



सत्यमेव जयते

Ministry of Housing and Urban Affairs  
Government of India

# SC-IAP

SUSTAINABLE CITIES  
INTEGRATED APPROACH PILOT IN INDIA



REPORT ON

# Capacity Building Workshop For Urban Local Body Officials



Bhopal & Scale Up  
January 2023







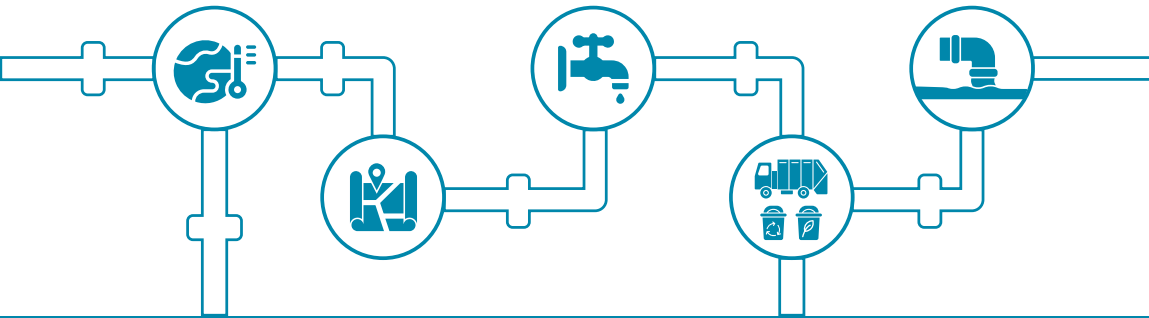
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REPORT ON

# Capacity Building Workshop

## For Urban Local Body Officials

Bhopal & Scale Up  
January 2023





Submitted to  
**United Nations Industrial Development Organization**

Task:  
**Conducting Capacity Building Workshop for 5 Pilot Cities  
For Senior officials, Mid officials and Ground Functionaries  
of Bhopal & Scale Up**

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# List of Abbreviations

<b>BMC</b>	Bhopal Municipal Corporation
<b>CSR</b>	Corporate Social Responsibility
<b>CPHEEO</b>	Central Public Health & Environmental Engineering Organisation
<b>C&amp;D</b>	Construction and Demolition
<b>DPR</b>	Detailed Project Report
<b>EPF</b>	Employee Provident Fund
<b>ESI</b>	Employees' State Insurance
<b>FSSM</b>	Faecal Sludge and Septage Management
<b>FSTP</b>	Faecal Sludge Treatment Plant
<b>GEF</b>	Global Environment Facility
<b>GHG</b>	Greenhouse gas
<b>IUWM</b>	Integrated Urban Water Management
<b>NGO</b>	Non-Governmental Organization
<b>NGT</b>	National Green Tribunal
<b>NIUA</b>	National Institute of Urban Affairs
<b>NSKFDC</b>	National Safai Karamcharis Finance and Development Corporation
<b>O&amp;M</b>	Operations and Maintenance
<b>PHC</b>	Primary Health Centre
<b>PPE</b>	Personal protective equipment
<b>SC-IAP</b>	Sustainable Cities Integrated Approach Pilot
<b>SWAPT</b>	Solid Waste – Appropriate Technologies
<b>SWM</b>	Solid Waste Management
<b>TANA</b>	Training and Assistance Need Analysis
<b>TOT</b>	Training of Trainers
<b>ULB</b>	Urban Local Body
<b>UNIDO</b>	United Nations Industrial Development Organization
<b>WASH</b>	Water, Sanitation and Hygiene
<b>WSUD</b>	Water Sensitive Urban Design

*Capacity Building Workshop for*  
**ULB Officials**  
*of*  
**Bhopal & Other ULBs**

Senior and Mid Level Officials

*29<sup>th</sup> – 30<sup>th</sup> November 2022*

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# Quick Overview



**12**  
Sessions



**12**  
Speakers



Venue  
RCVP Noronha  
Academy of  
Administration,  
Bhopal

**41** **70**  
BMC Other ULBs  
Participants

# Introduction



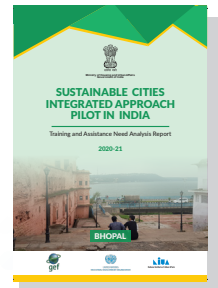
# Overview of the project

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 for 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. Three main components for the implementation of the project are- Integrating sustainable urban planning and management strategies, identification of investment projects and technology demonstrations that encourage the development of low-carbon urban infrastructure, and partnerships and knowledge management platforms.

## Role of NIUA

The primary role of NIUA is to undertake the implementation of Component 3- Partnerships, Knowledge Management and Capacity Building. As a part of this component, a Training and Assistance Needs Assessment (TANA) was conducted from February 2020 to August 2020 for the ULBs of five cities- Bhopal, Jaipur, Mysuru, Vijayawada, and Guntur to assess and identify the needs of the ULB officials and to further prepare the training modules. Through TANA, set of two stakeholders were identified for whom training modules have been prepared- mid and senior level officials, and ground functionaries.



Based on the results of TANA, five training modules have been developed by NIUA for the mid and senior level officials of Urban Local Bodies (ULBs). These have been finalized in coordination with experts and officials from the five pilot cities. The training modules are:



1. Urban Water Management
2. Used Water and Septage Management
3. Solid Waste Management
4. GHG Estimation and Climate Adaptation
5. Application of Geospatial Tools in Municipal Waste Management

A set of Training of Trainers (TOT) and a Handbook are developed for the ground functionaries of the five pilot cities based on TANA.



1. ToT module on Social Security Provisions and Schemes for Ground Functionaries
2. ToT module on Leadership Skills for Frontline Workers to Create an Inclusive Workplace
3. ToT module on Occupational Health and Safety of Ground Functionaries
4. Handbook on Social Security Provisions and Schemes for Ground Functionaries

Based on the training modules and TOTs developed, NIUA conducted in-person capacity-building workshops in each of the pilot cities (Bhopal, Mysuru, Jaipur, Guntur and Vijayawada) for the ULB officials and ground functionaries. The trainings have been organised separately for the two groups: mid and senior-level ULB officials and ground functionaries.

ULB officials at the mid and senior levels received training in solid waste management, used water management, and urban water management. Experts from the three sectors gave presentations on topics based on the knowledge requirements identified by TANA.

The soft copies for the above-mentioned knowledge products can be accessed at



「SCAN ME」



Training for ground functionaries was provided as per NIUA's Training for Trainers (TOT) and was delivered by selected partners who were familiarized with the local context. To suit the requirements of the ground functionaries, the workshops were conducted in the vernacular languages of the respective cities.

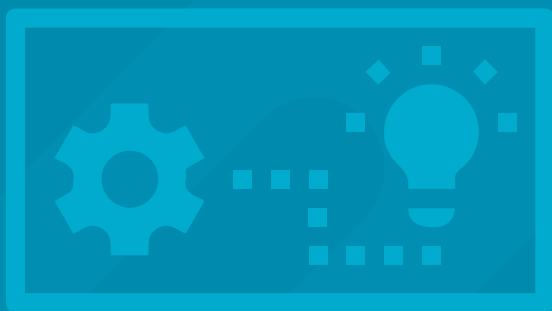
This report is divided into 2 sections-

- Mid and senior-level officials of Bhopal Municipal Corporation (BMC) and other ULB's
- Ground functionaries of Bhopal Municipal Corporation (BMC)

The following section elaborates on the two-day capacity-building workshop for mid and senior-level officials from the Bhopal Municipal Corporation (BMC) and other participating ULBs held in Bhopal on November 29th and 30th, 2022. The two-day event also served as a scale-up workshop for the SC-IAP project, with 45 cities from across the country participating.

The following chapters include the format of the workshop, the profile of participants, the profile of the resource persons, activities held, consolidated feedback from participants, and an impact evaluation of the workshop.

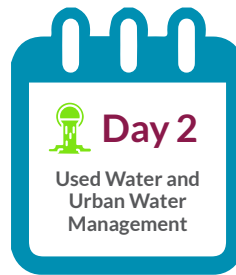
# 1 Workshop Sessions



# Workshop Sessions

A two-day capacity-building workshop was conducted for the mid and senior-level officials of the Bhopal Municipal Corporation (BMC) and the mid and senior-level officials from ULBs of 45 other cities of similar scale and complexity. This workshop was held at RCVN Noronha Academy of Administration, Bhopal on 29<sup>th</sup> and 30<sup>th</sup> November 2022.

A total of 111 participants attended the workshop, out of which 41 were from Bhopal Municipal Corporation and 70 were from other 45 participating ULBs. Technical sessions based on the training modules developed by NIUA were delivered for Urban Water Management, Solid Waste Management and Used Water and Septage Management.



## Day 1: Solid Waste Management

The day 1 of the capacity building workshop was on Solid Waste Management. The inaugural session of the capacity building workshop was facilitated by Ms. Paramita Datta Dey (Head of Resources & Waste Team and team lead of SCIAP project at NIUA), who welcomed the participants on behalf of NIUA and UNIDO. She briefed the attendees about the SCIAP project in India and the capacity-building activities under component 3 of the project.

This was followed by an address by Mr. B.R. Mishra, City Representative (Bhopal) for UNIDO. He detailed out the various components of the project and the tasks taken up by NIUA and UNIDO under the project.



Figure 1: Key note address by UNIDO representative- Bhopal

After the inaugural sessions, technical sessions were delivered by sector experts based on the solid waste management training module of NIUA. The first technical session was conducted by Mr. Pravinjith KP, Managing Director – Ecoparadigm Environmental Strategies. He explained about GHG emissions from solid waste and the SW-APT (Solid Waste Appropriate Technologies) tool developed by Ecoparadigm, which provides technical and professional means to evaluate decisions on different waste treatment options in India. The use of SWAPT to calculate GHG emissions from SWM and the method of composting was also explained.



Figure 2: Session on GHG emissions from solid waste and the SW-APT tool

The next technical session was conducted by Ms. Zigisha Mhaskar, an SWM expert. The session was on 'City-wide Strategy and Planning for SWM'. It covered in detail the importance of long-term planning for SWM at the city scale, baseline assessment, visioning and target setting, strategy formulation and selection of technologies, and lastly the framing of the strategy plan for a city. Stakeholder involvement was emphasized as a crucial, cross-cutting component of the planning process. The goal of this session is to help the authorities comprehend how a city's SWM strategy and action plan are created and to gain a general understanding of how stakeholders were involved in the development and execution of the specified strategy.



Figure 3: Session on city-wide strategy and planning for SWM

The next session was conducted virtually by Dr. Brajesh Dubey, Associate Professor, IIT Kharagpur, on 'E-waste management, Plastic waste management – Innovative practices in India'. He elaborated upon the types of plastics, issues arising due to plastic waste, and plastic waste generation and management in Indian cities. He further discussed techniques like mechanical recycling, feedstock recycling, and sanitary landfilling, which can be adopted in treating plastic waste and unconventional practices like utilizing plastic waste in roads, pavement blocks etc. Lastly, he elaborated on E-waste, its life cycle, its effect on the environment and human health, and management of E-waste.



