TITLE

SBM-SWM Exposure Workshop Project: Process Document

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1. SOLID WASTE SCENARIO IN URBAN INDIA

1.1 Introduction

India's urban growth has been increasing rapidly over the last few decades. As per census of India, in 1951, India had urban growth of 17.29%, which increased up to 31.16% in 2011. Due to urbanization and change in lifestyle, India has had to deal with increased solid waste generation. Dealing with waste has now become a global issue, which poses a threat to public health, environment and economy. Due to increasing population, India's basic necessities have sometimes been ignored. Greater focus on providing water, electricity, food for growing population, sometimes leads to negligence of services like waste management.

Solid waste management is one of the 18 functions that comes under the purview of urban local bodies. Therefore, SBM SWM Exposure Workshop Phase III, focused on capacity building of Class I (more than 1, 00,000 population), Class II (50,000 to 99,999 population) and Class III (20,000 to 49,999 population) cities, as they are the major waste generator in urban India.

This chapter attempts to understand importance of Solid waste management in urban India and its linkage with MDGs and SDGs. it further explains about major initiatives on solid waste management in India, particularly MSWM Rules 2000, SWM Rules 2016 and Swachh Bharat Mission (Urban). SBM has various components and to implement one of its component i.e. capacity building on SWM, NIUA has been conducting SWM Exposure workshop on behalf of MoHUA since 2016. Detailed format of these workshops has been explained and in the end of this chapter issues and challenges identified by participants (ULBs and IAF) are also discussed. Besides that, the chapter also highlights problem faced by community due to poor waste management.

1.2 Significance of SWM in MDGs and SDGs

It is significant that Solid waste management (SWM) is one of the important targets mentioned under Millennium Development Goals (MDG, 2000 to 2015) and Sustainable Development Goals (SDG, 2015 to 2030). Although not explicitly mentioned in MDGs but linkage between SWM and various global concerns which were stated in the MDGs, namely, eradication of extreme poverty and hunger (MDG 1), reducing child mortality (MDG 4), improving maternal health (MDG 5) and ensuring environmental sustainability (MDG 7) is evident. However, Significance of proper treatment of solid waste is recognized in Sustainable Development Goals (SDGs-2015 to 2030) and it is embedded within the 17 goals of SDGs either explicitly or implicitly. SDG 11, "Make cities and human settlements inclusive, safe, resilient and sustainable", explicitly discusses about SWM. Target no. 11.6 of SDG 11, says, member states decided to "by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management". Waste management has strong linkage to a range of global challenges, such as health (SDG 3), climate change (SDG 13), poverty reduction (SDG 1), clean water and sanitation (SDG 6), food and resources security (SDG 2) and sustainable production and consumption (SDG 12). It is also observed that, a significant proportion of the population of many large cities depends on solid waste management for their livelihood, whether employed by formal or informal organizations for street sweeping, waste collection, waste sorting, recycling and others.

1.3 Solid Waste Management Initiatives in India

1.3.1 MSWM Rules 2000 and SWM Rules 2016

The first comprehensive solid waste management rules were passed in 2000 by Ministry of Environment, Forest and Climate Change (MoEFCC). The rules provide detailed guidelines on various aspects of municipal solid waste management (MSWM) and identify the Central Pollution Control

Board (CPCB) and the State Pollution Control Boards (SPCBs) as nodal agencies to monitor its implementation directly in the union territories and the states respectively. Thereafter, 16 years later, after poor implementation led to diseases and wide scale protests (Hindustan Times 2016; Annepu 2014; The Hindu 2012; Times of India 2016) in several states of India, the rules were revised in 2016 by the Ministry of Environment, thus releasing the latest Solid Waste Management (SWM) Rules in 2016, to regulate effective collection and disposal of municipal solid waste in India. Under these rules, responsibility of management of Solid Waste has been entrusted with Urban Development Departments and Urban Local Bodies. All Municipal Corporations have been directed to prepare a Solid Waste Management Plan. Besides that, to operationalize the SWM Rules 2016, the Ministry of Housing and Urban Affairs (MoHUA) through Central Public Health Environment Engineering Organization (CPHEEO), published a manual in October 2016 which has incorporated the necessary specifications and actions for ULBs to implement them in their cities.

The key features of the solid waste management rules, 2016 are:

i. A mandate for all waste generators to segregate waste, but with specific penalty on non-compliers to be announced through bye-laws
ii. A mandate for bulk generators (any institution with an area greater than 5,000 square meters) to manage their own waste, but with penalty mentioned for non-compliance of the same to be announced through bye-laws.
iii. An extended producer responsibility on brand owners to set up a collect back scheme for managing waste produced during packaging.
iv. Promotion of options like Biomethanation, Waste to Fuel Oil, composting other than incineration are among the WTE (waste-to-energy) plants and inclusion of Market Development Mechanisms in addition to the directive to the Department of Fertilizers to market city compost along with chemical fertilizers.

v. Provision for local bodies to levy waste collection fees on waste generators, with both fees and penalty on non-compliance to be announced through bye-laws.

1.3.2 Swachh Bharat Mission (Urban), 2014

Swachh Bharat Mission (SBM) was launched on October 2nd 2014. The initiative has two thrust areas - SBM (U) and SBM (R). SBM (U) operates under the Ministry of Housing and Urban Affairs and SBM (R) operates under the Ministry of Drinking Water and Sanitation. The key objectives of SBM (U) are to address both elimination of open defecation and achieving solid waste management in all urban local bodies (ULBs) of India by 2019. The mission has various components namely capacity building, construction of household toilets, where unavailable, community and public toilets & urinals, IEC & Public awareness, Solid waste management and Open defecation free including fecal sludge management protocols. To address primarily Solid Waste management issues, Swachh Bharat Mission launched a multipronged approach to counter the cyclical effects of de-motivation and poor performance of ULBs by infusing enthusiasm, financial support, a feeling of accountability among ULB staff towards cleanliness and organization of massive awareness campaigns among citizens who are the primary generators of solid waste in the cities.

Achievement of SBM 1 (2014 - 2019) *(Source: MoHUA)*

- Till date, urban areas of 23 states / UTs have become ODF. In all, 4,165 cities have declared themselves ODF, of which 3,620 cities have been certified through third party verification.
- This has been achieved by the construction of nearly 63.6 lakh Individual Household Toilets (against Mission target of 66 lakhs; i.e. 96% constructed and under construction against target), and 5.2 lakh seats of community / public toilets (against Mission target of 5.08 lakh seats; i.e. 103% constructed and under construction against target) under the Mission.

- MoHUA has launched the ODF+ and ODF++ protocols, with a focus on sustaining ODF outcomes and achieving holistic sanitation. While ODF+ protocol focuses on O&M of community / public toilets by ensuring functionality and proper maintenance of CT/PTs for their continued usage, ODF++ focuses on addressing safe management of fecal sludge from toilets, and ensuring that no untreated sludge is discharged into open drains, water bodies or in the open.
- Till date, 377 cities have been certified ODF+, and 167 cities have been certified ODF++

Achievement of SBM particularly on SWM
- At the time of launch of the Swachh Bharat Mission, 95 lakh tonnes per annum of waste was the treatment capacity across processes such as composting, bio-methanation, RDF and waste to energy plants (as per the Kasturirangan report). This has been enhanced substantially in the last 4 years, and presently, designed input capacity of functional waste to energy and waste to compost plants is approx. 238 Lakh TPA including decentralized capacity.
- 75,935 wards out of 84,420 wards (90% wards) are practicing door to door collection
- As on date, approximately 54% of the total waste generated is being processed and 64% of wards are practicing source segregation.
- As on date, India have 685 functional waste to compost plants (centralized) with capacity to process 188 lakh tonnes waste per annum, and another 232 plants are under construction, with approximate input capacity of 47 lakhs tonnes per annum.
- As on date, India have 7 functional Waste to Electricity plants with Production Capacity of 88.4 MW, and another 56 plants under construction with Production Capacity of 415 MW.
- Additionally, 384 bio gas and bio-methanation plants with input capacity of 33 lakh tonnes per annum, and another 21 plants under construction with potential input capacity of 25 lakh metric tonnes.
- Protocol for garbage free cities was also launched during SBM 1. This protocol is based on 12 parameters, follows a SMART framework – Single metric, Measurable, Achievable, Rigorous verification mechanism and Targeted towards outcomes – and has been devised in a holistic manner including components such as cleanliness of drains & water bodies, plastic waste management, managing construction

& demolition waste, etc. which are critical drivers for achieving garbage free cities. It is a single metric rating system, based on multiple parameters of SWM. It is envisioned that star rating initiative will also enable institutionalization of good practices such as source segregation, scientific processing of waste, dumpsite remediation, penalties & spot fines for littering, and compliance of bulk waste generators, amongst others. As on date, 3 cities (Indore, Ambikapur and Mysuru) have been rated as 5-star cities, and 53 cities have been rated as 3-star cities.

1.4 Exposure cum training programme, Phase I (2016), Phase II (2017) and Phase III (2018-19)

As part of the capacity building programme under the SBM, NIUA has been engaged in conducting Exposure Workshops on Solid Waste Management (SWM) for the Urban Local bodies (ULBs). These have been spread over three phases - Phase I (2016), Phase II (2017) and Phase III (2018-19). The purpose of the SWM Exposure Workshop was to recognize the issues, challenges and constraints of SWM, understand the SWM Rule 2016, various approaches, technologies and their financial implementation and prepare a plan to implement solutions in their city.

In 2016, NIUA conducted twelve SBM-SWM Exposure workshops at United Service Institute of India, New Delhi. Each workshop comprised 2-3 senior officials from ULBs and covered 108 ULBs of 25 states and UTs and trained 224 municipal officials. A similar set of twelve workshops were conducted in 2017 at India habitat Center, New Delhi, covering 178 ULBs from 27 states and 5 UTs and trained 423 municipal officials. These workshops (Phase I – 2016 and Phase II - 2017) were conducted from May to October and duration of workshop were four to five-day, wherein the first day was devoted to theoretical aspects while the next two days were site visit days wherein the ULB officials were taken to different locations in Delhi NCR and explained the nuances of establishing and running different plants for treatment of different components of solid waste generated in a city. The fourth and fifth days were again devoted to explanation of technologies, exercises and competitions to assess best groups who could plan and submit good DPRs. These workshops were named SWM Exposure Workshops because they provided the

required exposure to the participants regarding the SWM Rules 2016 and the ways and means for achieving compliance with it.

The third phase (2018-19) kick- started on 20th June 2018 with a three-day workshop that witnessed participation from 42 Urban Local Bodies (ULBs) of the National Capital Region (NCR). This was followed by a five-day national level master trainers' workshop from August 20-24, 2018 at India Habitat Centre, New Delhi. In this workshop, master trainers from thirteen Training Entities (TEs), selected through a competitive process (RFP process), were trained. This was followed by seventy-nine City Cluster Workshops, spread over 42 locations spread across India, beginning from 17th September 2018 to 15th February, 2019. Including the workshop conducted by NIUA at Delhi for the ULBs of the NCR, a total of 80 workshops were conducted in 43 locations. Each of these workshops was spread over three days. A total of **3439** representatives from **1789** ULBs participated from 27 states and 4 UTs.
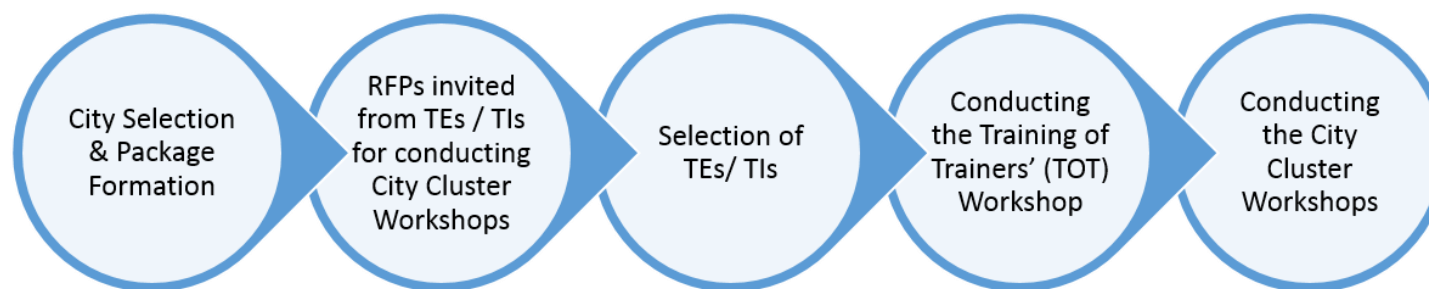
Figure 1 PROJECT SEQUENCE FOR PHASE III (2018-19)

At least one resource person from NIUA attended each of these workshops. In addition to monitoring, the representative from NIUA conducted sessions on Swachh Survekshan, ODF, ODF+, ODF++ Protocol, Star Rating of Garbage Free Cities and accessing SBM funds.

The Map below shows **43** locations where the workshops were held and the location of Urban Local Bodies (ULBs) that nominated officials to attend these workshops.
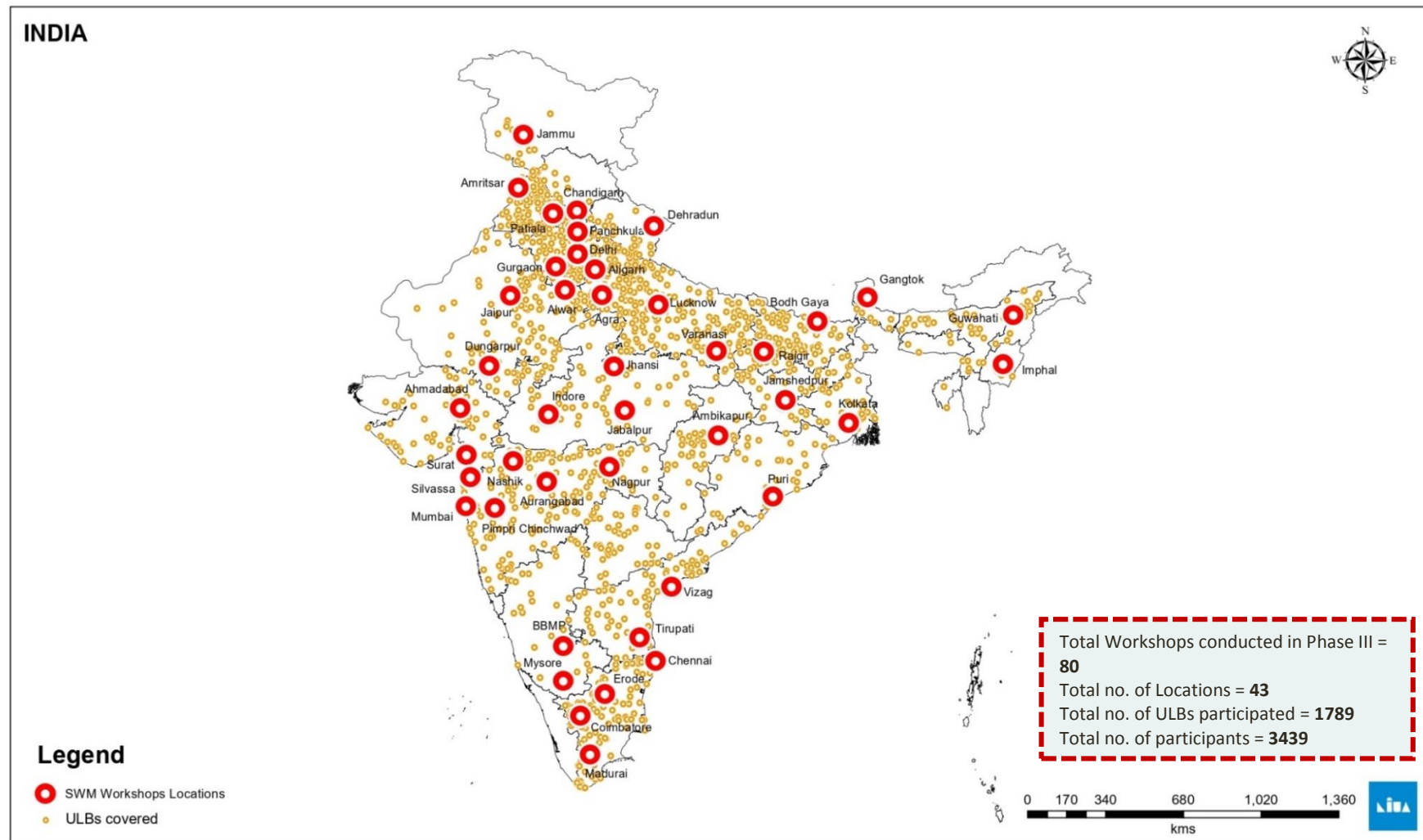
Map showing workshop locations and ULBs covered

1.5 General Format of Phase III workshops (2018-19)

Day 1: Orientation and Technical Session

The first day involved inaugural and orientation sessions. In most of the workshops, senior administrative representatives such as commissioners, elected representatives such as mayors, and senior representatives from State Government and SBM Directorates were present in the inaugural session as chief guests. The lectures and panel discussions on this day included presentation on the provisions in the latest waste management rules. This covered the SWM Rules 2016, Plastic Waste Management Rules 2016, E-Waste Management Rules 2016, Biomedical Waste Management Rules 2016, Construction and Demolition (C&D) Waste Management Rules 2016. In addition to this, a session was dedicated for the discussion of the technologies available for management of solid waste in both centralized and decentralized manner.

