview also helped us understand the various disaster preparedness strategies adopted by the city during the COVID 19 and during natural disasters like floods.

The following are the findings of the training and needs assessment of the interview with Commissioner of the Guntur Municipal Corporation:

Figure 14: Online Interview with GMC Commissioner Ms. C. Anuradha



Priorities of City

As per the Commissioner of the GMC, the topmost priority of the city is that of solid waste management, followed by the wastewater management and water management (which are currently being handled under the AMRUT Scheme). It was highlighted that a training module that covers wet waste management at source and examples of available low-cost decentralized options in solid waste management will be beneficial for the department.

Training Needs for the Ground-level Functionaries

The GMC Commissioner, while explaining the ward secretariat system followed in the state of Andhra Pradesh, highlighted the fact that the volunteers in the ward secretariat system lacked in technical skills to plan and implement government programmes and schemes at ward level. She suggested that the training which could target in building the capacity of the volunteer staff to better manage and monitor the works at ward level will be beneficial.

While discussing the importance of emergency response strategies required to deal with pandemics like COVID 19 and the need to develop city preparedness plans, the GMC Commissioner expressed the need to train and build the capacities of the frontline sanitation staff which have been instrumental in managing and responding

Table 4: Summary of Training Needs findings based on the interview with the Commissioner, GMC

SECTOR	STAKE-HOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Health Secretaries	Technical & Management skills	Training for management and monitoring of works at the ward level.	Online and On-site	Regional Language
	Volunteers (Ward Secretariat System)	Technical & Management skills	Training for management and monitoring of works at the ward level.	Online and on-site	Regional Language
	Ground Staff	Operation and Maintenance during emergencies and disasters	Disaster Preparedness, Occupation Health & Safety Measures, Handling waste in Containment zones, & available low-cost approaches for handling wet waste at source.	Online and On-site	Regional Language
	Mid-Level Officials	Wet Waste Management	Training on available low-cost decentralized technologies and approaches to handle wet waste at source	Online (Case study based) and site Visits	Regional Language / English
Wastewater Management	Ground Level functionaries and Field Workers	Operation and Maintenance	Training to enhance skills to perform day to day duties efficiently	On-site Training	Regional
Water Management	Ground Level functionaries and Field Workers	Operation and Maintenance	Training to enhance skills to perform day to day duties efficiently	On-site Training	Regional
	Mid-level Officials	Planning & Monitoring and new available technologies for efficient management	Training on building awareness & knowledge of newly available technologies for efficient management of the resource.	Online	Regional Language/ English

to the city needs during difficult times. She expressed her concern towards the importance of the health of the frontline sanitation staff and in this regard suggested the need of the training that could focus on disaster preparedness strategies and operational health guidelines during pandemics for the frontline staff.

Mode of Training

The GMC Commissioner advised that the preferred mode of training for the officials and staff should be a mix of both online and onsite training. Considering the current situations due to COVID 19, she suggested online training packaged as 1-2 hour session daily, for a week, or as much required. However, she also recommended site visits and exposure visits once the COVID-19 pandemic has been taken under control, or is over. She also recommended that the training delivered in the regional language i.e. Telugu would be more preferable, especially for the ground staff.

Table 4 provides an overview of the training needs assessed across various departments in the GMC dealing with water, wastewater and solid waste management sectors as per the discussion held with the GMC Commissioner.

4.6.1.2 Department Heads

Online interviews were conducted with the heads of Engineering and Public Health department to understand their needs and the assistance they seek in management and monitoring of services provided by the GMC for Water supply, Drainage and Solid Waste Management.

Water Supply and Underground Drainage

In GMC, the Engineering Department headed by the Superintending Engineer looks after the Water Supply and Underground Drainage in the city. The Superintending Engineer is assisted by Executive Engineers (EEs) to manage and monitor the works in the water and wastewater sector on day to day basis.

A personal interview was conducted with Mr Ravi Krishna Raju, the Superintending Engineer to understand his training needs and also assess the training needs of his officials and staff members to help build their capacities for better and efficient work performance.

During the interview, Mr Raju explained the need for training at both micro and macro level related to daily activities for the corporation officials for efficient management. The following are the findings of the training and needs assessment of the interview with the Superintending Engineer of the Guntur Municipal Corporation:

Training Needs for the Senior-level Officials

Since one of the prime job responsibilities of the senior-level officials handling water supply and UGD cell involves project designing and management comprising tasks like water supply and UGD designs, training that provides exposure to latest available technologies and approaches (case-based examples) was highly recommended by Mr Raju.

Mr Raju further suggested that the senior officials are also concerned with tackling issues about last-mile connectivity of services, execution of culverts, water supply lines, etc., micro-level planning and handling of projects for better O&M services, and hence, a comprehensive module that builds the capacity of the officials for improving the day to day handling and management of work would be beneficial.

For the UGD cell, he also suggested training for enhancing the understanding and knowledge of the UGD network systems for better monitoring of systems.

For the Water supply cell, he emphasized the need of training for Non Revenue Water (NRW) and Unaccounted for Water (UFW) reduction and a module on Integrated Urban Water Management to help prepare a sustainable plan for the city.

Training Needs for the Mid-level Officials

For the Mid-level officials, i.e. for the staff up to the Deputy Engineer level, Mr Raju recommended training covering aspects of Operation & Maintenance, execution of works, and applied engineering.

Training Needs for the Ground-level functionaries

For the junior level staff in the water supply cell, basic understanding of the day-to-day O&M works was one of the prime training need, as highlighted by Mr Raju. He also suggested the training to provide

a basic understanding of the water supply systems and their monitoring for better revenue generation.

Table 5 below provides an overview of the training needs assessed across the Engineering department in the GMC dealing with water and wastewater sectors as per the discussion held with the Superintending Engineer.

Solid Waste Management

In GMC, the Public Health Department does the collection of waste from Households. The Municipal Health Officer (MHO) heads the Public Health Department. The MHO works in close coordination with the Environmental Engineer (Env. Er.). The MHO deposes the works related to Solid Waste Management to the various Sanitary Inspectors (SI). The SI monitor the day-to-day activities in their areas performed by the Sanitary Supervisors, Public Health workers and Sanitary Maistries.

Due to the increasing cases of COVID-19, the MHO was busy throughout the months, hence she deputed the Env. Er., Mr Naik to answer our questions on her behalf. The interview was conducted with Mr Naik on a conference call on the phone. Mr Naik detailed out the needs of the city administration concerning Solid Waste Management and also detailed the needs of the staff working in the Public Health Department. The findings of the interview for training and need assessment are detailed in the following.

Training Needs for the Senior-level Officials

For the Senior Level Staff, the Environmental Engineer Mr Naik suggested a brief session on the various successful SWM models across the country. Along with that, a short training on access to funds for projects in SWM, and project management models. He preferred an online training in English or Telugu for the Senior Officials.

Training Needs for the Mid-level Officials

Mr Naik said that the Mid-level Officials in the Public Health Department face challenges in Operation and Maintenance of the process and systems involved in the SWM value chain. Hence, he suggested a training delivery for the Mid-level Officials regarding

Table 5: Summary of findings of Training Needs on the basis of the interview with the Superintendent Engineer, GMC

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Wastewater Management	EE, Deputy EE	Planning & Monitoring (new available technologies); Project Management	Build awareness on the latest available technologies and approaches; Enhance technical skill & knowledge; Understand UGD network systems and their monitoring	Online (Case Study Based) and On-site	English/ Regional Language
	Assistant Engineers	Operation and Maintenance, Awareness and exposure to new advanced technologies	Training on Operation & Maintenance, execution of works, and applied engineering.	Online (Case Study Based) and On-site	Regional Language
	Ground-Level Functionaries	Execution, Skills and knowledge	Training to enhance skills to perform day to day duties efficiently	On-site Training / off-site	Regional
Water Management	EE, Deputy EE	Planning & Monitoring (new available technologies); Project Management	Build awareness on the latest available technologies and approaches; Enhance technical skill & knowledge; Understand concepts of IUWM, NRW, UFW	Online	English
	Mid-Level Officials other than EE, Deputy EE		Operation & Maintenance, execution of works, and applied engineering.	Online (Case Study Based) and On-site	Regional Language
	Ground-Level Functionaries	Execution, Skills and knowledge	Training to enhance skills to perform day to day duties efficiently	On-site Training / off-site	Regional

the SWM value chain and the properties and hierarchies of waste, operation and maintenance of the systems and processes involved in the value chain of SWM, execution activities and models, and improving the communication skills of the staff members at that level. He preferred an online training in English or Telugu for the Mid-level Officials.

Training Needs for the Ground-level functionaries

For the Ground Level functionaries, Mr Naik mentioned that they have a lack of skills and knowledge in the execution of projects and activities, and communication skills. Therefore, he suggested that training be delivered to improve their communication skills and provide them with knowledge about home composting and community composting techniques that can be passed on to the citizens. He preferred on-site or off-site training in Telugu for the Ground-Level Functionaries.

Table 6: Summary of findings of Training Needs on the basis of the interview with the Environmental Engineer of GMC on behalf of the Municipal Health Officer, GMC

STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
MHO	Project Management	Exposure to successful SWM models, access to funds, Project management	Online	English/ Regional Language
Mid-Level Officials Sanitary inspector supervisors, Environmental Engineers	Operation and Maintenance challenges	Training on the SWM value chain and waste hierarchy, Operation & Maintenance, Execution, Communication skills	Online	English/ Regional Language
Ground-Level Functionaries Public health workers, Sanitation workers, Sanitary Maistries	Execution, Skills and Knowledge, Communication gap	Communication skills, Home and community composting	On-site Training / off-site	Regional
Volunteers (Ward Secretariat System)	Public interaction and basic skills and knowledge	Enhance knowledge and skills to perform day to day activities at ward level	On-site Training / off-site	Regional

Training Needs for the Ward Volunteers

With regards to the Ward Volunteers that have been recently inducted into the system of administration and service delivery, Mr Naik suggested an upskilling of the volunteers for improving public interaction, and provide the basic knowledge of the services. He preferred an on-site or off-site training in Telugu for the Ward Volunteers. Table 6 summarises the findings of the interview with the Environmental Engineer of GMC.

4.6.2 Training Needs- Mid-Level Officials

The Senior officials and the Heads of departments depute work to the Mid-level Officials. The Mid-level Officials comprising SE, EE, AEE, Environmental Engineer, Sanitary Supervisor, and Sanitary Inspectors were individually assessed. This was done separately for the three sectors of Water Supply, Underground Drainage and Solid Waste Management. The questionnaire as described in the chapter detailing the Methodology and detailed in Annexure 1. , Annexure 2. , Annexure 3. and Annexure 4. had a set of questions for characterising the respondent profile. The second part of the questionnaire was aimed at understanding the general preferences of the respondents concerning the training delivery. The third part of the questionnaire assessed the Mid-level Officials on various sector-

Figure 15: Screenshot from the interview with Sanitary Supervisor Mr Soma Sekhar of GMC

The screenshot shows a Microsoft Word document titled 'FORM_3.3 - Copy - Copy.docx (Compatibility Mode)'. The document contains a questionnaire form for Mr. Soma Sekhar, Sanitary Inspector. The form is titled 'A. GENERAL INFORMATION' and includes the following fields:

1. Name	Mr. Soma Sekhar					
2. Gender	Male					
3. Age Group (in yrs.)	<30	31-40	41-50	51-60	>60	
4. Contact number (mobile)						
5. Email						
6. Educational qualification (Please tick the highest educational degree)	Higher Secondary	Senior Secondary	Diploma	Bachelors	Masters	Others (Specify)
7. Field of Education						
8. Department	Cell					
9. Designation	Sanitary Inspector					
10. Type of position	Permanent	Contractual	Others(Specify)			
11. Number of years of Experience in The Current Position	1-5 years	5- 10 years	10-15 years	Above 15 years		
12. In your current position what are your responsibilities? (Tick as many relevant)	Planning & Sched					

specific parameters. The findings of the survey have been mentioned sector-wise in the following sub-sections.

4.6.2.1 Water Supply

The mid-level staff members of Engineering department dealing with the water supply were assessed on the legislative and institutional aspects of water supply, technical and engineering aspects of water supply systems, financial management, community engagement and project management concerning various responsibilities and job roles of the respondents. Based on the assessment, the gaps in their skill sets and the training priorities were identified. A brief description of the respondents' profile is discussed below.

Age-wise Classification

Two major age groups were identified among the respondents; those under 30 years, and ones in 41-50 years. GMC has a comparatively new staff, appointed through contracts, or compassionate appointments. The second prominent age group is that of the senior cadre officials in the GMC, those at the position of Executive Engineers, Deputy Executive Engineers, etc. Figure 16 shows the age-wise composition of the respondents at GMC.

Educational Background

Most officials in GMC have a degree in engineering. There was an equal share of bachelor degree holder and masters degree holders among the respondents. Among the respondents, a diploma holder was also interviewed. Figure 17 shows the Educational Background of the respondents at GMC in Water Supply Sector.

Years of Service

The Guntur Municipal corporation staff comprises mostly of young people. The engineer interviewed had mostly an experience of fewer than five years. These people are generally on the Assistant Executive Engineer Position. The senior officials hold the Deputy Executive Engineer Position. Figure 18 shows the work experience profile of the mid-level officials in the Water Supply Division at the GMC.