Figure 4: Virtual session on E-waste management, plastic waste management

The following session was on 'Construction and Demolition (C&D) Waste Management' by Mr. Pradeep Khandelwal, Chief Engineer (Retd.) – EDMC East Delhi Municipal Corporation. The session focussed on the composition of C&D waste, its estimation and processing. He also explained the key policies and guidance documents available for C&D wastes with reference to Indian context. He further elaborated on the case study of C&D waste scenario in Delhi highlighting the experience in setting up and operating C&D waste plants located across the city.



Figure 5: Session on C&D waste management

The next session was delivered on the topic of 'Bio-Remediation and Scientific closure of Bhanpur dump site, Bhopal' by Mr. Saurabh Sood, Assistant Engineer, Bhopal Municipal Corporation. He discussed the challenges the city faced in treating its legacy waste, as well as the steps involved in the bio-remediation process, such as waste surveying, quantification, profiling, and categorization. He discussed the project's tendering process as well as the technology used in the bio-remediation and scientific closure processes. Furthermore, he emphasized the significance of CPHEEO guidelines, the adoption of NGT norms, and the limitation of environmental and social factors during the process. Lastly, he mentioned about the appreciation of property prices in the area around the dump site post remediation as well as improvement in living standards of people there.



Figure 6: Session on bio-remediation and scientific closure of bhanpur dump site

The next session was on 'Integrated Decentralized SWM Model (Sanitation Park)' by Mr. Lakhwinder Singh GM, Feedback Foundation Charitable Trust. He elaborated on the concept of sanitation parks and presented case studies of Budhni, Malanpur. The procedures used in a sanitation park like the composting zone, e-waste zone, and recyclables zone were explained in detail. He also talked about the importance of monitoring source segregation and citizen mobilization in SWM.



Figure 7: Session on integrated decentralized SWM model (Sanitation Park)

Mr. Shrigopal Jagtap, CEO and Founder, Shrishti Waste Management Services, spoke about the 'Swachh Bharat Mission (SBM) journey of Indore city' in the following session. The significance of 'Jan Bhagidari,' or citizen participation, was emphasised, as were the challenges that the corporation faced, such as open dumping points, a lack of door-to-door collection, 100 years of legacy waste and others. He described how the city started with a pilot project in two wards, which was then scaled up for door-to-door waste collection and segregation, and infrastructure for the entire city was developed. He also elaborated on other concepts used by Indore City in their SBM journey, such as 6-bin segregation, steps to a bin-free city, NGO deployment, and spot fine.



Figure 8: Session on 'Swachh Bharat Mission (SBM) journey of Indore city

Ms. Paramita Datta Dey, Team Lead, SCIAP Project, NIUA, led the day's concluding session. She briefly discussed the role of IEC in waste management and described the case study of Ambikapur, where community engagement helped the city showcase a successful solid waste management model. She also described how the model was scaled-up in Chhattisgarh.



Figure 9: Session on role of IEC in SWM

A total of 95 participants attended Day 3 of the workshop. This included officials from the BMC as well as other ULB's which participated in the workshop.

## Day 2: Used Water and Urban Water Management

The second day of the capacity building workshop covered sessions on Water and Used Water Management. A total of 94 participants attended Day 2 of the workshop. This included officials from the water and used water departments of BMC and 45 other ULBs.

The session was facilitated by Ms. Paramita Datta Dey (Head of Resources & Waste Team and team lead of SCIAP project at NIUA) who welcomed the participants on behalf of NIUA and UNIDO. She briefed about the SCIAP project in India and the capacity building activities under the component 3 of the project.



Figure 10: Recap and context setting

This was followed by a Vote of Thanks by Mr. B R Mishra, Urban Technology and Investment Specialist, representative from UNIDO. He detailed out the various components of the project and explained the need for integrated planning approach



Figure 11: Keynote address



It was followed by the technical sessions delivered by experts from the WASH sector. The technical sessions were based on the topics covered in the training modules on water and used water management developed by NIUA.

The first session was conducted by Ms. Girija K Bharat, Director- Mu Gamma Consultants Pvt Ltd. The session covered various aspects of Used water management including a brief overview of value chain components and a case study of safe reuse of treated or used water.



Figure 12: Technical session on used water management

She explained about various steps in the value chain analysis, viz., value chain mapping, value chain analysis, planning and implementation and performance measurement. She also highlighted the necessity of reuse of treated or used water for a sustainable future. This was elaborated through showcasing case studies of Surat and Chennai. In her last presentation, she explained about the climate adaptation strategies in water sector.

The second session was delivered virtually by Mr. Chinmaya Tripathi, Environmental Engineer, Water Corporation of Odisha on 'Drinking Water Security in Urban Odisha'. The session elaborated on the current drinking water scenario and challenges, questions that ULBs should address, and changes in water policy that have positively impacted the drinking water situation in Odisha. The importance of enabling policies, institutional reforms, programmes like 'Jalasathi' were also emphasised during the session. The latter part of the session was on 'Drink from Tap Mission (24x7 basis)', wherein the need for 24x7 water supply, the steps cities can take to ensure the same and the significance of smart water management was highlighted. The case of Puri, showcasing a successful model of India's first city drinking straight from tap was also discussed.



Figure 13: Technical session on drinking water security in urban Odisha

The subsequent set of sessions were conducted by Mr. Krishna Swaroop, Senior Project Manager at CDD India. He started off the session by explaining the fundamental philosophy that “what cannot be maintained should not be built”. He pointed out that most of the urban water bodies are neglected and we are disconnected from the local surface water resources mainly because of the centralized provision of public water distribution systems. He also elaborated on the challenges and various procedures involved in waterbody rejuvenation, emphasizing the importance of community and stakeholder engagement in the process. Various waterbody rejuvenation case studies from Indian context were also discussed.



Figure 14: Technical session on waterbody rejuvenation

The last session was delivered by Mr. Dhawal Patil, Director of Saniverse Environmental Solutions. These sessions covered various aspects of used water and septage management – policies and legislations, value chain components, treatment technologies, O&M related challenges, and case studies from Indian cities implementing effective strategies. This was followed by a detailed discussion on preparing and appraising Detailed Project Reports (DPRs).



Figure 15: Technical session on faecal sludge and septage management

Finally, the day concluded with a special address from Mr. M. P. Singh, Additional Commissioner of Bhopal Municipal Corporation and distribution of certificates to all the participants



Figure 16: Certificate distribution



Figure 17: Special address





# 2

## Participants of the Workshop



## Participants of the Workshop

About 111 participants attended the workshop over the duration of two days. The participants were mid and senior level officials from the water, waste water and solid waste management departments of Bhopal Municipal Corporation and the other 45 ULB's. Lists of nominations received from VMC and GMC are enclosed in **Annexure 2**.

For the day 1 of the workshop around 25 people attended from the solid waste management department of JMC. On the second day, around 20 participants from used water management department attended the training.

Table 1: Day-wise number of participants for ULB's of scale-up

Other Municipal Corporations	Day 1: Solid Waste Management	Day 2: Used Water & Urban Water Management
Male	68	67
Female	2	2
Total	70	69

Table 2: Day-wise number of participants for BMC

Bhopal Municipal Corporation	Day 1: Solid Waste Management	Day2: Used Water & Urban Water Management
Male	21	19
Female	0	1
Total	21	20



Figure 18: Group photograph - participants and resource persons

# 3

## Resource Persons for the Workshop





## Resource Persons for the Workshop

Resource persons who were invited to deliver lectures and conduct technical sessions at the workshop were practitioners from the WASH sector with hands on experience in the field. This included consultants, experts from government organizations, companies and NGOs. The sessions included both theoretical as well as practical examples, demonstrations, exhibited videos, group exercises and discussions. Detailed profiles of the resource persons are enclosed in **Annexure 3**.



Girija K Bharat



Pravinjith KP



Chinmay Tripathi



Shrigopal Jagtap



Dr. Brijesh Dubey



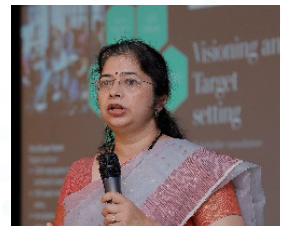
Dhawal Patil



Lakhvinder Singh



Paramita Datta Dey



Zigisha Mhaskar



Pradeep Khandelwal



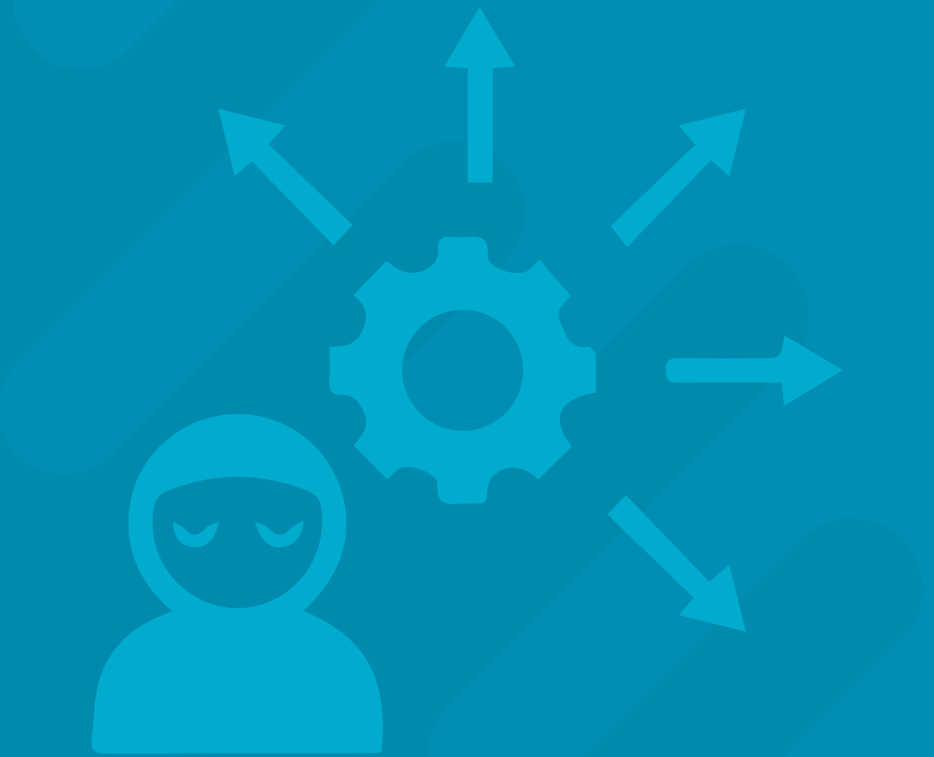
Saurabh Sood



Krishna Swaroop

# 4

## Workshop Outcome



# Workshop Outcome

The aim of the training program was to enhance the knowledge level of the officials in the sectors of solid waste management and used water management. To evaluate and understand the impact of the two-day workshop, forms were distributed among the participant's viz., one feedback form and two learning progress evaluation forms.

## Bhopal Municipal Corporation

### Feedback Form

The goal of the feedback form was to understand the overall experience of the attendees as well as assess the quality of the sessions delivered. According to the feedback received, approximately 36% of BMC officials found the training to be extremely beneficial. Almost 90% of them found the sessions over the two days to be very useful.

