



सत्यमेव जयते

Ministry of Housing and Urban Affairs  
Government of India

# SUSTAINABLE CITIES INTEGRATED APPROACH PILOT IN INDIA

Training and Assistance Need Analysis Report

2020-21







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Government of India

# SUSTAINABLE CITIES INTEGRATED APPROACH PILOT IN INDIA

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## 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 Mysuru

### Component 3:

Partnerships, Knowledge Management  
and Capacity Building

2020-21

**MYSURU**



## TITLE

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

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

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Paramita Datta Dey  
Team Lead



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## List of Abbreviations

AE	Assistant Engineer
AMOH	Additional Medical Officer of Health
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
GoK	Government of Karnataka
IUWM	Integrated Urban Water Management
IEC	Information, Education and Communication
ICT	Information and Communications Technology
JE	Junior Engineer
KUWS&DB	Karnataka Urban Water Supply and Drainage Board
MCC	Mysuru City Corporation
MUDA	Mysuru Urban Development Authority
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
UFW	Unaccounted For Water
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.

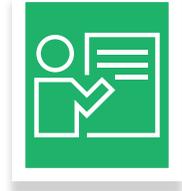
The United Nations Industrial Development Organization (UNIDO) implements the SC-IAP programme in India along with the Ministry of Housing and Urban Affairs (MoHUA). The core objective is to build resilience in five pilot cities – Jaipur, Bhopal, Mysuru, Vijayawada and Guntur – by integrating sustainability 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.

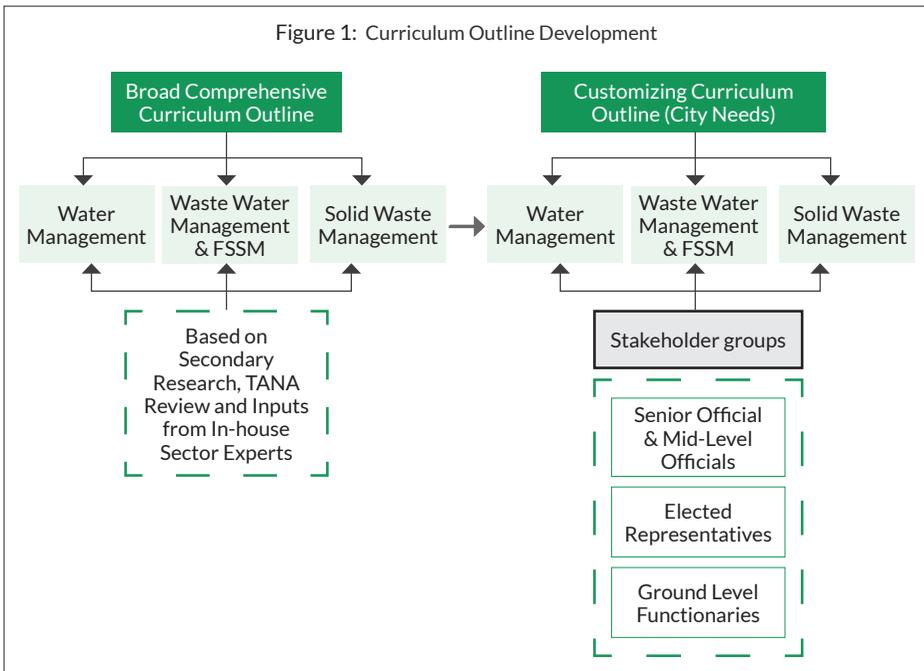


Figure 2: Broad Curriculum Outline

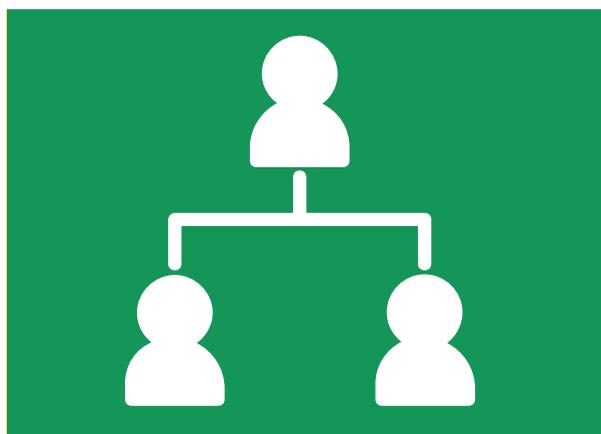
Chapter 1	Overview	Chapter 5	Project Management
Chapter 2	Legislations, Policies and Programmes	Chapter 6	Financial Management
Chapter 3	Technical Concepts, Available Approaches and Technologies	Chapter 7	Stakeholder Engagement
Chapter 4	Operation, Maintenance & Monitoring	Chapter 8	Good Practices
Chapter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



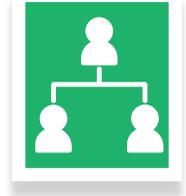
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SHWETA VARAHASWAMY TEMPLE

# 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.

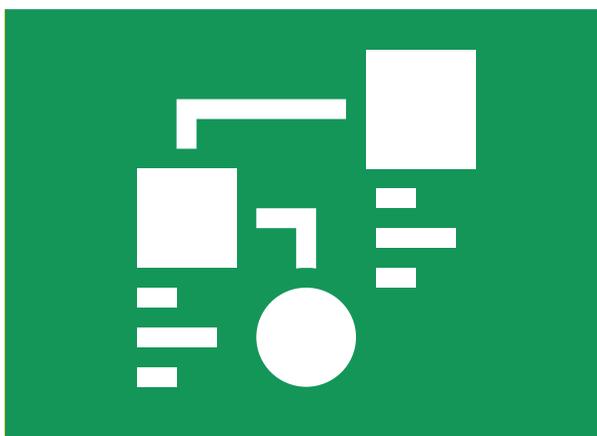
## 2.4 Structure of the Training and Assistance Need Analysis Report

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 Mysuru.

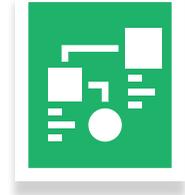


# 3

## 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

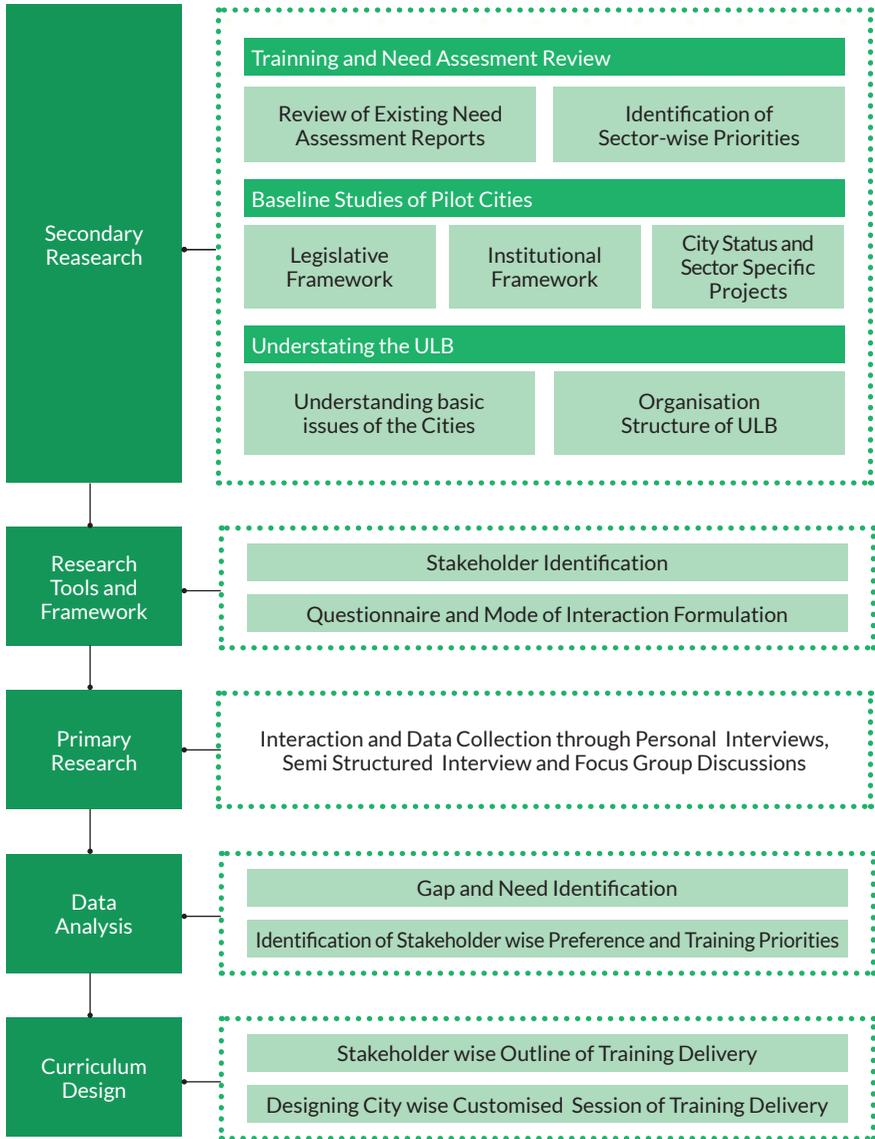
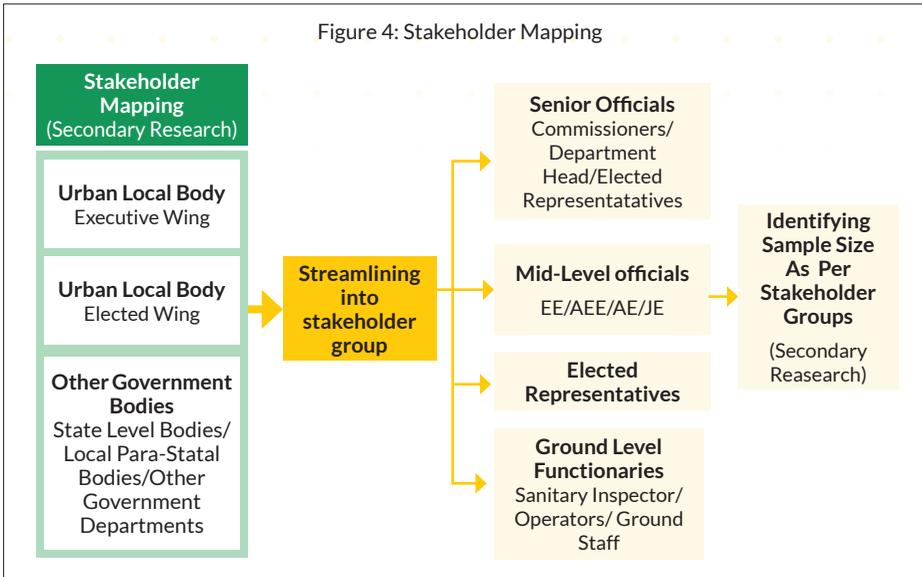


Figure 4: Stakeholder Mapping



### 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:

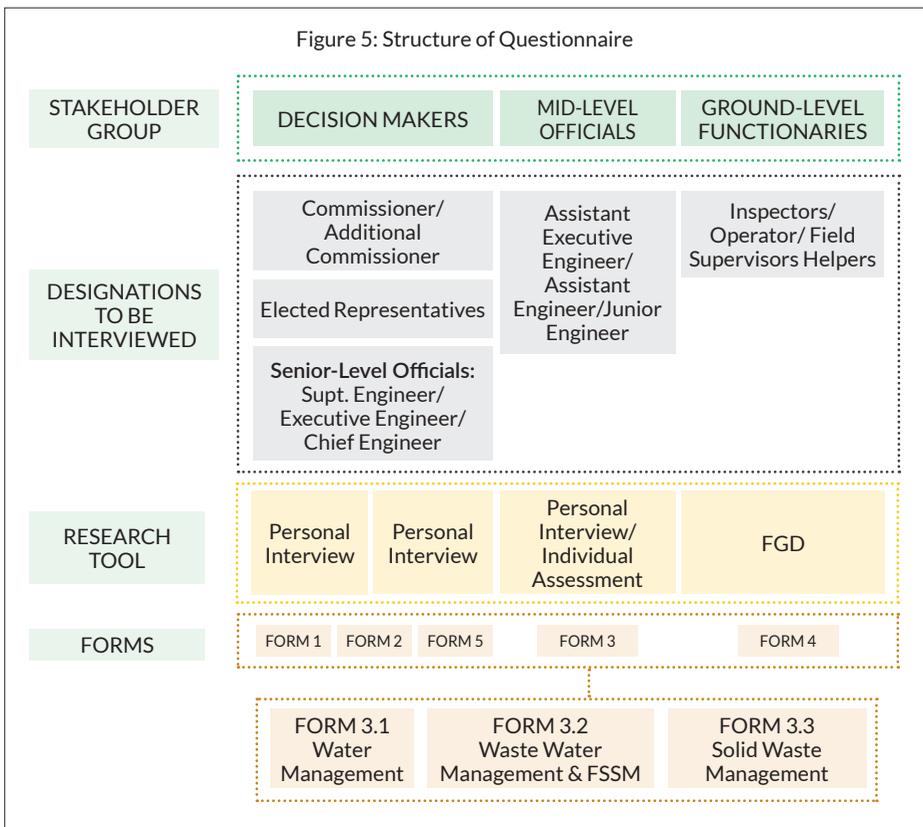
1. Semi Structured Interviews (SSI) - These were used to interact with the senior officials to understand their needs and expectations of the project. It was done with the help of a few open-ended questions considering the limited time they have.
2. Personal Interviews and Individual Assessment- Personal 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.