Figure 16: Age group composition of the Mid level Officials of GMC

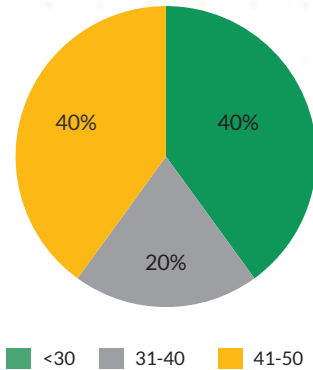


Figure 17: Educational Background of the Mid level officials of GMC

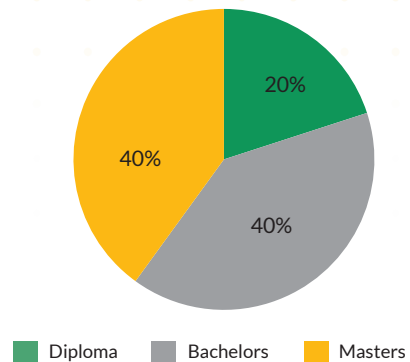
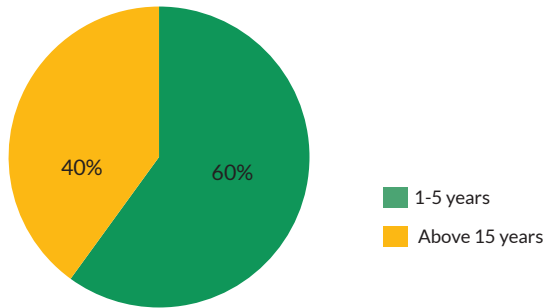


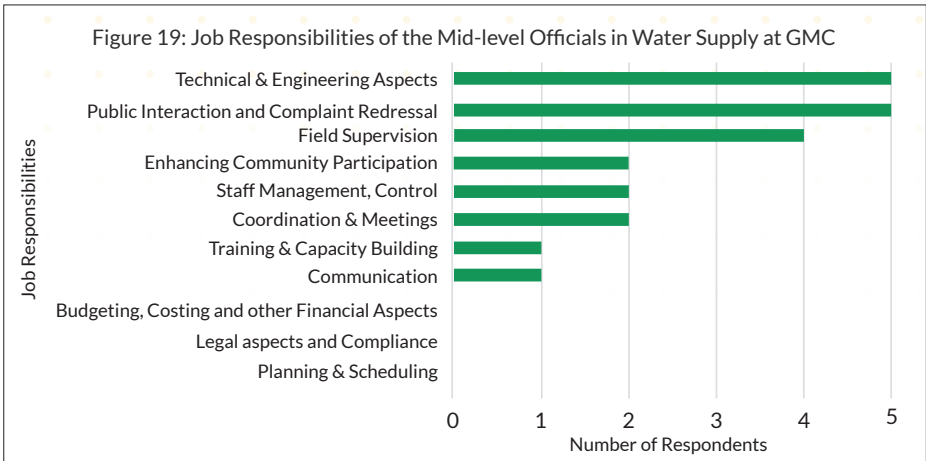
Figure 18: Years of Service of the Mid level officials of GMC



Responsibilities as part of the Job

Most officials working in Water Supply at GMC have to deal with Technical and Engineering aspects of water supply, engage with the public and address their complaints, and conduct field supervision. These are followed by Staff Management, Coordination with officials and staff, and enhancing community participation. The legal compliance, financial aspects of the projects, and planning and scheduling of works is not a part of their job roles. Figure 19 shows the job roles taken up by the respondents in the water supply at GMC.

The profile of the respondents was analysed to customise the training module corresponding to their job responsibilities and personal attributes. The findings of the need assessment have been discussed below.



Sector Specific Assessment

The following section deal with the various aspects of Water Supply at GMC. The respondents were assessed on their knowledge and understanding of the five domains concerning water supply, viz. Institutional and Legislative Framework, Technical and Engineering Aspects, Financial Management, Community Engagement, and Project Management. In addition to this, their understanding of the city resilience for disasters and emergencies was also recorded. The relevance of the parameters under those five domains, concerning their jobs was recorded and whether they would require training on the same was asked to understand their training priority. The findings under the five domains are listed as under. The detail findings for the Mid Level Staff and the methodology of analysis have been mentioned in the Annexure 5.

Institutional and Legislative Framework

For Institutional Framework, they have a poor understanding of the way the various legislations, policies, etc. work. It is relevant to their jobs and they would require training for the same.

Technical and engineering aspects

Generally, the ULB officials have a good understanding of the subjects of the Technical and Engineering aspects of Water Management. It is highly relevant to their job roles, and they would like training on the same. Most people suggested training delivery of the new technologies in the water sector.

Financial aspects

Mid-level Officials do not have to deal with the financial aspects, hence they have been found having a poor level of understanding of the subject. The respondents did not want training on the same.

Community Engagement

Community engagement is a large part of the job role of the Mid-level Officials, and this reflects in their training needs. They have a fair level of understanding of the subject, and they require training on improving it further.

Project Management and Private Partnerships

Most Mid-level Officials are required to assist in managing a project at various stages. Hence, they have a fair understanding of topics relating to project management. It has been found that they have no training requirement of the subject.

Disaster and Emergency Preparedness and Response

To the questions about the Emergency response of the city, all the respondents said that the city is not well prepared for any disasters or emergency. However, the city administration's response in COVID-19 crisis was very good. The responses seemed split on the question about the availability of proper standard operating procedures (SOP) for the COVID-19 response; there's an equal distribution of people saying they had the SOPs or they don't know about any such documents.

Table 7: Summary of Training Needs for Mid-level Officials in Water Supply Sector

Domains/ Aspects	Training Need
Institutional and Legislative framework	Yes. A brief session was suggested by the respondents covering a few important parameters under this legislative domain.
Technical and Engineering Aspects	Most have a fair understanding of the subject. Would require sessions on new technologies and concepts. Additionally, a brief about the existing knowledge.
Financial Management	No. This is not relevant to their job.
Community Engagement	Yes. Most have a fair understanding of the subject.
Project Management and Private Partnerships	Yes. A brief session only covering the project management and monitoring aspects.

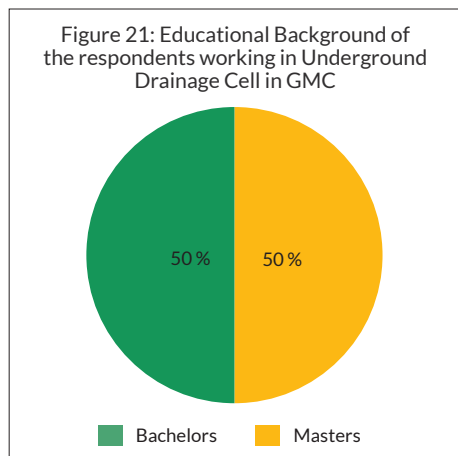
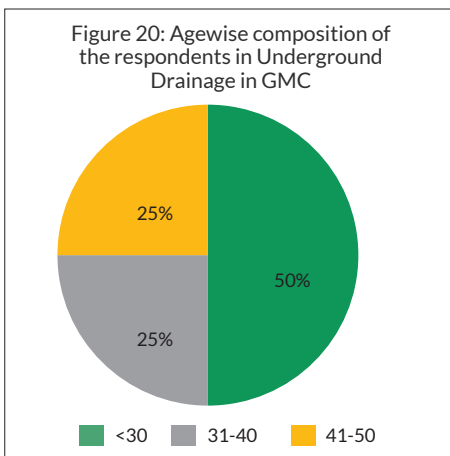
The findings of TANA for the Mid-level Officials working in Water Supply Cell in the Engineering Department has been summarised in Table 7.

4.6.2.2 Waste Water

The mid-level staff members of Engineering department dealing with the underground drainage and wastewater were assessed on the legislative and institutional aspects of water supply, technical and engineering aspects of water supply systems and FSSM, financial management, community engagement and project management and private partnerships concerning various responsibilities and job roles of the respondents. Most respondents had a shared responsibility of Water Supply and Underground Drainage. Based on the assessment, the gaps in their skill sets and the training priorities were identified. A brief description of the respondents' profile is discussed below.

Age-wise Classification

The respondents mostly were from under 30 age group. These are the Assistant Executive Engineers. The other respondents were equally distributed among 41-50 and 31-40 age groups. Figure 20 shows graphically, the age group composition of the respondents of the GMC working in Underground Drainage.



Educational Background

All the Mid-level Officials of GMC working in Underground Drainage Cell of GMC have a higher education degree. An equal share of respondents having a Bachelor Degree and a Masters Degree was observed. Figure 21 shows the educational background of the respondents.

Years of Service

GMC has a fairly young staff working in Underground Drainage Cell in GMC. Most of the respondents have less than 5 years of experience. About a quarter of respondents have above 15 years of experience. Figure 22 shows the years of experience of the respondents at GMC.

Figure 22: Years of Experience of the respondents from Engineering working in Underground Drainage Cell in GMC

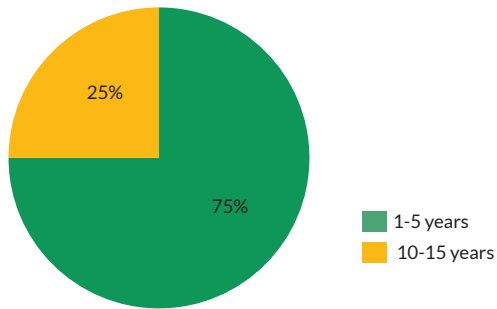
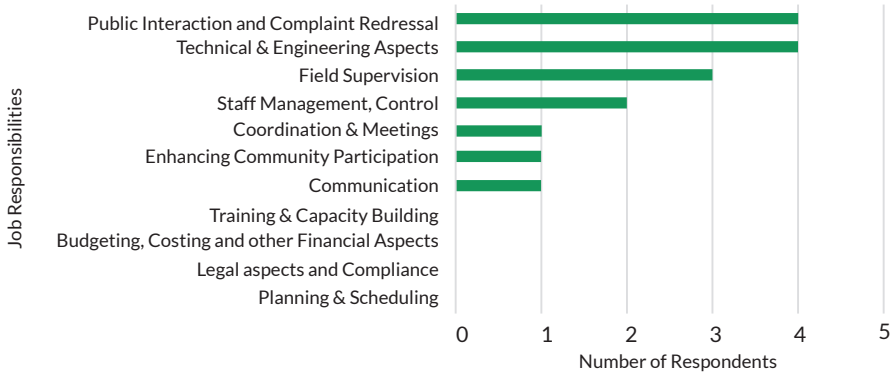


Figure 23: Job Responsibilities of the Mid-Level Officials under Underground Drainage Cell in GMCs reported by the respondents



Responsibilities as part of the Job

Most Respondents said that Public Interaction and Complaint Redressal, Technical and Engineering Aspects, and Field Supervision are the important responsibilities of their job role. Coordination, Communication, and Enhancing Community Participation followed this. Figure 23 shows the Key responsibilities among the mid-level officials in Underground Drainage cell of GMC.

Sector Specific Assessment

The following section deals with the various aspects of Underground Drainage at GMC. The respondents were assessed on their knowledge and understanding of the six domains concerning wastewater, viz. Institutional and Legislative Framework, Technical and Engineering Aspects of Waste Water, Faecal Sludge and Septage Management, Financial Management, Community Engagement, and Project Management. In addition to this, their understanding of the city resilience for disasters and emergencies was also recorded. The relevance of the parameters under those six domains, concerning their jobs was recorded and their training priority was understood. The findings under the six domains are listed as under. The detail findings for the Mid Level Staff and the methodology of analysis have been mentioned in the Annexure 5.

Institutional and Legislative

The Mid-level Officials have a fair understanding of most topics related to the legislative and institutional framework about the Waste Water Sector. So training would be required for only a few topics under this section.

Technical and Engineering Aspects of Waste Water Management

Almost all the respondents had a fair understanding of the Technical and Engineering aspects of Waste Water Management, and it is highly relevant to their job roles as well. However, they also require training on the same.

Faecal Sludge and Septage Management

Faecal Sludge and Septage Management (FSSM) is not done in the GMC as of date, but the respondents asked for a basic level training of topics about FSSM.

Financial Management

Almost all respondents do not have to deal with the financial management of the projects, therefore, no training would be required in the Waste Water Sector.

Community Engagement

Community Engagement is an important part of their job role, hence, they would require skill enhancement training for Community Engagement. It was also observed that they had a fair understanding of the subject.

Project Management and Private Partnerships

The officials mentioned that sessions on topics about Project Management would help perform their duties well. Most of them had a fair understanding of the topics in Project Monitoring. Topics concerning Private Partnership are not a priority for the officials.

The findings of TANA for the Mid-level Officials working in Water Supply Cell in the Engineering Department has been summarised in Table 8.

Table 8: Summary of Training Needs for Mid-level Officials in Waste Water Sector at GMC

Domains/ Aspects	Training Need
Institutional and Legislative framework	Yes. The respondents suggested a brief session covering a few important parameters under this legislative domain.
Technical and Engineering Aspects	Most have a fair understanding of the subject. Would require sessions on new technologies and concepts. Additionally, a brief session about the existing knowledge.
FSSM	Yes. A brief session on the introductory concepts.
Financial Management	No. This is not relevant to their job.
Community Engagement	Yes. Most have a fair understanding of the subject.
Project Management and Private Partnerships	Yes. A brief session only covering the project management and monitoring aspects.

4.6.2.3 Solid Waste Management

The mid-level staff members dealing with the Solid Waste Management (SWM) were assessed on the legislative and institutional aspects of SWM, technical and engineering aspects waste management and waste disposal, financial management, community engagement and project management and private partnerships concerning various responsibilities and job roles of the respondents. Since the works of SWM are split among the Engineering Department and Public Health Department, staff members from both the departments were interviewed. These included Sanitary Inspectors, Sanitary supervisors, Environmental Engineer, and Assistant Executive Engineer. Based on the assessment, the gaps in their skill sets and the training priorities were identified. A brief description of the respondents' profile is discussed below.