Inauguration session of the workshop

Day 2: Field visits

Participants were taken to field visits on the second day. The purpose of the field visit was to demonstrate to the participants, centralized as well as decentralized waste management technologies in solid waste management as alternatives to dumping. Some of these included the following:

- Door to door collection of waste

- Landfill sites including bioremediation and Secured Landfill sites

- Waste to Energy Plants – Biomethanation, Composting, Incineration (if any)

- Construction and Demolition Waste Recycling Plant

- Decentralized wet waste composting at the community and household level by Residents' Welfare Associations (RWAs) and Non-Governmental Organizations (NGOs)

- Material Recovery Facilities (MRF) and SLRM centres where applicable

- Kitchen waste-based biomethanation plant by Bulk Garbage Generators (BGG)

- Fecal Sludge Treatment Plant (FSTP)

Apart from this, attempts were made to take the participants to certain innovative initiatives in solid waste management like making *agarbattis* and perfumes from flower waste by a start-up company run by young entrepreneurs in collaboration with the Ahmedabad Municipal Corporation. The Mahabodhi temple at Bodhgaya has partnered with a social enterprise called *Matr* for converting floral waste to natural dyes used for khadi textiles. Young entrepreneurs in Guwahati are helping to tackle the problem of plastic waste by using it to make light-weight bricks for the construction industry.

A noteworthy example is that of Saswad Municipal Council in Pune that has installed 'Hygiene' boxes that disinfects the used sanitary napkins

before disposal, thus safeguarding municipal workers from health hazards.

Demonstration being given to the participants during field visits

Day 3: Group Activities

The third day comprised recapitulation session of the first two days, followed by a session on the business models of waste management and the financial aspects of SBM. During the latter half of the day, individual quiz and group activities were conducted.

For the group activities, participants were divided into smaller groups of 5 to 6 members each. Efforts were made to ensure heterogeneous composition of groups, i.e. each group had members representing different ULBs and varied backgrounds.

During the first group activity, participants were asked to highlight common and unique issues and challenges associated with solid waste

management in their cities. In the second group activity, participants were asked to select a hypothetical city, town or ward for which, they selected approaches and technologies to make the projects economically viable and bankable. The groups ascertained certain capital costs, calculated recurring costs pertaining to salary of manpower, electricity, fuel, water charges etc. and identified sources of revenue to make the plan sustainable.

The workshop ended with a valedictory session where participation certificates were awarded. Prizes were given to the winners of the quiz and group activities.
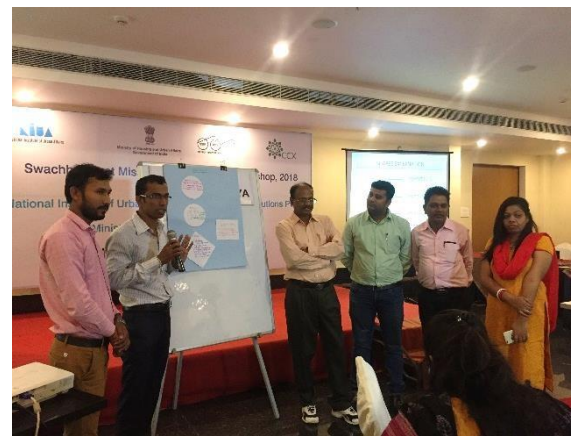
Presentations of group activities by participants

1.6 Issues and challenges

1.6.1 Identified by Urban Local Bodies (ULBs)

- *Process and Implementation:* The predominant issue to be flagged was lack of systematic door to door collection and the difficulty in extending door to door collection in the entire city.

- *Social and Behavioral:* These include the attitude towards waste management. The most important concern flagged by ULB representatives was that of lack of awareness among people regarding source segregation. Another issue flagged by participants included the lack of IEC and dissemination of knowledge by ULBs and the government.

- *Infrastructure related:* This includes non-availability of land for SWM, poor maintenance of existing infrastructure and lack of vehicles for collection and transportation of waste.

- *Political issues and challenges:* The collection of user charges and levy of spot fines is difficult due to political interference and inadequate and committed city leadership. These are important initiatives for strengthening revenue generation of ULBs.

- *Administrative issues and challenges:* Lack of public accountability, communication gap between various ULB departments, and lack of proper institutional structure were highlighted as major bottlenecks.

- *Planning and policy related issues:* Lack of long term waste management plans were flagged as concerns. Inadequate management of waste from religious premises, festival sites, slaughter houses, gardens and horticultural parks and lack of mechanism for incentive based user charge collection emerged as other issues emphasized by participants. The absence of buy back policies of ULBs to purchase products from recycling plants like C&D waste management plant, paper recycling plants and composting plants were also raised.

- *Other related issues and challenges:* Lack of knowledge and skilled expertise in selection and implementation of appropriate technology based on the size of the city or town, quantity and composition of waste generated and cost effectiveness were areas of concern.

- *Human Resources Management:* Lack of capacity building of ULB staff, proper training of existing staff and shortage of manpower were other issues. These resulted in loss of motivation for the workers, which further reflected in the quality of their work. Absence of health facilities for workers was another concern flagged by ULBs.

Below is the bar chart representing consolidated pattern of issues and challenges identified by participants in the city cluster workshops during Phase I, Phase II and Phase III. It is interesting to observe that problems such as process and implementation of waste, treatment of waste, infrastructure facility, social & behavioral change and administration, which were considered as major problems in 2016, have dropped remarkably in 2018 but other problems such as political interference, lack of people's participation and raising funds for the projects are the emerging problems of 2018-19.
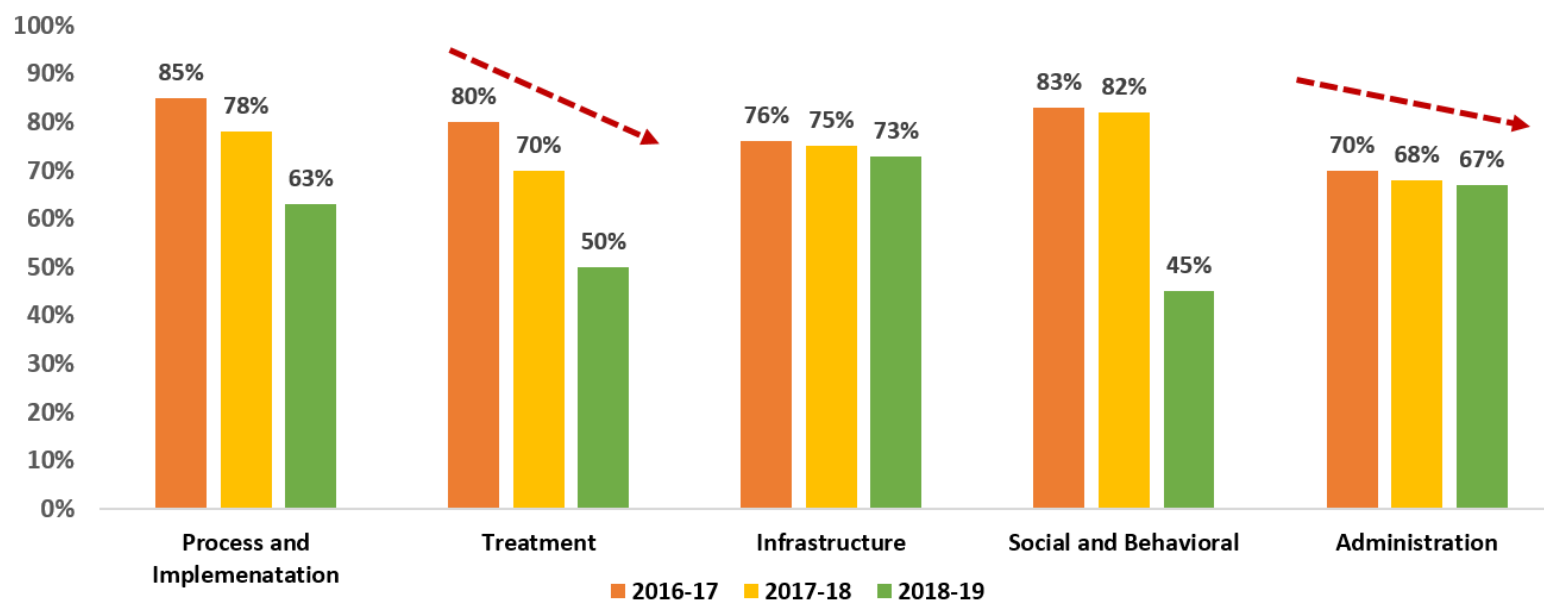
Graph 1: Consolidated bar graph showing pattern of issues and challenges identified by participants in the city cluster workshops
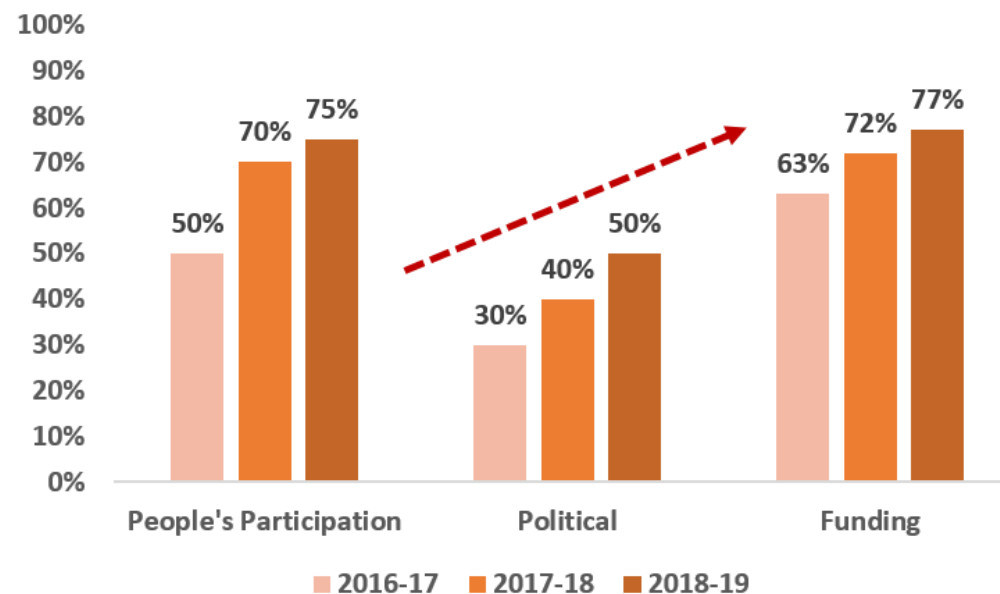
Graph 2: Consolidated bar graph showing pattern of issues and challenges changed over the time

1.6.2 Identified by Indian Air Force (IAF)

India Air Force officials also participated in our last few workshops. While conducting group activity 1 we it was emphasized that due to poor management of solid waste, the risk of bird hits to aircrafts had increased in the recent past, which caused both economic loss as loss of man power in the IAF, one of the major problems faced by Indian Air Force. Usually, people residing near airports throw their garbage here and there, which attracts flies, insects and birds and rising population of birds in airport air lead to bird hitting incidents. Bird hitting is one of the major

causes of air crashes in our country, which is leading to losses of costly defense aircrafts and loss of invaluable lives of pilots.

1.6.3 Problem faced by community due to poor management of waste

Poor management of waste not only creates community health issues but it also degrades the environment and affects socio-economic status of poor people who can become further impoverished due to increased expenditure on health.

Effects on community health: The US Public Health Service has identified 22 human diseases that are linked to improper solid waste management (MIT Urban Development Sector Unit 1999). Several studies have been published that link asthma, heart attack, and emphysema to burning garbage. Dump yards which are frequently known to catch fires, are pumping tonnes of cancer-causing smoke into the air. Pollution caused by burning plastic, leather, etc are also one of the reasons of increasing cancer incidents and skin irritation problems among those living near such dumpsites and waste industries.

Effects on environment: Burning garbage is classified as the third biggest cause of greenhouse emission in India—apart from the impact on human health, the effect on land, water and food pollution is a matter of grave concern[1]. Burning releases carbon monoxide, nitrogen oxide, sulphur dioxide, and carcinogenic hydrocarbons, apart from particulate matter into the air, resulting in India releasing 6% of methane emissions only from garbage (compared to a 3% global average) (Planning Commission 2014). If no action is taken, dumpsites will account for 10% of Greenhouse Gas Emissions by 2025[2]. Therefore, closing dumpsites is one of the ways in which we can move towards meeting the sustainable development goals.

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[1] M., SWAMINATHAN. (2018, April 21). How Can India's Waste Problem See a Systemic Change? Retrieved June 16, 2019, from https://www.epw.in/engage/article/institutional-framework-implementing-solid-waste-management-india-macro-analysis
[2] http://closingdumpsites.iswa.org/why/sustainable-development-goals/

Leachate from rotting garbage contains heavy metals and toxic liquid; with such emissions ending up either being absorbed into the soil or flowing into water bodies today (Awasthi 2013), the entire food chain can be affected when this contaminated water is utilised for agriculture, human consumption and animal consumption.

Effects on waste picker

An estimated two million waste-pickers exist in India today (Chaturvedi 2010); these are families that live off dump yards through collection and sale of recyclables from the dumped mixed waste. While some estimates state that nearly 40% of the waste-pickers are children aged below 18 years, what is definite is that these families live in unhygienic environments, succumbing to malnutrition, extreme poverty, and adverse health impacts. With no physical protection such as gloves, uniforms, shoes or masks, most children scourge for metals with magnets attached to sticks, thus putting their health to extreme risk.