Figure 6: Structure of Form 1

FORM 1	
Q No	Expected Outcome
Q1	Assessing priorities of the city for sustainable development in three identified sectors of water, waste water and solid waste management and also gauging the focus areas in the concerned sectors
Q2	Assessing the capacity building needs of the senior, mid and ground level functionaries
Q3	Assessing the capacity building needs for effective coordination with Elected Representatives
Q4-Q5	Understanding city preparedness strategies during emergencies and assessing the capacity building needs for building resilience towards disasters and emergencies

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, helped to 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.

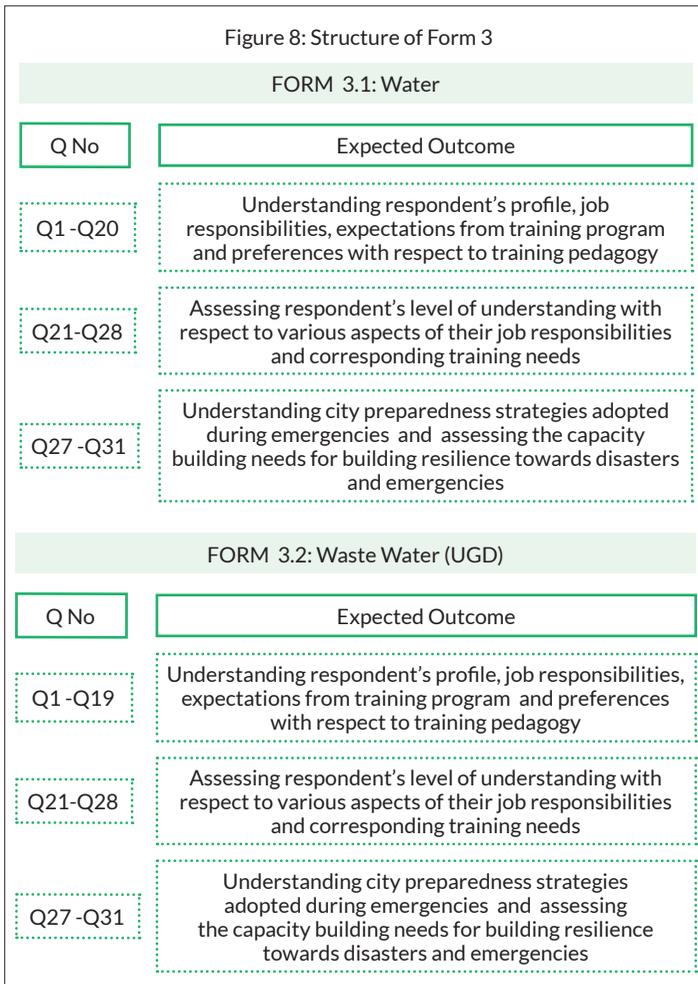
Figure 7: Structure of Form 2

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 officials 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

## MYSURU – NEED ASSESSMENT AND FINDINGS



## 4. Mysuru – Need Assessment and Findings



### 4.1 City Profile

Mysuru is the third-largest city of Karnataka and second most populated city in the state. It is situated at the foothills of Chamundi Hills, to the Southwest of the capital city of Bengaluru. It has a tropical monsoon climate and an altitude of 770 metres above sea level. Mysuru is a tourist city with many major attractions like the Ambavilas Palace (also known as Mysore Palace), Brindavan Gardens, Chamundeswari Temple, etc. The city is particularly famous for its Dushehra Festival celebrations. It had been the capital of the Kingdom of Mysore for about six centuries, ruled by the Wadiyars. It is dubbed the cultural capital of Karnataka.

The city is spread across an area of 128.42 sq. km, under the Mysuru City Corporation (MCC) Limits. According to the Census of India 2011, MCC has a total of 215,061 households and a population of 920,550. The city is divided into 9 zones and 65 wards. There are 73 slums in the city, of which 63 are notified housing 54,038 residents, and 10 are not notified housing 49,352 residents (MCC, 2020).

### 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 Mysuru with respect to Water, Waste Water and Solid Waste Management. All the data has been gathered from the officials of the MCC in coordination with UNIDO representatives.

#### 4.2.1 Water

The city of Mysuru has a daily demand for water of approximately 272 MLD split among domestic, industrial, commercial and other needs, out of which, the MCC supplies about 271 MLD per day. Water is supplied for 3 hours daily for the domestic and commercial needs and about 8 hours daily to meet the industrial needs. There is

a reported 100 per cent coverage of city water supply connections. The water is withdrawn from Kaveri and Kabini rivers. The city at present has 4 pumping stations and 4 Water Treatment Plants. Currently, there are two projects underway with regard to the water sector in the city - the AMRUT scheme concerning water supply of 350 MLD which is in the construction phase, and the scheme to provide 24x7 water supply, which is partially functional. In addition, the 'Unduwadi Project' that aims to provide drinking water to the city and over 90 villages around the city is also under the planning stage.

#### **4.2.2 Waste Water**

The city generates about 200 MLD of wastewater daily. The complete city is networked with separate drains for the conveyance of the wastewater. Most of the wastewater gets treated at the three Sewage Treatment Plants (STPs) functional in the city at present. The Plants are located at Vidyaranyapuram (installed capacity 67.65 MLD), Kesare (installed capacity 30 MLD) and Rayanakere (installed capacity 60 MLD). All the plants co-process the septage and faecal sludge and there is no need for Faecal Sludge Treatment Plants (FSTP) in the city. Proposals for a few more STPs to meet the city needs are under the process of approval.

#### **4.2.3 Solid Waste**

The city generates about 442 metric tonnes of waste per day of which 199 metric tonnes is dry waste and 243 metric tonnes is wet waste. The door to door collection system covers 100% of the city. There is a reported 80% of source segregation of the waste. Of the total segregated waste collected, about 235 metric tonnes is treated every day and about 90 metric tonne of waste is disposed every day. At present the city has one operational sanitary landfill site and one dumping site, both located at J.P. Nagar. The waste from the slaughter house is currently sent for deep burial at the site at Kesare.

For effective handling and management of the Municipal Solid Waste, MCC proposes 'zero waste management scheme'. The main objectives of Zero Waste management scheme are decentralized collection and management of wastes along with resource recovery and provision of employment opportunities. Under this scheme, segregated waste from all places (organic and inorganic) are

brought to 'Zero Waste Management Centre' by the Self Help Group Members. At the Zero Waste Management Centre, the inorganic waste is packed separately after segregation and sold locally, while the organic wastes are sent for composting.

At present out of the 9 zones, the 'Zero Waste Management Centre' is set up in zone 1,2, 5, 6,7,8,9. Each centre handles about 5-10 tonnes of waste per day. There is a centralized compost plant at Vidyanayapuram, where the wet waste is treated.

### 4.3 Legislative Framework

The urban areas in Karnataka are dictated by several legislations enacted by the Government of Karnataka (GoK). The rights and duties of overall planning for the state are invested by the Karnataka Town and Country Planning Act, 1961.

The Karnataka Urban Development Authority Act, 1987 enforced the constitution of Urban Development Authorities in 28 urban areas, notified through various orders. The Karnataka Urban Development Authority Act, 1987 is an "Act to provide for the establishment of Urban Development Authorities for the planned development of major and important urban areas in the State and the areas adjacent thereto and for matters connected therewith" (GoK, 1987).

The governance of large urban areas has been brought into effect with the Karnataka Municipal Corporation Act, 1976 (UDD, GoK, 2016). 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. Mysuru City Corporation received the status of City Corporation from 10 June, 1977.

The Karnataka Urban Water Supply and Drainage Board Act, 1973 brought into effect the establishment of Karnataka Urban Water Supply and Drainage Board (KUWS&DB), an authority which is responsible for the planning and implementation of projects in the water and wastewater sector.

Apart from these acts, the government has notified the Urban Development Policy 2009 to formulate a strategy for urban development. The GoK also notified the Karnataka State Water Policy in 2002 as an impact of the National Water Policy 2002. The government is also working on a new Draft State Water Policy. Additionally, the state government has also notified the Urban Drinking Water and Sanitation Policy 2002 with a particular focus on Urban Water. The GoK has notified the Karnataka State Wastewater Reuse Policy 2017 and has gazetted the Draft Karnataka Municipal Corporation Model Solid Waste Management Bye-Laws 2018, which is yet to be notified.

#### **4.4 Institutional Framework**

The Karnataka Town and Country Planning Act, 1961 established the Directorate of Town and Country Planning in the state under the Ministry of Urban Development, GoK. The directorate is headed by the Director, reporting to the Principal Secretary to the government. The state has been divided further into divisions, and the Divisional Office of Mysuru, which is headed by the Joint Director of the Town and Country Planning, looks after the regional level planning of the area.

The Mysuru Urban Development Authority (MUDA) was notified by the GoK in 1987, after the notification of Karnataka Urban Development Authority Act, 1987. The MUDA looks after the planning of the city and its surrounding settlements.

The Karnataka Urban Water Supply and Drainage Board (KUWS&DB) that was established after the enactment of the Karnataka Urban Water Supply and Drainage Board Act, 1973 performs at the state level, zonal and divisional level to provide for the planning and implementation of projects in the Water Supply and Drainage sector in the urban areas of Karnataka. The KUWS&DB is headed by the Chairman, assisted by the Managing Director of the Board. A Board of Directors is the governing and decision-making body, having members from various zones and cities. The Chief Engineer of various zones viz., Bengaluru, Dharwad, Kalburgi, and Mysuru, report to the Managing Director of the agency. The Mysuru Zone is further divided into five divisions, each headed by an Executive Engineer (EE). The EE of Mysuru Division looks after

the works of the three Sub-divisions of Chamrajanagar, Mysuru and Madikeri, each headed by an Assistant Executive Engineer (AEE). The City of Mysuru is under the Mysuru Sub Division of the Mysuru Division of the Mysuru Zone of the KUWS&DB.

The Mysuru City Corporation (MCC), the ULB functional in Mysuru, 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 Karnataka Municipal Corporation Act, 1976.

To understand the functional responsibilities with respect to planning, funding, implementation, O&M and monitoring of the services of the three sectors in Mysuru 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 MCC 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 MCC was assessed in detail.

The MCC has a total of 9 Zones comprising a cumulative of 65 wards. The MCC has an executive body and an elected body. The executive body is headed by the Commissioner of the City Corporation, assisted by the Additional Commissioner. Figure 11 and Figure 12 show the detail organisational structure of the MCC.