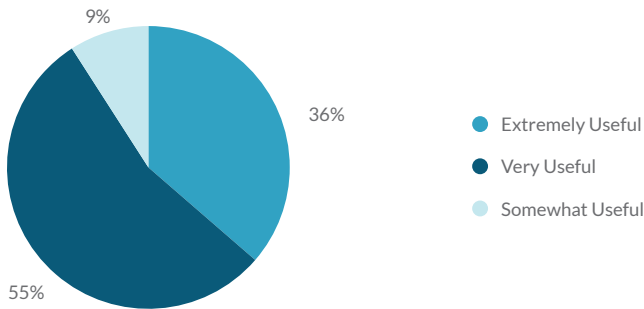


Figure 19: Analysis of BMC officials' feedback on overall usefulness of the workshop

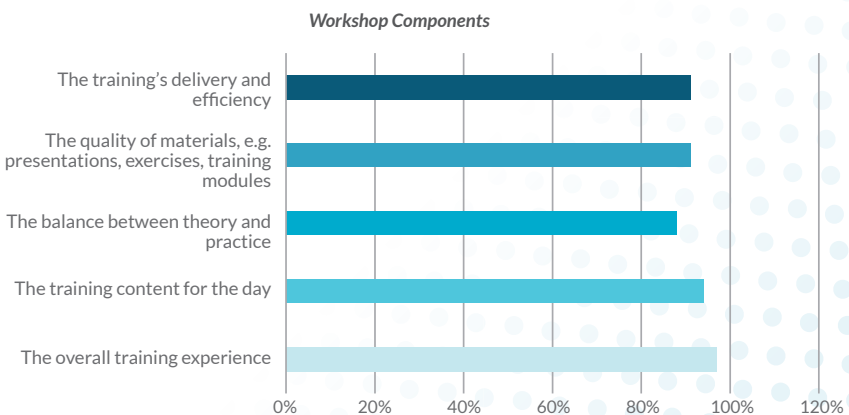
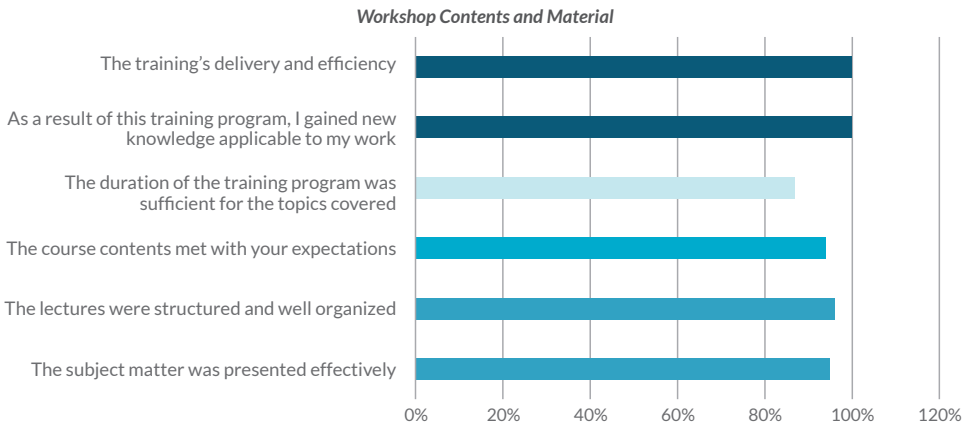


Figure 20: Analysis of BMC officials' feedback for various components of the training workshop

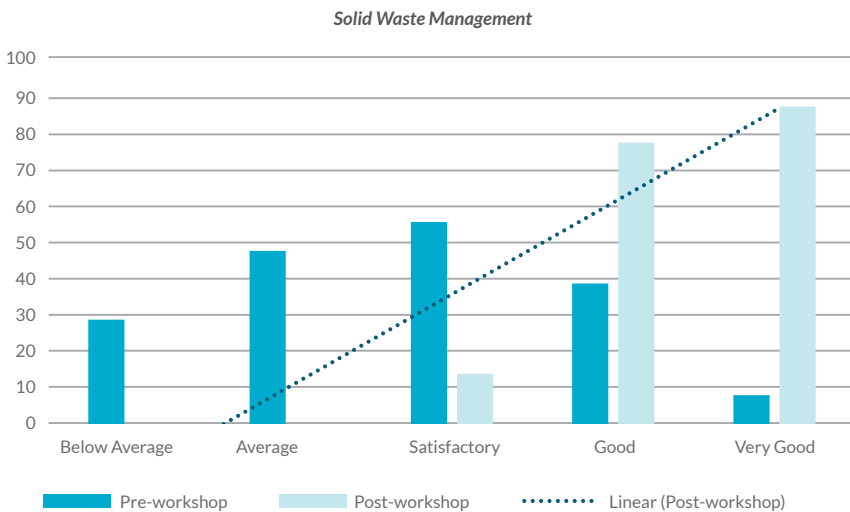


**Figure 21: Analysis of BMC officials' feedback for the training material**

## Learning Progress Evaluation Form

The pre and post workshop questionnaires were designed to assess how the training improved the participants' knowledge on various topics covered during the two-day sessions. The analysis of this showed there was a positive change in the knowledge level of participants in all the sectors.

### Day 1:



**Figure 22: Evaluation of pre and post workshop learnings of BMC officials for day 1**

## Day 2:

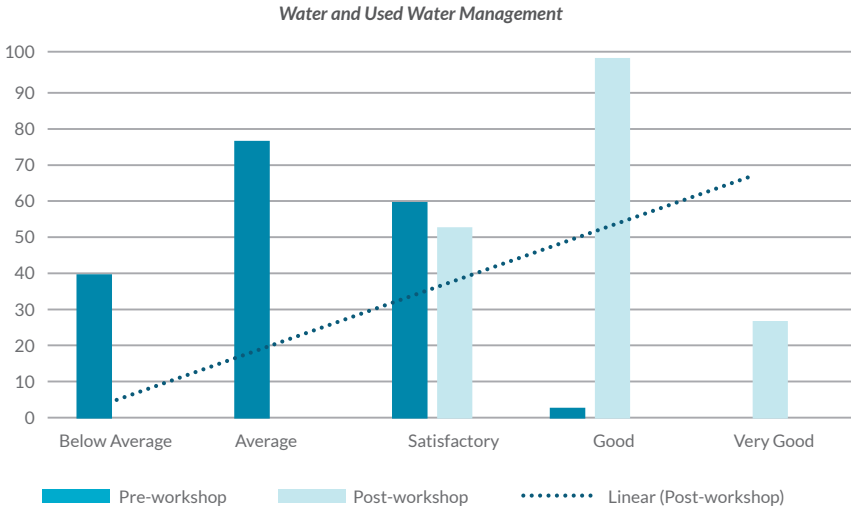


Figure 23: Evaluation of pre and post workshop learnings of BMC officials for day 2

## Other ULBs

### Feedback Form

The goal of the feedback form was to understand the overall experience of the attendees as well as assess the quality of the sessions delivered.

According to the feedback received, around 50% of officials found the training to be extremely beneficial. More than 90% of them found the sessions over the two days to be very useful.

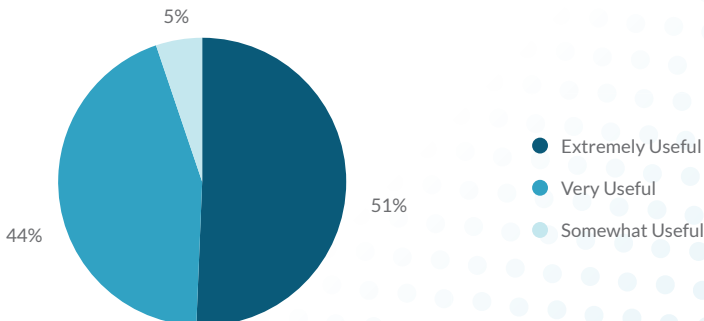
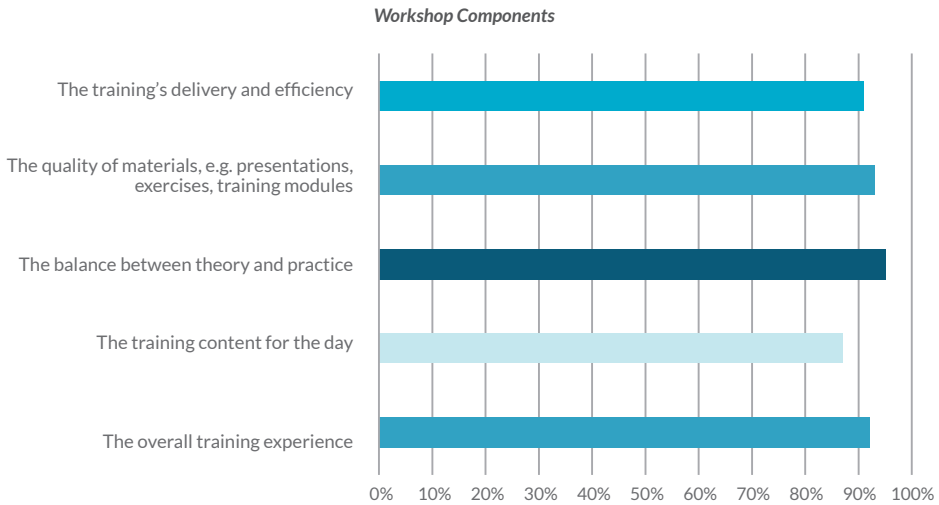
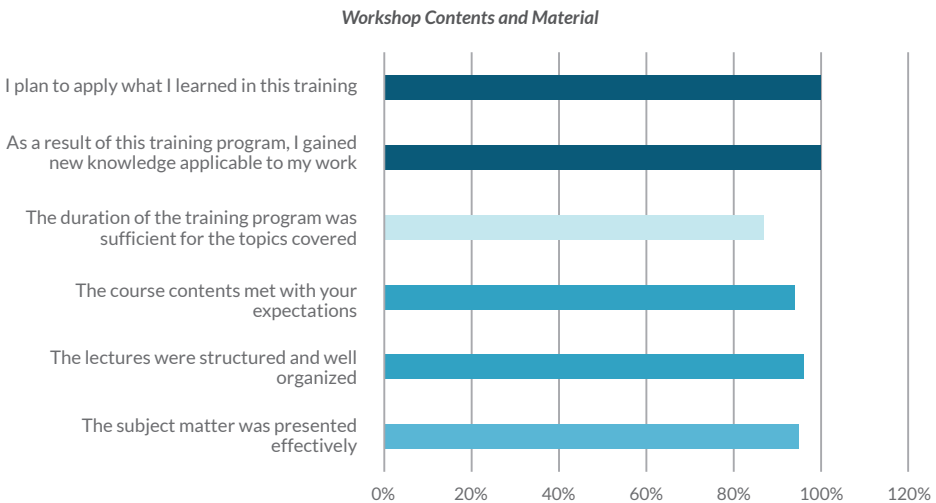


Figure 24: Analysis of Other ULB officials' feedback on overall usefulness of the workshop