Age-Wise Classification

Most of the respondents were of the age group 31-40 year. There was an equal share of respondents in age groups of 41-50 and 51-60 years. Figure 24 shows the composition of age groups of people interviewed.

Educational Background

The Mid-level Officials concerning Solid Waste Management had a higher education degree. Equal shares of respondents possess a Bachelor Degree and Masters Degree as their highest qualification.

Figure 24: Educational Background of the respondents concerning SWM at GMC

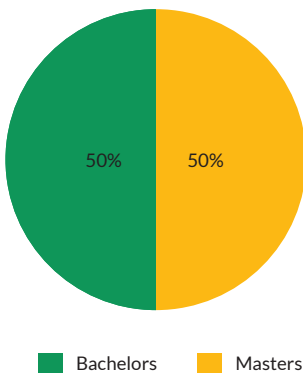
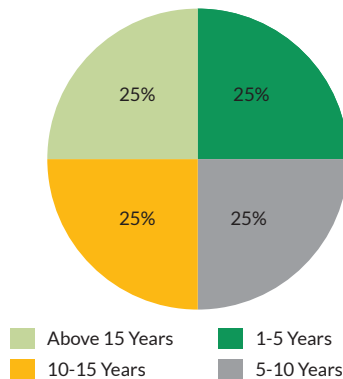


Figure 25: Years of Experience of the Mid-level Officials at GMC concerning SWM



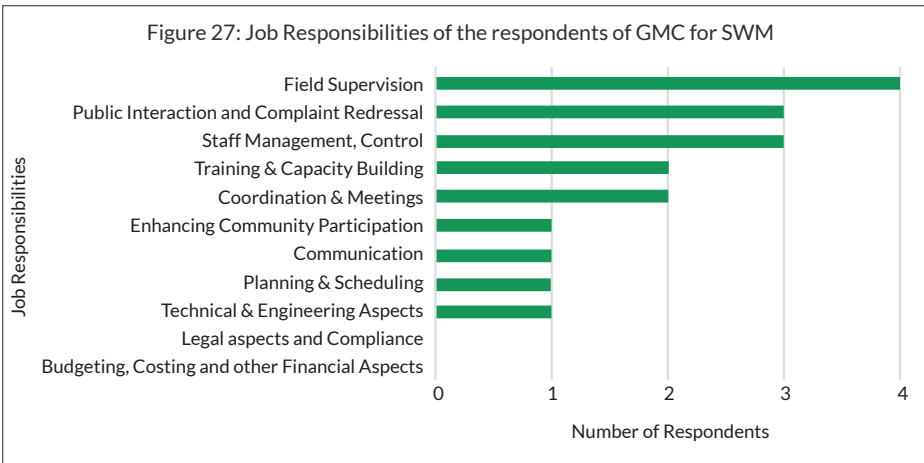
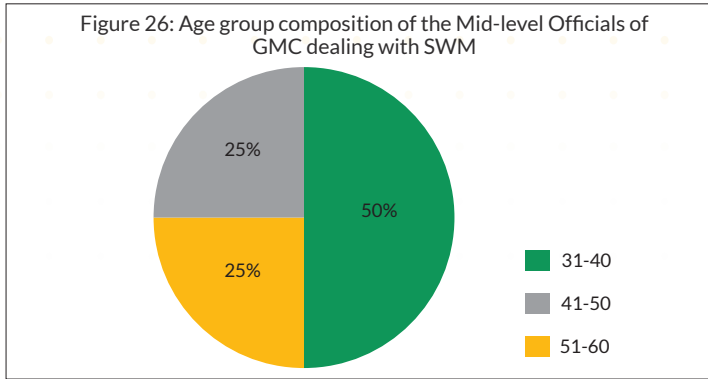


Figure 25 shows the composition of educational backgrounds of the respondents concerning SWM at GMC.

Years of Service

The Mid-level Officials who were interviewed had equal representation from the four groups of years of service. Figure 26 shows the split of the respondents according to their years of service.

Responsibilities as part of the Job

All the respondents interviewed for SWM at GMC mentioned Field Supervision as the most important part of their job. Public Interaction and Complaint Redressal, Staff Management and Control followed this. Figure 27 shows the split of respondents for their Job Responsibilities.

Sector Specific Assessment

The following section deals with the various aspects of Solid Waste Management at GMC. The respondents were assessed on their knowledge and understanding of the five domains concerning solid waste management, viz. Institutional and Legislative Framework, Technical and Engineering Aspects of Solid Waste Management and Waste Disposal, Financial Management, Community Engagement, and Project Management. In addition to this, their understanding of the city resilience for disasters and emergencies was also recorded. The relevance of the parameters under those five domains, concerning their jobs was recorded and their training priority was understood. The findings under the five domains are listed as under. The detail findings for the Mid Level Staff and the methodology of analysis have been mentioned in the Annexure 5.

Institutional and Legislative Framework

Almost all respondents had a fair understanding of the legislations in SWM, however, due to the changing nature of the subject, it would be helpful to deliver training on the same.

Technical and Engineering Aspects of Solid Waste Management

While all the respondents have a fair to a good level of understanding of the Technical and Engineering aspects of SWM, they mentioned they require advance level training for the same.

Financial Management

Almost all respondents do not have to deal with the financial management of the projects, therefore, no training would be required in the Solid Waste Management Sector.

Community Engagement

Community Engagement is an important part of their job role, hence, they mentioned they would require skill enhancement training for Community Engagement.

Project Management and Private Partnerships

The officials mentioned that sessions on topics about Project Management would help perform their duties well. Most of them had a fair understanding of the topics in Project Monitoring. Topics concerning Private Partnership are not a priority for the officials.

Table 9: Summary of Training Needs for Mid-level Officials in Solid Waste Management Sector at GMC

Domains/ Aspects	Training Need
Institutional and Legislative framework	Yes. A brief session was suggested by the respondents covering the updated legislation and rules in SWM
Technical and Engineering Aspects	Most have a fair understanding of the subject. Would require sessions on new technologies and concepts. Additionally, a brief session about the existing knowledge.
Financial Management	No. This is not relevant to their job.
Community Engagement	Yes. Most have a fair understanding of the subject.
Project Management and Private Partnerships	Yes. A brief session only covering the project management and monitoring aspects.

The findings of TANA for the Mid-level Officials working in Water Supply Cell in the Engineering Department has been summarised in Table 9.

4.6.2.4 General Preferences for Training Programme

To understand the logistical preferences of the Mid-level Officials at GMC, few questions exploring their preference for the language of training delivery, mode of delivery, duration of the programme, and the expectations for the same. The findings related to the general aspects of the training programme, based on the cumulative responses of the three sectors are listed below.

Exposure through Previous Programmes of Capacity Building

The Mid-level personnel working at GMC are regularly provided capacity building and training programmes. In the past three years, most respondents have attended one to three programmes. About a third of the respondents have not attended any training programme in the past three years. Figure 28 shows the share of respondents who have attended any training programmes in the past three years.

The medium of instruction of Training Programmes

A large majority of the respondents are comfortable with English being the preferred medium of instruction of training programmes. This was followed by Hindi and lastly, Telugu. Figure 29 shows the preference of language for the training delivery.

Figure 28: Number of Capacity Building Programmes attended by Mid-Level Officials at GMC

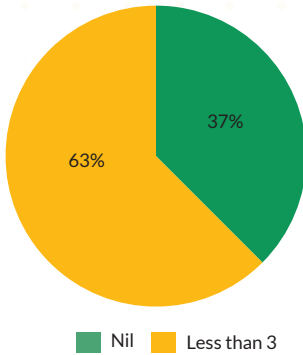
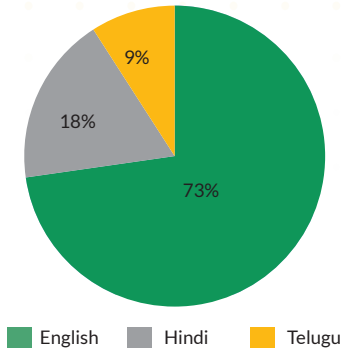


Figure 29: Preferred Medium of Instruction of the Mid-level Officials at GMC



Duration of Training Programme

Most respondents suggested a 2 Day long training programme. This was followed by 1 Day being the preferred duration of the training programme. Few respondents suggested a 3 Day long training programme. Figure 30 shows the share of respondents for their preferred duration of the training programme.

Location of Training Programme

Concerning physical training and exposure visits, questions were asked to assess the preference of the Mid-level Officials at GMC. An equal share of respondents prefers a training programme within the city and any other city within the state. Least number of respondents suggested training programmes delivered outside the state. Figure 31 shows the share of respondents corresponding to their preference for the location of the training programme.

Time of Training Programme

Considering their schedule and commitments concerning their jobs, most respondents prefer the months of October to December to deliver the training programmes. The second most preferred time of training delivery was found to be the months of July, August and September. The first half of the year is the least preferred time for the training delivery. Figure 32 shows the details of the share of the preferred time duration of the training delivery.

Figure 30: Preferred Duration of Training Programmes

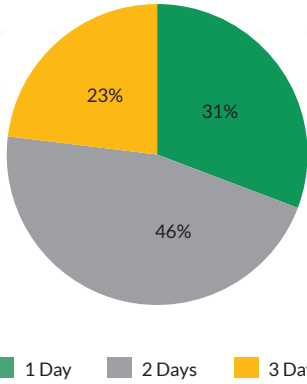


Figure 31: Preferred Location of Training Programme for Mid-level Officials at GMC

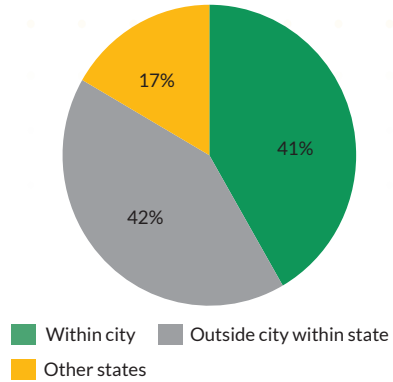
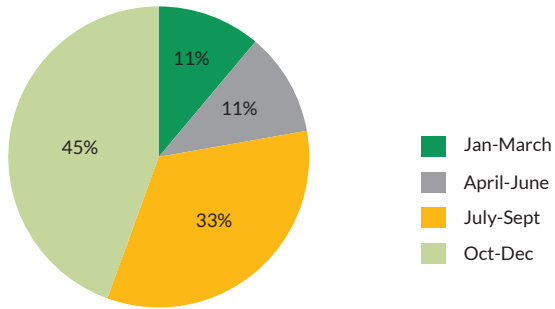


Figure 32: Preferred time of training delivery for the Mid Level Officials at GMC

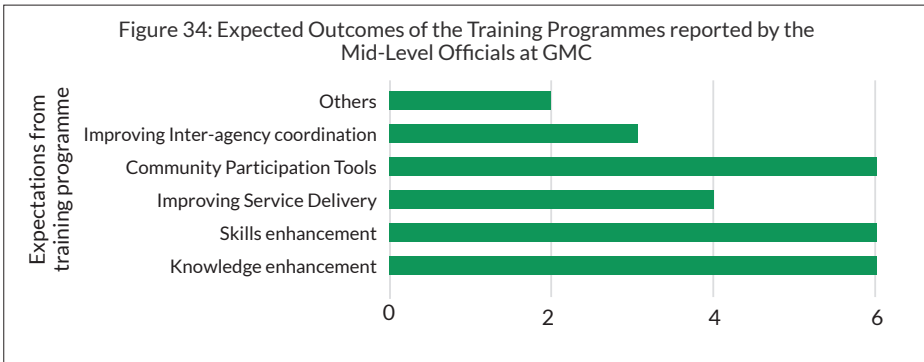
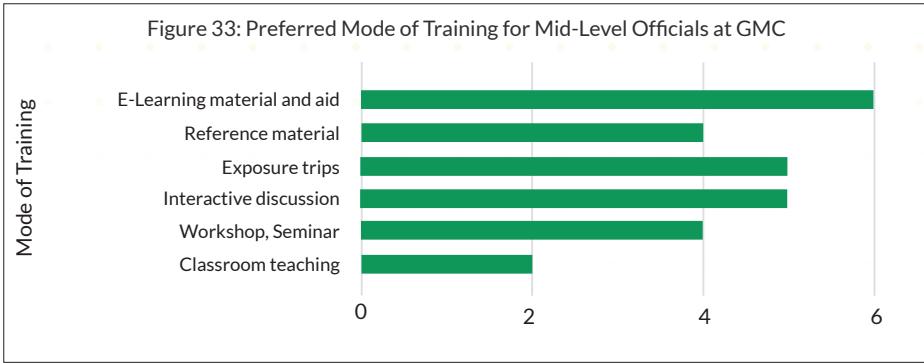


Mode of Training Delivery

Most respondents suggest E-learning material and aids as the preferred mode of training delivery. They also suggested Exposure visits and Interactive discussions as a preferred mode of training. Respondents suggested that ready reference material and workshops would also be a good mode of training. Figure 33 shows the choices of the respondents concerning the mode of training delivery.

Expectations of participants from the training programmes

Since Community Engagement and Public Interaction is an important part of the job of the Mid-level Officials, commonly across the three



sectors, the respondents expect Community Participation tools as part of the training programme. Similarly, Skill and Knowledge Enhancement are important expected outcomes of the training programmes. This was followed by skills to improve the service delivery. Figure 34 shows the preferred expected outcomes of the training programmes.