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

Agency name	Jurisdiction	Water Management and Drainage				Solid Waste Management			
MCC	City Level	●	●	●	●	●	●	●	●
KUWS&DB	State Agency	●			●				

Key

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

Figure 11: Part Organogram of MCC

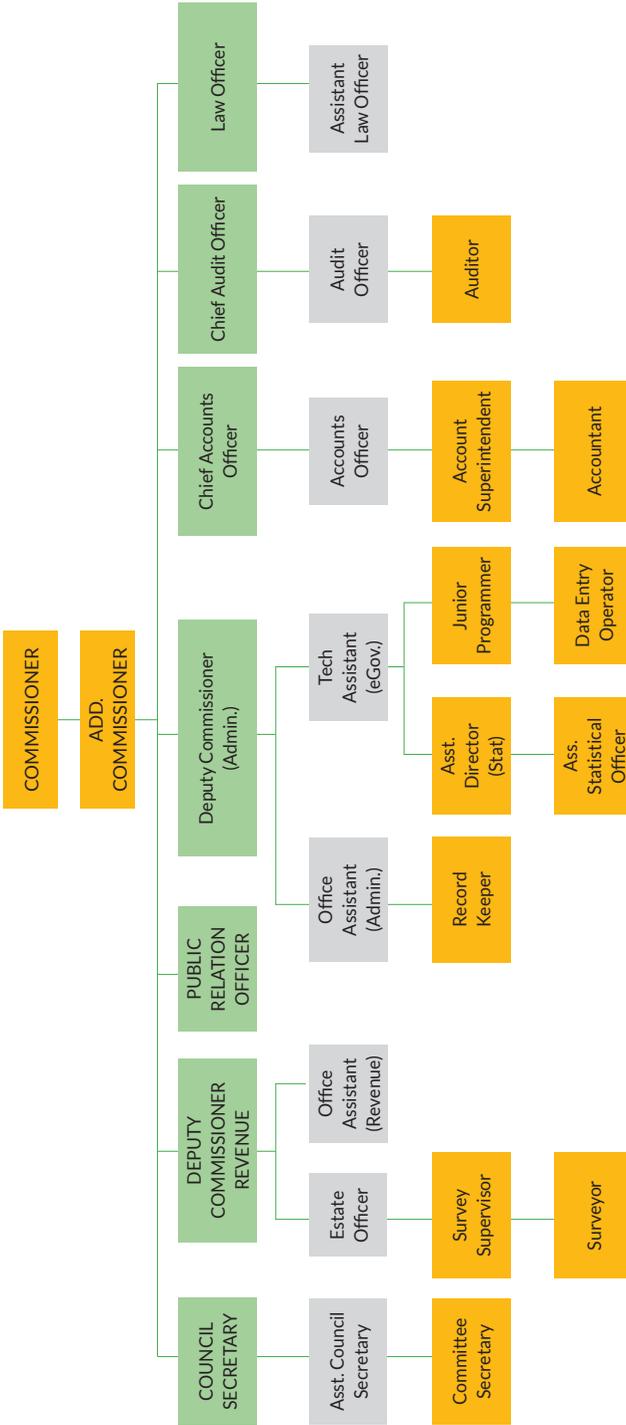
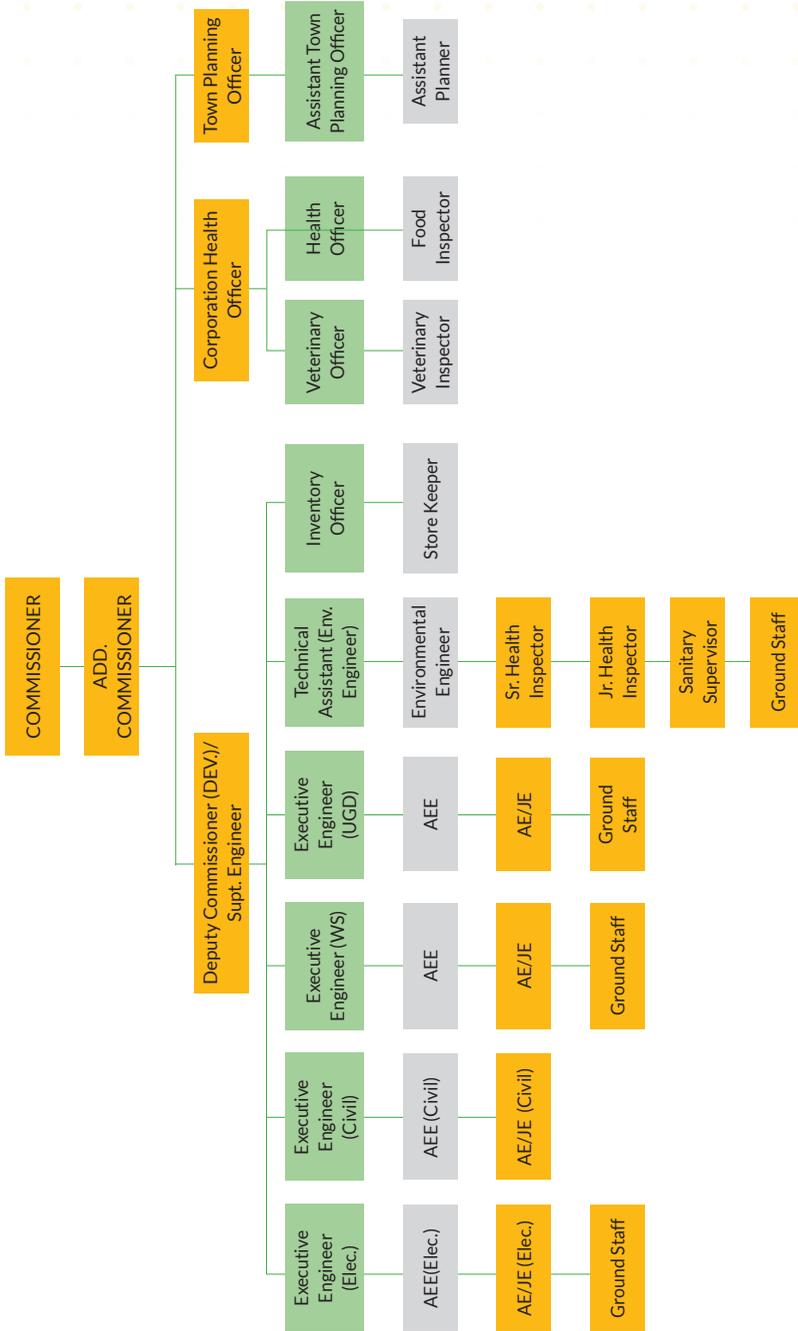
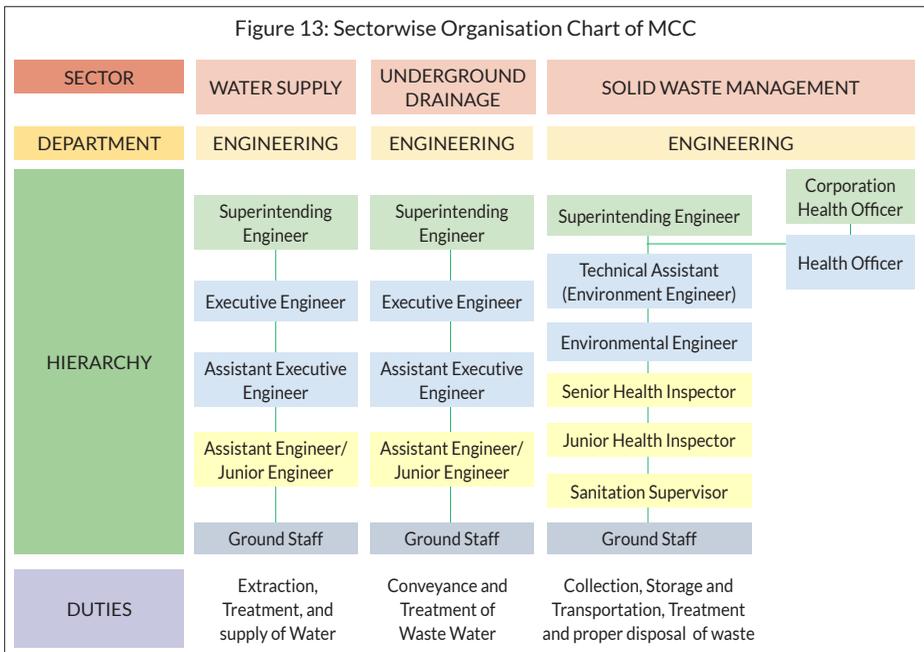


Figure 12: Part Organogram of MCC



The Water Supply and Underground Drainage (UGD) is looked after by the EE of the Water Supply and Underground Drainage Section of the Development Department. The EE of the Water Supply and Underground Drainage reports to the Deputy Commissioner or the Superintendent Engineer heading the Development Department. The work is further divided into separate offices of Assistant Engineer (AE) /Junior Engineer (JE) for Water Supply and Underground Drainage each. The AE/JE of Water Supply and Underground Drainage coordinate with the ground staff like, Water Supply Helper, Plumbers, Senior UGD Helpers, UGD Helpers, etc. in the two sectors to provide and maintain the two services.

The Solid Waste Management of the city is handled by the Public Health Section under the Development Department. Corporation Health Officer (CHO) heads the Public Health section and reports to the Superintending Engineer. The Environmental Engineers reports to the CHO and manage the sanitation of the city with the help of Senior Health Inspectors and Junior Health Inspectors. The Junior Health Inspectors are assisted by the ground staff comprising Sanitary Supervisors, Loaders, Cleaners, etc. Figure 13 shows the responsibility sharing in MCC sector-wise.



Source: Author

## 4.5 Stakeholder Mapping

Based on the organogram of the Mysuru City Corporation, stakeholders were identified for providing training and technical assistance in the field of Water, Waste Water Management, and Solid Waste Management. The concerned department is the Development Department and the Public Health Section in the Development Department. The executive staff of MCC have been divided into 3 stakeholder groups, viz. Decision makers, Mid-level officials, and Ground- level functionaries.

The Decision Makers involve the Commissioner of MCC, and the heads of the department responsible for the Water, Wastewater and Solid Waste Management sectors. The Mid-level Officials comprise of the AE, AEE, JE, Environmental Engineers, SI, etc. The Ground- level officials include all the field staff and members of MCC working as plumbers, UGD Operators, Public Health workers, Health Inspectors, Supervisors, etc.

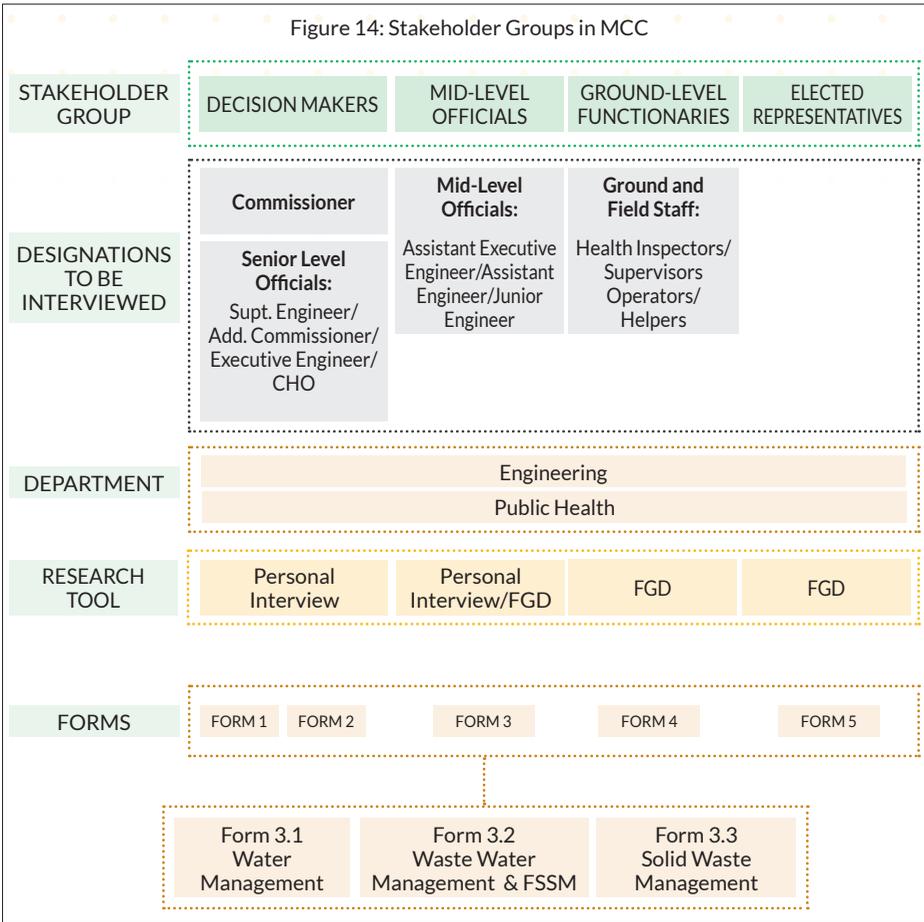
According to the stakeholder groups, various questionnaires were prepared in consultation with sector experts and UNIDO and UN-HABITAT city representatives.

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. The Table 2 shows the total number of interviews conducted from each stakeholder group.

Table 2: Responses for MCC

Form Number	Stakeholder Groups	Mode of Interaction	Number of Interviews Conducted
Form 1	Decision Makers	Personal Interview	4
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	8

Figure 14: Stakeholder Groups in MCC



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 annexures.

### 4.6.1 Training Needs- KUWS&DB

Since KUWS&DB is responsible for planning and execution of certain flagship and large scale project in the water sector in Mysuru, a need was felt to understand the perspective of the personnel from the agency with respect to the training needs. Mr. Asif Khaleel, from the KUWS&DB was interviewed to understand the issues and challenges

faced by the Board, concerning the planning and to gauge the needs for capacity building. Mr. Khaleel discussed the current status of water supply in the city and shared his concerns with respect to implementation of various projects currently handled by the Board.