**Figure 25: Analysis of Other ULB officials' feedback for various components of the training workshop**

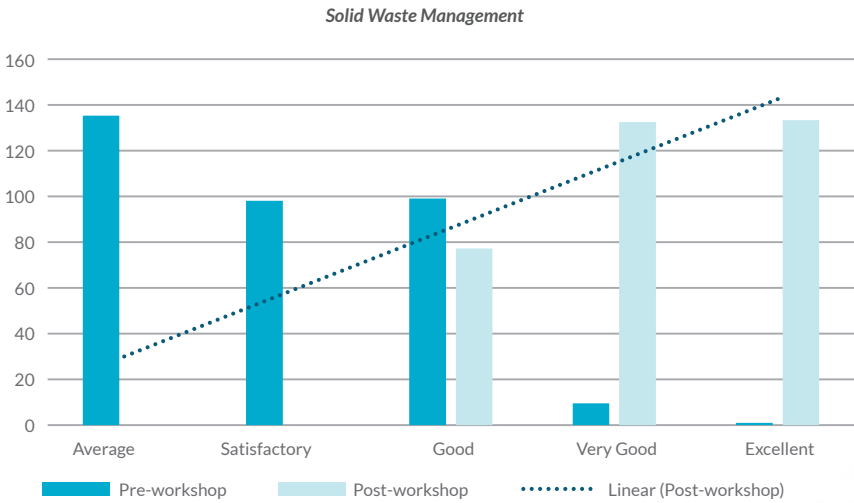


**Figure 26: Analysis of Other ULB officials' feedback for the training material**

## Learning Progress Evaluation Form

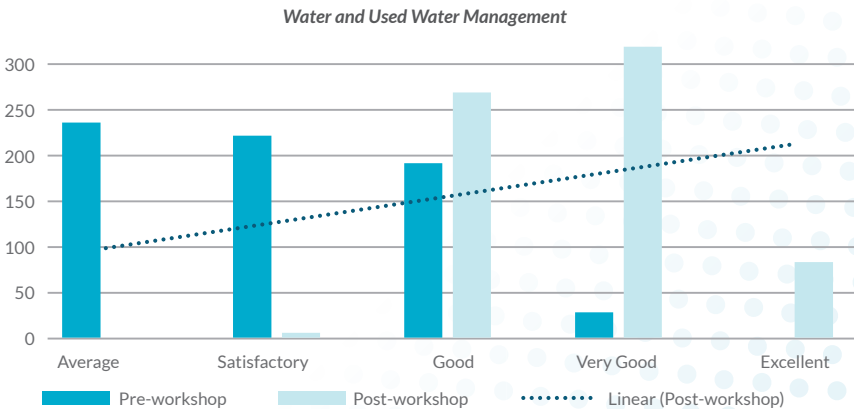
The pre and post workshop questionnaires were designed to assess how the training improved the participants' knowledge on various topics covered during the two-day sessions. The analysis of this showed there was a positive change in the knowledge level of participants in all the sectors.

### Day 1:



**Figure 27: Evaluation of pre and post workshop learnings of other ULBs for the Day 1 of the workshop**

### Day 2:



**Figure 28: Evaluation of pre and post workshop learnings of other ULBs for the Day 2 of the workshop**

# 5 Way Forward

The next step is to provide technical assistance. This will be given based on the requirements in various sectors viz., used water and septage management, solid waste management and urban water management.







आर सी वी पी नरोन्हा  
प्रशासन एवं प्रबन्धकीय अकादमी  
R.C.V.P. NORONHA  
ACADEMY OF ADMINISTRATION AND MANAGEMENT, BHOPAL

*Capacity Building Workshop for*  
**ULB Officials**  
*of*  
**Bhopal, Madhya Pradesh**

Ground Functionaries

*1<sup>st</sup> – 2<sup>nd</sup> November 2022*

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# Quick Overview



**08**  
Sessions



**02**  
Speakers



Venue  
All India Institute of  
Local Self Government,  
Bhopal

**47**   **1**  
Male   Female  
Participants

# Introduction



# Overview

The workshop for the Ground functionaries under the “Sustainable Cities Integrated Approach Pilot Project in India (SCIAP) was organized by the National Institute of Urban Affairs in partnership with the Waste Management and Research Centre, All-India Institute of Local Self Government, Mumbai. The workshop was held from 1<sup>st</sup> to 2<sup>nd</sup> November 2022 in Bhopal, Madhya Pradesh, India. In total 48 participants attended the workshop.

The first & second day of the workshop included different thematic lectures and presentations by the experts on the following subjects:

- Social Security Provisions and Schemes for Ground Functionaries
- Enhancing Leadership Skills in Ground Functionaries and Creating an Inclusive Work-place
- Occupational Health and Safety of Ground Functionaries

## Details of Participants

Table1: Day-wise number of Participants

Date	Number of female participants	Number of male participants	Total
1 <sup>st</sup> November 2022	1	47	48
2 <sup>nd</sup> November 2022	1	47	48

The workshop was attended by 48 participants comprising; Dy. Sanitation Supervisor - 12, Sanitation Supervisor - 7, Sanitation Worker - 28 from Bhopal Municipal Corporation (BMC).



Figure 1: Participants in the workshop

## Expectation Mapping

At the beginning of the training, the trainer began with an ice-breaking session by briefing the participants about the workshop and asking the participants about their daily work routine.

Some of the expectations that the ground functionaries mentioned during the workshop are as follows:

- Information regarding various government schemes and their benefits
- Health-related hazards and safety measures to be considered at the workplace
- The mechanisms available to address their complaints and grievances
- Methods to manage work-related stress/enhancement of personality development, leadership skills & qualities.

After the participants expressed their expectations, the trainer discussed the purpose of the workshop. The main objective of the day was also explained to the ground functionaries.



Figure 2: Setting the context for the workshop



# 1

## Enhancing Leadership for Frontline Workers to Create an Inclusive Workplace





# Workshop Sessions

## Session-1: Importance of Self-Identification

The session began with an introductory session where the trainer introduced the importance of Self-Identification. Dr. Sanjeevani Palkar, the trainer emphasized on enhancing communication skills with co-workers and the communities. She did a group activity to brainstorm the participants on enhancing their leadership skills and qualities.

The trainer also briefed the participants about the importance of having an identity that gives dignity and respect to the work done by them for improving the environment of the community. During the session, the trainer also highlighted ground functionaries as an important part of the healthcare system and the important role played by them during the COVID-19 pandemic.

Further, the trainer asked the participants to share their experience and contribution of their work to well-being of the city. They also shared their challenges and issues faced during their work. It was observed that the some of the ground functionaries were qualified but were involved in waste management.



Figure 3: Session on self-identification

## Session-2: Gender Sensitization

Dr Palkar, the trainer began the session on gender sensitization. This session aimed to break the age-old traditional gender norms and sensitize sanitation workers on gender issues. She discussed on the various roles played by women and men at the city level. As the roles of men and women are changing in our society, awareness related to various roles played by them was discussed by the trainer

Questions regarding their preconceived notion about the roles ascribed to gender were discussed and clarified. Pictorial charts depicting about gender equality were also shown to the participants.



Figure 4: Session on gender sensitization

## Session-3: Stress Management

A session on stress management was conducted to help the participants with the ways to deal with work-related stress. In this session, Dr. Palkar explained about stress relieving measures that could be adopted by the participants. A few of them were demonstrated. e.g., breathing, relaxation exercises were told to them, positive interaction with friends, families, yoga and meditation, etc.



Figure 5: Session on stress management



VAGABOND

Document with text and graphics on a red folder.

Open book or document on a table with a blue pen and a green object.

# 2

## **Social Security Provisions and Schemes for Ground Functionaries, Personal Protective Equipment (PPE)**



# Workshop Sessions

## Session-1: Introduction to Social Security

Day two began with the session on Social security. The trainer briefed the participants that a well-designed social security measures are required for the conservancy workers to help in improving productivity, contributing to labour relations and to achieve socio-economic developments. Dr. Neha Kolhe's, the trainer started with an activity asking the participants about their understanding of social security schemes. A comprehensive discussion upon the nuance of social security using question on medical camps, housing, ration etc. was conducted.



Figure 6: Session on social security

## Session-2: Benefits of Various Social Security Schemes:

In this session, the trainer explained various laws and benefits of the social security schemes/ programmes in India:

In detail, the understanding of following schemes was focused;

- Employee Provident Fund: Employees Deposit Linked Life Insurance Scheme, Pension Scheme,

Partial fund withdrawal and Loan against Provident Fund

- Employee State Insurance
- Personnel Protective Equipment's
- Low rate of interest credit scheme for the workers
- Insurance and other welfare schemes for workers not registered in ESI

The trainer explained the process of the documents required for accessing various social security schemes such as Aadhar Card (includes your address), PAN Card, Bank Account details, occupational identity card (rarely needed), E-Shram Card, Unique Account Number (UAN) for EPF, E-Pehchan Card for ESI. During the session, it was noted that all participants have EPF and ESI accounts. The participants were keen to know more about the benefit of EPF, ESI and E- Shram Scheme.

Further, the trainer took a detailed session on EPF partial fund withdrawal scheme, Pension Scheme for EPF account holder and loan against Provident fund which was much appreciated by the participants.



Figure 7: Benefits of various social security schemes



# 3

## Occupational Health and Safety







She concluded her session by discussing several initiatives taken by the Government of India such as:

- Prohibition of Employment as Manual Scavengers and their Rehabilitation Act & Rules, 2013
- Manual on Sewerage & Sewage Treatment Systems 2013
- Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks 2018
- IS 11972 – 2002: Code of Practice for Safety Precautions to be taken when entering a sewerage system

### Session-3: Occupational Health

In this session, Dr. Palkar stated that ground functionaries and sanitation workers are involved in various tasks across the sanitation value chain which includes cleaning toilets, septic tanks, sewer lines, drains, and desludging, wherein they also come in direct contact with the contaminants. Hence, due to this there is a high rate of prolonged illness and mortality rate.

The trainer also briefed the participants about various injuries, disorders with the causes and the preventive measures to be taken to avoid these commonly reported diseases, skin infections, urinary tract infection, menstrual disorders, etc.

The trainer also discussed the problems due to poor sanitation such as:

- Poor hygiene and sanitation at personal, household and community levels
- Contaminated food and water
- Lack of occupational health and safety at work
- Inadequate control of health-related matters at ports of entry
- Lack of control of disease vectors and parasites
- Poor housing and settlements
- Inadequate handling of disaster and emergencies
- Contaminated environment as a result of inadequate liquid and solid waste management.



Figure 9: Session on occupational health

## Session-4: Safety Measures for the Sanitation Workers

This last session was a combined session on safety measures. The trainer discussed about the immediate first aid emergency and medical facilities for the workers. Importance of maintaining the contact number of nearby Govt Hospitals or Govt. Dispensaries, importance of proper healthcare facilities during medical emergencies and importance of proper immunization for preventable diseases were discussed by the trainer.

Demonstration and videos on hand wash and hygiene were shown to the participants in order to highlight the importance of hygiene. The session also dealt with preventive measures and the precautions to be taken to avoid the occupational hazards faced by the ground functionaries.