2. APPROACHES FOR AN EFFECTIVE SOLID WASTE MANAGEMENT – Some good practices

o *Adherence to SWM Rules 2016 / Framing of Bye-laws*

The SWM Rules, 2016 aim to achieve 100% door to door collection and source segregation of waste to ensure efficient treatment and scientific disposal of waste. In addition to this, it promulgates reduction in generation of waste by reusing and recycling waste before discarding in tandem with proper segregation and treatment practices.

Indore, Bengaluru, Ambikapur, Mysuru, Nawashahr, Muzaffarpur are some of the cities that have framed the Solid Waste Management bye-laws in accordance with the SWM Rules, 2016. Cities like Indore, Alappuzha, Panchgani, Thiruvananthapuram, Gangtok, Mysuru, Vengurla and Vaijapur have done well in enforcing many provisions of the Plastic Waste Management Rules.

C & D waste management facilities have been put in place by Indore, East Delhi Municipal Corporation, Ahmedabad and Chandigarh.

o *Leadership and Coordination among agencies/ Political will*

Public accountability, coordination between various ULB departments and a proper institutional structure are pre-requisites of an effective implementation of SWM. For example, in Ahmedabad, a call to action was given by Municipal Commissioner to all officials in November 2018 to ensure compulsory segregation of waste. To facilitate the same, a mass triggering activity was organized on 2nd December, 2018 where 45,000 officials and staff of Ahmedabad Municipal Corporation participated to spread the message of source segregation covering every corner of the city. Simultaneously, efforts were also taken to improve the technical capacity of waste management in the city by improving the Material Recovery Facilities (MRFs) with support from women Self Help Groups.

Coordination between higher officials and supervisors in Indore helped the city to achieve ODF+ status of the city. Supervisors were appointed to carry out random checks of CT/PTs during the day. The commissioner and assistant commissioner also carried out surprise checks to confirm the maintenance of these facilities as per set standards. The data received on the 311 app was continuously monitored by the Municipal commissioner himself and non-resolution of issues resulted in the area inspector of the concerned area being taken to task.

- o *IEC/ Citizen Engagement*

Community engagement and participation has a direct bearing on efficient Solid Waste Management (SWM) by advocating attitude and behavioural change towards SWM.

In Indore, radio jingles, television, print advertisements, and slogans painted on one-and-a-half lakh square metres of wall space across the city have built a strong awareness campaign. "Ashra Mubarak", an annual religious event of the Bohra community and "Jatra", an annual culture event of the Maratha community, that took place in Indore in 2018 were both citizen-led events organized with the 'Zero waste concept'

In Panchkula, Swachhata Pride Rally was organized on 26th January where awareness programmes related to cleanliness and solid waste management included nukkad nataks and live demonstration on streets using sweeping and cleaning equipment. Efforts were also made by the city administration to reach out to the citizens and demonstrate to them regarding source segregation of waste and home composting with "Aaga" and "Khamba" composters.

Popular cartoon character "Chhota Bheem" was selected as the Swachhata ambassador in Chhattisgarh to create awareness and encourage participation during awareness drives held at school, college and ward level.

Morning processions at Nawanshahr, popularly known as "Prabhat Pheri for Swachhta" has facilitated holistic inclusion of the community in cleanliness drives.

o   *Involvement of Informal Sector in Collection, Transportation and Processing*

As per the SWM Rules, 2016, Urban Local Bodies (ULBs) need to formalize the informal sector and issue identity cards to them. Also, the informal sector has to be incentivized by selling dry recyclable waste. Pune as well as Bengaluru has been a pioneer in getting the local communities engaged in segregation of waste at source. Pune's "SWaCH", a wholly owned co-operative of informal waste pickers, bridges two entirely separate systems of waste management, the formal municipal solid waste system and the market driven informal secondary materials recovery system. Waste collectors of SWaCH provide daily door to door waste collection services to households, offices, businesses and shops covering 54% of the city. "HasiruDala", an NGO from Bengaluru strives to integrate marginalized informal waste workers including waste pickers in the solid waste management framework by utilizing their expertise in the domain. Their work includes collection, sorting, grading and transportation of waste for recycling which is foundational to both green and circular economies. Harisu Dala members provide service to more than 13,000 households in Bengaluru.

o   *Convergence of Missions*

Convergence between Government schemes helps in enabling better utilization of resources as well as improving the livelihood of citizens. Implementation of the Swachh Bharat Mission (SBM) and National Urban Livelihoods Mission (NULM) has helped in achieving holistic social development goals.

In case of Ambikapur, the innovative solid waste management model involves SHG members to effect 100% source segregation of the 45 MT waste produced by the city daily, under the Swachh Ambikapur Mission.

The Greater Vishakhapatnam Municipal Corporation (GVMC) in collaboration with Water and Sanitation for the Urban Poor (WSUP) has constituted a ward level Open Defection Free Coordination Committee (ODF CC), that has become a key vehicle for informing households about the subsidy provided under SBM for the construction of Individual Households Toilets conducting IEC programmes for Solid Waste Management.

- o *Fines/ Enforcement*

In Indore, spot fines are imposed on people violating norms of the Indore Municipal Corporation.

In case of Surat, fines of up to Rs. 1 crore are collected every year from citizens, shopkeepers and residential localities for violations such as littering and not keeping their premises clean.

Fines also act as a source of revenue generation for the City Corporations.

- o *Emphasis on Decentralized Waste Management*

The SWM Rules, 2016 focuses on "decentralized processing" facilities for maximizing the processing of biodegradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal.

The city of Bangalore has followed decentralized processing of waste based streams. The Municipal Corporation has created wad-wise micro plan for management and execution of SWM services. The city has 164 Dry Waste Collection Centres (DWCC), 13 biomethanation units, 7 Organic Waste Composting Centres, 4 Leaf Litter Processing Units and 10 waste Processing Plants.

In Gurugram, the "Alag Karo – Har Din Teen Bin" Program is one such decentralized initiative that was launched on September, 2017 with the objective to inspire, handhold and implement source segregation of waste in residential complexes, educational and commercial establishments and also to develop capacities of waste workers to improve waste recycling. The project has already connected with 32 RWAs, 19 schools and has reached out to 499 waste workers. Among these 32 societies, 14 are also successful in managing their wet waste on-site.

In Kerala, the government issued necessary directions to Local Self Government Institutions (LSGLs) to constitute the support system for field level waste management. The field level management came to be known as 'Haritha Karma Sena' or 'Green Task Force' and consisted .of a trained team of a group of SHG women whose task was to provide technical services and solutions on waste management pertaining to collection, transportation, processing, disposal, and management of waste in collaboration with the respective LSGLs.

- o **Initiatives by Small Cities**

Suryapet in Telangana, Gangtok in Sikkim, and Bobbili in Andhra Pradesh are carrying out 100% door to door collection. Tirunelveli in Tamil Nadu, Vengurla in Maharashtra, and Uttarpara-Kotrung in West Bengal have not only attained 100 per cent door-to-door collection but also 100% segregation. In Bobbili, the municipal workers segregate the waste. These towns have gone one step further by composting all their wet waste. In Alappuzha in Kerala, the Municipal Corporation does not collect wet waste; it is processed by residents at their home through composting or bio-gas.

- o **Promoting Social Entrepreneurship in Solid Waste Management**

Swachh Bharat Mission has not only helped in livelihood generation, but has also given impetus to social enterprises and start-ups to solve the waste management issues by innovations and context-specific solutions.

Launched in 2013, Saahas Zero Waste (SZW) is a social enterprise that has redefined waste management and believes in a circular economy, converting waste to resources. SZW currently manages 25 tonnes of waste per day across Bangalore and Chennai, and is also operational in Gurugram, Surat, Hubballi, and Ballari.

Brook and Bloom, a startup based in Ahmedabad, has been working with flower waste from temples and religious precincts and have successfully converted the waste into incense sticks and cones.

Chanu Associates, run by a 29-year-old young woman entrepreneur from Manipur, has brought in a new era of eco-friendly entrepreneurship in the form of environment-friendly pen and pencils under the brand name 'Envi'. It deals with products ranging from environmental pens with seeds, pencils, direct filling ball pens, paper bags, non-woven bags etc.

For detailed description, please refer "Solid Waste Management Initiatives in Urban India: A Compendium"

3. EVALUATION OF EFFICACY OF SBM SWM EXPOSURE WORKSHOP

3.1 Background

To evaluate the impact of these workshops, NIUA conducted impact assessment survey during the capacity building workshops. A detailed klquestionnaire was prepared on SWM rule 2016. It covers range of questions like, IEC adopted to reduce waste generation, collection and transportation, treatment and disposal, SWM plan and percentage of SWM plan implementation in ULBs for effective solid waste management. For present study, 2017-18 data is considered as baseline and compared with 2018-19 data to evaluate the impact of the workshop. Five states have been selected and analyzed on various parameters of SWM. The objective of the study is to understand and analyze the nature of issues and challenges faced by ULBs and understand how SBM-SWM exposure workshop has been helpful in improving solid waste management in their respective areas.

3.2 Methodology

3.2.1 Data sampling and collection

Data is sampled from phase II (2017-18) and phase III (2018-19) workshops. In 2017-18, 423 municipal officials from 178 ULBs of 27 states and 5 UTs trained and in 2018-19, 3439 municipal officials from 27 states and 4 UTs trained. There were two primary criteria for selecting the participants for the workshops which was consistently maintained all through in 2017-18 and 2018-19. First, they must be a member of an Urban Local Body (ULB) or an individual associated with an ULB of India, and second, they must have prior knowledge and experience related to solid waste management. However, no such criteria regarding number of years of experience of the participating individuals were required. Written as well as telephonic invitations were sent to Commissioners/ Mayors of ULBs to depute officials dealing with SWM in their respective ULBs. Whoever registered for the workshop was welcomed on first come basis. The process of selection of participants was uniform and consistent throughout. Thus, "Exclusion principle" was not introduced while selection which made it possible to include participants from a wide spectrum. Out of the population of 423 participants in 2017-18 and 3439 participants in 2018-19, we consider one participants from each ULB and data is recorded according to that. From the recorded data of 178 in 2017-18 and 1789 in 2018-19, data is analyzed from the 57 valid responses in 2017-18 and 1147 valid response in 2018-19.

We selected five states across India, namely, Madhya Pradesh, Odisha, Telangana, Jharkhand and Tamil Nadu to conduct a comparative analysis for years 2017-18 and 2018-19. The selection of states were random and capture impact of SBM-SWM Exposure workshops on all states whether it is the best performing state or slow mover states. A total of 14 valid responses received in 2017-18 and 58 valid responses in 2018-19 from Madhya Pradesh. Similarly, a total of 7 and 23 valid responses from Odisha, a total of 6 and 41 valid from Telangana, a total of 5 and 26 valid

responses from Jharkhand and a total of 5 and 158 valid responses from Tamil Nadu received in 2017-18 and 2018-19 respectively. Thus, the sample selected was a fairly representative one which enabled us to arrive at results, which can help us improve future training progamme.

	Sample Size (No. of ULBs)	
States	2017-18	2018-19
o Madhya Pradesh	14	58
o Odisha	7	23
o Telangana	6	41
o Jharkhand	5	26
o Tamil Nadu	5	158

3.2.2 Selection of parameters

Out of range of questions such as, awareness of SWM Rule 2016, IEC adopted to reduce waste generation, collection and transportation, treatment and disposal etc., five parameters have been selected for the analysis. The selected parameter includes components of solid waste management chain, i.e. waste segregation, collection, transportation, wet and dry waste processing and waste disposal. The selection of the parameters is aligned with the objectives of the Swachh Bharat mission - Urban (SBM-U) which aims to ensure source segregation, door-to-door garbage collection, treatment and proper disposal of municipal solid waste (MSW) in all urban areas by 2019.

Shown below is the list of selected parameters along with the questions to which responses were sought.

Parameters	Questions
Waste segregation at source	*1.1 Does your ULB have any kind of source segregation?*
	1.2 Types of segregation?
Segregated storage and collection of waste	*2.1 Have you organized segregated collection of waste in your ULB?*
Door to Door collection and transportation	*3.1 Does your ULB have provision for Door to Door waste collection and transportation?*
	3.2 Frequency of waste collection in each zone/wards in your ULB?
Processing of streams of waste	*4.1 Does your ULB have waste processing facilities?*
	4.2 In which different streams is waste segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methanation, waste to energy, any other)?
	4.3 Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB?
	4.4 Is Sanitary waste (Sanitary pads, diapers) collected separately in your ULB?
Scientific disposal	*5.1 Does your ULB have a scientific landfill site?*

Once selection of the parameters finalized, certain weightage is assigned to each parameter from SS 2019 tool kit. Toolkit covers survey (Swachh Survekshan) methodology and help cities to improve their service delivery level by achieving a higher score during the survey. The objective of the Swachh survekshan is to encourage large scale citizen participation, ensure sustainability of initiatives taken towards garbage free and open defecation free cities, provide credible outcomes which would be validated by third party certification. Moreover, the survey intends to foster a spirit of healthy competition among towns and cities to improve their service delivery to citizens, towards creating cleaner cities (SS 2019). City level workshop was conducted by NIUA on behalf of MoHUA to familiarize ULBs with the survey methodology, survey process and indicators, and also clarifying their expectation from the survey.