During the interview, Mr. Khaleel shared that the most important challenge while implementing the large scale projects is of financial management. He expressed that while the project timelines are fixed during the project planning process, there is no consideration for any contingencies in the proposal. Due to this, sometimes issues like cost over-run owing to project extension due to unforeseen reasons, managing funds is very difficult. He further suggested that, during the planning process a financial audit for the proposed project should be conducted to assess the financial viability and sustainability of the projects with respect to suggested time frames. Mr. Khaleel further expressed the need for support and cooperation from the community and MCC. He suggested conducting community awareness drives focusing on issues addressing NRW, illegal connections, etc. to help authorities serve better.

#### **4.6.2 Training Needs- Decision Makers in Executive body of ULB**

The executive body of the MCC (Mysuru City Corporation) is headed by the Commissioner. The Commissioner is assisted by Additional Commissioner, Superintending Engineer and Deputy Commissioners to supervise and coordinate the various functions of the Corporation.

The Development Department of the MCC is responsible for the implementation of various schemes concerning water, waste-water and solid waste management sector. The head of the Water supply and the UGD department i.e. the Executive Engineers and the Corporation Health Officer heading the Solid waste sector report to the Superintending Engineer and the Additional Commissioner. The Additional Commissioner and the Superintending Engineer, report to the Commissioner. The stakeholder group of Decision Makers included the Commissioner of MCC, the Additional Commissioner, Superintending Engineer, the Executive Engineers and the Corporation Health Officer. The findings of the interviews are discussed below.

#### 4.6.2.1 Commissioner

For understanding the current status and future development plans of Mysuru city in the sectors of water, waste water and solid waste management, an interview was held with the present Commissioner of the Mysuru City Corporation, Mr. Gurudatta Hegde.

The interview broadly aimed at understanding the perspective of the Commissioner with respect to the training needs of the corporation officials working in the sectors of water, waste water and solid waste management. The interview also focused on understanding the various disaster preparedness strategies adopted by the city during the COVID 19.

The following are the findings of the training and needs assessment of the interview with Commissioner of the Mysuru City Corporation:

#### Priorities of City

As per the Commissioner of MCC, the top most priority of the city is water management followed by solid waste and waste water management. Mr. Hegde shared that ensuring 24x7 water supply is one of the key focus areas in the water sector and that the work towards the same is under progress.

During the interview Mr. Hegde discussed the key focus areas across the solid waste management sector at both micro and macro level. He shared the future plan of MCC to adopt more decentralized approaches towards waste management keeping in view the growing population and limited availability of land. Mr. Hegde further discussed the various proposed projects across the solid waste management sector to help the city serve better. He also emphasised on the importance of source segregation, reduction of waste at source and resource recovery through reuse and recycling. In addition, the Commissioner also highlighted the requirement for a separate dry waste and C&D waste management centre in the city and the need to improve the waste transportation system. Mr. Hegde further discussed the importance of manpower management and the need for capacity building.

Under the waste water sector, the Commissioner highlighted the gap with respect to the demand for treated waste water by

Figure 15: Ms. Paramita Datta Dey, Project Lead, NIUA in conversation with the Commissioner of Mysuru City Corporation, Mr. Gurudatta Hegde



industries due to the easy availability of fresh water in the city. It was assessed through the discussion that a training that could help the officials develop strategies to increase the demand for treated waste water and also generate revenue, would be highly beneficial. Also, a module that provides exposure on the usage of treated waste water across various sectors was suggested by the Commissioner. Mr. Hegde was also interested in a training that provides a hands-on exposure on concepts of IUWM for efficient water and waste water management.

### **Training Needs for the Officials and the Ground-level Staff**

The MCC Commissioner during the discussion suggested that for the frontline staff, training focusing on the skill and knowledge enhancement with respect to the O&M related aspects would be helpful. For the Senior and Mid- level officials, training focusing on exposure to new available technologies and aspects of Project management and Monitoring was suggested by the Commissioner.

### **Mode of Trainings**

The MCC Commissioner advised that the preferred mode of training for the officials and staff should be a mix of both online and onsite trainings.

Considering the current situations due to COVID 19, he suggested online trainings packaged as 1-2 hour session daily, for a week, or as much required. However, he also recommended site visits and exposure visits once the COVID-19 pandemic has been taken under control, or is over.

For the frontline staff, Mr. Hegde specifically recommended a training that could provide them exposure on best practices adopted across other cities which are also context specific and relatable. He further suggested for the module to include videos and case studies. He recommended the trainings to be delivered preferably post January 2021 considering the current pandemic situation in the city.

Table 3: Summary of Training Needs findings based on the interview with the Commissioner, MCC

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Senior Officials	-	New Innovative decentralised waste management approaches and Technologies	Online and On-site	English/ Regional Language
	Mid-Level Officials	Technical & Management skills	Exposure on new Innovative decentralised waste management approaches and Technologies focusing on source segregation, reuse and recycling, etc.	Online and on-site	English/ Regional Language
	Ground Staff	Operation and Maintenance; SOPs during emergencies and disasters	Operation and Maintenance; Disaster Preparedness; Occupation Health & Safety Measures; New innovative decentralized approaches for waste management.	Online and On-site	Regional Language

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Water Management	Senior & Mid-level Officials	Sustainable Resource Management; Supply Side Augmentation	Technologies and approaches focusing on 24x7 water supply; Sustainable Resource Management; IUWM	Online/ On-site Training	English/ Regional Language
Wastewater Management	Senior & Mid-level Officials	Sustainable Project Management; Resource Mobilization	Training on building financially sustainable strategies for efficient project management; Approaches focusing on Treatment & Reuse	On-site Training	Regional

The Table 3 above provides an overview of the training needs assessed across various departments in the MCC dealing with water, waste water and solid waste management sectors as per the discussion held with the Commissioner.

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 MCC Commissioner shared the learnings of the Mysuru city. Mr. Hegde during the discussion highlighted the importance of efficient management of available human resource during adverse times. He shared the need for building the capacities of the frontline staff as per their strengths and weaknesses. He further suggested building a workforce that could lead the city from the forefront during time of emergencies and disasters. Mr. Hegde also highlighted the importance of inter-government and inter-departmental coordination for quick response during disasters or emergencies. The Commissioner discussed the importance of engaging with civil society organizations and NGOs working at the grass root level. He further explained how these stakeholders played an instrumental role during the crisis for effective outreach and dissemination of essential services and supplies.

Mr. Hegde stressed on the importance of financial management during times of emergencies and disasters. He shared that it is very important for urban local bodies to understand strategies to mobilize resources and generate revenue during such adverse times. He further added that the officials should explore new ways to earn revenues and minimize losses during times of crisis.

Mr. Hegde focused on the importance of engaging with the Elected representatives. He explained the need to sensitize elected representatives towards the strategies and vision of the city. He suggested that the capacity building programme for the Elected representatives should be designed such that it helps them to understand their role and suggest ways in which they can contribute by working along with the city administration.

#### **4.6.2.2 Additional Commissioner**

For understanding the current status and future development plans of Mysuru city in the sectors of water, waste water and solid waste management, an interview was held with the Additional Commissioner of the Mysuru City Corporation Mr. Shashi Kumar Vishak.

The interview broadly aimed at understanding the perspective of the Additional Commissioner with respect to the training needs of the corporation officials working in the sectors of water, waste water and solid waste management. The Additional 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 also during natural disasters like floods.

The following are the findings of the training and needs assessment of the interview with Additional Commissioner of the Mysuru City Corporation:

#### **Priorities of City**

As per the Additional Commissioner of the MCC, the top most priority of the city is that of solid waste management, followed by water management and waste water management. Mr. Shashi

shared that at present, proper management and disposal of the legacy waste is the top priority in the solid waste management sector for which the proposal is already been sent to the government for approval. He also discussed that concerning the water sector, source augmentation is very important to ensure water supply to all the areas of the city. Regarding the waste water sector, Mr. Shashi shared that besides the three STP plants functional in the city, proposals are sent to the state government to establish a few more to meet the city needs.

### **Training Needs for the Officials and Staff**

The Additional Commissioner during the interview recommended a training for the Environmental Engineers, Health Inspectors and Pourakarmikas (ground level workers) on various aspects across the solid waste management value chain for e.g. segregation and collection of waste, transportation and storage of waste, treatment and proper disposal of waste. He further suggested training on wet waste management at source covering examples of available low-cost decentralized options in solid waste management. Mr. Shashi also expressed the need for awareness building amongst public through IEC activities for ensuring segregation at source.

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 Additional Commissioner expressed the need to train and build the capacities of the frontline sanitation staff which have been instrumental in managing and responding to the city needs during difficult times. In this regard, he 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 Trainings**

The Additional Commissioner advised that the preferred mode of training for the officials and staff should be a mix of both online and onsite trainings. He also recommended that the trainings delivered in the regional language, would be more preferable, especially for the ground staff.

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

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Mid-Level Officials	Technical & Management skills	Training on new innovative cost effective approaches and Technologies across SWM Value chain	Online and On-site	English/ Regional Language
	Ground Staff	Operation and Maintenance; Disaster and Emergency Preparedness	Disaster Preparedness, (Occupation Health & Safety Measures, Handling waste in Containment zones, etc.); Available low-cost approaches for handling wet waste at source.	Online and On-site	Regional Language
Water Management	Mid-level Officials	Planning & Monitoring (Supply Side Augmentation); New available technologies for efficient O&M	Training on building awareness & knowledge on new available technologies for efficient O&M; Supply Side Augmentation	Online	Regional Language/ English

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

#### 4.6.2.3 Department Heads

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

## Water Supply

In MCC, the Development 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 waste water sector on day to day basis.

A personal interview was conducted with Mr. Nagaraju Murthy, the Executive Engineer of the Water Supply Sector 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. Murthy discussed the current status of water supply in the city and the key focus area. He also 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 Executive Engineer of the Mysuru City Corporation:

### Training Needs for the Senior-level Officials

Considering the prime job responsibilities of the senior level officials handling water supply department such as project designing and management comprising water supply designs, Tender Approval & Management, carrying out improvements to an existing structure or to take up new constructions, a basic session on Technical and Engineering aspects was suggested by Mr. Murthy.

Mr. Murthy highlighted the importance and need of supply side augmentation in the city and suggested a training on the same. He was interested in understanding the concepts of IUWM and how it can be implemented in the city.

Mr. Murthy further recommended a training session that could provide exposure to latest available technologies and approaches (case based examples) for better supply side management.

During the interview Mr. Murthy also discussed the various ongoing projects in the department and also expressed interest in trainings that could assist in resolving issues pertaining to last mile connectivity of services, water supply lines, etc., micro level planning and handling of projects for better O&M services.

### Training Needs for the Mid-level Officials

For the Mid level officials, i.e. for the staff at the Assistant Executive Engineer Level, Assistant Engineer Level and Junior Engineer Level, Mr. Murthy recommended trainings covering aspects of Operation & Maintenance, execution of works, quality & treatment and applied engineering. He also emphasized on the need of training for ‘Supply Side Augmentation’.

### Training Needs for the Ground-level Functionaries

For the Junior level staff in the water supply cell, a comprehensive module that builds the capacity of the staff for the day-to-day O&M works was one of the prime training need suggested by Mr. Murthy. He also suggested the trainings to provide basic understanding of the water supply systems and their monitoring for better service delivery.

Table 5: Summary of Training Needs findings based on the interview with the Executive Engineer (Water Supply), MCC

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Water Management	Executive Engineer	Planning & Monitoring (new available technologies); Supply Side Augmentation	Build awareness on latest available technologies and approaches; Enhance technical skill & knowledge; Understand concepts of IUWM; Supply Side Augmentation	Online	English
	Mid-level Officials	Technical & Engineering Knowledge; O&M	Distribution Systems and supply side Augmentation; Operation & Maintenance, execution of works, and applied engineering; Quality & Treatment	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	Regional Language

The Table 5 above provides an overview of the training needs assessed across the Development department in the MCC dealing with water supply sector as per the discussion held with the Executive Engineer.

#### **4.6.2.4 Solid Waste Management**

In MCC, the Public Health Department is responsible for managing and monitoring of the SWM in the city, which is headed by the Corporation Health Officer. He is further assisted by the Health Officer and Environmental Engineers to manage and monitor the work related to the waste management activities on day-to-day basis.