Figure 10: Session on safety measures for the sanitation workers

# Learnings from the Workshop



- The training sessions were interactive where participants were able to share their opinion regarding various aspects of their daily work. They were able to express their concerns as well. As sanitary workers who keep the city clean, they emphasized how respect and recognition play an important role in their daily work.
- The women workers expressed their concerns regarding the gender stereotype and inequality they face at the workplace. They also expressed their lack of knowledge regarding various benefits that they are entitled to receive.
- The overall feedback of the workshop is that the participants are happy with the content and training of the workshop. They have attained a more positive and better outlook towards their daily work activities



Figure 11: Group photo of the ground functionaries

## Feedback and Analysis

Two types of feedback were taken from the participants:

- A written feedback form with questions and options to choose from. The trainers read questions for non-literate participants aloud and recorded their options.
- Collective video feedback with the questions read aloud to all the participants.

Senior and Mid Level Officials

# Annexures



# Annexure 1: Agenda of the Workshop - Day wise

DAY – 1 Solid Waste Management (29 <sup>th</sup> November, 2022)	
Time	Details
9.00 AM - 9.15 AM	Registration
9.15 AM - 9.30 AM	<b>Welcome Note and Context setting</b> <i>Paramita Datta Dey</i>
9.30 AM- 9.45 AM	<b>Address by City representative from UNIDO</b> <i>B. R. Mishra</i>
10.00 AM- 11.00 AM	<b>SW-APT tool for GHG estimation</b> <i>Pravinjith KP</i>
<b>11.00 AM- 11.15 AM</b>	<b>TEA BREAK</b>
11.15 AM- 12.15 PM	<b>City-wide strategy and planning for SWM</b> <i>Zigisha Mhaskar</i>
12.15 PM- 1.30 PM	<b>E-waste management, Plastic waste management – Innovative practices in India</b> <i>Brajesh Dubey</i>
<b>1.30 PM TO 2.00 PM</b>	<b>LUNCH</b>
2.00 PM – 3.00 PM	<b>Construction and Demolition Waste Management</b> <i>Pradeep Khandelwal</i>
3.00 PM – 4.00 PM	<b>Bio remediation and scientific closure of Bhanpur dump site, Bhopal</b> <i>Saurabh Sood</i>
<b>4.00 PM – 4.15 PM</b>	<b>TEA BREAK</b>
4.15 PM – 5.00 PM	<b>Integrated Decentralised SWM Model (Sanitation Park)</b> <i>Lakhwinder Singh</i>
5.00 PM – 6.00 PM	<b>SBM Journey of Indore city</b> <i>Shrigopal Jagtap</i>
6.00 PM – 6.30 PM	<b>Role of IEC and Wrap-up Session</b> <i>Paramita Datta Dey</i>

**DAY – 2 Used Water and Urban Water Management (30<sup>th</sup> November, 2022)**

<b>Time</b>	<b>Details</b>
9.00 AM - 9.15 AM	Registration
9.15 AM - 9.30 AM	<b>Recap and Context Setting</b> <i>Paramita Datta Dey</i>
9:30 AM- 11:00 AM	<b>Drink from Tap Mission – Quality Piped Drinking Water to Citizens (24x7 basis)</b> <i>Chinmaya Tripathy</i>
<b>11.00 AM- 11.15 AM</b>	<b>TEA BREAK</b>
11.15 AM- 01.30 PM	<b>Brief overview of value chain components; Safe Reuse of Treated or Used Water - Case Study Surat and Chennai; Climate adaptation strategies in Water Sector</b> <i>Girija Bharat</i>
<b>1.30 PM TO 2.00 PM</b>	<b>LUNCH</b>
2.00 PM – 3.30 PM	<b>Faecal Sludge and Septage Management – Technologies; Discussion on Preparing and Appraising DPRs (Used Water); O&amp;M related Challenges</b> <i>Dhawal Patil</i>
<b>3.30 PM – 3.45 PM</b>	<b>TEA BREAK</b>
3.45 PM – 5.30 PM	<b>Rejuvenation of Waterbodies (Nature Based Solutions - Indian Case Studies); Lake Rejuvenation and Restoration</b> <i>Krishna Swaroop</i>
5.30 PM – 5.45 PM	<b>Key Note Address by Addn. Commissioner of BMC</b> <i>Shri M. P. Singh</i>
5.45 PM – 6.00 PM	<b>Feedback &amp; Certificate Distribution</b> <i>NIUA Team</i>



## Annexure 2: List of Participants

The list of participants who attended the training on Solid Waste Management on 29<sup>th</sup> November 2022 from BMC

Sl. No	Name of the Person (Sri/Smt./ Ms./Dr.)	Urban Local Body	Designation
1	Mr. Chanchalesh Girhare	BMC	Assistant Engineer
2	Mr. Shiv Kumar Tomar	BMC	Manager NULM
3	Mr. Rajeev Saxena	BMC	Chief Sanitary Officer
4	Mr. Ravikanth Audhichya	BMC	Health Officer
5	Mr. Rakesh Sharma	BMC	Health Officer
6	Mr. Bijendra Gupta	BMC	Health Officer
7	Mr. Rajesh Gaengat	BMC	Assistant Health Officer
8	Mr. Mohd. Kashif	BMC	Assistant Health Officer
9	Mr. Mohd. Shahab	BMC	Assistant Health Officer
10	Mr. Ramakant Yadav	BMC	Assistant Health Officer
11	Mr. Jagadeesh Tak	BMC	Assistant Health Officer
12	Mr. Sandeep Mandalekar	BMC	Assistant Health Officer
13	Mr. Yogesh Dubey	BMC	Assistant Health Officer
14	Mr. Balvir Malik	BMC	Assistant Health Officer
15	Mr. J P Tomar	BMC	Assistant Health Officer
16	Mr. Ravi Badham	BMC	Assistant Health Officer
17	Mr. Dinesh Pal	BMC	Assistant Health Officer
18	Mr. Asif Nasir	BMC	Assistant Health Officer
19	Mr. Madsudan Tiwari	BMC	Assistant Health Officer
20	Mr. Jitender Sharma	BMC	Assistant Health Officer
21	Mr. Sandeep Thakur	BMC	Assistant Health Officer

The list of participants from Bhopal Municipal Corporation who attended the training on Used Water & Urban Water Management on 30th November 2022

Sl. No	Name of the Person (Sri/Smt./Ms./Dr.)	Urban Local Body	Designation
1	Shri Udit Garg	BMC	Superintendent Engg.
2	Shri Santhosh Gupta	BMC	Superintendent Engg.
3	Shri Z A Khan	BMC	Executive Engineer
4	Shri T C Patya	BMC	Executive Engineer
5	Shri R K Gupta	BMC	Executive Engineer
6	Shri Brijaraj Singh Senghar	BMC	Executive Engineer
7	Ms. Shalini Singh	BMC	Assistant Engineer
8	Shri Sachin Sahu	BMC	Assistant Engineer
9	Shri Ashok Raghuvanshi	BMC	Assistant Engineer
10	Shri Ajay Solanki	BMC	Assistant Engineer
11	Shri Deepak Sorada	BMC	Assistant Engineer
12	Shri Gaurav Parmar	BMC	Assistant Engineer
13	Shri Nitesh Shrivastava	BMC	Assistant Engineer
14	Shri Vikas Tiwari	BMC	Assistant Engineer
15	Shri Ravi Singh	BMC	Assistant Engineer
16	Shri Umashankar	BMC	Assistant Engineer
17	Shri Prafull Gurjar	BMC	Assistant Engineer
18	Shri Pushpender Rawat	BMC	Assistant Engineer
19	Shri Ankit Raghuvanshi	BMC	Assistant Engineer
20	Shri Bhupendra Sinha	BMC	Assistant Engineer

The list of participants from other ULBs who attended the training

Sl. No	State Name	Name of the ULB's	Name of the Participant	Designation
1	Assam	Nagar Palika Parishad-Udalguri	Sh. Navadeep Changmai, ACS	Executive and circle officer
2	Haryana	Nagar Plaika Parishad-Chakri Dadri	Sh. Praveen Raghav	Executive Engineer
3			Sh. Mukesh Kumar	Municipal Engineer
4	Karnataka	Greater Municipal Corporation-Bruhat Bengaluru	Sh. J Vishwanath	Superintendent Engineer South
5			Sh. Venkateshppa	Superintendent Engineer West
6	Madhya Pradesh	Nagar Palika Parishad-Barwani	Sh. Kushalsingh Dodave	Chief Municipal Officer
7			Sh. Ravi rathore	Assistant Engineer
8	Maharashtra	Nagar Nigam- Akola	Mr.Prashant Rajurkar	Health Officer
9	Rajasthan	Nagar Nigam Jodhpur South	Sh. Praveen Gehlot	Nagar Nigam Jodhpur south
10	Rajasthan	Nagar Nigam Jodhpur North	Sh. Ankit Purohit	Executive Engineer
11	Telangana	Nagar Palika Parishad Husanabad	Sh. S.Sai Praneeth	Assistant Engineer
12			Sh. D. Ravikumar	Environmental Engineer
13	Uttar Pradesh	Nagar Palika Parishad-Barua Sagar	Sh. Mahesh Prasad	DPM Jhansi
14	Uttar Pradesh	Nagar Palika Parishad-Gajraula	Sh. Lalit Kumar	Lipik
15	Uttar Pradesh	Nagar Nigam-Shahjahanpur	Sh. Pawan Kumar	Sanitary Inspector
16			Sh. Suraj Prajapati	Junior Engineer
17	Uttar Pradesh	Nagar Palika Parishad-Mohaba	Sh Vikas Shukla	Assistant Engineer
18			Smt. Ruby Bano	District Program Manager
19	Uttar Pradesh	Nagar Palika Parishad-Ghazipur	Sh. Lal Chandra Saroj	Executive Officer
20	Uttar Pradesh	Nagar Palika Parishad-Hasanpur	Sh. Dinesh Kumar	Health Clerk
21			Smt. Sanjeeta Kashyap	Junior Engineer

Sl. No	State Name	Name of the ULB's	Name of the Participant	Designation
22	Uttar Pradesh	Nagar Palika Parishad-Philibhit	Sh. Shobhit Singh	District Coordinator
23	Uttar Pradesh	Nagar Palika Parishad-Puranpur	Sh. Girja Shankar Verma	District Program Manager
24	Uttar Pradesh	Nagar Palika Parishad-Amroha	Sh. Tapes Kumar	Junior Engineer
25			Sh. Nadeem Akhtar	District Program Manager
26			Sh. Ashish Kumar Singh	Urban Planner-AMRUT
27	Uttar Pradesh	Nagar Palika Parishad-Bijnor	Sh. Vikas Kumar	Executive Officer
28			Sh. Harish Gangwar	District Program Manager
29	Madhya Pradesh	Municipal Council Champa	Devendra Kumar Kaiwat	Sub Engineer
30	Madhya Pradesh	Municipal Council Mangrooni	Vivek Agrawal	Sub Engineer
31			Govind Singh	Sanitary Inspector
32	Madhya Pradesh	Nagar Parishad Piprai	Ashok kumar	Chief Municipal Officer
33			Kuldeep Singh	Sub Engineer
34	Madhya Pradesh	Nagar Parishad Niwali	Roop Singh Solani	Chief Municipal Officer
35	Madhya Pradesh	Nagar Parishad Theekri	Prem Wasure	Chief Municipal Officer
36	Tamil Nadu	Greater Chennai Corporation	R A Prabhakar	Executive Engineer
37	Andra Pradesh	Mummidivaram Nagar Panchayat	G. Lova Raju	Municipal Commissioner
38			K Satyanarayana	Assistant Engineer
39	Madhya Pradesh	Municipal Council Pohari	T S Yadav	Chief Municipal Officer
40			NandKishore	ARI
41	Madhya Pradesh	Nagar Parishad Rannod	R B Sharma	Chief Municipal Officer
42	Madhya Pradesh	Nagar Parishad Ghodadongri	Braj Kishore	Chief Municipal Officer
43			Hemant Patwa	Chief Municipal Officer
44	Madhya Pradesh	Nagar Parishad Shahpur	R L Rahangdale	Chief Municipal Officer
45			Sunil Kumar Sahu	Clerk