3.2.3 Weights assignment

i. **Weights to selected parameters**

A total of 5000 marks was in SS 2019 toolkit, out of which 1250 marks was for service level progress (SLP) for 7 indicators, in which 27% weights assigned to collection & transportation, 30% to Processing & disposal and remaining percentages were assigned to sustainable sanitation, capacity building, bye laws and IEC. We assigned weights to selected parameters according to the percentage allocated for collection & transportation and processing & disposal in the SLP.
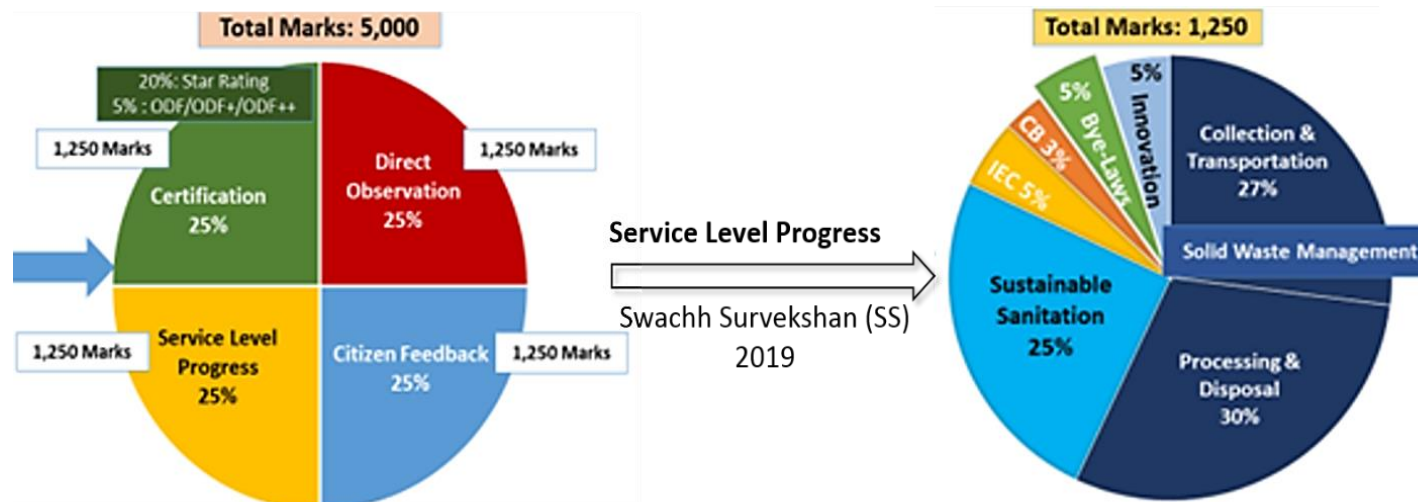
Figure 2 Score distribution in SS 2019 toolkit

Shown below is the weights of each parameter along with the questions to which responses were sought

Parameters	Percentage assigned out of 100%	Questions	Weights assigned
1. Waste segregation at source	*15% = 15*	*1.1 Does your ULB have any kind of source segregation?*	50% of 15% = 7.5
		1.2 Type of segregation?	50% of 15% = 7.5

2. Segregated storage and collection of waste	15% = 15	2.1 Have you organized segregated collection of waste in your ULB?	100% of 15% = 15
3. Door to Door collection and transportation	20% = 20	3.1 Does your ULB have provision for Door to Door waste collection and transportation?	50% of 20% = 10
		3.2 Frequency of waste collection in each wards/zones in your ULB?	50% of 20% = 10
4. Processing of streams of waste	35% = 35	4.1 Does your ULB have waste processing facility?	40% of 35% = 14
		4.2 In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other)	20% of 35% = 7
		4.3 Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB?	20% of 35% = 7
		4.4 Is Sanitary waste (Sanitary pads, diapers) collected separately in your ULB?	20% of 35% = 7
5. Scientific disposal	15% = 15	5.1 Does your ULB have scientific landfill site?	100% of 15%

			= 15
Total	100%=100	Total score	100

Similarly, weights have been assigned to each questions of selected parameters to calculate states performance. Questions having options as yes or no achieve 100 percent or zero marks respectively while score for questions having multiple options assigned on the basis of most desirable response. For instant, ULBs practicing 5-way segregation will achieve 100 percent score while ULBs practicing 4-way, 3-way and 2-way will achieve 75 percent, 50 percent and 25 percent score respectively.

ii. Weights to questions

- *Type of segregation*

Options: 2-way, 3-way, 4-way and 5-way segregation

Percentage to each option is assigned according to the ways of segregation. Higher the streams of segregation better is the segregation system. Therefore, ULBs practicing 5-way (dry, wet, domestic hazardous, sanitary waste and C & D waste) segregation achieve 100% score in this category. Similarly, ULB practicing 4-way (dry, wet, domestic hazardous and sanitary waste) segregation achieve 75%, 3-way (dry, wet and domestic hazardous) segregation achieve 50% and 2-way (dry and wet waste) segregation achieve 25% score in this category.

- ***Does your ULB have provision for Door to Door waste collection and transportation***

  Options: Door to Door collection using non-motorized/motorized small vehicles

  Others (includes collection by tipper trucks by ULB or PPP from community bins)

  Collection from source is essential for effective SWM. So, 100 percent of score is assigned to Door to Door collection of waste by ULB/PPP by non-motorized or motorized small vehicles and 50 percent of score is assigned to the ULBs, collecting waste by tipper trucks from community bins.

- ***Frequency of waste collection from each wards/zones in your ULB?***

  Options: once a day, Twice a day, others (twice a week, thrice a week and no response)

  Score is assigned to each option according to the frequency of waste collection by ULB from each wards/zones. Higher the waste collection frequency from each wards/ zones, cleaner the city. Hence, ULB collecting waste twice a day achieve 100% score in this category. Similarly, ULBs collecting waste once a day achieve 66% of score and 33% score is assigned to the ULBs collecting waste twice a week, thrice a week or no response.

- ***In which different streams waste is segregated?***

Options: material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other

Score to each option is assigned according to nature of centralized/decentralized facility. Higher score has been allocated to the facility having no or less impact on human and environment.

Therefore, *Percentage and score assigned to the different streams of waste segregation is,*

o   Material recovery facility = 15% of 7 (max score) = **1.05**

o   Composting = 20% of 7 (max score) = **1.4**

o   Micro composting center (decentralized composting) = 25% of 7 (max score) = **1.75**

o   Facility for dry waste shredding/baling & selling to recyclers = 4% of 7 (max score) = **0.28**

o   C&D waste = 15% of 7 (max score) = **1.05**

o   Bio methanation = 15% of 7 (max score) = **1.05**

o   Waste to energy = 4% of 7 (max score) = **0.28**

o   Any other = 2% of 7 (max score) = **0.14**

After assigning weights to each parameters and questions, performance of selected states, i.e., Madhya Pradesh, Odisha, Jharkhand, Tamil Nadu and Telangana has been calculated and analyzed below.

Combined analysis

Parameters	Questions	Madhya Pradesh		Odisha		Jharkhand		Telangana		Tamil Nadu	
		2017-18	2018-19	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19
1. Waste segregation at source	Status of source segregation	5.925	6.225	3.225	3.9	3	6.634	6.225	6	7.5	7.35
	Type of segregation	1.875	2.343	1.875	2.031	1.875	2.03	1.875	2.329	1.875	2.537
2. Segregated storage and collection of waste	organized segregated collection of waste	11.85	10.65	2.1	4.5	0	10.35	7.5	10.2	6	13.35
3. Door to Door collection and transportation	Door to Door waste collection and transportation	10	8.103	7.857	9.565	7	9.038	7.5	9.87	10	9.208
	Frequency of waste collection	8.057	6.893	7.085	7.043	6.6	6.861	6.6	6.375	6.6	6.7
	waste processing facility	7	9.66	9.94	3.04	5.6	3.78	11.62	8.54	14	11.06

4. Processing of streams of waste	Different streams of waste processing	1.856	2.315	0	1.554	1.4	2.254	2.436	1.637	3.388	3.305
	domestic hazardous waste collection	0.49	1.96	0	1.82	0	0.77	0	2.24	0.7	3.08
	Sanitary waste collection	0.49	2.31	0.98	0.91	0	0.84	1.19	1.4	0	2.1
5. Scientific disposal	Scientific landfill site	8.55	10.8	2.14	12.4	0	11.55	4.95	4.8	6	6.75
	Total Score achieved	**56.09**	**61.25**	**35.20**	**46.76**	**25.47**	**54.10**	**49.89**	**53.39**	**56.06**	**65.4**

Combined inferences

States	SS 2018 Rank	SS 2019 Rank	Performance in SWM-SBM Workshop	Inferences

State	2017-18 Rank	2018-19 Rank	Score
Madhya Pradesh	4th	4th	2017-18 : 56 → 2018-19 : 61.2
Odisha	22nd	17th	2017-18 : 36.2 → 2018-19 : 46.7
Telangana	7th	8th	2017-18 : 49.8 → 2018-19 : 53.3
Jharkhand	1st	2nd	2017-18 : 25.4 → 2018-19 : 54.1
Tamil Nadu	13th	12th	2017-18 : 56.06 → 2018-19 : 65.4

- All the states show improvement in relevant aspects of solid waste management.

- Odisha and Tamil Nadu shows improvement in SS 2019 ranking while slight drop in Telangana and Jharkhand is recorded. This could be because more lenient parameters during SS 2018 as compared to SS 2019

- Only Telangana shows less improvement in 2018-19 as compared to 2017-18. The reason could be that Telangana had capacity building training after SS 2019.

Please refer result section for individual state analysis.

4.1 Results

3.3.1 Madhya Pradesh

Parameters	Percentage assigned to parameters	Questions	Score assigned to each question	Score achieved		Result
				2017-18	2018-19	
Waste segregation at source	*15%*	*1.1 Does your ULB have any kind of source segregation*	50% of 15% = 7.5	5.9	6.2	2018-19 showed better performance. It achieved a score of **7.77** in **2017-18** and a score of **8.582** in **2018-19** under waste segregation at source parameter.
		1.2 Type of segregation	50% of 15% = 7.5	1.87	2.382	
Segregated storage and collection of waste	*15%*	*2.1 Have you organized segregated collection of waste in your ULB*	100% of 15% = 15	11.8	10.6	2017-18 showed better performance. It achieved a score of 11.8 in 2017-18 and a score of 10.6 in

						2018-19 under segregated storage and collection of waste parameter.
Door to Door collection and transportation	20%	3.1 Does your ULB have provision for Door to Door waste collection and transportation	50% of 20% = 10	10	8.103	2017-18 showed better performance. It achieved a score of **10** in **2017-18** and a score of **8.103** in **2018-17** under Door to Door collection and transportation parameter.
		3.2 Frequency of waste collection in your ULB	50% of 20% = 10	8.05	6.89	
Processing of streams of waste	35%	4.1 Does your ULB have waste processing facility	40% of 35% = 14	7	9.66	2018-19 showed better performance. It achieved a score of **8.856** in **2017-18** and a score of **11.975** in **2018-19** under processing of streams of waste parameter.
		4.2 In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio	20% of 35% = 7	1.856	2.315	

		methenation, waste to energy, any other)			
		4.3 *Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB*	20% of 35% = 7	0.49	1.96	
		4.4 *Is Sanitary waste (Sanitary pads, diapers) collected separately in your ULB*	20% of 35% = 7	0.49	2.31	
Scientific disposal	*15%*	5.1 *Does your ULB have designated landfill site*	100% of 15% = 15	8.55	10.8	2018-19 showed better performance. It achieved a score of 8.55 in 2017-18 and a score of 10.8 in 2018-19 under scientific disposal parameter.
Total Percentage	100%	Total Score	100	**56**	**61.2**	

From the above table it is evident that ULBs in Madhya Pradesh have improved their performance. Madhya Pradesh achieved a score of 56 in 2017-18 and a score of 61.2 in 2018-19, which shows state improved in relevant aspects of solid waste management in 2018-19 as compared to 2017-18. As per SS 2018 and SS 2019, MP attained 4th rank which may be because of its consistent performance. For detailed description and weights calculation, please refer Annexure 1 and Annexure 6 respectively.

3.3.2 Odisha

Parameters	Percentage assigned to parameters	Questions	Score assigned to each question	Score achieved		Result
				2017-18	2018-19	
Waste segregation at source	*15%*	*1.1 Does your ULB have any kind of source segregation*	50% of 15% = 7.5	3.225	3.9	2018-19 showed better performance. It achieved a score of **5.1** in **2017-18** and a score of **5.931** in **2018-19** under waste segregation at source parameter.
		1.2 Type of segregation	50% of 15% = 7.5	1.875	2.031	

Segregated storage and collection of waste	*15%*	*2.1 Have you organized segregated collection of waste in your ULB*	100% of 15% = 15	2.1	4.5	2018-19 showed better performance. It achieved a score of 2.1 in 2017-18 and a score of 4.5 in 2018-19 under segregated storage and collection of waste parameter.
Door to Door collection and transportation	*20%*	*3.1 Does your ULB have provision for Door to Door waste collection and transportation*	50% of 20% = 10	7.857	9.565	2018-19 showed better performance. It achieved a score of **14.942** in **2017-18** and a score of **16.608** in **2018-19** under Door to Door collection and transportation parameter.
		3.2 Frequency of waste collection from each wards/zones in your ULB	50% of 20% = 10	7.085	7.043	
Processing of streams of waste	35%	4.1 *Does your ULB have waste processing facility*	40% of 35% = 14	9.94	3.04	2017-18 showed better performance. It achieved a score of **10.92** in **2017-18** and a score of **7.324** in

| | | 4.2 *In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other)* | 20% of 35% = 7 | 0 | 1.554 | **2018-19** under processing of streams of waste parameter. |
| | | 4.3 *Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB* | 20% of 35% = 7 | 0 | 1.82 | |

		4.4 Is Sanitary waste (Sanitary pads, diapers) collected separately in your ULB	20% of 35% = 7	0.98	0.91	
Scientific disposal	*15%*	*5.1 Does your ULB have designated landfill site*	100% of 15% = 15	2.14	12.4	2018-19 showed better performance. It achieved a score of 2.14 in 2017-18 and a score of 12.4 in 2018-19 under scientific disposal parameter.
Total Percentage	100%	Total Score	100	**36.2**	**46.7**	

From the above table it is clear that ULBs in Odisha have improved their performance. Odisha achieved a score of 36.2 in 2017-18 and a score of 46.7 in 2018-19, which shows that ULBs in the state improved in relevant aspects of solid waste management over the period studied. In addition, according to SS 2018 and SS 2019 data, Odisha, which was ranked at 22 in 2018, improved to 17 in 2019. For detailed description and weights calculation, please refer Annexure 2.

3.3.3 Jharkhand

Parameters	Percentage assigned to parameters	Questions	Score assigned to each question	Score achieved		Result
				2017-18	2018-19	
Waste segregation at source	*15%*	*1.1 Does your ULB have any kind of source segregation*	50% of 15% = 7.5	3	6.634	2018-19 showed better performance. It achieved a score of **4.875** in **2017-18** and a score of **8.664** in **2018-19** under waste segregation at source parameter.
		1.2 Type of segregation	50% of 15% = 7.5	1.875	2.03	
Segregated storage and collection of waste	*15%*	*2.1 Have you organized segregated collection of waste in your ULB*	100% of 15% = 15	0	10.35	2018-19 showed better performance. It achieved no score in 2017-18 and 10.35 in 2018-19 under segregated storage and collection of waste parameter.

Door to Door collection and transportation	20%	3.1 *Does your ULB have provision for Door to Door waste collection and transportation*	50% of 20% = 10	7	9.038	2018-19 showed better performance. It achieved a score of **13.6** in **2017-18** and a score of **15.899** in
		3.2 *Frequency of waste collection in your ULB*	50% of 20% = 10	6.6	6.861	**2018-19** under Door to Door collection and transportation parameter.
Processing of streams of waste	35%	4.1 *Does your ULB have waste processing facility*	40% of 35% = 14	5.6	3.78	2018-19 showed better performance. It achieved a score of **7** in **2017-18** and a score of **7.644** in **2018-19**

		4.2 *In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other)*	20% of 35% = 7	1.4	2.254	under processing of streams of waste parameter.
		4.3 *Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB*	20% of 35% = 7	0	0.77	

		4.4 Is Sanitary waste (Sanitary pads, diapers) collected separately in your ULB	20% of 35% = 7	0	0.84	
Scientific disposal	15%	5.1 Does your ULB have designated landfill site	100% of 15% = 15	0	11.55	2018-19 showed better performance. It achieved no score in 2017-18 and a score of 11.55 in 2018-19 under scientific disposal parameter.
Total Percentage	100%	Total Score	100	**25.48**	**54.11**	

From the above table it is evident that ULBs in Jharkhand have improved their performance in 2017-18 as compared to 2017-18. Jharkhand achieved a score of 25.48 in 2017-18 and a score of 54.11 in 2018-19, which shows state improved in relevant aspects of solid waste management. However, as per SS 2018 Jharkhand was ranked number 1 state in 2018 and dropped to rank 2nd in SS 2019. This could be because more lenient parameters during SS 2018 as compared to SS 2019. For detailed description and weights calculation, please refer Annexure 3.