A personal interview was conducted with Dr. Jayant, the Corporation Health Officer to understand his training needs and assess the training needs of his officials and staff members to help build their capacities for better and efficient work performance. During the interview, he 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 Chief Health Officer, with the Mysuru City Corporation:

#### **Training Needs for the Senior-level Officials**

For the senior level officials, Dr. Jayant explained their job responsibilities with respect to management of the waste. He suggested that as the senior officials are involved in project designing and management, an advance training on new available innovative technologies across solid waste management value chain accompanied with case base examples of current best practices adopted across various cities would be beneficial.

#### **Training Needs for the Mid-level Officials**

For the Mid-level officials, i.e. for the Environment Engineers and Health Inspectors, Dr. Jayant recommended that a trainings covering aspects of operation & maintenance across the solid waste management value chain would be beneficial. In addition, he added that they should also be provided exposure on new available innovative technologies across the solid waste management value chain and various aspects of management like monitoring the collection & transportation of waste, vehicle tracking, etc.

## Training Needs for the Ground-level Functionaries

For the junior level staff i.e. the Health Inspectors, Sanitary Supervisors and Pourakarmikas, Dr. Jayant recommended that training on community engagement along with skill and knowledge enhancement on new innovative decentralized approaches for waste management at source for e.g. Home composting, would 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 Corporation Health Officer discussed the various approaches taken by the city to manage waste efficiently. However, he expressed the need for better arrangement of Personal Protective Equipment (PPE) supplies for the frontline staff to be better prepared in future. He emphasized that the training should focus on disaster preparedness strategies and operational health guidelines during pandemics for the frontline staff.

Figure 16: Screenshot of Interview held with the Corporation Health Officer of MCC, Dr. Jayanth

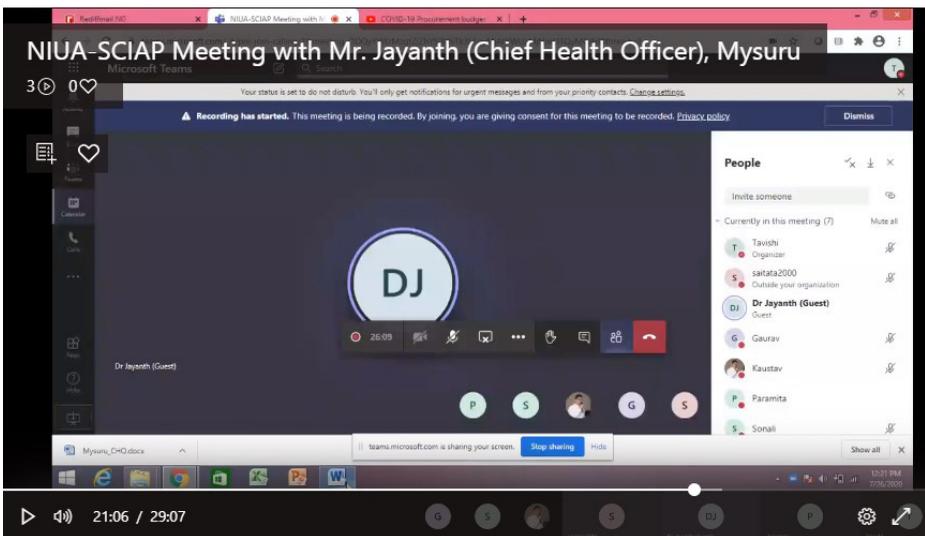


Table 6: Summary of Training Needs findings based on the interview with the Chief Health Officer, MCC

SECTOR	STAKEHOLDER	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Senior Level Officials	Advanced Technology & Approaches	Build awareness on latest available technologies and approaches;	Online (Case Study Based)	English/ Regional Language
	Mid-Level Officials	Operation and Maintenance, Awareness on Advance Technology across SWM value chain	Training on Operation & Maintenance; Build awareness on latest available technologies and approaches across SWM value chain; Understand SWM systems and their monitoring	Online (Case Study Based) and On-site	English/ Regional Language
	Ground-Level Functionaries	Execution, Skills and knowledge; Disaster Preparedness	Training on Community engagement and to enhance skills on new innovative decentralized approaches for waste management at source	On-site Training / off-site	Regional Language

The Table 6 above provides an overview of the training needs assessed across the Public Health Section under the Development Department in the MCC dealing with Solid Waste Management sectors. This is as per the discussion held with the Corporation Health Officer.

#### 4.6.3 Training Needs- Mid-Level officials

The Senior officials and the heads of the departments depute work to the Mid-level Officials. The Mid-level Officials comprising AEE, AE, JE, Environmental Engineers and Senior Health Inspectors were interviewed individually. 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 with respect to the training delivery. The third part of the questionnaire assessed the Mid-level Officials on various sector specific parameters. The findings of the survey have been mentioned sector wise in the following sub-sections.

#### 4.6.3.1. Water Supply

The mid level staff members of the ‘Development department’ dealing with the water supply cell were assessed on their knowledge with respect to the following aspects related to water supply - legislative and institutional aspects, technical and engineering aspects, financial management, community engagement and project management. Further, it was correlated with their job responsibilities. Based on this assessment, the gaps in their skill sets and the consequent training priorities were identified. A brief description of the respondents’ profile is discussed below.

#### Age wise Classification

All the officials interviewed, from the water supply cell were among the age-group of under 30 years. The Water supply cell in the development department of MCC has a lot of new recruited employees as also informed by the Executive Engineer Mr. Murthy. Figure 17 shows the age wise composition of the officials interviewed at MCC.

#### Educational Background

Among the officials interviewed, it was witnessed that the officials across the JE level were diploma holders while the officials at AE level held bachelors or masters degree. Figure 18 shows the Educational

Figure 17: Age group composition of the Mid-level Officials of MCC

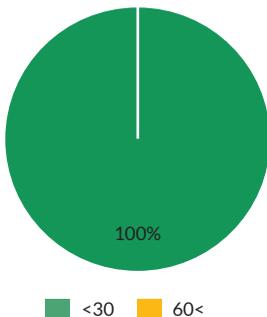
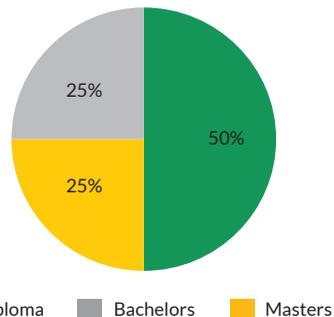


Figure 18: Educational Background of the Mid-level Officials of MCC



Background of the mid-level officials interviewed at MCC in Water Supply Sector.

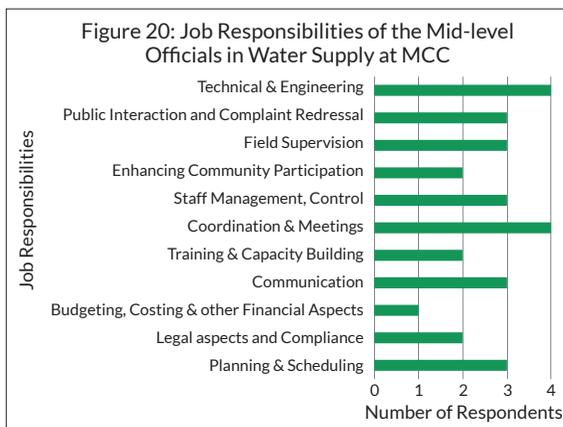
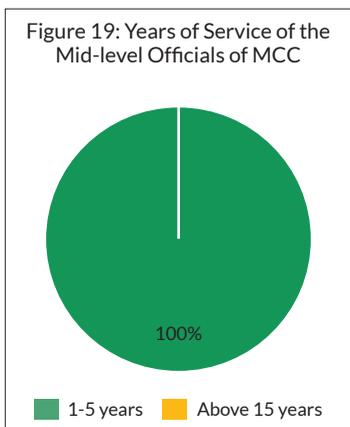
### Years of Service

The water cell in the development department of the Mysuru city corporation has a lot of newly recruited staff. All the officials interviewed had mostly an experience of less than five years. Figure 19 shows the work experience profile of the officials interviewed in water supply cell at the MCC.

### Responsibilities as part of the Job

Most officials working in Water Supply Cell at MCC 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, budgeting, costing and other financial aspects of the projects, and planning and scheduling of works are some of the other aspects of their job roles. Figure 20 shows the job responsibilities of the officials interviewed across the water supply cell at MCC.

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 deals with the various aspects of Water Supply at MCC. 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, with respect to 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 detailed findings for the Mid Level Staff and the methodology of analysis have been mentioned in the Annexure 5.

### ***Institutional and Legislative Framework***

With respect to Institutional and Legislative Framework, all the respondents stated that they have a fair understanding of the way the various legislations, policies, etc. work. However, the officials expressed that a training that focuses on updating them about the amendments in various legislations and policies would be helpful and relevant to their jobs.

### ***Technical and engineering aspects***

All the respondents have a good understanding of the subjects pertaining to the Technical and Engineering aspects of Water Management. The officials suggested a training that could provide them exposure to new and innovative technologies in the water sector.

### ***Financial aspects***

Handling the financial aspects does not come under the job responsibilities of the officials interviewed. However, all the respondents have a fair understanding of the subject. The respondents were interested in attending a training on types of Financial Transfers like tariff regulations, local revenue sources, etc.

### ***Community Engagement***

Community engagement seemed a relevant part of the job role of the mid-level officials interviewed. The respondents have a fair

level of understanding of the subject, and they require a 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 were interested in attending training on certain aspects of project management like Tendering and Procurement, Contract Management, O&M, understanding various legal Compliances, EIA,etc.

### **Disaster and Emergency Preparedness and Response**

To the questions pertaining to the Emergency response of the city, most of the respondents said that the city was well prepared for disasters or emergency. However, they also suggested that there is still scope for improvement in many areas concerning Standard Operating protocols and procedures during emergencies and disasters.

However, the city administration's response in COVID-19 crisis was very good. The responses seemed split on 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.

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

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

<b>Domains/ Aspects</b>	<b>Training Need</b>
Institutional and Legislative framework	Yes. a brief session was suggested by the respondents focusing on amendments in various legislations and rules
Technical and Engineering Aspects	Most have a fair understanding of the subject. The respondents suggested a training on new available innovative technologies in the water sector. Additionally, a brief about the existing knowledge.
Financial Management	A brief session was suggested by the respondents focusing on types of Financial Transfers like tariff regulations, local revenue sources, etc.
Community Engagement	Yes. most have a fair understanding of the subject.
Project Management and Private Partnerships	Yes. a brief session covering certain project management, monitoring and compliance aspects.

Figure 21: Screenshot of the Interview held with Mr. Madhukar, Environmental Engineer, SWM, MCC



#### 4.6.3.2. 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. Environmental Engineers and Senior Health Inspector from the department were interviewed. 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 below 30 years. There was an equal share of respondents in age groups of 31-40 and 41-50 years. Figure 22 shows the composition of age groups of officials interviewed.

#### Educational Background

Majority of the officials interviewed across the Mid-level officials concerning Solid Waste Management had either a Bachelor Degree or Masters Degree. The remaining share of respondents possess a Diploma as their highest qualification. Figure 23 shows

Figure 22: Age wise classification of MCC officials for SWM

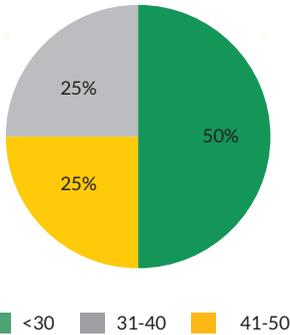
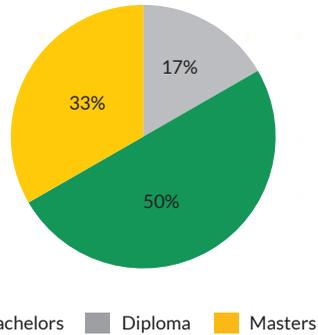


Figure 23: Educational Background of the respondents concerning SWM at MCC



the composition of educational backgrounds of the respondents concerning SWM at MCC.

### Years of Service

Majority of the officials interviewed across the Mid-level officials had less than 5 years of experience. A few respondents also had a work experience of more than 10 years. The Figure 24 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 MCC mentioned Field Supervision as the most important part of their job. This was followed by Public Interaction and Complaint Redressal, Planning & Scheduling, Budgeting, Costing and other Financial Aspects. Figure 25 shows the split of respondents with respect to their Job Responsibilities.