The general preferences of the training programme as discussed above are summarised in Table 10.

4.6.3 Training Needs- Ground Level Functionaries

The Ground Level Functionaries comprise the personnel working in the field performing the very fundamental jobs and have first-hand exposure to the issues of functioning and maintenance. These include functionaries working in the ULB and the personnel employed by the private parties. For understanding the training needs of the ground staff, we conducted 3 focus group discussion of 12 personnel, which

Table 10: Summary of general preferences of training programmes of Mid-level Officials at GMC

Parameter	Preference/Remarks
Exposure through Previous Programmes of Capacity Building	Well exposed to regular capacity building programmes
Medium of Instruction	English
Duration	2 Days
Time	October, November, December, followed by July, August and September
Location	Within City
Mode of Delivery	Online / E-Learning and Aids
Expected Outcomes	Community Participation Tools, Skill Enhancement, Knowledge Enhancement

comprises of Work Inspector, Tap Inspector, electrician, etc. to have a glimpse of the needs, issues and challenges they face in performing their day-to-day job responsibilities. The detailed findings have been mentioned sector-wise in following sub-sections.

4.6.3.1 Water and Underground Drainage

In GMC, the Superintending Engineer (SE) of the Engineering Department looks after the Water Supply and Drainage. This Department is also responsible for the Solid Waste Management, from the transfer station to landfill site. However, to assess the needs of the ground functionaries, online Focussed Group Discussions were conducted to understand their needs and the assistance they seek in Water supply and Drainage. The following was observed among the personnel on the ground level.

Priorities of the Ground functionaries

The ground and the field workers stated during the interview that they are well adept with the knowledge and support from the higher officials in carrying out their job responsibilities. The only segment they lack-in is skill enhancement through various technologies that could help them to work more efficiently.

Training needs

It was observed and suggested by the functionaries that they would wish to learn and train themselves in various available technologies that could help them to automate their job because currently, their job keeps them occupied 24X7 and they have no other option to serve irrespective of the time and circumstances.

Mode and Medium of training

The preferred mode of training for the junior and ground staff as stated was Physical training as on-ground training is more convenient and easy for grasping the knowledge. They also suggested that training delivery through various videos, guidebooks and ready reference would be more preferable and beneficial for their enhancement and learning. Lastly, they recommended that training should be delivered in the regional language for better understanding.

4.6.3.2 Solid Waste Management

In Solid Waste Management, Public Health Department is responsible for the primary and secondary collection, segregation of municipal solid waste, cleaning of drainage channels and road sweeping. The Sanitary Supervisors takes oversees the implementation of sanitation and SWM activities through Sanitary Inspectors (SI). Each SI has Sanitary Maistries appointed under him and each Sanitary Maistry has 10-20 Public Health workers (field workers) for implementing SWM and Sanitation in their respective areas. Sanitary Maistries implements works on the ground with the help of PH workers. The following has been found with regards to the needs of the ground-level personnel and field-level workers working in the Department of Public Health.

The Sanitary Maistries and public health workers of GMC believed that they are well adept with the knowledge and support from the higher officials in carrying out their job responsibilities. They also believed that the coordination and support they get from the community also helps them to perform their job better. The workers also suggested a requirement of additional pushcarts and bins for better Waste Management.

Training Needs

The ground staff of SWM informed during the interview that they have been receiving training regularly to perform their duties well. However, the Sanitary Maistries and public health workers had a training requirement related to the public interaction and communication skills, training to sensitise and encourage public for home composting and waste segregation.

Mode and Medium of training

The preferred mode of training for the junior and ground staff as stated was Physical training as they are more convenient and easy for grasping the knowledge. They also recommended that training should be delivered in the regional language for better understanding.

Table 11 provides an overview of the training needs assessed across various departments in the GMC dealing with water, wastewater and solid waste management sectors for the ground level functionaries.

4.7 Conclusion

The TANA findings of the various stakeholders explained in the previous sections are summarised as below:

- i. Guntur Municipal Corporation is trying to build its capacity for Solid Waste Management, and this has reflected in our interviews with various officials and staff members across the hierarchy in GMC.

Table 11: Summary of Training Needs of Ground-level functionaries at GMC

SECTOR	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Technical management and Operation and maintenance	Training on various available technology for home composting and waste segregation, skills enhancement and community engagement	On-site	Regional
Water Management and Drainage	Technical and management skills	Training on available technology to enhance skills to perform day to day duties efficiently	On-site	Regional

- ii. GMC currently has FSSM covered under the AMRUT scheme, however, the Senior officials seemed interested to gain some knowledge on the decentralised approaches of FSSM.
- iii. GMC currently has no IUWM facility, however, they are building the infrastructure capacity through various schemes. The Senior officials are keen to gain some knowledge on the same to plan for the city considering those in future.
- iv. Most officials in Guntur have a fair understanding of their subject requirements, and training would be required to enhance their knowledge in the same and introduce new concepts, systems and technologies of their domains. The detailed analysis of the training priorities of the mid-level officials is discussed in Table 12, Table 13 and Table 14 for the three sectors of Water, Waste Water and Solid Waste Management respectively. The tables have been summarised from the detail tables in the Annexure 5. . The Priority has been marked as High if the participants preferred the majority of aspects under a particular parameter. The Priority has been marked as Medium if a brief training was preferred by the respondents on about half of the aspects under a parameter. The Priority has been marked as Low if the respondents suggested no training is required for a parameter.
- v. A need was identified from both mid-level officials and ground-level functionaries to provide case study based training for operation and maintenance of services and facilities in their respective sectors.
- vi. Given the current COVID-19 situation, almost every stakeholder group has shown an interest in the delivery of the training on disaster and risk preparedness.

Table 12: Summary of Training Needs for Mid-level Officials for Water Sector in GMC

Parameter	Training Needed	Training Priorities*
LEGISLATIVE AND INSTITUTIONAL FRAMEWORK		
Legislative Framework	Yes	Green
Institutional Framework	Yes	Green
Provisions and Elements of Water Management in Missions and Scheme	Yes	Yellow
WATER MANAGEMENT SYSTEMS		
Water Supply Systems	Yes	Green
Reduction of Water Losses	Yes	Green
Water Budgeting and Water Balance	Yes	Green
SCADA (Supervisory Control and Data Acquisition)	Yes	Green
IUWM	Yes	Green
FINANCIAL MANAGEMENT		
Sources to access funds (details of grants/loans at central, state, and local level)	No	Blue
Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	No	Blue
Resource Mobilization	No	Blue
Various Business Models	No	Blue
Cost Recovery, Cost Efficiency & Financial Management	No	Blue
COMMUNITY ENGAGEMENT		
Need for Community Engagement, Water Use Efficiency	Yes	Yellow
Various Community Engagement Models and Structures	Yes	Green
Information, Education & Communication (IEC)	Yes	Green
PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP		
Project Planning, Monitoring & Control	No	Blue
Various Models of PPP	No	Blue
Public Interaction and Complaint Redressal System	Yes	Yellow
Use of ICT, GIS, RS and Technology in management of assets and resources	Yes	Yellow

* Green represents High Priority, Yellow represents Medium Priority, Blue represents Low priority

Table 13: Summary of Training Needs for Mid-level Officials for Waste Water Sector in GMC

Parameter	Training Needed	Training Priorities*
LEGISLATIVE AND INSTITUTIONAL FRAMEWORK		
Legislative framework	Yes	Yellow
Institutional Framework	No	Blue
Provisions and Elements of Water Management in Missions and Scheme	No	Blue
WASTEWATER MANAGEMENT TECHNOLOGIES		
Need for wastewater management	Yes	Green
Wastewater Generation	Yes	Green
Wastewater Treatment	Yes	Yellow
Wastewater Disposal/Reuse	Yes	Green
Grievance Redressal System	Yes	Yellow
FAECAL SLUDGE AND SEPTAGE MANAGEMENT		
Faecal Sludge and Septage Management	Yes	Yellow
Occupational Hazards and Safety in handling Faecal Sludge	Yes	Yellow
Operation, Maintenance & Monitoring of Faecal Sludge Treatment Plants	No	Blue
Grievance Redressal System	No	Blue
FINANCIAL MANAGEMENT		
Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, the borrowing capacity of ULBs etc.	No	Blue
Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, punitive measures, etc.)	No	Blue
Resource Mobilization	No	Blue
Various Business Models	No	Blue
Cost Recovery, Cost Efficiency & Financial Management	No	Blue
COMMUNITY ENGAGEMENT		
Need for Community Engagement, Water Use Efficiency	Yes	Yellow
Various Community Engagement Models and Structures	Yes	Green
Information, Education & Communication (IEC)	Yes	Green

Parameter	Training Needed	Training Priorities*
PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP		
Project Planning, Monitoring & Control	Yes	Yellow
Various Models of PPP	Yes	Yellow
Public Interaction and Complaint Redressal System	No	Blue
Use of ICT, GIS, RS and Technology in management of assets and resources	Yes	Yellow

* Green represents High Priority, Yellow represents Medium Priority, Blue represents Low priority

Table 14: Summary of Training Needs for Mid-level Officials for Solid Waste Management Sector in GMC

Parameter	Training Needed	Training Priorities*
LEGISLATIVE AND INSTITUTIONAL FRAMEWORK		
Legislative framework	Yes	Green
Institutional Framework	Yes	Green
Provisions for SWM in Missions And Schemes	Yes	Green
SOLID WASTE VALUE CHAIN MANAGEMENT		
Waste Segregation and Collection	Yes	Green
Wet waste management Technology and approaches	Yes	Green
Dry waste management approaches and technology	Yes	Green
Selection of Solid waste management technologies	Yes	Green
Waste disposal – Sanitary landfill	Yes	Green
Occupational Health and Safety	Yes	Green
FINANCIAL MANAGEMENT		
Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, the borrowing capacity of ULBs etc.	No	Blue
Various stakeholders from a financing point of view	No	Blue
Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	No	Blue
Resource Mobilization	No	Blue

Parameter	Training Needed	Training Priorities*
Various Business Models	No	Blue
Cost Recovery, Cost Efficiency & Financial Management	No	Blue
COMMUNITY ENGAGEMENT		
Need for Community Engagement	Yes	Green
Various Community Engagement Models and Structures	Yes	Green
Information, Education & Communication (IEC)	Yes	Green
PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP		
Project Planning, Monitoring & Control	Yes	Yellow
Public Interaction and Complaint Redressal System	Yes	Yellow
Use of ICT for management	Yes	Green

* Green represents High Priority, Yellow represents Medium Priority, Blue represents Low priority

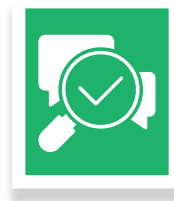
Based on the findings of the TANA conducted through interviews and assessments, a detailed curriculum is prepared customised for the Guntur Municipal Corporation and according to the needs of the three stakeholder groups. The detail curriculum outline has been mentioned in Chapter 5.

5

FINDINGS AND RECOMMENDATIONS



5. Findings and Recommendations



One of the objectives of this study is to identify the gaps that exist in the knowledge and understanding, and determine the training needs of the ULB officials in the five pilot cities. This would guide the design of the customised curriculum modules that would be delivered to the officials of various cadres in the five cities. This chapter provides findings of the ULBs in Guntur after interviewing the officials and analysing the results. This is followed by a curriculum outline, which forms the recommendations of this report, mentioning the topics for training delivery to the officials in the three sectors.

5.1 Findings of TANA

The findings of the TANA are summarised here in tables. Table 15 shows the priorities of the ULB as reported by the Commissioner. The priorities are mapped as per the preferences out of the three sectors of solid waste management, wastewater management and water management. For a comprehensive understanding, the tables below mention the findings of each sector with respect to the stakeholder group. Table 16 show the needs of the Guntur for the three sectors of solid waste management, wastewater management and water management.

Table 15: Priorities of the GMC as mentioned by the Commissioner

City	First Priority	Second Priority	Third Priority
Guntur	Waste Water Management	Solid Waste Management	Water Management

Table 16: Summary of gap analysis for the three sectors in GMC

Sector	Decision Makers	Mid-Level Officials	Ground Level Functionaries
Solid Waste Management	No perceived gaps	<ul style="list-style-type: none"> • Legislative Framework around solid waste management • New technologies and models in value chain management • Public Interaction • Project Evaluation and Project Monitoring 	<ul style="list-style-type: none"> • Home composting methods • segregation • Skill enhancement • Community engagement
Waste Water Management	No perceived gaps	<ul style="list-style-type: none"> • Legislative Framework around waste water management • New technologies of waste water treatment • Public Interaction • Overview of FSSM • Project Evaluation and Project Monitoring 	No perceived gaps
Water Supply Management	No perceived gaps	<ul style="list-style-type: none"> • Legislative Framework around water management • New technologies of water treatment and rainwater harvesting • Public Interaction • Project Evaluation and Project Monitoring 	No perceived gaps

5.2 Recommendations

The training need findings provide the preliminary directions to design the training curriculum and the modules to be delivered. Formulating a training curriculum outline is one of the outcomes of this study. The outlines are based on the findings of TANA, including few new concepts and strategies like Disaster and Emergency Preparedness, IUWM, Demand Side management and FSSM, etc., that would be relevant in the coming decades to tackle climate change resonating with the aim of GEF. The following section provides the training outlines for Guntur each outlined for the sectors and stakeholders.