3.3.4 Tamil Nadu

Parameters	Percentage assigned to parameters	Questions	Score assigned to each question	Score achieved		Result
				2017-18	2018-19	
Waste segregation at source	*15%*	*1.1 Does your ULB have any kind of source segregation*	50% of 15% = 7.5	7.5	7.35	2017-18 showed better performance. It achieved a score of **9.375** in **2017-18** and a score of **9.175** in **2018-19** under waste segregation at source parameter.
		1.2 Type of segregation	50% of 15% = 7.5	1.875	2.5	
Segregated storage and collection of waste	*15%*	*2.1 Have you organized segregated collection of waste in your ULB*	100% of 15% = 15	6	13.35	2018-19 showed better performance. It achieved a score of 6 in 2017-18 and a score of 13.35 in 2018-19 under segregated storage and collection of waste parameter.

Door to Door collection and transportation	20%	3.1 Does your ULB have provision for Door to Door waste collection and transportation	50% of 20% = 10	10	9.208	2017-18 showed better performance. It achieved a score of **16.6** in **2017-18** and a score of **15.908** in **2018-19** under Door to Door collection and transportation parameter.
		3.2 Frequency of waste collection in your ULB	50% of 20% = 10	6.6	6.70	
Processing of streams of waste	35%	4.1 Does your ULB have waste processing facility	40% of 35% = 14	14	11.06	2018-19 showed better performance. It achieved a score of **18.08** in **2017-18** and a score of **19.545**

		4.2 *In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other)*	20% of 35% = 7	3.388	3.305	in **2018-19** under processing of streams of waste parameter.
		4.3 *Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB*	20% of 35% = 7	0.7	3.08	
		4.4 *Is Sanitary waste (Sanitary pads, diapers)*	20% of 35% = 7	0	2.1	

		collected separately in your ULB				
Scientific disposal	*15%*	*5.1 Does your ULB have designated landfill site*	100% of 15% = 15	6	6.75	2018-19 showed better performance. It achieved a score of 6 in 2017-18 and a score of 6.75 in 2018-19 under scientific disposal parameter.
Total Percentage	100%	Total Score	100	**56.06**	**65.44**	

It is evident that ULBs in Tamil Nadu have improved their performance. As per the above table, Tamil Nadu achieved a score of 56.06 in 2017-18 and a score of 65.44 in 2018-19, which shows state improved in relevant aspects of solid waste management in 2018-19 as compared to 2017-18. This is corroborated by the SS 2018 and SS 2019 results. Whereas TN was ranked 13th in 2018, it attained 12th rank 2019. For detailed description and weights calculation, please refer Annexure 4.

3.3.5 Telengana

Parameters	Percentage assigned to parameters	Questions	Score assigned to each question	Score achieved		Result
				2017-18	2018-19	
Waste segregation at source	*15%*	*1.1 Does your ULB have any kind of source segregation*	50% of 15% = 7.5	6.225	6	2017-18 showed better performance. It achieved a score of **8.1** in **2017-18** and a score of **8.3** in **2018-19** under waste segregation at source parameter.
		1.2 Type of segregation	50% of 15% = 7.5	1.875	2.329	
Segregated storage and collection of waste	*15%*	*2.1 Have you organized segregated collection of waste in your ULB*	100% of 15% = 15	7.5	10.2	2018-19 showed better performance. It achieved a score of 7.5 in 2017-18 and a score of 10.2 in 2018-19 under segregated storage and collection of waste parameter.

Door to Door collection and transportation	20%	3.1 Does your ULB have provision for Door to Door waste collection and transportation	50% of 20% = 10	7.5	9.87	2018-19 showed better performance. It achieved a score of **14.1** in **2017-18** and a score of **16.245** in **2018-19** under Door to Door collection and transportation parameter.
		3.2 Frequency of waste collection in your ULB	50% of 20% = 10	6.6	6.375	

Processing of streams of waste	35%	4.1 *Does your ULB have waste processing facility*	40% of 35% = 14	11.62	8.54	2017-18 showed better performance. It achieved a score of **15.246** in **2017-18** and a score of **13.817** in **2017-18** under processing of streams of waste parameter.

		4.2 *In which different streams waste is segregated (material recovery facility, composting, micro composting center, facility for dry waste shredding/baling & selling to recyclers, C&D waste, Bio methenation, waste to energy, any other)*	20% of 35% = 7	2.436	1.637
		4.3 *Is domestic hazardous waste (e.g. CFL, tube-lights, batteries, pesticides) collected separately in your ULB*	20% of 35% = 7	0	2.24
		4.4 *Is Sanitary waste (Sanitary pads, diapers)*	20% of 35% = 7	1.19	1.4

		collected separately in your ULB				
Scientific disposal	*15%*	*5.1 Does your ULB have designated landfill site*	100% of 15% = 15	4.95	4.8	207-18 showed better performance. It achieved a score of 4.95 in 2017-18 and a score of 4.8 in 2018-19 under scientific disposal parameter.
Total Percentage	100%	Total Score	100	**49.8**	**53.3**	

From the above table it is evident that ULBs in Telangana have improved their performance. From the above table, it can be seen that Telangana achieved a score of 49.8 in 2017-18 and a score of 53.3 in 2018-19, which shows state improved in relevant aspects of solid waste management in 2018-19 as compared to 2017-18. The gap between performance of the state in both the years is less. According to the SS results, the rank of Telangana was 7th in 2018 and dropped to 8th in 2019. For detailed description and weights calculation, please refer Annexure 5.

Upon doing the impact analysis of capacity building SBM SWM Exposure workshops conducted by NIUA for ULB officials from 2016, it is evident that there is substantial improvement in the SBM parameters such as segregation, processing and safe disposal as derived from the answers to questionnaires filled by the workshop participants from various ULBs in 2017 and 2018-19. Added below are the key findings and recommendations of the analyses from the selected states.

3.4 Key Findings and Conclusion of Evaluation Study

- *Decentralized model*

In 2018-19, eighty workshops were conducted in 43 locations across the country. Conducting workshops in different location helped ULBs to reflect challenges of their own place and contextualize the issue while it was also convenient to attend decentralized workshops due to ease of travel. More number of such training is required to create awareness on the issue of SWM.

- *Improvement in relevant aspect of SWM*

Study results demonstrate that percentage of source segregation increased in 2018-19 as compared to 2017-18. It shows ULBs have developed understanding of streams of waste and now many ULBs are practicing, 3-way, 4-way and 5-way waste segregation. Almost every state shows that segregated collection of hazardous and sanitary waste has increased. This implies an increase in awareness among citizens and ULBs regarding such waste. It also implies that concern for environment and health has increased over period of time. More ULBs are now aware about waste processing and implementing trash to cash approaches. Streams of waste processing like micro composting, Bio methenation, C&D waste recycling and MRF facilities have increased. Only Telangana shows less improvement in 2018-19 as compared to 2017-18. The reason could be that Telangana had capacity building training after SS 2019 assessment.

- *Result corroboration with Swachh Survekshan 2019*

Study results corroborated with SS 2019. Odisha and Tamil Nadu show improvement in SS 2019 ranking while there is slight drop in the performance of Telangana and Jharkhand. This could be due to more lenient parameters during SS 2018. Study result also shows that there are

some instances where some processing facilities set up in 2017-18 had to be shut down because of poor selection of technology, design, unavailability of feedstock etc. that's why city not performing well as compared to previous year (2017-18).

- o *Increase in outreach*

Study evaluated the impact of capacity building workshop on ULBs. It shows that participation of municipal officers from different cities and states has improved. In 2017, 423 municipal officials were trained while this number increased up to 3384 in 2018-19. Decentralized model is adopted in 2018-19. Participants found it convenient to attend due to ease of travel.

- o *Impact of workshop*

Our study results confirm that understanding and performance of municipal officers improved in 2018-19 as compared to 2017-18. Over 50 cities are now more than 50% compliant to SWM Rules 2016, while in 2016-17, very few cities were able to achieve this. It is evident that continuous training has a positive impact on performance of states and cities and to sustain the impact, workshop has been planned and executed in such a manner, so as to bring about a behavioral change among the participants. Workshop is designed to incorporate a learner's previous experiences in order to enhance their current and future learning. There should be more exposure to such kinds of workshops to strengthen the understanding and implementation of SWM Rules and plans.

- o *Group Activity during workshop*

Our study results confirm that understanding and performance of municipal officers improved in 2018-19 as compared to 2017-18. Analysis of the group activities show that challenges have shifted from technology and citizen engagement in 2016, 2017 respectively to requirement of funds in 2018-19.

3.5 Limitations of Evaluation Study

o   *Sample size*

Although the number of participating states in both the years were same, i.e. twenty-seven, the number of participants varied from 423 in 2017-18 to 3439 in 2018-19. Due to this variation, the sample size chosen for the 2017-18 study is different from the sample size chosen for 2018-19 study. However, the study under these limitations tries to do an exploratory analysis to understand the variation in the states of the chosen parameters for the year 2017-18 and 2018-19. Another fact to be highlighted is that the study reflects their understanding from responses obtained from the participants during the workshops.

o   *Comparative study*

Twenty-seven states were covered in both the years but municipal officials from different cities within the states were trained and their responses elicited from the questionnaire in 2017-18 and 2018-19. In both years, officials from class I, II and III cities were selected for training (i.e. SBM-SWM Exposure Phase II and Phase III workshops). However, we could get representative data from only some states. Furthermore, same individuals were not asked to fill the questionnaires and neither the same cities taken in the selected state. This was a limitation which could not be overcome.

o   *Result interpretation*

Since the process of capacity building of municipal officials for complying with SWM Rules 2016 started only in 2016-17, there is a possibility that some of the responses of the participants to some questions regarding source segregation, collection and processing of different streams of waste could be reflecting a certain lack of understanding of the terminology and stringency of standards that needed to be met which may

be causing discrepancy in the results. Better training and clarity in understanding the SWM Rules 2016 in 2018-19 have helped in eliciting honest and distinct responses to similar questions.

The above mentioned limitations have been taken note of while analyzing the data, interpreting it and recommending improvements for subsequent training initiatives and follow up on implementation. Efforts would be made to have larger representative samples to minimize the above limitations in the coming years.

4. Assessment of Training Entities

4.1 Background

Thirteen training entities were selected by NIUA through a competitive process (RFP process) as partner organizations to conduct the SBM-SWM city cluster exposure workshops for 1600 Urban Local Bodies (ULB) and 3200 ULB officials in India. These training entities were assessed by NIUA (using the monitoring checklist attached in Annexure 9) and were ranked based on the methodology given below.

4.2 Methodology

The workshops were conducted in 43 different locations in partnership with the 13 training entities and one was conducted by NIUA at Delhi. At least one resource person from NIUA and MoHUA attended each workshop to monitor. The questions in the monitoring checklist was divided into 5 major heads such as logistics, topics covered in workshop, workshop reports and field visit manual, group activity 1 and 2 as well as site visits. Each workshop organized by the training entity was assessed based on these five parameters, each parameter carrying a maximum of 10 marks. For training entities, which has conducted, more than one workshop average score of the all workshops conducted was considered. Based on the scores, training entities were ranked. Training entities were also asked to send a feedback form (attached in Annexure 10) on behalf of NIUA to assess the challenges they have faced in conducting the workshop and their suggestions for improvement of this training program.

Rank	Training Entities	Number of workshops	Total Marks	Challenges experienced in organizing the workshop (As mentioned in feedback form given to Training entities)
1	Core CarbonX, Hyderabad	6	42	1. Difficulty in ensuring participation due to SS 2019
2	WMRC- AIILSG, Mumbai	8	41	Faced no difficulties in conducting workshops
3	TERI, Delhi	6	40	Difficulty in arranging accommodation and venue for the workshop
4	TERI, Guwahati	6	40	1.Difficulty in arranging transportation for the workshop 2. Coordination issues with ULB officials 3.Difficulty in ensuring participation 4.Difficulty in arranging the dignitaries
5	TNIUS, Coimbatore	6	39	1. Difficulty in ensuring participation from Kerala &Tamil Nadu due to flood and cyclone 2. Difficulty in arranging the dignitaries as the honorarium and TA allotted was insufficient
6	Feedback foundation, Gurugram	8	39	1. Difficulty in ensuring participation 2. Difficulty in arranging accommodation and venue for the workshop
7	AIILSG, Delhi	6	38	1.Difficulty in arranging venue for the workshop 2. Coordination issues with ULB officials
8	Hasiru Dala, Bengaluru	6	37	Faced no difficulties in conducting workshops
9	Environ, Guwahati	2	37	Faced no difficulties in conducting workshops

10	Engineering Staff College of India, Hyderabad	8	36	Faced no difficulties in conducting workshops
11	SMS Envocare, Ghaziabad	6	36	1. Difficulty in arranging field visit for the workshop 2.Coordination issues with ULB officials 3.Difficulty in ensuring participation
12	ICUC Consultants and IPCA, Delhi	6	35	1. Difficulty in arranging venue for the workshop 2. Coordination issues with ULB officials 3. Delay in receiving permission from state government for conducting the workshop
13	ICLEI South Asia	5	34	Difficulty in arranging venue and accommodation for the workshop

4.3 Conclusion

While all the partner TEs were effective in delivering the number of workshops that they were supposed to and as per the MOU signed by them with NIUA, some were better than others in conducting the workshop.

5. OVERALL KEY FINDINGS, RECOMMENDATION AND WAY FORWARD

The City Cluster Workshops brought to light several challenges faced by Urban Local Bodies (ULBs) in the field of Solid Waste Management (SWM) as well as strategies and good approaches adopted by certain ULBs in resolving and mitigating these challenges. The current section elaborates key finding, recommendations and way forward based on the experience and collective wisdom of the NIUA Team and partner Training Entities (TEs) after conducting the workshops all over the country. They have been substantiated by discussions between participants, SWM Experts and elected representatives during the technical sessions of the workshops. In addition to this, interaction between participants, site-in-charges and entrepreneurs during the field visits and consolidated feedback of the participants regarding SWM has helped in giving a final shape to the recommendations and way forward.

5.1 Key Findings

- ○ *Effective dissemination of knowledge*

Training entities have been selected through competitive process (through RFP), so that they had prior knowledge and experience of SWM and in conducting capacity building workshops.

- ○ *On ground exposure*

Besides orientation and technical session, participants also got a chance to visit best practices which are centralized and decentralized facilities of solid waste management. It enables complete experience of the subject and helps in learning through experience.

o *Green feature*

The salient feature of the workshops held in this series is that all the workshops were green events. For instance, the participants were provided with file folders, bags, pens, manuals and note books made from recycled material made by NGOs in and around Delhi. Single use plastics were avoided to the maximum extent possible; for instance participants were provided reusable metal water bottles and other material in reusable bags, containers etc. It helped in habit formation among the participants.

o *Effective and convenient model*

Conducting workshops in different locations helped ULBs to reflect challenges of their own place and contextualize the issue while it was also convenient to attend decentralized workshops due to ease of travel. More number of such training is required to create awareness on the issue of SWM.

o *Effective knowledge sharing*

Module is designed in such as way that the participants can discuss their problems and challenges with the other participants through group activities and while they are provided a platform for peer learning by sharing personal experience and knowledge with others.

o *Focus on knowledge sharing*

The key objective of the workshop is to design sessions as a knowledge sharing platform. Workshop had two brainstorming group activities which helped them to think about possible and sustainable solutions for sustainable SWM.

