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RCUES, Mumbai
Enabling better cities...



Urban Environ Vision

An information bulletin



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All India Institute of Local Self-Government, Mumbai

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Editor in-Chief
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Director, RCUES, AIILSG, &
Editor
Ms. Utkarsha Kavadi



Urban Environ Vision aims to take its readers through the journey of RCUES, Mumbai while providing encouragement and inspiration. It offers a platform to display the efforts undertaken by RCUES, Mumbai and showcase its achievements.

Regional Specialized Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste'

6th & 7th March, 2018, Aurangabad, Maharashtra.

The key highlight of this programme was the site visit to Vaijapur Municipal Council to see the multiple level segregation and dry waste segregation.

Background

The dream of clean India, visualized by Mahatma Gandhi is gradually taking shape since the launch of Swachh Bharat Mission on 2nd October, 2014. In the revised Rules of Solid Waste Management, 2016, focus is being given on segregation of solid waste.

Solid Waste Management Rules, 2016 is mandatory for all municipal bodies to effectively manage solid waste in cities. It is mandatory for waste generators to store segregated waste at source and municipal bodies to collect such a waste in a segregated manner directly from the households and transport it to the designated places for appropriate treatment and processing. Major focus of SWM Rule is on segregation at source and zero garbage concepts.

It is essential for municipal bodies to adopt a more systematic approach towards planning and management for solid waste and develop capacities of their staff / officials towards effective and efficient solid waste management system.

In view of the above background, Regional Centre for Urban & Environmental Studies (RCUES) of All India Institute of Local Self-Government (AIILSG), Mumbai organized a Regional Specialized Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste' on 6th & 7th March, 2018 at Aurangabad, Maharashtra. This programme was supported by Ministry of Housing & Urban Affairs (MoHUA), Government of India (GoI).

Key Objective

The key objective of the programme was to expedite the process of achieving goals of effective solid waste management in India with a focus on 100% segregation of waste at source, as envisaged in SBM, Urban and SWM Rules - 2016.

Participation

23 participants comprising municipal engineers and sanitary inspectors from the states of Maharashtra and Gujarat attended this programme.



Participants during the programme at Aurangabad, Maharashtra.

Introduction

This training programme commenced with an introduction by Mrs. Neha Hardikar, Research Officer, RCUES of AIILSG, Mumbai. She welcomed all the participants and explained the objective of this training programme.

Technical Sessions

In the first technical session, Ms. Sneha Mohan, Technical Expert, Swachh Maharashtra Mission - Urban (SMMU), Aurangabad Division, Maharashtra explained the 'Overview - Solid Waste Management (SWM) and Swachh Bharat Mission (SBM). In her presentation, she gave a brief outline of SWM in Maharashtra. She mentioned the types of municipal solid waste and explained the flowchart for household collection, transportation and disposal. She then explained the objectives of SBM and focused on the duties of various stakeholders in SWM viz waste generators, ULBs etc. She concluded by presenting a comparative status of MSW Rules - 2000 and SWM Rules - 2016 and its time frame for implementation.



Ms. Sneha Mohan, Technical Expert, SMMU, Aurangabad Division addressing the participants.

The following technical session on 'Solid Waste Management – Segregation and Treatment' was addressed by Ms. Gauri Mirashi, Founder and CEO, The Centre for Applied Research and People's Engagement and Founding Director of Eco Sattva Solutions Pvt. Ltd. She began by talking about the methodology adopted by Civic Response Team (CRT) for effective SWM which included - Baseline Assessment and preparing City SWM Policy, Training and Capacity Building, Route Mapping for 100% door-to-door collection, campaigning and finally monitoring. She placed great emphasis on monitoring through complaint redressal. Average daily complaints were reduced from 5.88/day to 1/day. Further she talked about the importance of bringing important stakeholders on one platform to ensure sustainability.

The stakeholders ranged from city leaders - commissioner / executive officer and mayor, sanitation and management staff to most importantly residents and resident welfare associations. The awareness methodology included corner meetings, demonstrations, events and festivals etc. She also mentioned about the Can Pack Recyclable Waste Sorting Centre for Bajaj Majhi City which is an excellent example of how civil society and corporate can effectively partner to create a facility which has sustainable social value. This centre supported the livelihood of 45 families (waste pickers) and formed an important step towards managing dry waste, which was segregated into 10 different categories. The impact of the centre was evaluated in terms of increase in incomes, enhanced safety in working place, quality family time and reduced health issues. Concluding her session, she talked about anaerobic waste processing technology - biogas and its benefits.