Figure 24: Years of Experience of the Mid-level Officials at MCC concerning SWM

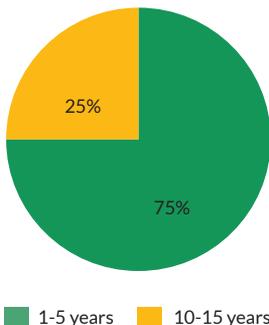
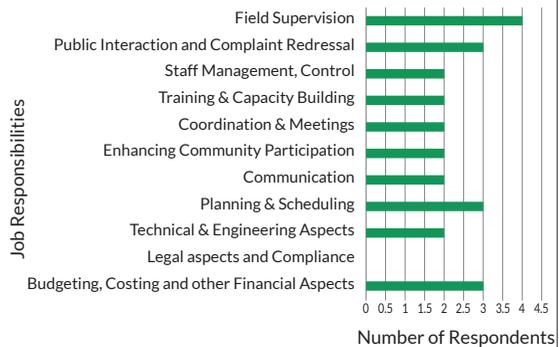


Figure 25: Job Responsibilities of the respondents of MCC for SWM



## Sector Specific Assessment

The following section deals with the various aspects of Solid Waste Management at MCC. 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, with respect to 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.

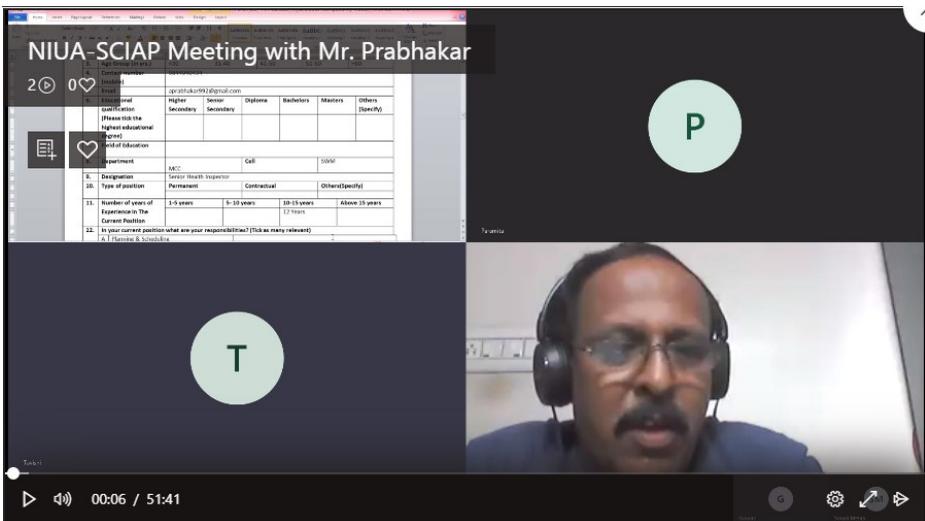
### *Institutional and Legislative Framework*

Almost all respondents had a good 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 good level of understanding of the Technical and Engineering aspects of SWM, they suggested an advance level training for the same.

Figure 26: Screenshot of the Interview held with Mr. Prabhakar A., Senior Health Inspector



### **Financial Management**

Majority of the respondents expressed the subject to be highly relevant with respect to their job responsibilities. While all the respondents have a fair level of understanding of the subject, they suggested that a training on the same would be beneficial.

### **Community Engagement**

The respondents shared that Community Engagement is an important part of their job role and that they would require skill enhancement training for Community Engagement and exposure on various IEC activities.

### **Project Management and Private Partnerships**

The officials mentioned that sessions on topics pertaining to Project Management would help them perform their duties well. Most of them had a fair understanding of the topics in general. The officials expressed their interest in attending training on topics concerning Public Interaction and Complaint Redressal Systems and also on use of ICT for management.

The findings of TANA for the Mid-level officials working in Solid Waste Management sector in has been summarised in Table 8.

Table 8: Summary of Training Needs for Mid-level Officials in Solid Waste Management Sector at MCC

<b>Domains/ Aspects</b>	<b>Training Need</b>
Institutional and Legislative framework	Yes, a brief session was suggested by the respondents covering the updated legislations and rules in SWM
Technical and Engineering Aspects	Most have a good understanding of the subject. Preferred an advance session that focuses on new technologies and concepts.
Financial Management	Most felt the subject to be relevant concerning their job responsibilities. A training focusing on topics like resource mobilization, cost recovery, cost efficiency and financial management were highly preferred.
Community Engagement	Most have a good understanding of the subject and they also preferred training on the same.
Project Management and Private Partnerships	Yes, a brief session covering the project management and monitoring aspects and use of ICT.

### 4.6.3.3. General Preferences for Training Programme

To understand the logistical preferences of the Mid-level officials at MCC, 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 as below.

#### Exposure through Previous Capacity Building Programmes

Most of the Mid-level personnel working at MCC have received training for capacity building in the past three years. Some of the respondents have not attended any training programme yet. Figure 27 shows the share of respondents who have attended any training programmes in the last three years.

#### Medium of Instruction of Training Programmes

A large majority of the respondents preferred Regional language as the medium of instruction of training programmes. This was followed by English and lastly, Hindi. Figure 28 shows the preference of language for the training delivery.

#### Duration of Training Programme

Most respondents suggested a 3-day long training programme. This was followed by 2 days being the preferred duration of the training programme. Figure 29 shows the share of respondents for their preferred duration of the training programme.

Figure 27: Number of Capacity Building Programmes attended by Mid-level Officials at MCC

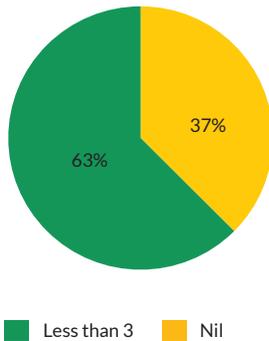


Figure 28: Preferred Medium of training of the Mid-level Officials at MCC

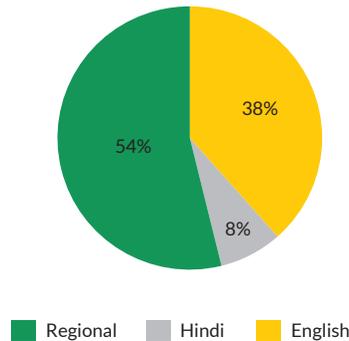


Figure 29: Preferred Duration of Training

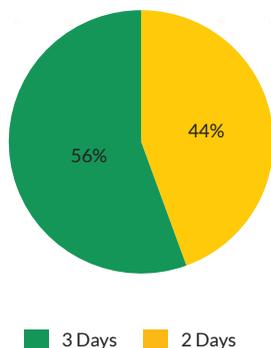
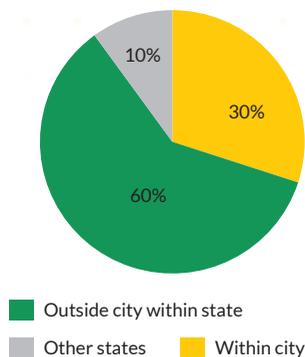


Figure 30: Preferred Location of Training for Mid-level Officials at MCC



### Location of Training Programme

With respect to physical training and exposure visits, questions were asked to assess the preference of the Mid-level Officials at MCC. Majority of the respondents preferred a training programme outside the city. Others preferred a training programme within the city. Very few respondents expressed interest in attending the training programme outside the state. Figure 30 shows the share of respondents corresponding to their preference of the location of the training programme.

### Time of Training Programme

Considering their schedule and commitments with respect to their jobs, most respondents prefer the months of July to September to deliver the training programmes. The second most preferable time of training delivery was found to be the months of January, February and March. The time period from October to December is the least preferred time for the training delivery. Figure 31 shows the details of the share of the preferred time duration of the training delivery.

### Mode of Training Delivery

Most respondents suggested reference material and aids as the preferred mode of training delivery. They also suggested E-learning, Exposure visits, Interactive discussions and Workshops as preferred mode of training. Figure 32 shows the choices of the respondents with respect to the mode of training delivery.

Figure 31: Preferred time of training delivery for the Mid-level Officials at MCC

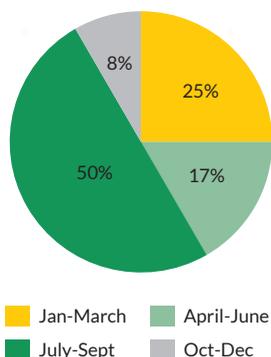
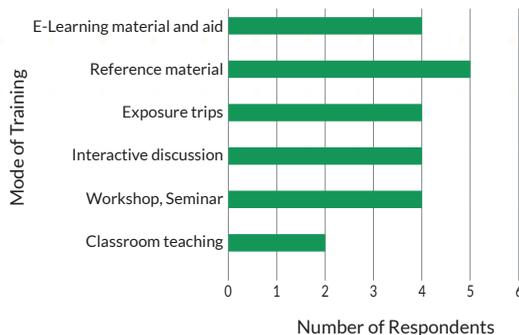


Figure 32: Preferred Mode of Training for Mid-level Officials at MCC



### Expectations from the training programmes

Majority of the respondents seek knowledge enhancement through these training programmes. Skill enhancement, improving service delivery and Community Engagement and Public Interaction are some of the other expected outcomes from the training programmes. Figure 33 shows the preferred expected outcomes of the training programmes.

Figure 33: Expected Outcomes of the Training Programmes reported by the Mid-level Officials at MCC

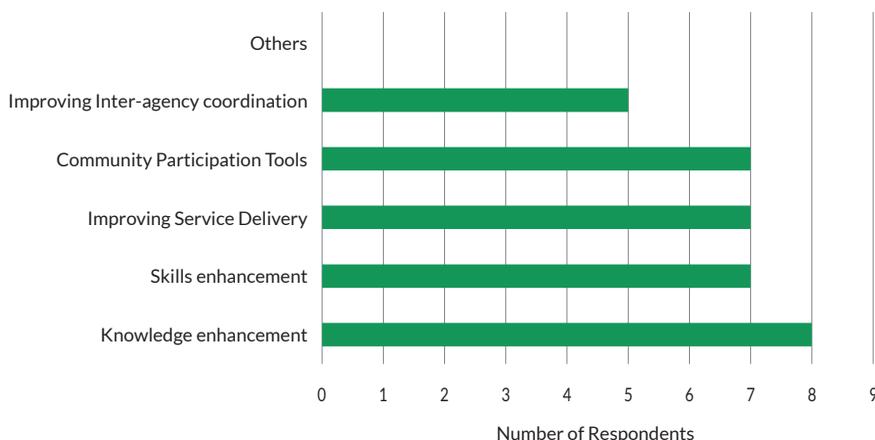


Table 9: Summary of general preferences of training programmes of Mid-level Officials at MCC

Parameter	Preference/Remarks
Exposure through Previous Programmes of Capacity Building	Well exposed to regular capacity building programmes
Medium of Instruction	Regional
Duration	3 Days
Time	July, August, September, followed by January, February and March
Location	Outside the City
Mode of Delivery	E Learning and Aids with Reference Material
Expected Outcomes	Knowledge Enhancement ,Community Participation Tools, Skill Enhancement, Improving Service Delivery

The general preferences of training programmes for Mid-level Officials at MCC are summarized in Table 9 above.

#### 4.6.4 Training Needs- Ground Level Functionaries

The Ground Level Functionaries comprise the personnel working in the field performing the very fundamental jobs and have a 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 2 focus group discussion of 8 personnel, which comprised Supply Inspector, Valveman, Health Inspector, Supervisor, etc. to have insights into the needs, issues and challenges they face in performing their day-to-day job responsibilities. The detailed findings have been mentioned sector-wise in the following sub-sections.

##### 4.6.4.1 Water Supply

In MCC, the Water Supply cell is looked after by the Executive Engineer of the Development Department. This Department is also responsible for underground drainage. The Solid Waste Management department is handled by the Public Health Section in the Development Department. However, to assess the needs of the ground functionaries, online Focussed Group Discussions (FGDs) were conducted to understand their needs and the assistance they seek in performing their job responsibilities better. 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 their daily job responsibilities comprise checking the quality of water at various locations under their domain (like checking for any UGD water intrusion), resolving issues if any in the supply of water and also handling maintenance related work in the supply network like operating valves etc. The respondents also highlighted that the key priorities for them involves ensuring water supply to all households especially in areas with no water supply network connection through tankers and also monitoring the quality of water supplied and taking necessary actions to resolve the issues in case the quality is compromised.

### **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 monitor the quality and quantity of water supplied in various locations under their domain, especially areas located on higher elevation. The respondents also expressed their interest in getting trained on concepts focusing on reduction of NRW, metering and various new innovative technologies for O&M that could help them perform and serve better.

### **Mode and Medium of training**

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

#### **4.6.4.2 Solid Waste Management**

In Solid Waste Management, the Public Health Section is responsible for SWM activities such as primary and secondary collection, segregation of municipal solid waste, cleaning of drainage channels and road sweeping. The Senior Health Inspectors are assisted by Junior Health inspectors for implementation of SWM activities across various wards. The Junior Health Inspectors with the help of Pourakarmikas (field workers) manage the day-to-day SWM

Figure 34: Screenshot of the Focus Group Discussion held with the Ground Staff in the Solid Waste Management Sector



activities across their designated wards. The findings from the focus group discussion held with the ground level functionaries working in the solid waste management sector are discussed below.