5.3 Curriculum

Based on the findings and recommendations, the curriculum outlines for Guntur are prepared mentioning in brief the topics that would be covered in the training. Broadly, the topics are similar across the cities, however, the contents under each topic would be dealt with varying depths depending on the identified city needs and demands. The curriculum outline mentioned below is a tentative programme. The detailed curriculum, however, might vary in terms of the session name and contents.

Table 17, Table 18 and Table 19 provide the curriculum outline for GMC for the sectors solid waste management, wastewater management and water management respectively.

Table 17: Curriculum Outline for Solid Waste Management for GMC

Stakeholder Group	Session Name	Topic to be delivered / Session contents
Decision Maker	Overview of SWM	SWM value chain and Waste hierarchy, Overview of existing legal framework, convergence with other government missions
	Issues and Challenges	Issues and Challenges of the current practices (Planning, implementation and execution, O&M, etc.)
	Case Studies of new approaches	National and International approaches- SWM Centralized/Decentralized technologies, Role of IEC and ICT in SWM - Integrated control command centre, RFID tagging, online Monitoring of vehicles
	Successful SWM Models	Examples of Composting, Dry waste management, Bioremediation, MRF centres, Use of ICT, Innovations (waste to wealth products)
Mid-level Officials	Overview of SWM	SWM value chain and Waste hierarchy, Overview of existing legal framework, convergence with other government missions
	Institutional & Legislative Framework	National and state level policies and programs, Rules and Guidelines; MoHUA Advisories , NSKFDC, ERSU, SWM byelaws
	Issues and Challenges in SWM	<ul style="list-style-type: none"> • SWM value chain - Technologies (Cost-effective technologies, advantages and limitations, selection criteria, capacity, efficiency, CAPEX/OPEX, Private Sector Partnership etc.) • Existing SBM ICT platforms, IEC tools • Successful SWM Models – Composting, Dry waste management, Bioremediation, MRF centres, Innovations • Health and Safety protocols- Use of PPE Kits
	Project Management	DPR Handling, Contract Management, Financial Management, Procurement
	Disaster Preparedness and Emergency Response	Management Strategies and operating Protocols and Guidelines during Emergencies and Disasters

Ground-level Functionaries	Context Setting	Components of Solid Waste Management (Value Chain) Issues and Challenges in SWM
	Guidelines and SOPs	Various standard operating procedures and Guidelines
	Occupational Health and Safety Measures	Use of PPE kits and health checkups
	SWM Workers as Change Agent	Community Engagement tools, Behavioral Change, Communication skills
	Treating Waste at source	Home composting models, onsite community composting models, dry waste management
	Emergency Response	Guidelines for handling, treatment and disposal

Table 18: Curriculum Outline for Waste Water Management for GMC

Stakeholder Group	Session Name	Topic to be delivered / Session contents
Decision Maker	Overview	Elements and components of Wastewater Management and FSSM
	Issues and Challenges	Issues and Challenges of the current practices (Planning, implementation and execution, O&M, etc.)
	National and International approaches	Centralized/Decentralized approaches on treatment, disposal, reuse and recycling of waste water
	New Available Technologies	Selection criteria, advantages and limitations, capacity, efficiency, CAPEX/OPEX etc.
Mid-level Officials	Overview	Elements and components of Wastewater Management and FSSM
	Legislative Framework	National and state level policies, Rules and Guidelines
	Issues and Challenges	Issues and Challenges of the current practices (Planning, implementation and execution, O&M, etc.)
	National and International approaches	Centralized/Decentralized approaches on treatment, disposal, reuse and recycling of waste water
	Project Management	DPR Handling, Contract Management, Financial Management, Procurement
	Community Engagement	Public interaction and sensitisation
	Disaster Preparedness and Emergency Response	Management Strategies and operating Protocols and Guidelines during Emergencies and Disasters
Ground-level Functionaries	Context Setting	Overview of Waste Water management and FSSM
	Guidelines and SOPs	Various standard operating procedures and Guidelines
	Sanitation Workers as Change Agent	Community Engagement tools, Behavioral Change, Communication skills
	Emergency Response	Guidelines for handling, treatment and disposal

Table 19: Curriculum Outline for Water Management for GMC

Stakeholder Group	Session Name	Topic to be delivered / Session contents
Decision Maker	Urban Water Management Landscape for India	Overview of Water Management Policies and Programmes at National and State Level
	Contemporary approaches for Water Management	IUWM, Water Audit, Water Budgeting, WSUD
	Technological Intervention for water management	SCADA, DMAs, Smart Technologies
Mid-level Officials	Urban Water Management Landscape for India	Overview of Water Management Policies and Programmes at National and State Level
	Legislative Framework	National and state level policies, Rules and Guidelines
	Issues and Challenges	Issues and Challenges of the current practices (Planning, implementation and execution, O&M, etc.)
	Contemporary approaches for Water Management	IUWM, Water Audit, Water Budgeting, WSUD
	Technological Intervention for water management	SCADA, DMAs, Smart Technologies, Leak Detection, EMIS
	Project Management	DPR Handling, Contract Management, Financial Management, Financial Sustainability
	Community Engagement	Public interaction and sensitisation
Ground-level Functionaries	Context Setting	Overview of Water management
	Guidelines and SOPs	Various standard operating procedures and Guidelines

6

REFERENCES



6. References



1. GoAP, 1920. Andhra Pradesh (Andhra Area) Town- Planning Act. s.l.:Government of Andhra Pradesh.
2. GoAP, 1975. Andhra Pradesh Urban Areas (Development) Act. s.l.:Government of Andhra Pradesh.
3. GoAP, 1994. Andhra Pradesh Municipal Corporation Act. s.l.:Government of Andhra Pradesh.
4. GoAP, 2016. Andhra Pradesh Metropolitan Region and Urban Development Authority Act. s.l.:Government of Andhra Pradesh.

7

ANNEXURES



Annexure 1

TANA Questionnaire for Senior Officials

Project Title:

“Sustainable Cities Integrated Approach Pilot in India”

COMPONENT 3:

Partnerships, Knowledge Management and Capacity Building

The United Nations Industrial Development Organization (UNIDO) is implementing the SC-IAP programme in India along with the Ministry of Housing and Urban Affairs, Government of India. The core objective is to build resilience in five cities – Jaipur, Bhopal, Mysuru, Vijayawada and Guntur – by integrating sustainability concepts into urban planning and management strategies.

NIUA has been engaged by the UNIDO to conduct a Training and Assistance Need Analysis (TANA) for the ULB officials and elected representatives. This assessment will be conducted across Water, Waste Water and Solid Waste Management (SWM) sector in the city. The results of TANA will constitute the basis for developing a detailed training curriculum on Water, Waste Water and SWM. The designed training modules will help in enhancing the knowledge and build capacities of ULB officials towards sustainable city management. The content of these training modules will also contribute towards achieving the objectives of national level initiatives such as Smart Cities Mission, AMRUT, PMAY, NULM, NUHM and Swachh Bharat Mission. Development of the comprehensive training modules will be followed by a training and technical assistance program.

Name of the city

Date

Department

Cell

CONFIDENTIALITY STATEMENT

The information shared in this interview will be used only towards the analysis of the Training Need Assessment and shall not be shared for any other purpose. Only the researchers involved in this study will see your responses

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. If you do not want to participate, please return the questionnaire to the researcher. You also do not have to answer any question that makes you uncomfortable.

Please Sign below for your consent for the proceedings and/or the audio/video documentation of the same.

Name of the Respondent

Designation:

Signature

1. As per you, rank the priorities of the ULB at present out of the three sectors of Water, Waste Water and Solid Waste Management on a scale of 1 to 3, with 1 being of highest priority and 3 being of lowest priority.
2. In your ULB, what are the key issues pertaining to water, wastewater and solid waste management?
3. How is your relationship with the Elected Representatives and community in the wards in the ULB? How do you work together?
4. Please mention the challenges in Planning, Financing, Implementation, and Monitoring in these sectors.

	Water Supply Management	Wastewater Management	Solid Waste Management
Planning			
Financing			
Implementation			
Monitoring			

5. What are your suggestions for the aforementioned challenges in the sectors?
6. How do you consider this project can assist in developing the capacity of your ULB, based on your prior experience? (priorities/key areas for training)
7. As per you, who do you think are the key stakeholders?

Annexure 2

TANA Questionnaire for Department Heads

1. Provide list of Functional Representatives (designation –wise) for each of the departments under the specified Agencies: An example is given below:

SECTOR: SOLID WASTE MANAGEMENT / WASTE WATER MANAGEMENT / WATER MANAGEMENT					
AGENCY NAME:					
SL. No.	Department	Designation	Job Responsibilities	Total Staff	
				Permanent	Contractual
i.	PHED (An example)	Executive Engineer	<ul style="list-style-type: none"> Project Planning and Execution DPR Preparation Tender Approval & Management 		

2. List of projects operational in the city in your sector:

SECTOR: SOLID WASTE MANAGEMENT / WASTE WATER MANAGEMENT / WATER MANAGEMENT								
Sl. No	Project Name	Govt./ Bilateral & Multilateral Loans/ Funding Grants/ Others (if any)	Partners			Current status of Project Implementation		
			Funding	O&M	Technical	Planning	Under Construction	Functional/ Operational

3. Are there any NGOs or other private agencies working with the ULBs in your city?
If Yes:

Sl. No	Name of the NGO/Private Agency	Point of Contact	Type (Private/ NGO/ RWA/ Others)	Sector(Solid Waste/ Waste Water/ Water Management)	Type of Work/ Project Name	Role

4. How many the RWAs (active/non-active)? What is your mode and frequency of engagement with them?
5. What are your key focus areas in your sector and why?
6. Do you have any suggestions for improvement in those areas?
7. Were there any capacity building trainings held for your staff earlier? Do you find them useful?
- a. Do you have any suggestions to improve the same?
8. How is the coordination of the Elected Representatives and community in these sectors?
- a. (If not, do you have any recommendations for improving the same?)
9. Are there any innovative or best practices in the city in your sector?

Annexure 3

TANA Questionnaire for Mid-Level Officials

Water Supply Management

A. GENERAL INFORMATION

1.	Name						
2.	Gender						
3.	Age Group (in yrs)	<30	31-40	41-50	51-60	60<	
4.	Contact number (mobile)						
5.	Email						
6.	Educational qualification (Please tick the highest educational degree)	Higher Secondary	Senior Secondary	Diploma	Bachelors	Masters	Others (Specify)
7.	Field of Education						
8.	Department				Cell		
9.	Designation						
10.	Type of position	Permanent		Contractual		Others(Specify)	
11.	Number of Years of Experience in the current position	1-5 years	5- 10 years		10-15 years		Above 15 years

12. In your current position what are your responsibilities? (Tick as many relevant)	
	Planning & Scheduling
	Legal aspects and Compliance
	Technical & Engineering Aspects
	Budgeting, Costing and other Financial Aspects
	Communication
	Field Supervision
	Coordination & Meetings
	Staff Management, Control
	Training & Capacity Building
	Enhancing Community Participation
	Public Interaction and Complaint Redressal
	Any Other (Please Specify)

13. Have attended any training programmes/ workshops/conference in last three years regarding Water Supply and Management?

- a. Yes
- b. No

If Yes, Specify the following:

Name of the training programme/ workshop/ conference	Topic/ Subject	Year	Duration	Organized by	Sponsored by	Level of relevance to current Job function/duties		
						Highly Relevant	Some what Relevant	Not Relevant

14. Please suggest your preferred medium for the training programmes?

- a. English
- b. Hindi
- c. Others(Specify)

15. What are your expectations from the training programmes?

- a. Knowledge enhancement
- b. Skills enhancement
- c. Improving Service Delivery
- d. Community Participation Tools
- e. Improving Inter-agency coordination
- f. Others (Specify)

16. Please suggest your preferred duration of training programmes

- a. One day
- b. Two days
- c. Three days
- d. Others(Specify)

17. Please suggest your preferred mode of training. You may tick more than one.

- a. Classroom teaching
- b. Workshop, Seminar
- c. Interactive discussion
- d. Exposure trips
- e. Reference material
- f. E-Learning material and aid
- g. Others (Specify)

18. Please suggest your preferred location of training programme

- a. Within city
- b. Outside city, within state
- c. Other states
- d. Any Other (Specify)

19. Please suggest your preferred time frame for attending the training programme?

- a. Jan-March
- b. April-June
- c. July-Sept
- d. Oct-Dec
- e. Other (Specify)

20. Of the following items, which do you identify important for training, to equip for future growth? You may choose more than 1
- Water Quality, Source Augmentation, Water Reuse
 - Demand Side Management
 - Supply Side Systems and Management
 - Water Balance and Water Budgeting
 - Water Tariff and Pricing
 - Non-Revenue Water (NRW) and Unaccounted for Water (UFW) and its reduction
 - Rainwater Harvesting and Storm Water Management
 - Water Bodies Rejuvenation, Ground Water Management
 - Others

B. TRAINING NEEDS ASSESSMENT: WATER MANAGEMENT:

As per your level of knowledge and awareness rate yourself on the following parameters:

21. INSTITUTIONAL AND POLICY FRAMEWORK FOR WATER

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Awareness			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Legislative Framework						
1.1	National water policy, 2012						
1.2	Water (Prevention and Control of Pollution) Act, 1974						
1.3	Environment (Protection) Act, 1986						
1.4	State Water Policy						
1.5	Municipal Corporation Act and other Municipal Acts						
2.	Institutional Framework						
2.1	Roles and Responsibilities of Government Institutions (State/City/ULB) in water						
2.2	Institutional Framework (State level/City Level/ ULBs)- Jal Shakti Ministry						
3.	Provisions and Elements of Water Management in Missions and Scheme						
3.1	Swachh Bharat Mission, 2014						

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Awareness			Training Needed	
			Good	Fair	Poor	Yes	No
3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015						
3.3	Smart Cities Mission, 2015						
3.4	14 th & 15 th Finance commission						
3.5	Any State Schemes						
4.	Others if any (specify)						

22. WATER MANAGEMENT SYSTEMS

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Water Supply Systems						
1.1	Types of Water Supply Systems (characteristics, features, requirements, selection methods, etc.)						
1.2	Available Treatment Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, capex/Opex, etc.)						
1.3	Water Supply Networks -Technical and Engineering aspects						
2.	Water Reuse Systems and Requirements						
3.	Factors Affecting the selection of water management system (Estimating water demand, supply, existing infrastructure, cost, design, etc.)						
4.	Reduction of Water Losses						
5.	Water Budgeting and Water Balance						
6.	SCADA (Supervisory Control and Data Acquisition)						
7.	Others, if any (Specify)						

23. Do you wish to explore private sector participation for Rain Water Harvesting?

- a. Yes
- b. No

If Yes, Do you need any training for the same?