Sl. No	State Name	Name of the ULB's	Name of the Participant	Designation
46	Madhya Pradesh	Nagar Parishad Mohana	Vikas Yadav	Sanitary Inspector
47	Madhya Pradesh	Nagar Parishad Bhaissoda Mandi	Khemchand	Chief Municipal Officer
48			Praveen parwar	Sub Engineer
49			Ashok Vyas	Clerk
50	Madhya Pradesh	Nagar Parishad Malthone	Sanjay Somarde	Chief Municipal Officer
51	Madhya Pradesh	Nagar Parishad Sagar	Rajesh mehtel	Chief Municipal Officer
52	Madhya Pradesh	Nagar Parishad Madhusudangarh	Abdul Segir	Chief Municipal Officer
53			Badri Prasad Sharma	ARI
54			Deepak Soni	Executive Officer
55	Madhya Pradesh	Nagar Parishad Bakho	Prabhat Warkade	Chief Municipal Officer
56	Madhya Pradesh	Nagar Parishad Malanpur	Raghavendra Sharma	Sanitary Inspector
57			Manoj Sharma	Chief Municipal Officer
58	Madhya Pradesh	Nagar Parishad Dumarkachar	Rakesh Kumar Shukla	Chief Municipal Officer
59	Madhya Pradesh	Nagar Parishad Dola	Munindra Prasad Misra	Chief Municipal Officer
60	Madhya Pradesh	Nagar Parishad Chappara	Shyam Gopal	Chief Municipal Officer
61			Deepak Vikey	Sub Engineer
62	Madhya Pradesh	Nagar Parishad Panna	Devendra Soni	Sub Engineer
63			Durga Prasad Soni	Sanitary Inspector
64	Madhya Pradesh	Nagar Parishad Keolari	Sanjay Kaithwal	Sub Engineer
65	Madhya Pradesh	Nagar Parishad Surkhi	Siddique Khan	Sub Engineer
66			K B J Baghel	Chief Municipal Officer
67	Madhya Pradesh	Nagar Parishad Sirali	Badrilal Purbiya	Chief Municipal Officer
68	Madhya Pradesh	Nagar Parishad Bangawan	Umashankar Kushwaha	Nodal officer
69	Madhya Pradesh	Nagar Parishad Bikhera	Prem Singh	Chief Municipal Officer

## Annexure 3: Profiles of Resource Persons

<p><b>Mr. Pravinjith KP</b>  <i>Managing Director  Paradigm Environmental  Strategies P Ltd</i></p>	<p><b>Mr. Pravinjith KP</b> has over 30 years' and 500+ project experience in Environmental Infrastructure, Waste Management, Renewable Energy, Climate Change and allied fields. He has been the lead and Project Management Head for waste management projects for 70+ cities of India (including Bangalore, Nashik, Varanasi, Rajkot, Shimla, Meghalaya, Pune, Jammu, Kochi, Coimbatore, Gwalior, Raipur, Sawai Madhopur, Sambhalpur, etc, spanning across India). His expertise ranges from concept to commissioning including planning and design of infrastructure for various projects of Recycling &amp; Recovery facilities, sewage management, solid waste management (municipal, hazwaste, e-waste), rainwater harvesting, renewable energy (Wind, Hydel, and Solar energy), and environmental impact assessment related projects. He was the Senior Technical Expert for policy making for Govt of India and various other UN and Bilateral/ Multilateral agencies. He was responsible for the development of Data Base framework and Structure for CPCB and GSPCB (for Hazardous Waste) MoHUA (for Solid Waste). He was consultant for the planning and implementation of Indias first informal to formal Ewaste recycling enterprise in 2006.</p>
<p><b>Dr. Brajesh Dubey</b>  <i>Associate Professor,  IIT-Kharagpur</i></p>	<p>Dr. Brajesh Dubey has over 16 years (post PhD) of research, teaching, and consulting experience within the broad fields of environmental, sustainable/resilient engineering and circular economy approaches, addressing the nexus among sustainability, resiliency, infrastructure, waste, energy, and the environment. His research expertise includes: (1) Life Cycle Assessment (LCA) and techno-economic assessment of emerging/next-generation technologies for solving sustainability challenges related to energy systems, built infrastructure and processing and manufacturing; (2) Decarbonization of the urban infrastructure, especially for integrated waste management systems; (3) Characterization and engineering applications of waste/recycled materials including beneficial reuse risk assessment; and (4) Resource Recovery from solid and liquid waste streams. Prior to PhD, he has 4 years of industry experience as a Civil/Environmental Engineer in the area of petrochemical, refineries and offshore oil platforms.</p>
<p><b>Pradeep Khandelwal</b>  <i>Chief Engineer (Retd.),  EDMC</i></p>	<p>Mr. Pradeep Khandelwal has 38 years of professional experience. He has recently retired as Chief Engineer in East Delhi Municipal Corporation (erstwhile Municipal Corporation of Delhi), where he has worked for more than 35 years. He did his B. Tech in Civil Engineering from REC Kurukshetra in 1983 and postgraduation in the field of Environmental Engineering &amp; Science from IIT Delhi in the year 2003. He has worked in various fields like planning, monitoring, execution, and management of various projects. He has been proactively involved in projects associated with the development and management of urban facilities, including solid waste management, in various capacities. He has been to Japan, Denmark, Malaysia, Singapore, Thailand, Brazil, Colombia, and the USA for technical visits.</p>
<p><b>Saurabh Sood</b>  Assistant Engineer  Bhopal Municipal  Corporation</p>	<p>Mr. Saurabh Sood has completed his graduation in B.E. (Hons.) Civil, Diploma in Local Self Governance and is currently working as a Assistant Engineer, Bhopal Municipal Corporation. He is carrying out his duties in Swachh Bharat Mission department of Bhopal Municipal Corporation. Being a part of this mission for more than 7 years of service he has carried out various projects in the field of solid waste management and sustainable development practices. Through these years of experience he had successfully executed the work of bio remediation and scientific closure of Bhanpura dumpsite, Construction of Scientific landfill site, Waste to Compost and RDF Plant, etc.</p>

<p>Shrigopal Jagtap CEO and Founder, Shrishti Waste Management Services</p>	<p>Mr. Shrigopal Jagtap Director – SWMS, Mater of Social Work &amp; M. Phil (Social Work) He is a Development Professional with 16 years of experience in the field of Solid waste Management and Sanitation Services. Since inception of his career he is associated with BASIX Group, his expertise in implementing the process of integrated solid waste management including composition and recycling has been a big success in Indore. He has experienced with near about 40 ULBs, 14 townships and NTPC - Simhadri, Visakhapatnam, NTPC -Sipat, Bilaspur, Chattisgarh and Municipal Committee of Budgam, Municipal Corporation of Srinagar - J&amp;K, and Meerut Citizen Forum.</p>
<p>Zigisha Mhaskar Solid Waste Management Expert</p>	<p><b>Ms. Zigisha Mhaskar</b> is a Masters in Planning, undergraduate in architecture, with twenty three years of experience in diverse sectors of urban issues. She has over 12 years of experience of working in solid waste management in urban areas. She has extensively worked in government sector, primarily in water and sanitation, environment, housing, city development plans, and urban policy. As a Program Manager of an International NGO, she has successfully managed programs in solid waste management, community participation, affordable housing, community sanitation, health of waste pickers and micro-planning in Pune. She has worked with US government organizations on housing and environment projects for four years, and has exposure to international projects.</p>
<p>Mr. Lakhvinder Singh GM, Feedback Foundation Charitable Trust</p>	<p>Mr. Lakhvinder Singh has over 10 years of experience in water and sanitation sector. Lakhvinder has vast experience in social human development and community-based projects, in the rural water and sanitation sector at the National, State, District and Village levels. He holds expertise in community based and demand responsive activities, including a vast repertoire of participatory tools and techniques for community capacity building. He also has wide experience in developing institutional mechanisms and monitoring systems for community-based projects. He specializes in training and capacity building on CLTS/ CAS/CATS approach for its application on the ground to create open defecation free and fully sanitized zones. Lakhvinder's core skills in SWM include capacity building, planning and undertaking Information Education and Communication activities, community mobilization and development, and social change communication. His key skills also include providing technical support to Urban Local Bodies for end-to-end solutions for solid waste management.</p>
<p>Chinmaya Tripathy Environmental Engineer</p>	<p>Mr. Chinmaya Tripathy is an Environmental Engineer with more than 20 Years of experience in Water Sector with significant national and international exposure. He has been working closely with the Govt. of India, various State Governments in India, (Government of Odisha in Particular since last 10 years) and many bilateral agencies. He is the Project Manager for JICA assisted "Orissa Integrated Sanitation Improvement Project" in Cuttack and Bhubaneswar city which have a project cost of approx. INR 4000 Cr to strengthen the waste water collection, treatment and disposal system in both cities. Currently, Mr. Tripathy is working as the Resident Project Manager at WATCO. He is one of the Governing Board Member of Odisha Water Academy as a Sectoral Expert. Mr. Tripathy and has been a key member of the Mission in the project management from the Concept to the Commissioning of the Mission in Odisha.</p>

<p><b>Girija K Bharat</b>  <i>Director, Mu Gamma Consultants Pvt Ltd.</i></p>	<p>Dr Girija K Bharat, Director, Mu Gamma Consultants Pvt Ltd. has about 25 years of experience in conducting research on Water Supply and Sanitation, Water Quality Assessment, Water Resource Management and Environmental Management. She was a Fellow and Area Convener of Water Resources Division of TERI till February 2015. Prior to joining TERI, she was a Presidential Scholar at George Mason University, Virginia, USA, where she has conducted innovative research on Persistent Organic Pollutants (POPs). She has also been a Scientist in Central Institute of Mining and Fuel Research, CSIR.</p>
<p><b>Dhawal Patil</b>  <i>Director Saniverse</i></p>	<p><b>Dhawal Patil</b> has a M.Sc. In Hydrosience and Engineering from TU Dresden, Germany and has over 10 years of experience in the field of sustainable sanitation and water management. He has worked as sanitation specialist focusing non sewerred and sewerred sanitation for national and international development agencies such as GIZ India, ADB, UMC, ASCI, WaterAid etc. He also works as a lead trainer for organizations such as NIUA, WASH Institute, AIILSG, CSE etc. Currently, he is providing technical consultancies on FSSM, Wastewater Management, River pollution abatement and its rejuvenation and Occupational Health and Safety to the state of Telangana, Jharkhand, Manipur, Odisha.</p>
<p><b>Krishna Swaroop</b>  <i>SR. Project Manager, CDD Society</i></p>	<p>Mr. Krishna Swaroop works as a Senior Project Manager at CDD India. He has an experience of 13+ years across diverse roles and sectors. He currently anchors the FSM vertical at CDD – focusing on Monitoring &amp; evaluation, treatment process optimization, hybridization, and capacity building. Other hats he dons at CDD India include Strategic Planning, Business Development &amp; Proposal Writing, Organizational IT. Prior to CDD, he worked with KPMG India and Cognizant Technology Solutions – covering Multilaterals, Urban Development Departments, Water, Sanitation &amp; Electricity Utilities, Publishing Houses. Assignments during these tenures have helped him develop a breadth of perspectives and hone his skills in Program Management, Stakeholder Engagement, Strategic Consulting, Business Process Reengineering. Krishna has a bachelor's degree in Computer Science &amp; Engineering and a Post Graduate Diploma in Rural Management from IRMA. He believes in Decentralization, Systems thinking and Continuous Improvement Process.</p>



# Annexure 4: Feedback from Participants

Feedback forms were filled out by the participants on all three days of the workshop. They answered questions regarding various workshop components - technical sessions, course contents, lecture delivery, and the application/implementation of gained knowledge.