### Training Needs

The ground staff of MCC believed that they are well trained for handling the day-to-day activities related to solid waste management. The respondents shared that they are happy with the support they receive from their senior officials in carrying out their job responsibilities. They also highlighted that they receive regular trainings from their senior officials for improving their work performance.

During the interview, the respondents expressed their interest in attending a training that could provide them awareness on various schemes, policies and missions concerning solid waste management. They also suggested a training on new and innovative technologies to manage wet waste at source, e.g. Innovative composting techniques. The ground staff while discussing the various challenges in performing their daily duties highlighted the importance of community engagement. The respondents shared that collecting segregated waste from households is still a challenge in many areas and a training that could help them engage better with the citizens and enhance their public interaction and communication skills, would be highly beneficial. The respondents also felt a training requirement on disaster preparedness in a pandemic situation like COVID 19.

Table 10: Summary of Training Needs of Ground- level functionaries at MCC

SECTOR	GAPS IDENTIFIED	TRAINING NEEDS	TRAINING MODE	TRAINING MEDIUM
Solid Waste Management	Technical and Management Skills;	Awareness on various missions and schemes, Training on available innovative technology for waste management and waste segregation, skills enhancement and community engagement	On-site	Regional Language
Water Management	Technical and O&M	Training on supply side management, water quality management and available technology to enhance skills to perform duties efficiently	On-site	Regional Language

### Mode and Medium of training

The preferred mode of training for the junior and ground staff as stated was face-to-face 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.

The Table 10 provides an overview of the training needs assessed across various departments in the MCC dealing with water, waste water 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:

The focus of the Mysuru City Corporation as assessed from the interview held with the Commissioner is to adopt new innovative sustainable technologies across the three sectors of water, wastewater and solid waste management for efficient service delivery. In the water sector, MCC wishes to explore approaches that focus on efficient resource management. In the Solid waste management sector, MCC plans to adopt more decentralized approaches to manage waste at source. Exposure on developing strategies for promoting reuse of treated waste water is one of the other needs of MCC concerning the wastewater sector.

As per the discussions held with the senior officials of the water sector, it was identified that the prime focus of MCC at present is to

ensure 24X7 water supply to all areas. Although there are schemes and projects focusing on the same, the need for building capacity on supply side augmentation and efficient resource management was specifically highlighted.

In the Solid Waste Management Sector, the MCC wishes to gain exposure on approaches and technologies adopted across other cities for efficient treatment and handling of the legacy waste. Building financially sustainable waste management models that ensure effective resource recovery is one of other need reflected through our interviews with various officials and staff members across the hierarchy in MCC.

MCC currently treats all the waste water generated in the city and in addition, there are a few more STPs proposed for meeting the future needs of the city. MCC wishes to gain some knowledge on new available innovative technologies for co-processing. A training that could provide exposure on building strategies for promoting efficient reuse of treated waste water and also tap on available revenue generating opportunities was also highly recommended.

Most officials in Mysuru across the three sectors 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 11 and Table 12 for the two sectors of Water supply and Solid Waste Management respectively. The tables have been summarised from the detailed tables in the Annexure 5. The Priority has 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 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.

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.

Given the current COVID-19 situation, almost every stakeholder group has shown an interest in delivery of the trainings pertaining to disaster and risk preparedness.

Table 11: Summary of Training Needs for Mid-level Officials for Water Sector in MCC

Parameter	Training Needed	Training Priorities*
<b>LEGISLATIVE AND INSTITUTIONAL FRAMEWORK</b>		
Legislative Framework	Yes	Green
Institutional Framework	Yes	Green
Provisions and Elements of Water Management in Missions and Scheme	Yes	Green
<b>WATER MANAGEMENT SYSTEMS</b>		
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
<b>FINANCIAL MANAGEMENT</b>		
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.)	Yes	Green
Resource Mobilization	No	Blue
Various Business Models	No	Blue
Cost Recovery, Cost Efficiency & Financial Management	No	Blue
<b>COMMUNITY ENGAGEMENT</b>		
Need for Community Engagement, Water Use Efficiency	Yes	Green
Various Community Engagement Models and Structures	Yes	Green
Information, Education & Communication (IEC)	Yes	Green
<b>PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP</b>		
Project Planning, Monitoring & Control	Yes	Yellow
Various Models of PPP	Yes	Yellow
Public Interaction and Complaint Redressal System	Yes	Green
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 12: Summary of Training Needs for  
Mid-level Officials for Solid Waste Management Sector in MCC

Parameter	Training Needed	Training Priorities*
<b>LEGISLATIVE AND INSTITUTIONAL FRAMEWORK</b>		
Legislative framework	Yes	
Institutional Framework	Yes	
Provisions for SWM in Missions And Schemes	Yes	
<b>SOLID WASTE VALUE CHAIN MANAGEMENT</b>		
Waste Segregation and Collection	Yes	
Wet waste management Technology and approaches	Yes	
Dry waste management approaches and technology	Yes	
Selection of Solid waste management technologies	Yes	
Waste disposal – Sanitary landfill	Yes	
Occupational Health and Safety	Yes	
<b>FINANCIAL MANAGEMENT</b>		
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.	Yes	
Various stakeholders from financing point of view	Yes	
Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	Yes	
Resource Mobilization	Yes	
Various Business Models	Yes	
Cost Recovery, Cost Efficiency & Financial Management	Yes	
<b>COMMUNITY ENGAGEMENT</b>		
Need for Community Engagement	Yes	
Various Community Engagement Models and Structures	Yes	
Information, Education & Communication (IEC)	Yes	
<b>PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP</b>		
Project Planning, Monitoring & Control	Yes	
Public Interaction and Complaint Redressal System	Yes	
Use of ICT for management	Yes	

\* 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 detail curriculum is prepared customised for the Mysuru City 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 as a comparison of the ULBs in the four cities 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, customised for each city.

## 5.1 Findings of TANA

The findings of the TANA are summarised here in tables. Table 13 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 14 show the needs of the Mysuru for the three sectors of solid waste management, wastewater management and water management.

Table 13: Priorities of the the MCC as mentioned by the Commissioner

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

## 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 the four cities each outlined for the sectors and stakeholders.

Table 14: Summary of gap analysis for the three sectors in MCC

Sector	Decision Makers	Mid-level Officials	Ground Level Functionaries
Solid Waste Management	<ul style="list-style-type: none"> <li>Decentralized Approaches &amp; Technologies &amp; Resource Recovery</li> <li>Business Models</li> <li>Treatment of Legacy Waste</li> </ul>	<ul style="list-style-type: none"> <li>Legislative Framework around solid waste management</li> <li>New technologies and models in value chain management</li> <li>Community Engagement</li> <li>Project Evaluation and Project Monitoring</li> <li>Disaster &amp; Emergency Preparedness</li> </ul>	<ul style="list-style-type: none"> <li>O&amp;M (New innovative approaches &amp; Technologies);</li> <li>Public Interaction</li> <li>Operational Health and Safety</li> </ul>
Waste Water Management	<ul style="list-style-type: none"> <li>Sustainable Business Models for Treated Wastewater</li> </ul>	<ul style="list-style-type: none"> <li>Wastewater Reuse (based on the recommendation of the Commissioner, MCC)</li> </ul>	<ul style="list-style-type: none"> <li>Disaster and Emergency Preparedness (based on the recommendation of the Commissioner, MCC)</li> </ul>
Water Supply Management	<ul style="list-style-type: none"> <li>Supply side Augmentation for 24x7 water supply</li> <li>Efficient Resource Management (concepts of IUWM)</li> </ul>	<ul style="list-style-type: none"> <li>Supply side Augmentation</li> <li>Water Quality management and Treatment;</li> <li>Tariff Regulation;</li> <li>O&amp;M (New innovative approaches &amp; Technologies);</li> <li>Resource Management;</li> </ul>	<ul style="list-style-type: none"> <li>O&amp;M (New available Technologies and applied engineering)</li> </ul>

## 5.3 Curriculum

Based on the findings and recommendations, the curriculum outlines for Mysuru 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 15, Table 16 and Table 17 provide the curriculum outline for MCC for the sectors solid waste management, wastewater management and water management respectively.

Table 15: Curriculum Outline for Solid Waste Management for MCC

Stakeholder Group	Session Name	Topic to be delivered / Session contents
Decision Maker	Overview of SWM	Importance of SWM for economic development and environmental protection - SWM value chain, Linkages with SDG's and with climate change, convergence with health and livelihood missions
	Innovation in SWM value chain	<ul style="list-style-type: none"> <li>• New Innovative Approaches and Technologies (Decentralized and Centralized);</li> <li>• Case studies: Successful SWM Models, Innovations (waste to wealth products)</li> </ul>
	Financial and Project Management	<ul style="list-style-type: none"> <li>• Strategies for financially sustainable projects;</li> <li>• Resource Mobilization (tapping available funds and resources from various levels of governance and other sources);</li> <li>• Case Studies (Successful Business models for Waste Management and Resource Recovery)</li> </ul>
	Role of IEC and ICT in SWM	<ul style="list-style-type: none"> <li>• Available ICT platforms and tools- e.g. Swachh Nagar , Swachh Manch, GVP monitoring app, Swachhata MoHUA , Google Toilet locator, etc.;</li> <li>• Case based examples- use of IEC tools for community engagement</li> </ul>
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>• Management Strategies (Resource mobilization and Loss minimization);</li> <li>• Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>

Mid-level Officials	Overview of SWM	<ul style="list-style-type: none"> <li>• Overview of SWM - SWM value chain and Waste hierarchy;</li> <li>• Convergence of SWM with SDG's and other government missions;</li> </ul>
	Legislations, Policies and Programmes on SWM	Brief Overview of existing Legislative Framework (National and state level policies and programs, Rules and Guidelines; MoHUA Advisories , NSKFDC, ERSU, SWM byelaws )
	SWM Chain Part I - Generation, Collection and Transportation	New Innovative and Cost Effective decentralized approaches and technologies
	SWM chain Part II - Technologies for Processing, Treatment and Disposal	<ul style="list-style-type: none"> <li>• New Innovative Technologies for Processing and Treatment;</li> <li>• Successful SWM Models - Composting, Biomethanation, Dry Waste management - MRF, DWCC, Plastic to fuel, Incineration , SLRM, C&amp;D Waste recycling, Plastic waste recycling;</li> <li>• Waste Disposal methods- Sanitary Landfill, Handling Legacy Waste, etc.</li> </ul>
	Project and Financial Management in SWM	Project Management (Sustainable business models, PPP, Resource Recovery, etc.) & Monitoring (new innovative approaches, existing SBM ICT platforms and tools)
	Role of IEC in SWM	<ul style="list-style-type: none"> <li>• Importance of IEC tools in behaviour change;</li> <li>• Case based examples of community engagement models - Kudumbashree, Ambikapur and Nawanshahr</li> </ul>
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>• SOPs;</li> <li>• Health and Safety protocols- Use of PPE Kits, etc.;</li> <li>• Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>
Ground-level Functionaries	Context Setting	<ul style="list-style-type: none"> <li>• Understanding the basics of SWM;</li> <li>• SWM Value chain and Waste hierarchy</li> </ul>
	Legislations, Policies and Programmes on SWM	<ul style="list-style-type: none"> <li>• Basic Overview of Government Missions and Schemes; SWM bye laws; MoHUA Advisories (ERSU, NSKFDC, Manual scavengers act);</li> <li>• Welfare schemes; Health and education schemes</li> </ul>
	New Innovative Approaches & Technologies	<ul style="list-style-type: none"> <li>• Decentralized Waste Management Approaches and Technologies;</li> <li>• Successful SWM Models- Segregation and Collection; Transportation, Processing and Treatment, Disposal;</li> </ul>
	SWM Workers as Change Agent	<ul style="list-style-type: none"> <li>• Behavioral Change and Communication skills;</li> <li>• IEC for Community Engagement, Case based examples of community engagement models - Kudumbashree, Ambikapur and Nawanshahr, etc.</li> </ul>
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>• SOPs</li> <li>• Health and Safety protocols- Use of PPE Kits, etc.</li> <li>• Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>