EFFECTIVE DISSEMINATION OF KNOWLEDGE

TEs selected had **prior knowledge of SWM**

ON GROUND EXPOSURE

Field Visits enabling complete experience of the subject

GREEN FEATURES

Conviction and habit formation of the participants

EFFECTIVE AND CONVENIENT MODEL

- **Decentralized Model**
- Convenient to attend due to ease of travel

EFFECTIVE KNOWLEDGE SHARING

Personal experience and knowledge sharing

FOCUS ON CAPACITY BUILDING

- **Pre-planning and brainstorming**
- **Improvement in SWM system** as per analysis of research questionnaires

Figure 3 Overall Key Findings

5.2 Recommendations

o ***Focus on making the module more structured***

The training module should incorporate certain necessary modifications and tweaks in the 3-day training sessions, and emphasis should be laid more in making it specific rather than subjective.

o ***Session of SWM Rules to be made more precise and succinct***

The session on SWM Rules can be made more precise and interesting by the use of charts and infographics. Sessions on EPR, Bye laws formulation and notification, regulating Bulk Waste Generators (BWGs) etc., can be included.

o ***Incorporation of ICT component within the training module***

Highlighting the importance of biometrics, RFID, sensor based SWM assets, use of Swachhta App, Citizen validation and use of MIS for better performance in Swachh Survekshan should be important components within the module.

o ***Dedicated session for Training of Trainers (TOT)***

To ensure that the capacity building exercise is continuous and reaches the grass-root workers of SWM, a session should be dedicated as to how the training so provided would be imparted by the trainees to their colleagues and other workers down the hierarchy.

o ***Linking Waste Management with job creation***

Elimination of single use plastic by promoting the use of reusables and upcycled products, and simultaneously facilitating skill development of marginalized groups in preparation of such products should be encouraged.

o *Emphasis on health outcomes of SWM*

The training should stress on the impact of SWM and cleanliness in ensuring public health, preventing spread of diseases and epidemics thereby promoting a healthier community. Concepts on ODF, ODF+, ODF++, Sustainable Sanitation should be emphasized.

o *Creation of a National Resource Base*

Regional workshops to be conducted not only for the Training Institutes (TIs) but also for individual resource persons to expose them to regional good practices in SWM. Thus the capacity building exercise should cater to both the individuals/ institutions.

o *Workshops for elected representatives*

Dedicated workshops for orientation of elected representatives should be conducted. Additionally, a combination of inter-state as well as intra state workshops would not only help in peer learning, but would also take care in optimizing travel time and cost.

5.3 Way Forward

- **Cross Learning**

Participants expressed the desire for cross-learning - that is, officials from a particular region wanted to see initiatives in another city of a similar size as theirs and having similar geographical terrain e.g. small municipalities, hilly cities, pilgrimage cities etc. This is helpful since cities with similar situations learn from each other. The similarities could be in terms of population size and demography, administrative set-up and financial status.

- **Twinning of cities**

It is a tested method of peer learning. In this approach, the city that has achieved considerable success at scale is the mentor and helps another recipient city to imbibe lessons and implement good initiatives. This also includes handholding by experts that have been instrumental in the achievements of the mentor city.

- **Capacity building for smaller cities**

Exclusive workshops can be designed for smaller towns with population of up to 10,000, 20,000 to 50,000. Many a times, such cities do not have dedicated staff to work on solid waste management. In such cases, it is imperative to sensitize the decision makers like administrative heads and elected representatives even at the state level.

- **Capacity building of elected representatives**

In most cities, the ULB officials have stated that success also depends on how well the elected representatives, administrative officials and experts work in tandem to make and keep a city clean. For this to happen it is very important to also have similar exposure workshops and capacity building of elected representatives like the Mayors and Councilors.

- o **Focus on Convergence**

Dedicated workshops can be delivered focusing on convergence programmes related to solid waste management, livelihood generation and skill training.

- o **Continuous capacity building**

Lastly, capacity building is a continuous process. If capacity building and handholding are clubbed together, chances of success become higher. For example, the exposure workshops can be followed by handholding workshops with cities on preparing sustainable action plans, technology selection tools and business models for Solid Waste Management in their cities.

Swachh Survekshan 2020

"Swachh Bharat Mission" (Urban) was launched on 2nd October 2014 for 5-year period with the objective of achieving 100% open defecation free (ODF) status and putting in place systems to achieve 100% solid waste management in all Urban Local Bodies (ULBs) in the country. In order to foster a healthy competition between cities for improving cleanliness standards, a ranking exercise named 'Swachh Survekshan' was introduced by the Government to assess the cities and towns for their levels of cleanliness and active implementation of the Swachhta mission initiatives in a timely and innovative manner.

The objective of the survey has been to encourage large scale citizen participation, ensure sustainability of initiatives taken towards garbage free and open defecation free cities, provide credible outcomes which would be validated by third party certification, institutionalize existing systems through online processes and create awareness amongst all sections of society about the importance of working together towards making towns and cities a better place to live in. Additionally, the survey also intends to foster a spirit of healthy competition among towns and cities to improve their service delivery to citizens, towards creating cleaner cities and towns.

The first Swachh Survekshan was conducted by The Ministry of Housing and Urban Affairs (MoHUA) in the year January 2016. 73 cities were ranked under Swachh Survekshan 2016. This was followed by 'Swachh Survekshan-2017' conducted in January-February 2017 where 434 cities were ranked. The third round of survey 'Swachh Survekshan-2018' was a quantum leap of scale as it was conducted across 4,203 cities, in a record time of 66 days, becoming the largest ever sanitation survey in the world, impacting around 40 crore people. For the year 2019, the survey was conducted across 4,237 towns and cities between January 4th – 31st , 2019. It was a completely digital and paperless survey completed in a record time of 28 days.

SS 2019 was not only significantly wider than the earlier editions in terms of scale but it also brought about substantial impact on the ground through a holistic citizen centric engagement. Some of the key highlights of SS 2019 are as follows:

- 90,000 residential/ commercial areas were inspected
- 64 lakhs citizen feedback were collected
- 18,000 Garbage Vulnerable Points were transformed
- 84,000 waste pickers were integrated into Urban Local Bodies
- There was a Social media outreach of 4.5 crores
- 1 crore citizens participated in the Survekshan through Swachh Manch.

6.1 Swachh Survekshan 2020

The 5th edition of the annual cleanliness survey of urban India was launched on June 6th 2019 at the Ministry of Housing and Urban Affairs (MoHUA), New Delhi. With the objective of ensuring sustainability of the on ground performance of cities along with continuous monitoring of service level performance when it comes to cleanliness, Swachh Survekshan 2020 is designed to conduct quarterly cleanliness assessment (Swachh Survekshan League 2020) of cities and towns and the performance of which shall be integrated with Swachh Survekshan 2020 to be conducted between January - February 2020 by MoHUA. For Swachh Survekshan-2020 (SS-2020) assessments, cities will be asked to upload documents in support of the progress claimed during SSLeague-2020. If any discrepancy is observed between the document and progress claimed for Swachh Survekshan League-2020, adjustment/ negative marking will be applied appropriately and marks will be revised accordingly. The revision in marks may also lead to correction in the rank achieved.

6.2 SS league 2020

Swachh Survekshan League 2020 (SS League 2020) has been introduced with the objective of sustaining the on ground performance of cities along with continuous monitoring of service level performance when it comes to cleanliness. SS League 2020 will be conducted in 2 quarters from April- June and July – September 2019. SS 2020 shall be conducted in the and October- December 2019 quarter. A weightage of 2000 marks is dedicated for each quarter of SS league 2020 to be evaluated on the basis of monthly updation of SBM-U online MIS by cities along with citizen's validation on the 12 service level progress indicators through outbound calls. The assessment of SS league 2020 in the two quarters will together determine the quarterly ranking of cities. Ranks will be assigned in two categories, namely, cities with population of one lakh and above and cities with population of less than 1 lakh. The performance of cities in SS League 2020 will be crucial to their ranking in Swachh Survekshan 2020 due to the 25% weightage of the quarterly assessments to be included in the annual survey in January 2020.

‘SS League 2020’ to ‘SS-2020’ Structure & Timeline

SS League-2020

Quarter – 1 (1st April – 30th June)

| April | May | June |

Monthly MIS to be updated by ULBs

Citizen's Validation during 25th June – 15 July

May – June Average progress to be evaluated

Final Ranks and Results (Total 2,000 marks)

Quarter – 2 (1st July – 30th September)

| July | August | September |

Monthly MIS to be updated by ULBs

Citizen's Validation during 25th Sep – 15 Oct

August– September Average progress to be evaluated

Final Ranks and Results (Total 2,000 marks)

20% (quarterly assessments) + 5% (Quarterly Average Ranking) = 25% Weightage (1,000 marks) in SS 2020

SS-2020 (Oct 2019 – Dec 2019)

Assessment Period 4th January 2020 – 31st January 2020
Total 4,000 Marks but 1,000 marks linked with SS League Performance

6.3 Comparing the Structure of the SS 2019 and SS 2020:

As compared to Swachh Survekshan 2019, which was of total 5000 marks, Swachh Survekshan 2020 has a total mark limit of 4000 marks. Of the total 4000 marks,

- 25% (1000 marks) has been assigned to Direct Observation under SS 2020.
- 25% (1000 marks) has been assigned for SS2020 –certifications.
- 25% (1000 marks) has been assigned for SLP (Service Level Progress) and Citizens Feedback, and
- 25% (1000 marks) has been assigned for SS league 2020.
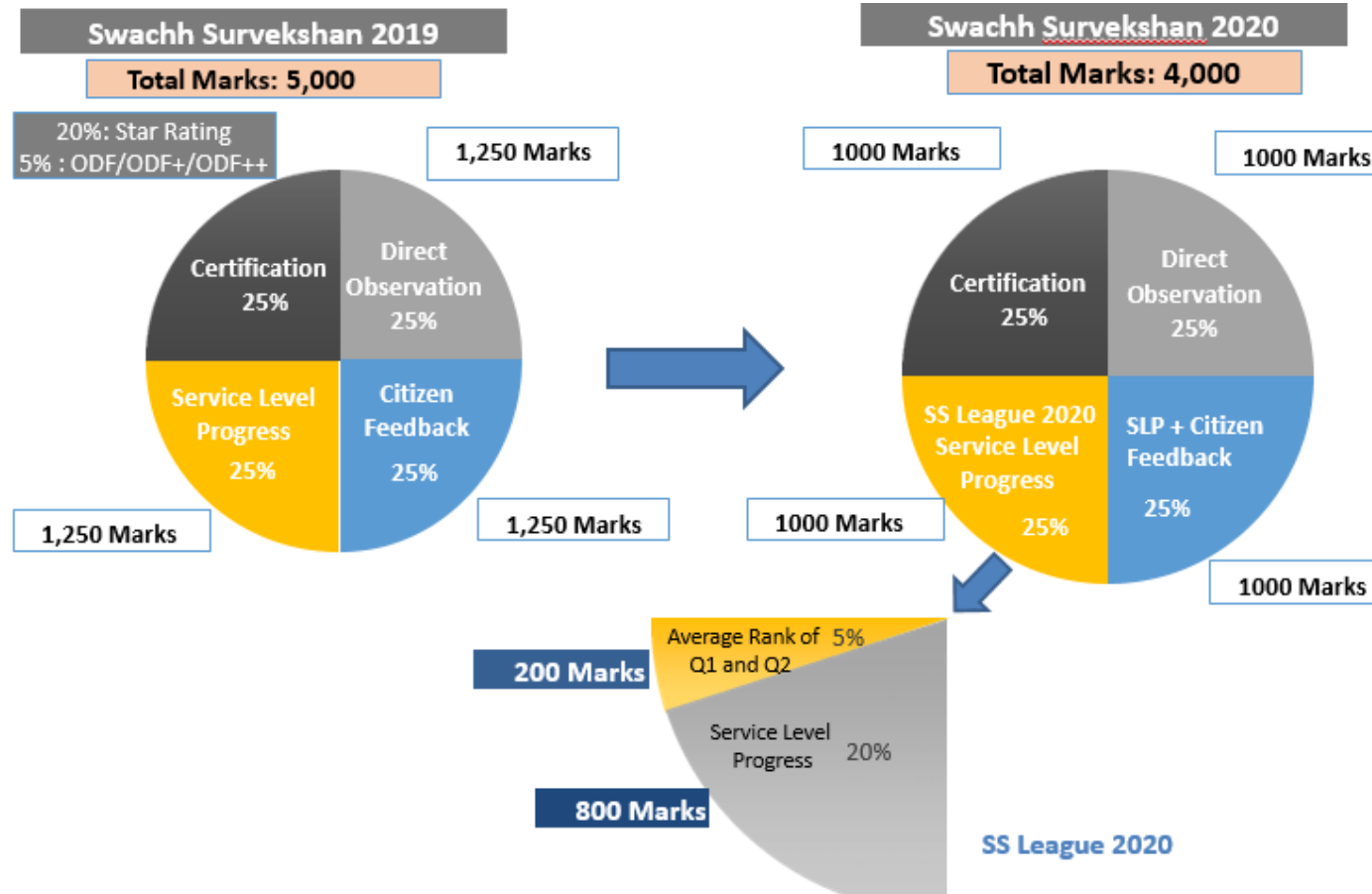
6.4 SS league 2020 has two main parameters:

- Service Level Progress: For the assessment of service level progress, SBM on-line MIS portal has to be updated on a monthly basis (by 5thday of following month). In case of resource constraints in ULBs to collate/update monthly MIS, the same may be outsourced through a private company/agency under Capacity Building budget. Ward level data will have to be provided in MIS, wherever relevant. No documents are required to be uploaded for the quarterly assessments.

- Citizens Validation: 12 Service Level Progress Indicators will be validated through outbound calls to Citizens. Population wise samples have to be collected for citizen validation. (Refer SS league 2020 guidelines for further details). Indicators that are chosen for citizen validation are discussed as below:

S.No	Questions	Indicators to be Validated
1	Is your waste collected daily from your house?	1.1 Percentage of Wards covered with operational Door to Door Collection of waste
2	Whether you are asked to give segregated dry and wet waste to your waste collector?	1.2 Percentage of Wards practicing source segregation of waste which is maintained till processing/disposal site. Hazardous waste to be collected separately (in a separate bag/container)
3	Are you satisfied with the cleanliness level of your surroundings?	1.6 100% Wards are Clean in the Urban Local Body (ULB)
4	Do you see use of polythene bag/200 ml water bottles/single use plastic glasses for water/juice in social functions/events conducted in your city?	1.8 Plastic Waste Management Rules: Whether City has banned single use plastic including plastic with <50 micron from all festivals/social gatherings/events?
5	Do you see messaging or practice around Waste Exchange Program/Crockery Bank/Foodbank/Re-use and Recycle of goods etc. in your city?	1.9 3R Principles: Whether measures taken to reduce generation of Dry/Wet Waste? If yes, share details

6	Do you see Construction & Demolition Waste material lying unattended for >2 days in your neighborhood?	2.6 Any mechanism in place to manage Construction & Demolition (C&D) waste as per C&D Waste Management Rule, 2016? Whether plans in place to initiate processing of C&D Waste?
7	Do you know 'Home Composting' is being promoted in your community/city or do you practice 'Home Composting'?	2.11 Percentage of households processing their wet waste at Home/ Community Level (Households under RWAs will qualify under the BWG definition)
8	Do you use Google Map to locate the nearest Public Toilet or do you know location of Public Toilets in your city are available on google maps?	3.8 Percentage of Public Toilets (PTs) mapped on Google Maps
9	Are you aware that ranking of hotels, schools, hospitals, RWA/Mohalla, Government Offices and market areas is conducted in your city	4.1 Whether quarterly rankings of Swachh Hotel, School, Hospital (Healthcare facility), RWA/Mohalla , Government Offices and Market Association conducted?
10	Have you ever come across opportunities to survey our city under Swachh Bharat Mission (Urban) or do you see private sector/NGO/SHG are supporting your city under SBM?	4.2 Whether RWAs/NGOs/SHGs/Private Sector engaged through CSR to keep your city clean –nature of engagement to be shared

11	Do you know your city is participating in 'Swachh Survekshan League 2020'?	4.3 Whether 'Swachh SurvekshanLeague-2020' promoted in your city?
12	Do you find Community/Public Toilets of your cities are well maintained?	5.1 Whether Caretakers deployed at CT/PT are trained (as per SOPs on O&M of CT-PT) on maintaining their facilities?