## Sustainable Cities Integrated Approach Pilot in India (SCIAP) Component 3: Partnerships, Knowledge Management & Capacity Building

### Capacity Building Workshop For ULB Officials (यूएलबी अधिकारियों के लिए क्षमता निर्माण कार्यशाला) Bhopal (भोपाल)

on

## Solid Waste Management | ठोस अपशिष्ट प्रबंधन

Date: 29<sup>th</sup> November, 2022 | 29 नवंबर, 2022

### Feedback Form | प्रतिपुष्टी फ़ार्म

Name of the Participant \_\_\_\_\_ (Optional)  
प्रतिभागी का नाम (वैकल्पिक)

Name of the Municipal Corporation \_\_\_\_\_ (Mandatory)  
नगर निगम का नाम (अनिवार्य)

#### 1. How useful was the workshop for you? कार्यशाला आपके लिए कितनी उपयोगी थी?

- Extremely Useful  
अत्यंत उपयोगी
- Very Useful  
बहुत उपयोगी
- Somewhat Useful  
कुछ हद तक उपयोगी
- Not so Useful  
इतना उपयोगी नहीं

#### 2. How would you rate the following workshop components from 1-5? (where 1 is Average and 5 is Excellent) आप निम्नलिखित कार्यशाला घटकों को 1-5 से कैसे आंकेंगे? (जहाँ 1 औसत है और 5 उत्कृष्ट है)

Workshop Components कार्यशाला के अवयव	1 Average औसत	2 Satisfactory संतोषजनक	3 Good अच्छा	4 Very Good बहुत अच्छा	5 Excellent उत्कृष्ट
The overall training experience समग्र प्रशिक्षण अनुभव					
The training content for the day दिन के लिए प्रशिक्षण सामग्री					
The balance between theory and practice सिद्धांत और व्यवहार के बीच संतुलन					
The quality of materials, e.g. presentations, exercises, training modules सामग्री की गुणवत्ता, उदा। प्रस्तुतियाँ, अभ्यास, प्रशिक्षण मॉड्यूल					



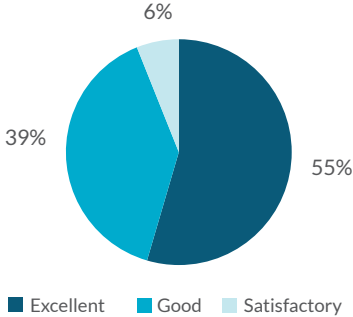
The following graphs depict the overall feedback received from the officials of BMC for said components over the two-day capacity building program.

### How would you rate the following workshop components?

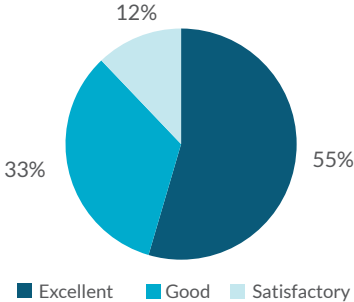
The Overall Training Experience



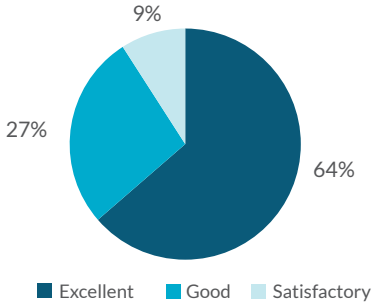
The Training Content



The balance between theory & practice



The quality of materials (presentations, exercises, training modules)

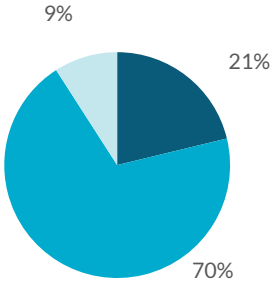


The training's delivery and efficiency



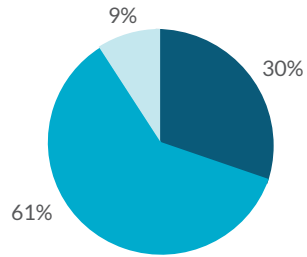
## To what extent do you agree to the following?

The Subject Matter was Presented Effectively



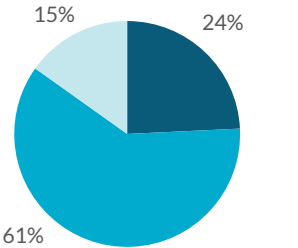
Strongly Agree Agree Neutral

The Lectures were Structured And Well Organized



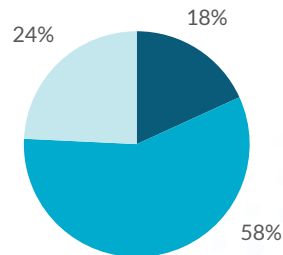
Strongly Agree Agree Neutral

The Course Contents Met with Your Expectations



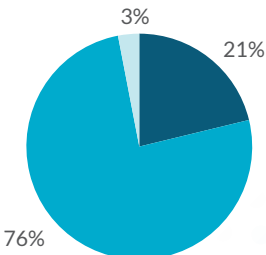
Strongly Agree Agree Neutral

The duration for the training program was sufficient for the topics covered



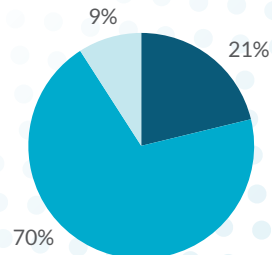
Strongly Agree Agree Neutral

I Gained New Knowledge Applicable to my Work, As a Result of this Training Program



Strongly Agree Agree Neutral

I Plan to Apply the Knowledge Gained

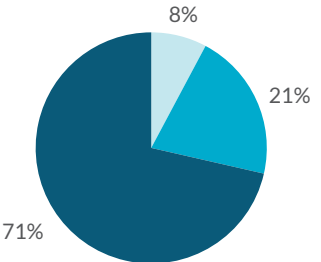


Strongly Agree Agree Neutral

The following graphs depict the overall feedback received from the officials of other ULBs for said components over the two-day capacity building program.

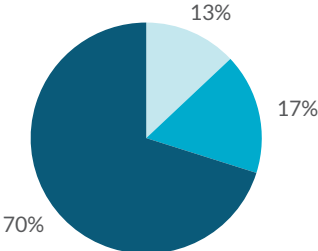
### How would you rate the following workshop components?

The Overall Training Experience



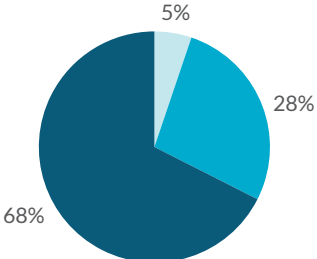
■ Excellent ■ Good ■ Satisfactory

The Training Content for the Day



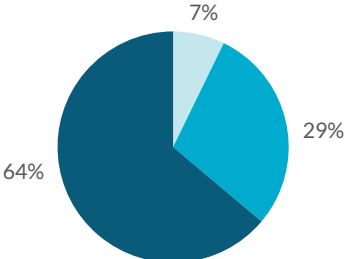
■ Excellent ■ Good ■ Satisfactory

Balance Between Theory and Practice



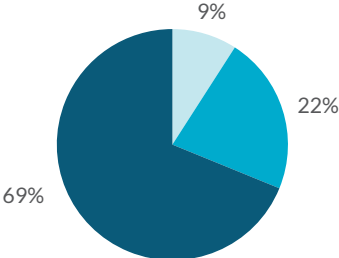
■ Excellent ■ Good ■ Satisfactory

Quality of Materials



■ Excellent ■ Good ■ Satisfactory

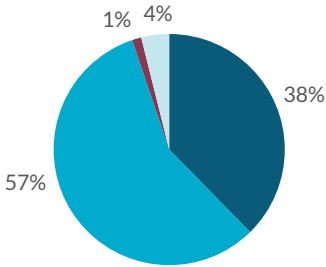
Training Delivery and Efficiency



■ Excellent ■ Good ■ Satisfactory

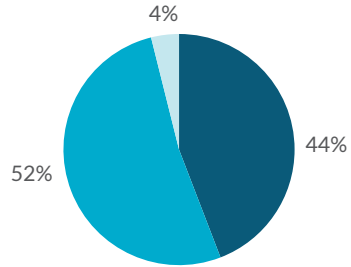
## To what extent do you agree to the following?

Subject Matter was Presented Effectively



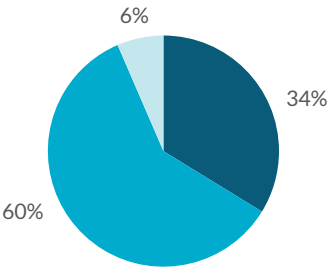
■ Strongly agree ■ Agree ■ Neutral ■ Disagree

Subject Matter was Presented Effectively



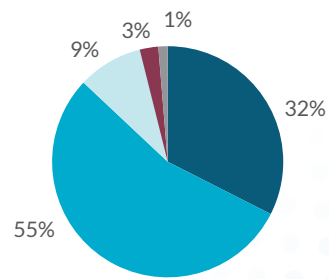
■ Strongly agree ■ Agree ■ Neutral

Course Contents Met with Your Expectation



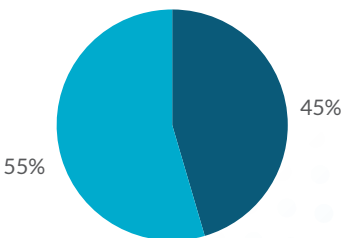
■ Strongly agree ■ Agree ■ Neutral

Duration of the Training Program was Sufficient



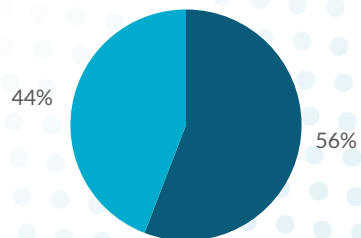
■ Strongly agree ■ Agree ■ Neutral ■ Disagree ■ Strongly Disagree

Gained New Knowledge



■ Strongly agree ■ Agree

I Plan to apply What I Learned in this Training



■ Strongly agree ■ Agree

# Annexure 5: Learning Progress Evaluation Forms

To evaluate the learning progress, pre-workshop and post-workshop forms were distributed among the participants to assess the impact of training on each topic covered. The learning progress evaluation forms given for solid waste management is shown below.