Table 16: Curriculum Outline for Waste Water Management for MCC

Stakeholder Group	Session Name	Topic to be delivered / Session contents
Decision Maker	Overview	Need for Waste Water Management and basic overview of IUWM
	New Innovative Approaches & Technologies	New Innovative Approaches and Technologies (O&M, Treatment)
	Financial and Project Management	<ul style="list-style-type: none"> <li>Strategies for financially sustainable projects;</li> <li>Case studies: Successful Business Models (Efficient Reuse of treated waste water and revenue generation)</li> </ul>
Mid-level Officials	Overview & Context Setting	Need for Wastewater Management and basic overview of IUWM;
	Legislations, Policies and Programmes on SWM	Brief Overview of existing Legislative Framework (National and state level policies and programs, Rules and Guidelines)
	New Innovative Approaches & Technologies	<ul style="list-style-type: none"> <li>New Innovative and Cost Effective approaches and technologies (Treatment and Reuse etc.);</li> <li>O&amp;M (New innovative approaches &amp; Technologies)</li> </ul>
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>SOPs;</li> <li>Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>
Ground-level Functionaries	Overview & Context Setting	Understanding the basics of Waste Water Management
	New Innovative Approaches & Technologies	New available Technologies and applied engineering (O&M);
	Schemes and Programs	Beneficiary Schemes and Programs (Provisions and benefits in various schemes)
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>SOPs;</li> <li>Health and Safety protocols- Use of PPE Kits, etc.;</li> <li>Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>

Table 17: Curriculum Outline for Water Management for MCC

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
	Disaster Preparedness and Emergency Response	Management Strategies (Resource mobilization and Loss minimization)
Mid-level Officials	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
	Project and Financial Management	Complaint Redressal; Water Billing and Meter Monitoring etc.
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>• SOPs;</li> <li>• Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>
Ground-level Functionaries	Overview & Context Setting	Understanding the basics and need of Water Management
	New Innovative Approaches & Technologies	New available Technologies and applied engineering (O&M);
	Schemes and Programs	Beneficiary Schemes and Programs (Provisions and benefits in various schemes)
	Disaster Preparedness and Emergency Response	<ul style="list-style-type: none"> <li>• SOPs;</li> <li>• Case Studies (Emergency Response Strategies adopted across other cities)</li> </ul>



# 6

## REFERENCES



## 6. References

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# 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"> <li>Project Planning and Execution</li> <li>DPR Preparation</li> <li>Tender Approval &amp; Management</li> </ul>		

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 <sup>th</sup> & 15 <sup>th</sup> 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?

- a. Yes
- b. 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. 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.	<b>Legislative framework</b>						
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.	<b>Institutional Framework</b>						
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 <sup>th</sup> and 15 <sup>th</sup> 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						

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
2.2	Mitigating measures (PPE, Training on use of tools/equipment, Training on standard operating procedures, etc.)						
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?

- a. Yes
- b. 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						
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.	<b>Legislative Framework</b>						
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.	<b>Institutional Framework</b>						
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.	<b>Missions and Schemes</b>						
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.	<b>Others if any (specify)</b>						

## 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.	<b>Selection of Solid waste management technologies</b>						
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.	<b>Bulk waste generators (BWG) management</b>						
4.2	Bulk Waste Generator Identification/ Verification Process, compliance process, Types of BGG (Institutions, hotels, RWA's), Available technologies for BWG,						
5.	<b>Waste disposal – Sanitary landfill</b>						
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.	<b>Occupational Health and Safety</b>						
7.	<b>Circular Economy models in Waste management (Closing the loop concept)</b>						

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 Mysuru City Corporation

The detail findings of the TANA for the Mid-level Officials are tabulated in this annexure. It has been prepared for the two sectors of Water and Solid Waste Management separately. The frequency of responses have been 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 a 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 of response 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.

In case equal number of responses are listed under the two columns in the Relevance category, the response under '3-5' column will be considered and the parameter will be considered as relevant. Similarly, if an equal number of responses are listed under the three columns in the Level of Understanding category, the final result will be considered as 'Fair'. In case of equal responses in the two columns under the 'Training Required' category, the requirement for the training will be considered as 'Yes'.

Table 18: Detail Training Needs of Water Sector

Sr. No.	Parameter	Relevance		Level of understanding			Trainings 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	2	2	2	2	4		Yes	Fair	Yes
1.1.2	Water (Prevention and Control of Pollution) Act, 1974	2	2	2	2	2	4		Yes	Fair	Yes
1.1.3	Environment (Protection) Act, 1986	3	1	2	2	2	3	1	No	Fair	Yes
1.1.4	State Water Policy	2	2	2	2	2	4		Yes	Fair	Yes
1.1.5	Municipal Corporation Act and other Municipal Acts	2	2	1	3		4		Yes	Fair	Yes
1.2	Institutional Framework										
1.2.1	Roles and Responsibilities of Government Institutions (State/City/ULB) in water	1	3		4		4		Yes	Fair	Yes
1.2.2	Institutional Framework (State level/ City Level/ULBs)- Jal Shakti Ministry	1	3		2	2	4		Yes	Fair	Yes
1.3	Provisions and Elements of Water Management in Missions and Scheme										
1.3.1	Swachh Bharat Mission, 2014	3	1		2	2	3	1	No	Fair	Yes
1.3.2	Atal Mission for Rejuvenation and Urban Transformation (AMRUT), 2015	1	3		2	2	4		Yes	Fair	Yes
1.3.3	Smart Cities Mission, 2015	2	2		2	2	4		Yes	Fair	Yes
1.3.4	14 <sup>th</sup> & 15 <sup>th</sup> Finance commission	1	3		3	1	4		Yes	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Trainings 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.)	2	2	1	3		3	1	Yes	Fair	Yes
2.1.2	Available Treatment Technologies (technologies, selection criteria, treatment efficiency, land and infrastructure requirement, capex/ Opex, etc.)	2	2	1	3		3	1	Yes	Fair	Yes
2.1.3	Water Supply Networks -Technical and Engineering aspects	2	2	1	3		3	1	Yes	Fair	Yes
2.2	Water Reuse Systems and Requirements	2	2		3	1	3	1	Yes	Fair	Yes
2.3	Factors Affecting the selection of water management system	2	2		3	1	3	1	Yes	Fair	Yes
2.4	Reduction of Water Losses	2	2		4		3	1	Yes	Fair	Yes
2.5	Water Budgeting and Water Balance	2	2		3	1	3	1	Yes	Fair	Yes
2.6	SCADA (Supervisory Control and Data Acquisition)	2	2		3	1	3	1	Yes	Fair	Yes
2.7	IUWM	3	1		3	1	3	1	No	Fair	Yes

Sr. No.	Parameter	Relevance		Level of understanding			Trainings 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)	3	1		3	1	4		No	Fair	Yes
3.2	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	2	2		4	4	4		Yes	Fair	Yes
3.3	Resource Mobilization	4			3	1	4		No	Fair	Yes
3.4	Various Business Models	4			3	1	4		No	Fair	Yes
3.5	Cost Recovery, Cost Efficiency & Financial Management	4			4		4		No	Fair	Yes
4.	COMMUNITY ENGAGEMENT										
4.1	Need for Community Engagement, Water Use Efficiency	1	3	1	3		4		Yes	Fair	Yes
4.2	Various Community Engagement Models and Structures	2	2	1	2	1	4		Yes	Fair	Yes
4.3	Information, Education & Communication (IEC)	2	2	1	2	1	4		Yes	Fair	Yes

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

Table 19: Detail Training Needs of Solid Waste Management Sector

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

SR.No.	Parameter	Relevance		Level of understanding			Trainings 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	3	1	3	1	Yes	Good	Yes
1.2.2	Institutional Framework (State level/ City Level/ULBs)	4	3	1			3	1	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	2	2			2	2	Yes	Good	Yes
1.3.3	Smart Cities Mission, 2015	4	2	2			2	2	Yes	Good	Yes
1.3.4	National Urban Livelihood Mission	4	1	2	1		3	1	Yes	Fair	Yes

SR.No.	Parameter	Relevance		Level of understanding			Trainings Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
2	<b>SOLID WASTE VALUE CHAIN MANAGEMENT</b>										
2.1	<b>Waste Segregation and Collection</b>										
2.1.1	Types of Waste streams (characteristics, features, etc.)		4	4			3	1	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)		4	2	2		4		Yes	Good	Yes
2.1.5	Use of ICT in Collection and Transportation		4	1	3		4		Yes	Fair	Yes
2.2	<b>Wet waste management Technology and approaches</b>										
2.2.1	Composting techniques		4	4			3	1	Yes	Good	Yes
2.2.2	Biomethanization		4	2	2		3	1	Yes	Good	Yes

SR.No.	Parameter	Relevance		Level of understanding			Trainings 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	3	1		3	1	Yes	Good	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	3	1		3	1	Yes	Good	Yes
2.3.3	Recycling/ Reuse/Recovery technologies		4	1	3		4		Yes	Fair	Yes
2.3.4	Potential Buyers		2		3	1	3	1	Yes	Fair	Yes
2.4	Selection of Solid waste management technologies										
2.4.1	Estimating waste generation volume, existing infrastructure, cost, etc.		4	1	2	1	3	1	Yes	Good	Yes
2.4.2	Available SWM technologies (Types, features, treatment efficiency, selection criteria)		4	1	3		3	1	Yes	Fair	Yes
2.4.3	Technical and engineering aspects of available technologies		4	2	2		3	1	Yes	Good	Yes
2.4.4	Bulk waste generators (BWG) management		4	3	1		3	1	Yes	Good	Yes

SR.No.	Parameter	Relevance		Level of understanding			Trainings Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
		2.5	Waste disposal – Sanitary landfill								
2.5.1	Planning, Designing and Construction of Secured landfill (Site selection, CAPEX, OPEX)	1	3	2	2		3	1	Yes	Good	Yes
2.5.2	Methods of Land Closure and Capping	1	3	2	2		3	1	Yes	Good	Yes
2.5.3	Planning and Designing Leachate Treatment Facility	1	3	2	2		3	1	Yes	Good	Yes
2.6	Occupational Health and Safety		4	3	1		4		Yes	Good	Yes
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, borrowing capacity of ULBs etc.	1	3		4		3	1	Yes	Fair	Yes
3.2	Various stakeholders from financing point of view	1	3		4		3	1	Yes	Fair	Yes
3.3	Understanding types of Financial Transfers (Tariff Regulations or Local Revenue Sources, etc.)	1	3	1	3		3	1	Yes	Fair	Yes
3.4	Resource Mobilization	1	3		4		3	1	Yes	Fair	Yes
3.5	Various Business Models	1	3		4		3	1	Yes	Fair	Yes
3.6	Cost Recovery, Cost Efficiency & Financial Management	1	3		4		3	1	Yes	Fair	Yes

SR.No.	Parameter	Relevance		Level of understanding			Trainings Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
4	COMMUNITY ENGAGEMENT										
4.1	Need for Community Engagement		4	2	2		4		Yes	Good	Yes
4.2	Various Community Engagement Models and Structures		4	2	2		4		Yes	Good	Yes
4.3	Information, Education & Communication (IEC)		4	2	2		4		Yes	Good	Yes
5	PROJECT MANAGEMENT AND PRIVATE SECTOR PARTNERSHIP										
5.1	Project Planning, Monitoring & Control										
5.1.1	Preparation of Detailed Project Report (DPR) including	1	3		3	1	3	1	Yes	Fair	Yes
5.1.2	physical and financial methods for cost estimate, budget, costing, legal compliances, EIA, etc.	1	3		3	1	3	1	Yes	Fair	Yes
5.1.3	Tendering and Procurement	1	3		3	1	3	1	Yes	Fair	Yes
5.1.4	Contract Management	1	3		3	1	3	1	Yes	Fair	Yes
5.1.5	Procuring, Installation & commissioning/ setting up SWM projects	1	3		3	1	2	2	Yes	Fair	Yes
5.1.6	Technical and Engineering Aspects	1	3		3	1	3	1	Yes	Fair	Yes
5.1.7	Administrative and Financial Management ( Cost Recovery, Cost Efficiency)	1	3		3	1	2	2	Yes	Fair	Yes
5.1.8	Operation, Maintenance and Monitoring	1	3		3	1	3	1	Yes	Fair	Yes
5.1.9	Enforcement & Accountability	1	3		3	1	2	2	Yes	Fair	Yes
5.1.10	Project evaluation	2	2		3	1	3	1	Yes	Fair	Yes

SR.No.	Parameter	Relevance		Level of understanding			Trainings Needed		Total		
		0 to 2	3 to 5	Good	Fair	Poor	Yes	No	Relevance	Level of Understanding	Training Required
5.2	Human Resource Management	1	3		3	1	3	1	Yes	Fair	Yes
5.3	Public Interaction and Complaint Redressal System		4	2	2		2	2	Yes	Good	Yes
5.4	Use of ICT for management	1	3	2	2		2	2	Yes	Good	Yes





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