Of the 1000 marks under SS league 2020, 20% i.e. 800 marks are for service level progress and remaining 5% i.e. 200 marks are for average ranking attained in quarter 1 and quarter 2 assessments.

6.5 Indicators under 'Service Level Progress' in SS League 2020

Some stark differences can be observed on comparing the service level parameters under SS 2019 and SS league 2020. In the SS league 2020 more emphasis has been laid on the Processing & Disposal of solid waste along with Capacity building and IEC components.
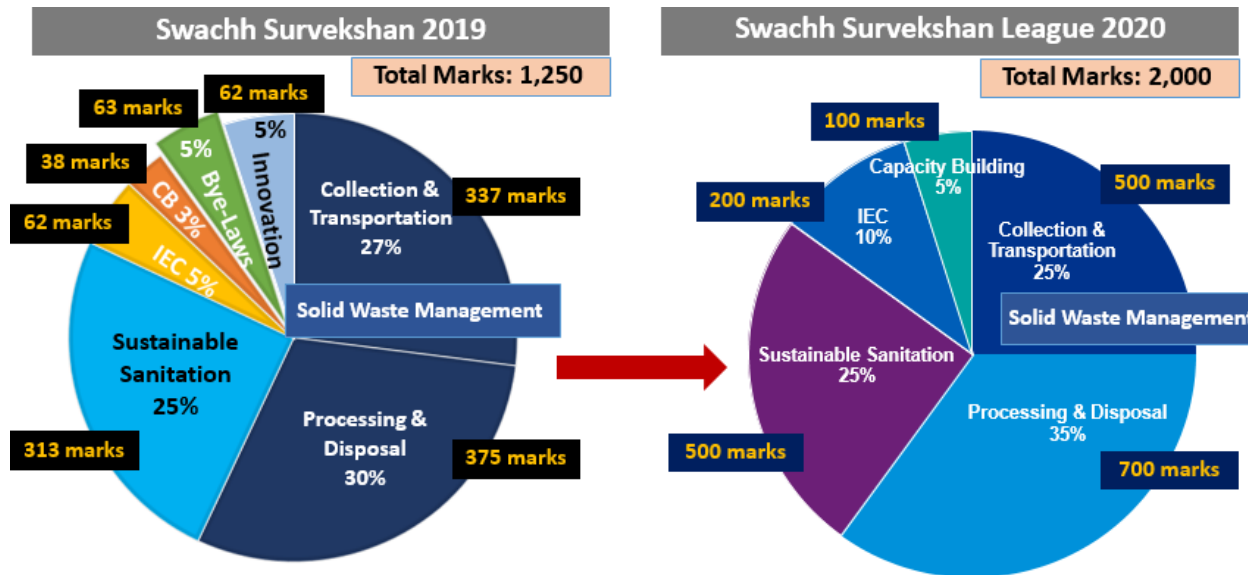
The indicators for assessing each of the five parameters under SS League 2020 are discussed as below:

1. **Parameter: Collection & Transportation:**

Weightage: 25%;

Total Marks: 500;

Total Indicators: 9

S.No	Indicator	Description	Marks
1.1	Percentage of Wards covered with operational Door to Door Collection of waste	This parameter examines whether your ULB has a system in place for door-to-door collection of waste. Coverage of wards means each and every unit of household, commercial establishment and shops in the ward.	100
1.2	Percentage of Wards practicing source segregation of waste which is maintained till processing/disposal site. Hazardous waste to be collected separately (in a separate bag/container)	This parameter examines whether your ULB has a system in place for collection of waste in segregated manner (Wet and dry waste). The segregated waste thus collected should be maintained in two streams until it reaches the processing plant/site or Material Recovery Facilities (MRF). Coverage of wards means all households/commercial establishment in the ward.	125
1.3	ICT based Monitoring Mechanism in place for: Ward wise Collection and Transportation (C&T), Collection from Gates, Monitoring of Garbage	This indicator examines the ICT enabled mechanisms by which the ULB monitors its efficiency of the collection and transportation system, regularity of its staff and sustaining the transformation/cleanliness of Garbage Vulnerable Points. Cities with <1 lakh population can monitor Collection & Transportation through a manual system.	40

	Vulnerable Points (GVPs) and Sanitation Staff. (Cities with <1 Lakh population may opt for mobile phone based monitoring. However, remote areas if affected by network issue, may monitor manually)		
1.4	Percentage of Informal Waste Pickers formally integrated into Sustainable Livelihoods	Formally integrating the informal waste pickers helps improve the living standards of urban poor by engaging them in areas including collection & transportation, processing (Material Recovery Facilities etc.), construction/ maintenance of toilets. or engaged with National Urban Livelihood Mission (NULM) and Skill India etc.	25
1.5	Benefits extended to all Sanitary workers including Informal Waste Pickers i.e. workforce engaged under/through Jaagirdari system, SHG, NGO,	SWM Rules 2016 mandates provision of Personal Protective Equipment(PPE) to all workers involved in handling solid/liquid waste (engaged under Jaagirdari, SHG, NGO, private Agency, regular/casual workers etc.).	40

		private agency, informal waste pickers etc.	All Workers have been facilitated to link with at least two eligible government schemes i.e, Ayushman Bharat/Pradhan Mantri Awas Yojna/Accidental Insurance/Life Insurance/Ujjawala/Saubhagya/integration of NULM etc. or any other state schemes.	
			Monthly recognition of best performing workers (name of workers and reason for recognition to be shared)	
			Training imparted to workers on components under Swachh Bharat Missions	
1.6		100% Wards are Clean in the Urban Local Body (ULB)	Twice a day sweeping (including night sweeping) in all commercial areas, once a day sweeping in all residential areas, transformation of Garbage Vulnerable Points(GVP), no solid waste visible in storm water drains/water bodies, up keeping of slums and old city areas e.g. no water logging, roads/by-lanes are well maintained with no littering/dumping of waste etc.	50
1.7		Whether Storm Water Drains and Water Bodies in all wards clean?	Storm water drains is designed to drain excess rain and ground water from impervious surfaces such as paved streets, car parks, parking lots, footpaths,	40

		sidewalks, and roofs. Storm drains vary in design from small residential dry wells to large municipal systems. ULBs are expected to make sure that storm water drains are not choked with solid waste for free flow of the water. Similarly, water bodies are an integral part of eco-system – need to get protected from waste with scheduled cleaning and maintenance work.	
1.8	Plastic Waste Management Rules: Whether City has banned single use plastic including plastic with <50 micron from all festivals/social gatherings/events?	Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled. These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging. This indicator would assess the extent of enforcement for discouraging one-time use 'Plastic' in the city. Considering the environmental degradation caused by one-time use plastics, cities should work towards discouraging its citizens from using single-use plastics in events conducted throughout the year.	30
1.9	3R Principles: Whether measures taken to reduce generation of	This indicator would assess the ULB's effort to reduce the waste generated by household/commercial/industrial establishments in the city and should adopt the 3R principles. The focus should be on reducing the amount of	50

	Dry/Wet Waste? If yes, share details	waste which is finally transported to the processing/disposal site or processed through on-site composting.	

2. Parameter: Processing & Disposal

Weightage: 35%;

Total Marks: 700;

Total Indicators: 13

S.No	Indicators	Description	Marks
2.1	Whether capacity of wet waste processing facility/facilities in the city is matching with the total wet waste generated by the city?	The indicator would assess whether a city has adequate facility/infrastructure to process the wet waste generated	50
2.2	Percentage of total wet waste generated is treated, either by decentralized or centralized processing.	This indicator assesses the extent of decentralized and centralized management of wet waste generated. The amount of wet waste being sent to the landfill should be minimized.	150
2.3	Percentage of total dry waste (excluding plastic and domestic hazardous waste) collected is treated/re-used/recycled, either by decentralized or centralized processing	This indicator assesses the extent of decentralized and centralized management of dry waste generated. Is the dry waste of the city being recycled or reused?	60
2.4	Percentage of total plastic waste collected is treated/re-used/recycled, either by decentralized or centralized processing	This indicator assesses the extent of decentralized and centralized management of dry waste generated. Is the dry waste of the city being recycled or reused?	40

2.5	Percentage of total hazardous waste collected is treated, either by decentralized or centralized processing	This indicator assesses the extent of decentralized and centralized management of hazardous waste generated in the city.	30	
2.6	Any mechanism in place to manage Construction & Demolition (C&D) waste as per C&D Waste Management Rule, 2016? Whether plans in place to initiate processing of C&D Waste?	This indicator assesses the extent of decentralized and centralized management of C&D waste generated. The indicator would also assess the extent of utilization of C&D waste in the city. How city is tracking random dumping? Whether C&D Waste Helpline in place? Availability of dedicated Vehicles? How C&D waste is being managed? Any penalty system for throwing C&D waste in open areas?	50	
2.7	Remediation of existing dumpsites undertaken and the stage of the same or no legacy waste (dumpsite)	This parameter assesses whether remediation is being practiced or whether the city is dumping waste in an unplanned manner as per the SMW 2016 rules.		60

2.8	Is the landfill in the city a sanitary landfill? Or landfill not required/ Zero landfill city	This parameter assesses whether the land fill site of the ULB is scientific/ planned in nature or in accordance with SWM 2016 rules.	50
2.9	Percentage of Bulk Waste Generators (BWG), including those generating more than 100 Kgs (or less as notified by the State/city) of waste per day, practicing on site processing of their wet waste or outsourced to private agency - processing not outsourced to ULB. However, cities with <1 Lakh population can outsource to ULB on a commercial rate.	This parameter assesses whether the bulk waste generators in a city (including RWAs) are practicing on site composting at their premises or not. All such establishments generating more than 100 Kgs (or as notified by the State/city) of waste per day are being considered as bulk waste generator. Outsourcing of waste processing through ULB will not be considered for marking against this indicator.	50
2.10	Whether City has empaneled service provider(s) managing collection and processing of dry/wet waste to cater Bulk Waste Generators (BWGs) or households not being covered under Door-to-Door Collection (details should be available on public domain). In cities with less than 10 Lakh population, ULBs can provide similar arrangement (including through NGO/SHG)	This indicator would check the coverage of waste collection and processing of waste from establishment which otherwise could not be catered through ULBs existent collection mechanism. This arrangement will be like 'On Call' service for Gate to Gate collection along with any social/public event. ULB should empanel private service providers as a back-up of already established collection & processing mechanism. Such agencies will act as a back-up arrangement for the main collection and transportation services provided by the ULB .	30

2.11	Percentage of households processing their wet waste at Home/ Community Level (Households under RWAs will qualify under the BWG definition)	This indicator assesses the extent of home composting being practiced to manage wet waste generated in the city. IEC campaign supported by proper handholding will help citizens to opt for home composting, thus taking ownership of their wet waste	50
2.12	Percentage of Swachhta App/Local App complaints covers issues related with littering/garbage dumping/overflowing litter bins	This indicator would assess the extent of complaints pertaining to SWM received on Swachhta App/Local App. The ULBs efforts towards maintaining cleanliness till date should be sustained.	40
2.13	What percentage of the operational cost of Sanitation and Solid Waste Management is covered by Property Tax, (SWM/sanitation sub head), User Charges (for SWM/ sanitation related services, Sale of city compost and Advertisement rights on CT/PT and Litter Bins? Salary expenses to Daily wagers, contractual or outsourced staff through service providers(against vacant posts) will be added along with cost	To assess extent of cost recovery in solid waste management services	40

3. Parameter 3: Sustainable Sanitation

Weightage: 30%;

Total Marks: 600;

Total Indicators: 11

S.No	Indicators	Description	Marks
3.1	ULB/Development Authority/Cantonment Board has prepared FSSM Action Plan or has notified San-Benchmarks(prescribed in FSSM Policy at the least adhering to all conditions defined for SBM ODF++, in municipal bye-laws(or equivalent) and published the same in atleast two dailies with wide reach OR	This indicator would assess the extent of planning done by ULBs for Faecal Sludge and Septage Management and ODF++ certification. The ULB should disseminate the same with citizens	40

		it is not required if the city is 100% covered through sewerage system.		
3.2	What percentage of Households, Commercial Institutions, Establishments and Public area CTs/PTs are connected to a closed system such as sewerage, septic tank + soak pit, twin-pit system etc.	This indicator will ascertain whether the city has adequate coverage of sewerage network or septic tanks	100
3.3	What percentage of faecal sludge collected from Households/Commercial Establishments/ CTs/PTs is treated at FSTP/STP-Scientific processing of faecal sludge	This indicator will ascertain whether majority of the faecal sludge in the city is being processed scientifically and not being discharged in the open	120
3.4	Whether capacity of FSTP (Vs Collected)/STP(Vs generated) in the city is matching with the total faecal sludge generated by the city?	This indicator would assess whether the infrastructure to treat entire faecal sludge generated in the city is available or not	60
3.5	Are de-sludging operators(de-sludging staff) trained on safety related issues, registered with the ULB and being monitored by the ULB (including Self Help Groups registered under de-sludging activity)	This indicator assesses whether the de-sludging activities are being monitored by the ULB or not. Uncontrolled dumping of faecal matter within the city /outside city should be prohibited. This	50

		indicator will not be applicable on Cities with 100% sewerage coverage –maximum Marks will be given	
3.6	The city has issued and notified fines against persons/de-sludging operators dumping untreated faecal sludge in drains and/or open areas	This indicator assesses the regulatory control of the ULB to curb dumping of untreated faecal sludge in drains or open areas	60
3.7	Whether plans are in place to reuse/recycle the waste water to reduce the burden on fresh water?	Acknowledging the shortage of fresh water and efforts to conserve fresh water, ULBs need to consider reuse and recycling of waste water. Waste water can be re-used for irrigation, horticulture etc.	50
3.8	Percentage of Public Toilets (PTs) mapped on Google Maps	Easy access to Public toilet will improve Public toilet usage. Floating population will also get benefited by searching and accessing the 'SBM toilets' on google map.	60
3.9	Percentage of CT/PTs open from 6.00 am to 10.00 pm?	Easy and timely access to Community and Public toilet will improve Community/Public toilet usage.	20
3.10	What percentage of Operations and Maintenance costs of Community/Public Toilet are being recovered through revenue streams viz. Property	This indicator would assess the sustainability of city's infrastructure towards Faecal Sludge and Septage Management.	20

		tax (sanitation specific), User charges, monetization of CT/PT etc.		
3.11		What percentage of Operations and Maintenance costs of FSTP and ULB owned vacuum tankers are being recovered through revenue streams viz. Property tax (sanitation specific), User charges, etc.	This indicator would assess the sustainability of city's infrastructure towards Faecal Sludge and Septage Management.	20

4. Parameter 4: IEC & Behaviour Change

Weightage: 10%;