## Sustainable Cities Integrated Approach Pilot in India (SCIAP) Component 3: Partnerships, Knowledge Management & Capacity Building

### Capacity Building Workshop For ULB Officials (यूएलबी अधिकारियों के लिए क्षमता निर्माण कार्यशाला) Bhopal (भोपाल)

on

## Solid Waste Management | ठोस अपशिष्ट प्रबंधन

Dates: 29<sup>th</sup> to 30<sup>th</sup> November, 2022 | 29 से 30 नवंबर, 2022

### Learning Progress Evaluation (सीखने की प्रगति का मूल्यांकन)

Dear Participant!

We kindly request you to answer the following questions so that we will be able to measure and report the learning effect of our capacity building program. You will be asked the same questions again after the workshop.

प्रिय प्रतिभागी!

हम आपसे निम्नलिखित प्रश्नों के उत्तर देने का अनुरोध करते हैं ताकि हम अपने क्षमता निर्माण कार्यक्रम के सीखने के प्रभाव को मापने और रिपोर्ट करने में सक्षम हो सकें। कार्यशाला के बाद आपसे फिर वही प्रश्न पूछे जाएंगे।

Name (नाम) : \_\_\_\_\_

Designation (पद) : \_\_\_\_\_

Rate your knowledgeable about: इसके बारे में अपने जानकार को रेट करें:	1 Average औसत	2 Satisfactory संतोषजनक	3 Good अच्छा	4 Very Good बहुत अच्छा	5 Excellent उत्कृष्ट
SW-APT tools for GHG estimation जीएचजी आकलन के लिए एसडब्ल्यू-एपीटी उपकरण					
City-wide strategy and planning for SWM (Group Exercise) एसडब्ल्यूएम (समूह अभ्यास) के लिए शहर-व्यापी रणनीति और योजना					
Role of IEC in Waste Management अपशिष्ट प्रबंधन में आईईसी की भूमिका					
Integrated Decentralised SWM Model (Sanitation Park) एकीकृत विकेन्द्रीकृत एसडब्ल्यूएम मॉडल (स्वच्छता पार्क)					
E-waste management, Plastic waste management - Innovative practices in India ई-कचरा प्रबंधन, प्लास्टिक कचरा प्रबंधन - भारत में अभिनव अभ्यास					
Construction and Demolition Waste Management निर्माण और विध्वंस अपशिष्ट प्रबंधन					
Bio remediation and scientific closure of Bhanpur dump site, Bhopal भानपुर डंप साइट, भोपाल का जीव उपचार और वैज्ञानिक बंद					
SBM journey of Indore city एसबीएम इंदौर शहर की यात्रा					
SLRM Model of Ambikapur SLRM मॉडल ऑफ अंबिकापुर					

Pre-workshop Questionnaire  
प्री-वर्कशॉप प्रश्नावली

Thank you for your valuable feedback!  
आपके बहुमूल्य फीडबैक के लिए धन्यवाद!



**Sustainable Cities Integrated Approach Pilot in India (SCIAP)**  
Component 3: Partnerships, Knowledge Management & Capacity Building

**Capacity Building Workshop For ULB Officials**  
**(यूएलबी अधिकारियों के लिए क्षमता निर्माण कार्यशाला)**  
**Bhopal (भोपाल)**

**Solid Waste Management | ठोस अपशिष्ट प्रबंधन**

Dates: 29<sup>th</sup> to 30<sup>th</sup> November, 2022 | 29 से 30 नवंबर, 2022

**Learning Progress Evaluation (सीखने की प्रगति का मूल्यांकन)**

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Name (नाम) : \_\_\_\_\_

Designation (पद) : \_\_\_\_\_

Rate your knowledgeable about: इसके बारे में अपने जानकार को रेट करें:	1 Average औसत	2 Satisfactory संतोषजनक	3 Good अच्छा	4 Very Good बहुत अच्छा	5 Excellent उत्कृष्ट
City-wide strategy and planning for SWM (Group Exercise) एसडब्ल्यूएम (समूह अभ्यास) के लिए शहर-व्यापी रणनीति और योजना					
Role of IEC in Waste Management अपशिष्ट प्रबंधन में आईईसी की भूमिका					
Integrated Decentralised SWM Model (Sanitation Park) एकीकृत विकेन्द्रित एसडब्ल्यूएम मॉडल (स्वच्छता पार्क)					
E-waste management, Plastic waste management – Innovative practices in India ई-कचरा प्रबंधन, प्लास्टिक कचरा प्रबंधन - भारत में अभिनव अभ्यास					
Construction and Demolition Waste Management निर्माण और विध्वंस अपशिष्ट प्रबंधन					
SLRM Model of Ambikapur SLRM मॉडल ऑफ अंबिकापुर					

Thank you for your valuable feedback!  
आपके बहुमूल्य फीडबैक के लिए धन्यवाद!

**Post-workshop Questionnaire**  
कार्यशाला के बाद की प्रभाववली



# Annexures





## Annexure 1: Agenda of the workshop

Day I – 1 <sup>st</sup> November, 2022			
Session	Time	Topic	Speakers
	9.30am-10.00am	Registration	WMRC – AILSFG Team
Orientation	10.00am – 10.15am	Introduction	Mr. Kaustubh Parihar Project Associate, NIUA, New Delhi
Key Note	10.15am - 10.30am	Inaugural	Mr. C. B. Mishra Dy. Municipal Commissioner Bhopal Municipal Corporation
	10.30am – 10.40am	Keynote Address	Mr. B. Mishra Representative from UNIDO
	10.40am – 10.45am	Vote of Thanks	Dr. Sanjeevani Palkar Former Dy. Executive Health Officer, BMC & Sr. Associate Faculty, WMRC - AILSFG, Mumbai
	<b>10.45am – 11.00pm</b>	<b>Tea Break</b>	
Session 1	11.00am – 1.00pm	Module 1 : Leadership Skills for Frontline Workers to Create and Inclusive Workplace	Dr. Sanjeevani Palkar Former Dy. Executive Health Officer, BMC & Sr. Associate Faculty, WMRC - AILSFG, Mumbai
<b>Lunch</b>			
Session 2	2.00pm to 4.00pm	Module 2 : Social Security, Provisions Schemes pro- grammes, Personal Protec- tive Equipment & Laws Pertaining to Ground Func- tionaries	Dr. Neha Kolhe Assistant Professor, Department of Architecture & Planning, Bhopal

Day II – 2 <sup>nd</sup> November, 2022			
Session	Time	Topic	Speakers
Session 3	10.00am – 12.00pm	Module 3 : Occupational Health and Safety of Ground Functionaries	Dr. Sanjeevani Palkar Former Dy. Executive Health Officer, BMC & Sr. Associate Faculty, WMRC-AILSFG, Mumbai
	12.00pm – 1.00pm	Open Forum : Question & Answers	Mr. Kaustubh Parihar Project Associate, NIUA, New Delhi
Discussion	1.00pm to 1.30pm	Closing Remarks	Dr. Sanjeevani Palkar Former Dy. Executive Health Officer, BMC & Sr. Associate Faculty, WMRC-AILSFG, Mumbai

## Annexure II: List of Participants from Bhopal Municipal Corporation

Sr. No	Name of the Participants	Designation
1	Shri. Manish Chawhan	Dy. Sanitation Supervisor
2	Shri. Devang Ras Mehta	Dy. Sanitation Supervisor
3	Shri. Sonu Chaver	Dy. Sanitation Supervisor
4	Shri. Satish Dhakad	Dy. Sanitation Supervisor
5	Shri. Rahul Goswami	Dy. Sanitation Supervisor
6	Ms. Neha Rajwat	Dy. Sanitation Supervisor
7	Shri. Manohar Chole	Dy. Sanitation Supervisor
8	Shri. Aman Sharma	Dy. Sanitation Supervisor
9	Shri. Deepak Sharma	Dy. Sanitation Supervisor
10	Shri. Pradip Mena	Sanitation Worker Ward - 70
11	Shri. Amay Khanna	Dy. Sanitation Supervisor
12	Shri. Ram Kumar Manaklal	Sanitation Supervisor Zone - 7
13	Shri. Rupesh Kumar Malviya	Sanitation Supervisor Zone - 7
14	Shri. Rahul	Sanitation Supervisor Zone - 12
15	Shri. Virendra	Sanitation Supervisor Zone - 12
16	Shri. Naresh Kumar Yadav	Dy. Sanitation Supervisor
17	Shri. Iaiyali Hussain Ansari	Project Coordinator AIIISG, Bhopal
18	Shri. Ashish	Sanitation Worker
19	Shri. Nitin Rajkumar Dedoriya	Sanitation Worker
20	Shri. Satish Kalyan	Sanitation Worker
21	Shri. Jasvant Girish Gharu	Sanitation Worker
22	Shri. Mukesh Kotvar	Sanitation Worker
23	Shri. Sandeep	Sanitation Worker
24	Shri. Jitendra	Sanitation Worker
25	Shri. Hemant Makoriya	Dy. Sanitation Supervisor
26	Shri. Ravi	Sanitation Worker
27	Shri. Shubham	Sanitation Worker
28	Shri. Pappu	Sanitation Worker
29	Shri. Naveen	Sanitation Worker
30	Shri. Ankit	Sanitation Worker
31	Shri. Pavan	Sanitation Worker
32	Shri. Guddu	Sanitation Worker
33	Shri. Ramcharan	Sanitation Worker
34	Shri. Vicky	Sanitation Worker

<b>Sr. No</b>	<b>Name of the Participants</b>	<b>Designation</b>
35	Shri. Balram	Sanitation Worker
36	Shri. Anil	Sanitation Worker
37	Shri. Raju	Sanitation Worker
38	Shri. Niraj	Sanitation Worker
39	Shri. Akash	Sanitation Worker
40	Shri. Ravi Pechale	Sanitation Worker
41	Shri. Sanju	Sanitation Worker
42	Shri. Sunil	Sanitation Worker
43	Shri. Vinod Kumar Ahirvar	Supervisor Ward- 65
44	Shri. Palpesh Gaur	Supervisor Ward- 68
45	Shri. Niraj Narvare	Sanitation Worker
46	Shri. Dinesh Narvare	Sanitation Worker
47	Shri. Mahesh	Sanitation Supervisor Ward-19
48	Shri. Sanjay	Sanitation Worker



## Resources and Waste



National Institute of Urban Affairs

### National Institute of Urban Affairs

1<sup>st</sup> Floor, Core 4B, India Habitat Centre, Lodhi Road, New Delhi - 110003

Phone: 011-24617517, 24617543, 24617595, Fax: 011-24617513

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