- c. Yes
- d. No

24. FINANCIAL MANAGEMENT

Sl. No	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Sources to access funds (details of grants/loans at central, state, and local level)						
2.	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)						
3.	Resource Mobilization						
4.	Various Business Models						
	Cost Recovery, Cost Efficiency & Financial Management						
5	Others if any (Specify)						

25. COMMUNITY ENGAGEMENT

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Need for Community Engagement, Water Use Efficiency						
2.	Various Community Engagement Models and Structures						
3.	Information, Education & Communication (IEC)						
4.	Others if any (Specify)						

26. PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Project Planning, Monitoring & Control						
1.1	Preparation of Detailed Project Report (DPR) including physical and financial methods for cost estimate, budget, costing, legal compliances, EIA, etc.						
1.2	Tendering and Procurement						
1.3	Contract Management						
1.4	Technical and Engineering Aspects						
1.5	Administrative and Financial Management (Cost Recovery, Cost Efficiency)						
1.6	Operation, Maintenance and Monitoring						
1.7	Enforcement & Accountability						
1.8	Project evaluation						
2.	Various Models of PPP						
3.	Public Interaction and Complaint Redressal System						
4.	Use of ICT, GIS, RS and Technology in management of assets and resources						
5.	Others if any (Specify)						

27. Do you think systems are well prepared for the disaster and emergencies?
28. Was the cities response well prepared for the COVID 19 crisis?
29. Were there proper operating procedures laid out for the management and functioning?
30. 30. What would be your suggestions to improve?
31. Other Important Information / Remarks / Suggestions

Wastewater Management

A. GENERAL INFORMATION

1.	Name						
2.	Gender						
3.	Age (in yrs)	<30	31-40	41-45	51-60	>60	
4.	Contact number (mobile)						
5.	Email						
6.	Educational qualification (Please tick the highest educational degree)	Higher Secondary	Senior Secondary	Diploma	Bachelors	Masters	Others (Specify)
7.	Field of Education						
8.	Department				Cell		
9.	Designation						
10.	Type of position	Permanent	Contractual	Others(Specify)			
11.	Number of Years of Experience in the current position	1-5 years	5- 10 years	10-15 years		Above 15 years	

12.	In your current position what are your responsibilities?	
	Planning & Scheduling	
	Legal aspects and Compliance	
	Technical & Engineering Aspects	
	Budgeting, Costing and other Financial Aspects	
	Communication	
	Field Supervision	
	Coordination & Meetings	
	Staff Management, Control	
	Training & Capacity Building	
	Enhancing Community Participation	
	Public Interaction and Complaint Redressal	
	Any Other (Please Specify)	

13. Have attended any training programmes/ workshops/conference in last three years?

- Yes
- No

If Yes, Specify the following:

Name of the training programme/ workshop/ conference	Topic/ Subject	Year	Duration	Organized by	Sponsored by	Level of relevance to current Job function/duties		
						Highly Relevant	Some what Relevant	Not Relevant

14. Please suggest your preferred medium for the training programmes?

- English
- Hindi
- Others(Specify)

15. What are your expectations from the training programmes?

- Knowledge enhancement
- Skills enhancement
- Improving Service Delivery
- Community Participation Tools
- Improvement Inter-agency coordination
- Others (Specify)

16. Please suggest your preferred duration of training programmes

- a. One day
- b. Two days
- c. Three days
- d. Others(Specify)

17. Please suggest your preferred mode of training. You may tick more than one.

- a. Classroom teaching
- b. Workshop, Seminar
- c. Interactive discussion
- d. Exposure trips
- e. Reference material
- f. E-Learning material and aid
- g. Others (Specify)

18. Please suggest your preferred location of training programme

- a. Within city
- b. Outside city, within state
- c. Other states
- d. Any Other (Specify)

19. Please suggest your preferred time frame for attending the training programme?

- a. Jan-March
- b. April-June
- c. July-Sept
- d. Oct-Dec
- e. Other (Specify)

B. TRAINING NEEDS ASSESSMENT: WASTE WATER MANAGEMENT:

As per your level of knowledge and awareness rate yourself on the following parameters:

20. INSTITUTIONAL AND GOVERNANCE FOR WASTEWATER AND SANITATION

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Awareness			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Legislative framework						
1.1	Environment (Protection) Act, 1986						
1.2	Water (Prevention and Control of Pollution) Act, 1974						
1.3	National Environmental Policy, 2006						
1.4	National Urban Sanitation Policy, 2008						
1.5	Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013						
1.6	Framework for municipal functions (Municipal act, Service rules, Building bye-laws, Municipal Bye-laws, etc.)						
1.7	CPCB/SPCB Guidelines						
1.8	NGT Rules						
1.9	State Urban Sanitation Policy and State Urban Sanitation Strategy						
2.	Institutional Framework						
2.1	Organization structure, Roles and Responsibilities of Government departments						
2.2	Roles and Responsibilities of other relevant stakeholders like SPCBs, NGOs, RWAs						
2.3	Inter Institutional Coordination mechanism, reporting						
2.4	National Rating Scheme for Sanitation (Swachh Survekshan) and Other protocols (ODF, ODF+, ODF++, Water+, etc.)						

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Awareness			Training Needed	
			Good	Fair	Poor	Yes	No
3.	Provisions and Elements of Water Management in Missions and Scheme						
3.1	Swachh Bharat Mission, 2014						
3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015						
3.3	Smart Cities Mission, 2015						
3.4	14 th and 15 th Finance Commission						
3.5	NULM and NUHM						
4.	Others if any (specify)						

21. WASTE WATER MANAGEMENT

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Waste Water Management						
1.1	Need for waste water management						
2.	Wastewater Generation						
2.1	Sources of waste water generation						
2.2	Available options for conveyance of waste water (types, features, limitations, selection criteria, etc.)						
2.3	Technical and Engineering aspects of types of conveyance systems (Infrastructure, capacity, capex/opex, O&M, etc.)						

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
3.	Waste Water Treatment						
3.1	Types (Off-site sanitation system, Decentralized Wastewater Treatment (DEWATS), On-site sanitation system, etc.)						
3.2	Available Technologies (types, features, treatment efficiency, limitations, selection criteria, etc.)						
3.3	Technical and Engineering aspects of available technologies (Infrastructure, capacity, capex/ opex, O&M, etc.)						
4.	Waste Water Disposal/Reuse						
4.1	Awareness on associated health risks due to improper disposal						
4.2	Current practices of Waste water reuse						
5.	Grievance Redressal System						
6.	Others(if any)						

22. FAECAL SLUDGE & SEPTAGE MANAGEMENT (FSSM)

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Faecal Sludge and Septage Management						
1.1	Need for FSSM						
1.2	Design and Construction Guidelines for various types of containment systems and desludging frequency						
1.3	Available Technologies for desludging of Septic Tanks (available equipment, advantages and limitations, selection criteria, capacity, efficiency, capex/opex etc.)						
1.4	Available options for transporting the faecal sludge and septage (Features, limitations, capacity, selection criteria, capex/opex, etc.)						
1.5	Available Treatment Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, capex/opex, etc.)						
1.6	Available Options for Disposal/Reuse						
2.	Occupational Hazards and Safety in handling Faecal Sludge						
2.1	Awareness on associated risks to health						
2.2	Mitigating measures (PPE, Training on use of tools/equipment, Training on standard operating procedures, etc.)						

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
3.	Operation, Maintenance & Monitoring of Faecal Sludge Treatment Plants						
3.1	Operation						
3.2	Asset Management						
3.3	Administrative/ Financial Management						
3.4	Monitoring and Record-keeping						
3.5	Managing volumes & schedules of FS collection						
3.6	Utilizing available local resources						
3.7	Storage & sale of end products						
4.	Grievance Redressal System						
5.	Others, if any (Specify)						

23. Do you wish to explore private sector participation for FSSM?

- a. Yes
- b. No

If Yes, Do you need any training for the same?

- c. Yes
- d. No

24. Specify the various value chain points across FSSM for which you wish to explore private sector participation?

25. FINANCIAL MANAGEMENT

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, borrowing capacity of ULBsetc.						
2.	Various stakeholders from financing point of view						
3.	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, punitive measures, etc.)						
4.	Resource Mobilization						
5.	Various Business Models						
6.	Cost Recovery, Cost Efficiency & Financial Management						
7.	Others if any (Specify)						

26. COMMUNITY ENGAGEMENT

SL. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Need for Community Engagement						
2.	Various Community Engagement Models and Structures						
3.	Information, Education & Communication (IEC)						
4.	Others if any (Specify)						

SL. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Project Planning, Monitoring & Control						
1.1	Preparation of Detailed Project Report (DPR) including physical and financial methods for cost estimate, budget, costing, legal compliances, EIA, etc.						
1.2	Tendering and Procurement						
1.3	Contract Management						
1.4	Technical and Engineering Aspects						
1.5	Administrative and Financial Management (Cost Recovery, Cost Efficiency)						
1.6	Operation, Maintenance and Monitoring						
1.7	Enforcement & Accountability						
1.8	Project evaluation						
1.9	Human Resource Management						
2.	Various Models of PPP						
3.	Public Interaction and Complaint Redressal System						
30. 4.	Use of ICT, GIS, RS and Technology in management of assets and resources						
5.	Others if any (Specify)						

27. Project Management and Private Sector Partnership

28. Do you think systems are well prepared for the disaster and emergencies?

29. Was the cities response well prepared for the COVID 19 crisis?

30. Were there proper operating procedures laid out for the management and functioning?

31. What would be your suggestions to improve?

32. Other Important Information / Remarks / Suggestions

Solid Waste Management

A. GENERAL INFORMATION

1.	Name						
2.	Gender						
3.	Age Group (in yrs)	<30	31-40	41-50	51-60	>60	
4.	Contact number (mobile)						
5.	Email						
6.	Educational qualification (Please tick the highest educational degree)	Higher Secondary	Senior Secondary	Diploma	Bachelors	Masters	Others (Specify)
7.	Field of Education						
8.	Department			Cell			
9.	Designation						
10.	Type of position	Permanent		Contractual		Others(Specify)	
11.	Number of years of Experience In The Current Position	1-5 years	5- 10 years		10-15 years	Above 15 years	

12.	In your current position what are your responsibilities? (Tick as many relevant)	
	Planning & Scheduling	
	Legal aspects and Compliance	
	Technical & Engineering Aspects	
	Budgeting, Costing and other Financial Aspects	
	Communication	
	Field Supervision	
	Coordination & Meetings	
	Staff Management, Control	
	Training & Capacity Building	
	Enhancing Community Participation	
	Public Interaction and Complaint Redressal	
Any Other (Please Specify)		

13. Have attended any training programmes/workshops/conference in last three years regarding Solid Waste Management?

- a. Yes
- b. No

If Yes, Specify the following:

Name of the training programme/workshop/conference	Topic/Subject	Year	Duration	Organized by	Sponsored by	Level of relevance to current Job function/duties		
						Highly Relevant	Some what Relevant	Not Relevant

14. Please suggest your preferred medium for the training programmes?

- a. English
- b. Hindi
- c. Others (Specify)

15. What are your expectations from the training programmes?

- a. Knowledge enhancement
- b. Skills enhancement
- c. Improving Service Delivery
- d. Community participation tools
- e. Improving Inter-agency coordination
- f. Others (Specify)

16. Please suggest your preferred duration of training programmes

- a. One day
- b. Two days
- c. Three days
- d. Others(Specify)

17. Please suggest your preferred mode of training. You may tick more than one.

- a. Classroom teaching
- b. Workshop, Seminar
- c. Interactive discussion
- d. Exposure trips
- e. Reference material
- f. E-Learning material and aid
- g. Others (Specify)

18. Please suggest your preferred location of training programme

- a. Within city
- b. Outside city within state
- c. Other states
- d. Any Other (Specify)

19. Please suggest your preferred time frame for attending the training programme?

- a. Jan-March
- b. April-June
- c. July-Sept
- d. Oct-Dec
- e. Other (Specify)

As per your level of knowledge and awareness, rate yourself on the following parameters:

20. INSTITUTIONAL AND POLICY FRAMEWORK FOR SOLID WASTE MANAGEMENT

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Awareness			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Legislative Framework						
1.1	National Urban Sanitation Policy, 2008						
1.2	Solid Waste Management rules						
1.3	Plastic Waste Mgmt rules						
1.4	C & D Waste Mgmt rules						
1.5	E- Waste Mgmt rules						
1.6	Bio- medical waste Mgmt rules (relevant parts)						
1.7	Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013						
1.8	Emergency Response Sanitation unit						
1.9	National Safai Karamcharis Finance & Development Corporation (NSKFDC)						
1.10	National Rating Scheme for Sanitation (Swachh Survekshan, ODF++, Water Plus)						
1.11	State level State SWM Policy and Strategy						
1.12	SWM Bye-Laws						
2.	Institutional Framework						
2.1	Roles and Responsibilities of Government Institutions (State/City/ULB) in solid waste management ex -MOEFCC, MoHUA, SPCB's, CPCB, CPHEEO, NGT etc.						
2.2	Institutional Framework (State level/ City Level/ULBs)						
3.	Missions and Schemes						
3.1	Swachh Bharat Mission, 2014						
3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015						
3.3	Smart Cities Mission, 2015						
3.4	National Urban Livelihood Mission						
4.	Others if any (specify)						

21. SOLID WASTE VALUE CHAIN MANAGEMENT

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Waste Segregation and Collection						
1.1	Types of Waste streams (characteristics, features, etc.)						
1.2	Transportation of waste -Technical and Engineering aspects, transfer stations						
1.3	Available Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, capex/Opex, etc.)						
1.4	Mainstreaming of waste pickers in waste management (Human resource management)						
1.5	Use of ICT in Collection and Transportation						
2.	SWM technologies (technical and engineering aspects) (Composting, Windrow Composting, Aerated Static pile composting, In-vessel composting, Anaerobic composting, Vermi Composting, Biomethanation, Incineration and energy recovery, Pelletization/Refuse Derived fuel system, Pyrolysis and Gasification, Plasma Pyrolysis, Sanitary Landfill)						
2.1	Wet waste management Technology and approaches						
A.	Composting techniques						
(i)	Types (Advantages & Disadvantages, Treatment efficiency, land requirement, selection criteria, etc.), Technical and Engineering aspects and Capex, Opex and Revenue aspects						
B.	Biomethanization						
(i)	Types (Advantages & Disadvantages, Treatment efficiency, land requirement, selection criteria, etc.), Technical and Engineering aspects and Capex, Opex and Revenue aspects						
2.2	Dry waste management approaches and technology						
(i)	Material recovery facility						

Sl. No.	Parameters	Relevance w.r.t. to Job role (Rate 0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
(ii)	Types (Advantages & Disadvantages, Treatment efficiency, land requirement, selection criteria, etc.), Technical and Engineering aspects and Capex, Opex and Revenue aspects						
(iii)	Recycling/ Reuse/Recovery technologies						
(iv)	Potential Buyers						
3.	Selection of Solid waste management technologies						
3.1	(Estimating waste generation volume, existing infrastructure, cost, etc.)						
3.2	Available SWM technologies (Types, features, treatment efficiency, selection criteria)						
3.3	Technical and engineering aspects of available technologies						
4.	Bulk waste generators (BWG) management						
4.2	Bulk Waste Generator Identification/ Verification Process, compliance process, Types of BGG (Institutions, hotels, RWA's), Available technologies for BWG,						
5.	Waste disposal – Sanitary landfill						
5.1	Planning, Designing and Construction of Secured landfill (Site selection, CAPEX, OPEX)						
5.2	Methods of Land Closure and Capping						
5.3	Planning and Designing Leachate Treatment Facility						
6.	Occupational Health and Safety						
7.	Circular Economy models in Waste management (Closing the loop concept)						

22. Do you wish to explore private sector participation for SWM?

- a. Yes
- b. No

If Yes, Do you need any training for the same?

- a. Yes
- b. No

23. Specify the various value chain points across SWM for which you wish to explore for private sector participation?

24. FINANCIAL MANAGEMENT

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, borrowing capacity of ULBs etc.						
2.	Various stakeholders from financing point of view						
3.	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)						
4.	Resource Mobilization						
5.	Various Business Models						
6.	Cost Recovery, Cost Efficiency & Financial Management						
7.	Others if any (Specify)						

25. COMMUNITY ENGAGEMENT

Sl. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Need for Community Engagement						
2.	Various Community Engagement Models and Structures						
3.	Information, Education & Communication (IEC)						
4.	Others if any (Specify)						

26. PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP

SL. No.	Parameters	Relevance level w.r.t your job responsibility (0 to 5)	Level of Knowledge & Understanding			Training Needed	
			Good	Fair	Poor	Yes	No
1.	Project Planning, Monitoring & Control						
1.1	Preparation of Detailed Project Report (DPR) including physical and financial methods for cost estimate, budget, costing, legal compliances, EIA, etc.						
1.2	Tendering and Procurement						
1.3	Contract Management						
1.4	Procuring, Installation & commissioning/ setting up SWM projects						
1.5	Technical and Engineering Aspects						
1.6	Administrative and Financial Management (Cost Recovery, Cost Efficiency)						
1.7	Operation, Maintenance and Monitoring						
1.8	Enforcement & Accountability						
1.9	Project evaluation						
1.10	Human Resource Management						
2.	Various Models of PPP						
3.	Public Interaction and Complaint Redressal System						
4.	Use of ICT for management						
5.	Others if any (Specify)						

27. Do you think systems are well prepared for the disaster and emergencies?

28. Was the cities response well prepared for the COVID 19 crisis?

29. Were there proper operating procedures laid out for the management and functioning?

30. What would be your suggestions to improve?

31. Other Important Information / Remarks / Suggestions

Annexure 4

TANA Questionnaire for Ground staff

1. What are your future aspirations with the job?
2. What do you think is the status of the ULB in terms of sanitation and water supply?
3. How is your interaction with the community and residents? How frequently do you interact? What is your mode of communication?
4. What support do you currently get from the community and what are your expectations from them?
5. What support do you need from government officials and other superiors to perform your responsibilities better and efficiently?
6. What support do you need from your subordinates to perform your responsibilities?
7. What support do you need from other departments to perform your responsibilities?
8. What are your strengths while performing your job?
9. What are the difficulties you face in doing your job?
10. Have you received any kind of training before? (What kind and when) Were they useful?
11. What are the areas in which you would like to be trained for?
12. What kind of training would you prefer - face-to-face or virtual? Do you think exposure visits to good practice sites is useful? Why and how?
13. What is the right duration for training (face-to-face) and virtual?

Annexure 5

Detail findings of TANA for Guntur Municipal Corporation

The detail findings of the TANA for the Mid-level Officials are tabulated in this annexure. It has been prepared for the three sectors of Water, Waste Water, and Solid Waste Management separately. The frequency of responses is mapped cumulatively. The numbers under the relevance column are the total number of people who responded in numbers between 0-2 or 3-5 for that respective parameter, with 0 being completely irrelevant and 5 being highly relevant to their job role. The numbers mentioned under 'Level of Understanding' column are the number of people who responded that they have a 'Good', 'Fair' or 'Poor' understanding of the corresponding parameter. The total number of respondents saying that they would require training for that particular parameter. The higher of the two numbers listed under relevance becomes results in the total; the parameter is taken as relevant if there is a higher number under '3-5' column, else it is listed as not relevant. A similar logic has been followed to find the general level of understanding of the respective parameters. The column with the highest of the numbers under 'Good', 'Fair' and 'Poor' renders the 'Level of Understanding' under the 'Total'. A training priority is estimated from the higher of the columns under 'Training Needed' column.

Table 20: Detail Training Needs of Water Sector

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
1.	LEGISLATIVE AND INSTITUTIONAL FRAMEWORK										
1.1	Legislative Framework										
1.1.1	National water policy, 2012	2	3		1	4	3	2	Yes	Poor	Yes
1.1.2	Water (Prevention and Control of Pollution) Act, 1974	1	4	1	1	3	4	1	Yes	Poor	Yes
1.1.3	Environment (Protection) Act, 1986	2	3	1	1	3	4	1	Yes	Poor	Yes
1.1.4	State Water Policy	1	4	2	1	2	3	2	Yes	Poor	
1.1.5	Municipal Corporation Act and other Municipal Acts		5	2	2	1	4	1	Yes	Poor	Yes
1.2	Institutional Framework										
1.2.1	Roles and Responsibilities of Government Institutions (State/City/ULB) in water	2	3		3	2	3	2	Yes	Fair	Yes
1.2.2	Institutional Framework (State level/City Level/ULBs)- Jal Shakti Ministry	3	2			5	4	1	No	Poor	Yes
1.3	Provisions and Elements of Water Management in Missions and Scheme										
1.3.1	Swachh Bharat Mission, 2014	1	4	1	3	1	3	2	Yes	Fair	Yes
1.3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015	1	4	2	3		3	2	Yes	Fair	Yes
1.3.3	Smart Cities Mission, 2015	5		1		4		5	No	Poor	No
1.3.4	14 th & 15 th Finance commission	4	1	2	1	3	2	3	No	Poor	No

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
2.	WATER MANAGEMENT SYSTEMS										
2.1	Water Supply Systems										
2.1.1	Types of Water Supply Systems (characteristics, features, requirements, selection methods, etc.)		5	3	2		3	2	Yes	Good	Yes
2.1.2	Available Treatment Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, Capex/Opex, etc.)		5	2	3		4	1	Yes	Fair	Yes
2.1.3	Water Supply Networks -Technical and Engineering aspects		5	3	2		4	1	Yes	Good	Yes
2.2	Water Reuse Systems and Requirements	1	4	1	2	2	4	1	Yes	Poor	Yes
2.3	Factors Affecting the Selection of a water management system		5	1	3	1	5		Yes	Fair	Yes
2.4	Reduction of Water Losses		5		4	1	4	1	Yes	Fair	Yes
2.5	Water Budgeting and Water Balance	1	4		2	3	5		Yes	Poor	Yes
2.6	SCADA (Supervisory Control and Data Acquisition)		5		3	2	4	1	Yes	Fair	Yes
2.7	IUWM	1	4		1	4	4	1	Yes	Poor	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
3.	FINANCIAL MANAGEMENT										
3.1	Sources to access funds (details of grants/loans at central, state, and local level)	4	1		1	4	2	3	No	Poor	No
3.2	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	4	1		1	4	2	3	No	Poor	No
3.3	Resource Mobilization	5			1	4	1	4	No	Poor	No
3.4	Various Business Models	5				5	1	4	No	Poor	No
3.5	Cost Recovery, Cost Efficiency & Financial Management	5			1	4	1	4	No	Poor	No
4.	COMMUNITY ENGAGEMENT										
4.1	Need for Community Engagement, Water Use Efficiency	1	4	2	3		3	2	Yes	Fair	Yes
4.2	Various Community Engagement Models and Structures	1	4	1	3	1	5		Yes	Fair	Yes
4.3	Information, Education & Communication (IEC)	1	4	1	3	1	4	1	Yes	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
5.	PROJECT MANAGEMENT AND PRIVATE PARTNERSHIPS										
5.1	Project Planning, Monitoring & Control										
5.1.1	Preparation of Detailed Project Report (DPR) including physical and financial methods for a cost estimate, budget, costing, legal compliances, EIA, etc.	5	2	3	2	3	3	2	Yes	Fair	Yes
5.1.2	Tendering and Procurement	5	3	2	2	3	2	3	Yes	Good	No
5.1.3	Contract Management	5	3	2	2	3	2	3	Yes	Good	No
5.1.4	Administrative and Financial Management (Cost Recovery, Cost Efficiency)	1	4	2	2	1	2	3	Yes	Poor	No
5.1.5	Operation, Maintenance and Monitoring	5	2	3	3	3	3	2	Yes	Fair	Yes
5.1.6	Enforcement & Accountability	1	4	2	3	2	2	3	Yes	Fair	No
5.1.7	Project evaluation	1	4	2	3	2	2	3	Yes	Fair	No
5.2	Various Models of PPP	5				4		5	No	Poor	No
5.3	Public Interaction and Complaint Redressal System	1	4	1	1	3	2	3	Yes	Poor	No
5.4	Use of ICT, GIS, RS and Technology in management of assets and resources	2	3			5	2	3	Yes	Poor	No

Table 21: Detail Training Needs of Waste Water Sector

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total						
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required				
1.	LEGISLATIVE AND INSTITUTIONAL FRAMEWORK														
1.1	Legislative framework														
1.1.1	Environment (Protection) Act, 1986	2	2		4			2	2		Yes		Fair	Yes	
1.1.2	Water (Prevention and Control of Pollution) Act, 1974	2	2		4			2	2		Yes		Fair	Yes	
1.1.3	National Environmental Policy, 2006	3	1		4			1	3		No		Fair	No	
1.1.4	National Urban Sanitation Policy, 2008	2	2		4			2	2		Yes		Fair	Yes	
1.1.5	Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013	1	3		3			3	1		Yes		Poor	Yes	
1.1.6	Framework for municipal functions (Municipal act, Service rules, Building bye-laws, Municipal Bye-laws, etc.)	2	2		4			1	3		Yes		Fair	No	
1.1.7	CPCB/SPCB Guidelines	1	3		3			3	1		Yes		Poor	Yes	
1.1.8	NGT Rules	2	3		4			2	2		Yes		Fair	Yes	
1.1.9	State Urban Sanitation Policy and State Urban Sanitation Strategy	3	1		4			1	3		No		Fair	No	