Total Marks: 200;

Total Indicators: 3

S.No	Indicators	Description	Marks
4.1	Whether quarterly rankings of Swachh Hotel, School, Hospital (Healthcare facility), RWA/Mohalla , Government Offices and Market Association conducted?	A sense of competition for cleanliness among Hotels, Schools, RWAs/Mohalla, Hospital, Government Offices and registered Market Associations will lead to improved overall experience of places with maximum footfall of citizens. ULB need to conduct ranking by June 2019.	70
4.2	Whether RWAs/NGOs/SHGs/Private Sector engaged through CSR to keep your city clean –nature of engagement to be shared	This indicator would assess the ULB's efforts to engage citizens and stakeholders proactively. The idea is to ensure all citizens and stakeholders take ownership of cleanliness aspects in the city. Private sector needs to be approached by the ULB for seeking active contribution via CSR funds towards city's infrastructure requirements for cleanliness. All such activities to be updated on Swachh Manch.	70

4.3	Whether 'Swachh SurvekshanLeague-2020' promoted in your city?	Cities are expected to promote Swachh Survekshan-2019 creative are placed at all prominent places of high citizen foot fall to ensure participation. Besides, traditional approach, cities are also encouraged to use ICT Based technology supporting behavior change viz. interactive games/value added services for creating better awareness and mobilizing citizens.	60

5. **Parameter 5: Capacity Building**

Weightage: 5%;

Total Marks: 100;

Total Indicators: 3

S.No	Indicators	Description	Marks
5.1	Whether Caretakers deployed at CT/PT are trained (as per SOPs on O&M of CT-PT) on maintaining their facilities?	The indicator would assess the extent to which caretakers are aware about safe sanitation and cleanliness practices which would benefit in the overall cleanliness of CT/PT to which they are assigned	40
5.2	Percentage of Sanitary Workers trained and equipped for cleaning water bodies/drains and installing waste screening systems/filters in drains	This indicator would assess whether sanitary workers are aware and equipped for cleaning water bodies , maintaining/installing waste screening systems/filters.	40
5.3	Number of Gastro + Respiratory related cases registered in the dispensary and/or hospital of the Government between April 2019 to June 2019 in comparison to patients registered between April2018 to June 2018	This indicator would assess whether Gastro +Respiratory disease burden in the ULB/Cantt Board reduced in comparison with the previous year	20

6. Swachh Bharat Mission (Urban) Funds

Swachh Bharat Mission is one of the flagship programmes of Government of India having key objective to address both elimination of open defecation and achieving solid waste management in all urban local bodies (ULBs) of India by 2019. The estimated cost of implementation of SBM Urban is Rs. 62,009/-Crore, including Government of India share of Rs. 14,600/- Crore. The SBM guidelines have been revised upwards to 35% of project cost to ULBs as Central share (from 20% earlier) for SWM (Handbook of Urban Statistics, 2019)

It is estimated that another 25 per cent of the total cost would be borne by states/ULBs. The remaining funds are proposed to be generated through other sources such as private sector participation, market borrowing, user charges, Corporate Social Responsibility (CSR), and the Swachh Bharat Kosh. In FY 2019-20, GoI allocated 2,750 crores to the scheme, an increase of 10 per cent from the previous year's allocated funds.

SBM-U ALLOCATED 87% OF ESTIMATED GOI SHARE DURING THE MISSION PERIOD

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
GoI allocations for MoHUA (in ₹ crore)	13,166	18,340	32,550	40,754	42,965	48,032
GoI allocations for SBM-U (in ₹ crore)	1,691	1,000	2,300	2,300	2,500	2,750

■ GoI allocations for MoHUA (in ₹ crore)   ■ GoI allocations for SBM-U (in ₹ crore)
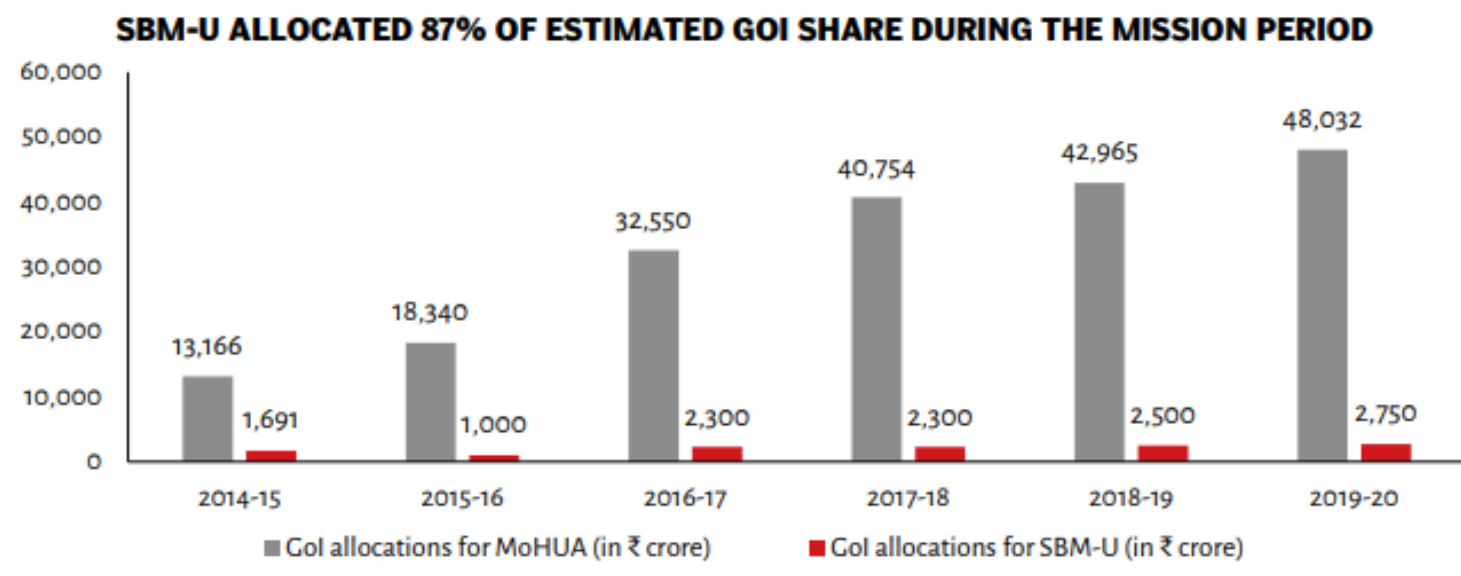
Source: India Expenditure Budget, Vol 2, for Ministry of Urban Development till Union Budget 2017-18 and Ministry of Housing and Urban Affairs for FY 2019-20 (IB). Available online at: https://www.indiabudget.gov.in/vol2.asp. Last accessed on 1 February 2019.
Note: Figures are in Rupees crore and are Revised Estimates (RE), except for FY 2019-20 (IB) which are Budget Estimates (BEs).

Budget and Fund releases under the Mission

Total estimated funds for SBM Urban is Rs. 62,009/-Crore out of which 14600 Cr is shared by GoI on following components of SBM-U.

- Construction of Individual Household Latrines (IHHLs), including conversion of insanitary toilets into pour flush latrines, Construction of Community Toilets (CTs) and Construction of Public Toilets (PTs)- Approx. Rs. 4,800/- Crores has been allocated for ODF (these three components)

- Solid Waste Management (SWM)- Approx. Rs. 7,400/- has been allocated

- Information, Education and Communication (IEC) and Public Awareness. - Approx. Rs. 1,800/- Crores has been allocated

- Capacity Building and Administration (CB&A). - Approx. Rs. 600/- Crores has been allocated

About Rs 4,874/- Crores is shared by state government and balance funds (Rs. 42,535/- Crore) to be generated through other sources.

Released till date (31st March, 2019) – Rs. 8720 crores have been released under various Mission components till date. The breakup of Mission allocation of various components and year-wise releases are given in the table below:

SWACHH BHARAT MISSION (URBAN) - FINANCIAL PROGRESS - FIGURES ARE IN CRORE

Year	Release (Rs. In crores) for various components					
	IHHL	CP/PT	SWM	IEC	CB	Total
2014-2015	367.61	85.03	287.50	95.59	23.75	859.48
2015-2016	694.68	35.04	286.46	79.15	13.04	1108.16
2016-2017	699.11	157.60	916.70	307.58	56.38	2137.38
2017-2018	531.84	225.96	1302.59	345.17	136.16	2541.74
2018-2019 (till 31st March)	427.44	93.74	1347.22	141.26	64.27	2073.96
Total (Till 31st March, 2019)	2740.48	597.39	4140.48	968.78	293.61	8720.74
Mission allocation	4819.79		7365.82	1827.85	609.27	14622.73

Similarly, followings tables shows funds allocated to states and funds release till 31st march, 2019 (Source: Handbook of Urban Statics, 2019)

Sl. No.	State/UT	Mission Allocation					
		IHHL	CT	SWM	IEC	CB	Total
1	A&N Islands	0.43	0.10	2.50	0.39	0.10	**3.52**
2	Andhra Pradesh	184.08	27.95	308.54	40.61	10.15	**571.33**
3	Arunachal Pradesh	**13.40**	0.35	7.25	12.22	3.06	**36.28**
4	Assam	**81.95**	2.31	76.76	66.62	16.66	**244.30**
5	Bihar	218.90	45.27	259.96	47.64	11.91	**583.68**
6	Chandigarh	2.45	0.53	22.24	2.24	0.56	**28.02**
7	Chhattisgarh	140.76	34.40	131.53	40.93	10.23	**357.85**
8	Dadra & Nagar Haveli	**1.20**	0.17	2.27	0.39	0.10	**4.13**
9	Daman & Diu	**0.29**	0.06	1.57	0.53	0.13	**2.58**
10	Delhi	50.16	5.15	263.68	24.61	6.15	**349.75**
11	Goa	3.21	0.48	9.29	3.29	0.82	**17.09**
12	Gujarat	162.56	32.22	536.22	82.52	20.63	**834.15**
13	Haryana	86.67	10.61	181.80	30.40	7.60	**317.08**
14	Himachal Pradesh	**14.02**	0.90	15.22	11.05	2.76	**43.95**
15	Jammu & Kashmir	**102.63**	3.69	67.99	21.06	5.26	**200.63**
16	Jharkhand	92.41	21.08	122.68	18.03	4.51	**258.71**
17	Karnataka	355.35	44.31	512.52	84.62	21.16	**1017.96**
18	Kerala	70.62	1.53	121.35	21.19	5.30	**219.99**
19	Madhya Pradesh	292.79	65.42	434.01	102.26	25.56	**920.04**
20	Maharashtra	359.90	57.57	1081.84	142.79	35.70	**1677.80**
21	Manipur	**47.46**	0.28	14.72	16.51	4.13	**83.10**
22	Meghalaya	**5.82**	0.16	8.69	7.56	1.89	**24.12**
23	Mizoram	**18.08**	0.08	13.22	14.11	3.53	**49.02**
24	Nagaland	**26.59**	0.19	11.69	12.02	3.00	**53.49**
25	Odisha	161.33	33.82	138.05	31.06	7.76	**372.02**
26	Puducherry	6.78	1.57	17.30	2.63	0.66	**28.94**

27	Punjab	78.66	8.45	220.97	44.75	11.19	**364.02**
28	Rajasthan	225.01	35.73	363.46	65.01	16.25	**705.46**
29	Sikkim	**2.63**	0.06	3.42	4.33	1.08	**11.52**
30	Tamil Nadu	338.02	93.52	689.87	186.47	46.62	**1354.50**
31	Telangana	133.31	20.24	223.43	29.41	7.35	**413.74**
32	Tripura	**68.65**	0.12	15.51	12.87	3.22	**100.37**
33	Uttar Pradesh	473.28	80.03	940.91	197.41	49.35	**1740.98**
34	Uttarakhand	**30.30**	1.59	57.57	18.03	4.51	**112.00**
35	West Bengal	315.33	24.82	487.79	66.72	16.68	**911.34**
	STATE/UT	**4165.03**	**654.76**	**7365.82**	**1462.28**	**365.57**	**14013.46**
	MOUD				**365.57**	**243.70**	**609.27**
	TOTAL	**14622.73**					

Sl. No.	State/UT	Released					
		IHHL	**CT**	**SWM**	**IEC**	**CB**	**Total**
1	A&N Islands	0.06	0.94	0.40	0.29	0.00	**1.69**
2	Andhra Pradesh	110.47	54.72	308.54	26.50	9.64	**509.86**
3	Arunachal Pradesh	7.72	0.28	6.84	9.08	2.51	**26.43**
4	Assam	70.20	2.31	76.76	19.26	5.60	**174.13**
5	Bihar	150.02	35.21	182.19	8.77	9.75	**385.95**
6	Chandigarh	1.59	0.26	13.45	0.85	0.34	**16.50**
7	Chhattisgarh	140.76	39.00	126.93	40.93	10.23	**357.85**
8	Dadra & Nagar Haveli	0.64	0.05	0.00	0.39	0.03	**1.11**
9	Daman & Diu	0.29	0.06	0.00	0.27	0.10	**0.71**
10	Delhi	25.08	5.15	116.24	11.20	0.21	**157.88**
11	Goa	2.36	0.22	5.93	2.93	0.42	**11.86**
12	Gujarat	171.55	13.99	536.22	51.44	12.80	**786.00**

13	Haryana	32.96	24.10	57.66	2.69	5.30	**122.70**
14	Himachal Pradesh	4.38	1.33	12.16	3.67	1.53	**23.07**
15	Jammu & Kashmir	46.39	10.39	39.45	12.77	3.59	**112.59**
16	Jharkhand	71.30	4.16	113.74	15.24	4.99	**209.44**
17	Karnataka	157.80	41.03	313.51	29.66	17.62	**559.62**
18	Kerala	31.67	0.00	51.64	11.45	2.42	**97.18**
19	Madhya Pradesh	262.83	65.42	301.75	80.13	11.24	**721.36**
20	Maharashtra	317.32	45.46	453.05	28.88	13.28	**857.99**
21	Manipur	27.78	0.28	9.61	5.86	1.84	**45.36**
22	Meghalaya	2.70	0.04	4.09	1.41	0.11	**8.35**
23	Mizoram	7.10	2.63	8.21	11.14	2.81	**31.89**
24	Nagaland	17.12	1.45	7.14	9.01	2.00	**36.72**
25	Odisha	75.03	28.53	28.29	11.67	2.32	**145.84**
26	Puducherry	4.54	1.11	2.12	0.83	2.87	**11.48**
27	Punjab	41.00	15.95	120.38	14.78	1.08	**193.19**
28	Rajasthan	166.25	41.18	344.26	45.50	14.16	**611.35**
29	Sikkim	0.59	0.75	2.52	1.57	0.52	**5.95**
30	Tamil Nadu	209.84	71.38	579.04	105.88	9.63	**975.77**
31	Telangana	66.91	1.34	111.72	11.61	4.67	**196.25**
32	Tripura	7.61	1.97	7.76	7.72	1.93	**26.99**
33	Uttar Pradesh	367.89	172.70	427.73	176.09	48.80	**1193.20**
34	Uttarakhand	22.95	7.18	7.55	3.43	1.69	**42.80**
35	West Bengal	167.14	8.27	199.80	24.02	11.19	**410.42**
STATE/UT		**2789.86**	**698.82**	**4576.67**	**786.93**	**217.20**	**9069.48**
MOUD					**361.41**	**112.80**	**474.21**
TOTAL		**9543.69**					