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total			
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required	
1.2	Institutional Framework											
1.2.1	Organization structure, Roles and Responsibilities of Government departments	3	1		4			4		No	Fair	No
1.2.2	Roles and Responsibilities of other relevant stakeholders like SPCBs, NGOs, RWAs	2	2		4		2	2		Yes	Fair	Yes
1.2.3	Inter-Institutional Coordination mechanism, reporting	3	1		3	1	1	3		No	Fair	No
1.2.4	National Rating Scheme for Sanitation (Swachh Survekshan) and Other protocols (ODF, ODF+, ODF++, Water+, etc.)	2	2		4			4		Yes	Fair	No
1.3	Provisions and Elements of Water Management in Missions and Scheme											
1.3.1	Swachh Bharat Mission, 2014	3	1		4		1	3		No	Fair	No
1.3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015	3	1		4		1	3		No	Fair	No
1.3.3	Smart Cities Mission, 2015	3	1		4		1	3		No	Fair	No
1.3.4	14 th and 15 th Finance Commission	3	1		4		1	3		No	Fair	No
1.3.5	NULM and NUHM	1	3		4		3	1		Yes	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total			
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required	
2.	WASTEWATER MANAGEMENT											
2.1	Need for wastewater management		4		3	1	4		Yes	Fair	Yes	
2.2	Wastewater Generation											
2.2.1	Sources of wastewater generation		4	1	3		3	1	Yes	Fair	Yes	
2.2.2	Available options for the conveyance of wastewater (types, features, limitations, selection criteria, etc.)		4	1	3		3	1	Yes	Fair	Yes	
2.2.3	Technical and Engineering aspects of types of conveyance systems (Infrastructure, capacity, Capex/Opex, O&M, etc.)	1	3		3	1	3	1	Yes	Fair	Yes	
2.3	Waste Water Treatment											
2.3.1	Types (Off-site sanitation system, Decentralized Wastewater Treatment (DEWATS), On-site sanitation system, etc.)	1	3		2	2	2	2	Yes	Fair	Yes	
2.3.2	Available Technologies (types, features, treatment efficiency, limitations, selection criteria, etc.)	1	3		2	2	2	2	Yes	Fair	Yes	
2.3.3	Technical and Engineering aspects of available technologies (Infrastructure, capacity, Capex/Opex, O&M, etc.)	1	2		2	2	2	2	Yes	Fair	Yes	

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total					
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required			
2.4	Wastewater Disposal/Reuse													
2.4.1	Awareness of associated health risks due to improper disposal		4		3	1	4					Yes	Fair	Yes
2.4.2	Current practices of Wastewater reuse		4		3	1	4					Yes	Fair	Yes
2.4.3	Grievance Redressal System	2	2		2	2	2					Yes	Fair	Yes
3.	FAECAL SLUDGE AND SEPTAGE MANAGEMENT													
3.1	Faecal Sludge and Septage Management													
3.1.1	Need for FSSM	3	1		2	2	2					No	Fair	Yes
3.1.2	Design and Construction Guidelines for various types of containment systems and desludging frequency	3	1		2	2	2					No	Fair	Yes
3.1.3	Available Technologies for desludging of Septic Tanks (available equipment, advantages and limitations, selection criteria, capacity, efficiency, Capex/Opex etc.)	3	1		2	2	2					No	Fair	Yes
3.1.4	Available options for transporting the faecal sludge and septage (Features, limitations, capacity, selection criteria, Capex/Opex, etc.)	3	1		1	3	2					No	Poor	Yes
3.1.5	Available Treatment Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, Capex/Opex, etc.)	3	1		1	3	2					No	Poor	Yes
3.1.6	Available Options for Disposal/Reuse	3	1		1	3	2					No	Poor	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
3.2	Occupational Hazards and Safety in handling Faecal Sludge										
3.2.1	Awareness of associated risks to health	3	1		2	2	2	2	No	Fair	Yes
3.2.2	Mitigating measures	3	1		2	1	2	2	No	Fair	Yes
3.2.3	(PPE, Training on the use of tools/equipment, Training on standard operating procedures, etc.)	3	1		1	3	2	2	No	Poor	Yes
3.3	Operation, Maintenance & Monitoring of Faecal Sludge Treatment Plants										
3.3.1	Operation procedures (Technical and Engineering)	4			1	3		4	No	Poor	No
3.3.2	(Technical and Engineering)	4			1	3		4	No	Poor	No
3.3.3	Asset Management	4			1	3		4	No	Poor	No
3.3.4	Administrative/Financial Management	4			1	3		4	No	Poor	No
3.3.5	Monitoring and Record-keeping	4			1	3		4	No	Poor	No
3.3.6	Managing volumes & schedules of FS collection	4			1	3		4	No	Poor	No
3.3.7	Utilizing available local resources	4			1	3		4	No	Poor	No
3.3.8	Storage & sale of end products	4			1	3		4	No	Poor	No
3.4	Grievance Redressal System	4			2	2		4	No	Fair	No

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
4.	FINANCIAL MANAGEMENT										
4.1	Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, the borrowing capacity of ULBs etc.)	3	1			4	1	3	No	Poor	No
4.2	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, punitive measures, etc.)	3	1			4	1	3	No	Poor	No
4.3	Resource Mobilization	4				4		4	No	Poor	No
4.4	Various Business Models	4				4		4	No	Poor	No
4.5	Cost Recovery, Cost Efficiency & Financial Management	4				4		4	No	Poor	No
5.	COMMUNITY ENGAGEMENT										
5.1	Need for Community Engagement, Water Use Efficiency		4	2	2		2	2	Yes	Good	Yes
5.2	Various Community Engagement Models and Structures		4	1	3		4		Yes	Fair	Yes
5.3	Information, Education & Communication (IEC)		4	1	2	1	3	1	Yes	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
6.	PROJECT MANAGEMENT AND PRIVATE PARTNERSHIPS										
6.1	Project Planning, Monitoring & Control		4	2	2		2	2	Yes	Good	Yes
6.1.1	Preparation of Detailed Project Report (DPR) including		4	2	2		2	2	Yes	Good	Yes
6.1.2	Tendering and Procurement		4	2	2		2	2	Yes	Good	Yes
6.1.3	Contract Management		4	2	2		2	2	Yes	Good	Yes
6.1.4	Administrative and Financial Management (Cost Recovery, Cost Efficiency)		4	2	2		2	2	Yes	Good	Yes
6.1.5	Operation, Maintenance and Monitoring		4	2	2		2	2	Yes	Good	Yes
6.1.6	Enforcement & Accountability		4	2	2		2	2	Yes	Good	Yes
6.1.7	Project evaluation		4	2	2		2	2	Yes	Good	Yes
6.2	Various Models of PPP	4				3		3	No	Poor	No
6.3	Public Interaction and Complaint Redressal System	1	3	1		3	1	3	Yes	Poor	No
6.4	Use of ICT, GIS, RS and Technology in management of assets and resources	1	3			4	2	2	Yes	Poor	Yes

Table 22: Detail Training Needs of Solid Waste Management Sector

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
1.	LEGISLATIVE AND INSTITUTIONAL FRAMEWORK										
1.1	Legislative framework										
1.1.1	National Urban Sanitation Policy, 2008		4	1	2	1	4		Yes	Fair	Yes
1.1.2	Solid Waste Management rules		4	1	3		4		Yes	Fair	Yes
1.1.3	Plastic Waste Management rules		4	1	3		4		Yes	Fair	Yes
1.1.4	Construction & Demolition Waste Management rules		4	1	3		4		Yes	Fair	Yes
1.1.5	E-Waste Management rules		4	1	3		4		Yes	Fair	Yes
1.1.6	Biomedical waste Management rules (relevant parts)		4	1	2	1	4		Yes	Fair	Yes
1.1.7	Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013	1	3	1	2	1	4		Yes	Fair	Yes
1.1.8	Emergency Response Sanitation unit	1	3	1	1	2	4		Yes	Poor	Yes
1.1.9	National Safai Karmcharis Finance & Development Corporation (NSKFDC)		4	1	2	1	4		Yes	Fair	Yes
1.1.10	National Rating Scheme for Sanitation (Swachh Survekshan, ODF++, Water Plus)		4	3	1		4		Yes	Good	Yes
1.1.11	State SWM Policy and Strategy		4	3	1		4		Yes	Good	Yes
1.1.12	SWM Bye-Laws		4	3	1		4		Yes	Good	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total			
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required	
1.2	Institutional Framework											
1.2.1	Roles and Responsibilities of Government Institutions (State/City/ULB) in solid waste management ex -MOEFCC, MoHUA, SPCB's, CPCB, CPHEEO, NGT etc.		4	2	2		4		Yes	Good	Yes	
1.2.2	Institutional Framework (State level/City Level/ULBs)		4	2	2		4		Yes	Good	Yes	
1.3	Provisions for SWM in Missions And Schemes											
1.3.1	Swachh Bharat Mission, 2014		4	3	1		4		Yes	Good	Yes	
1.3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015		4	1	2	1	4		Yes	Fair	Yes	
1.3.3	Smart Cities Mission, 2015	2	2	1	2	1	3	1	Yes	Fair	Yes	
1.3.4	National Urban Livelihood Mission		4		2	2	4		Yes	Fair	Yes	

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
		SOLID WASTE VALUE CHAIN MANAGEMENT									
2.1	Waste Segregation and Collection		4	2	2	4			Yes	Good	Yes
2.1.1	Types of Waste streams (characteristics, features, etc.)		4	2	2	4			Yes	Good	Yes
2.1.2	Transportation of waste -Technical and Engineering aspects, transfer stations		4	2	2	4			Yes	Good	Yes
2.1.3	Available Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, Capex/Opex, etc.)		4	2	2	4			Yes	Good	Yes
2.1.4	Mainstreaming of waste pickers in waste management (Human resource management)	1	3	2	1	3	1		Yes	Good	Yes
2.1.5	Use of ICT in Collection and Transportation		4	2	2	4			Yes	Good	Yes
2.2	Wet waste management Technology and approaches										
2.2.1	Composting techniques		4	4		4			Yes	Good	Yes
2.2.2	Biomethanation		4	2	2	4			Yes	Good	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
2.3	Dry waste management approaches and technology										
2.3.1	Material recovery facility		4	1	3		4		Yes	Fair	Yes
2.3.2	Types (Advantages & Disadvantages, Treatment efficiency, land requirement, selection criteria, etc.), Technical and Engineering aspects and Capex, Opex and Revenue aspects		4	1	2	1	4		Yes	Fair	Yes
2.3.3	Recycling/ Reuse/Recovery technologies		4	1	3		4		Yes	Fair	Yes
2.4	Selection of Solid waste management technologies										
2.4.1	Available SWM technologies (Types, features, treatment efficiency, selection criteria)		4		4		4		Yes	Fair	Yes
2.4.2	Technical and engineering aspects of available technologies		4		3	1	4		Yes	Fair	Yes
2.4.3	Bulk waste generators (BWG)management	1	3	2	1	1	3	1	Yes	Good	Yes
2.5	Waste disposal – Sanitary landfill										
2.5.1	Planning, Designing and Construction of Secured landfill (Site selection, CAPEX, OPEX)	3	1		2	2	3	1	No	Fair	Yes
2.5.2	Methods of Land Closure and Capping	3	1		2	2	3	1	No	Fair	Yes
2.5.3	Planning and Designing Leachate Treatment Facility	3	1		2	2	3	1	No	Fair	Yes
2.6	Occupational Health and Safety		4	1	2	1	4		Yes	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total			
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required	
3.	FINANCIAL MANAGEMENT											
3.1	Sources to access funds (details of grants or loans at central, state and local level, details of external funding agencies, institutions, the borrowing capacity of ULBs etc.	3	1		1	3	1	3	No	Poor	No	
3.2	Various stakeholders from a financing point of view	4				4		4	No	Poor	No	
3.3	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	4				4		4	No	Poor	No	
3.4	Resource Mobilization	4				4		4	No	Poor	No	
3.5	Various Business Models	4				4		4	No	Poor	No	
3.6	Cost Recovery, Cost Efficiency & Financial Management	4				4		4	No	Poor	No	
4.	COMMUNITY ENGAGEMENT											
4.1	Need for Community Engagement	1	3	3	1		3	1	Yes	Good	Yes	
4.2	Various Community Engagement Models and Structures	1	3	1	2	1	3	1	Yes	Fair	Yes	
4.3	Information, Education & Communication (IEC)	1	3	3	1		3	1	Yes	Good	Yes	

Sr. No.	Parameter	Relevance		Level of understanding			Training Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
5.	PROJECT MANAGEMENT AND PRIVATE PARTNERSHIPS										
5.1	Project Planning, Monitoring & Control										
5.1.1	Preparation of Detailed Project Report (DPR) including physical and financial methods for a cost estimate, budget, costing, legal compliances, EIA, etc.	3	1		1	3	2	2	No	Poor	Yes
5.1.2	Tendering and Procurement	3	1		1	3	2	2	No	Poor	Yes
5.1.3	Contract Management	3	1		1	3	2	2	No	Poor	Yes
5.1.4	Procuring, Installation & commissioning/ setting up SWM projects	3	1		1	3	2	2	No	Poor	Yes
5.1.5	Technical and Engineering Aspects	3	1		1	3	2	2	No	Poor	Yes
5.1.6	Administrative and Financial Management (Cost Recovery, Cost Efficiency)	3	1		1	3	2	2	No	Poor	Yes
5.1.7	Operation, Maintenance and Monitoring	3	1		1	3	2	2	No	Poor	Yes
5.1.8	Enforcement & Accountability	3	1		1	3	2	2	No	Poor	Yes
5.1.9	Project evaluation	3	1		1	3	2	2	No	Poor	Yes
5.2	Human Resource Management										
5.3	Public Interaction and Complaint Redressal System		4	2	1	1	2	2	Yes	Good	Yes
5.4	Use of ICT for management	1	3		2	2	3	1	Yes	Fair	Yes



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