Ms. Gauri Mirashi, Founder and CEO, The Centre for Applied Research and People's Engagement and Founding Director of Eco Sattva Solutions Pvt. Ltd. addressing the participants.

Ms. Mrudula Kelkar, Expert Trainer, Pune took the session on 'Importance of IEC for effective Solid Waste Management'. She shared that the Role Play helps people understand the concept of IEC. Her session was participatory and participants took active initiative in her session for role play. Each participant in the group had to play certain role on the basis of the given theme related to SWM. Further she explained communication skills for effective implementation of policies through games. She demonstrated the traditional tools for effective communication by presenting finger puppet show to the participants and tried to convey the message on solid waste management through puppets.



Ms. Mrudula Kelkar, Expert Trainer, Pune addressing the participants..

The session on 'Community Participation in SWM' was addressed by Mr. Sunil Bhondge, Director, Greeny, Pune. He explained the importance of community participation for effective implementation of SWM. For the impactful communication and awareness, he had developed an animated character "Greeny". He noted that public participation can be acquired through innovative tools to make it constructive.



Mr. Sunil Bhondge, Director, Greeny, Pune addressing the participants.

Through various IEC techniques such as Short Animation Films, Cut out Stands, Posters, Hoardings, Games, Puppets, Plays, Books, Stickers, Placards, Workshops, Exhibitions and various merchandise awareness on SWM was generated among people. He concluded by showing the mobile game app developed on segregation of solid waste in dry waste and wet waste. This game advocated the need for awareness in segregation process.

Site Visit

On day two, a site visit was organized to Vaijapur to observe the multiple level segregation and door-to-door waste collection at community level. Vaijapur has started its own solid waste management drive on the name 'Majha Vaijapur, Swachh Vaijapur' with the help of CRT. It has been able to achieve 100% door-to-door collection and 100% segregation, allowing it to recycle dry and organic waste. Vaijapur Municipal Council has provided space for dry waste centre to segregate the dry waste. Rag pickers have been integrated in the process of segregation. Participants were encouraged to take initiative in multiple levels segregation in their own cities and replicate a similar drive in their cities.

Conclusion

After the site visit, feedback of the training programme was taken from participants and certificates were distributed to them. Mrs. Hardikar concluded the training programme by proposing a vote of thanks to the subject experts and participants.

Glimpses of Site Visit



Regional Specialized Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste'

15th & 16th March, 2018, Aurangabad, Maharashtra.

The key pointers of this programme was to familiarize participants about the SWM Rules - 2016, its mandates and share knowledge about the good practices implemented under SWM focusing 100% segregation of solid waste at the field visit to Vaijapur Municipal Council, Maharashtra.

Background

The Swachh Bharat Mission (SBM) emanates from the vision of the Government articulated in the address of the Hon'ble Prime Minister to the Joint Session of Parliament on 9th June 2014, "We must not tolerate the indignity of homes without toilets and public spaces littered with garbage. For ensuring hygiene, waste management and sanitation across the nation, a 'Swachh Bharat Mission' will be launched." With this background SBM was launched on 2nd October, 2014 and is being implemented by the Ministry of Housing & Urban Affairs (MoHUA), Government of India (GoI) in Urban areas.

Municipal Solid Waste Management (MSWM) is an important component of this Mission and the most essential service for maintaining the quality of life of people in the urban areas for ensuring better standard of health, sanitation and environment. MSWM in the country has emerged as a severe problem not only because of environmental and aesthetic concerns but also because of sheer quantities generated every day.

As per the Solid Waste Management Rules 2016, waste has been categorised into plastic, e-waste, biomedical, hazardous and construction and demolition waste. The new rules have mandated the source segregation of waste in order to channelize the waste to wealth by recovery, reuse and recycle. Waste generators would now have to segregate waste into three streams - Biodegradables, Dry (plastic, paper, metal, wood, etc.) and Domestic Hazardous waste (diapers, napkins, mosquito repellents, cleaning agents etc.) before handing it over to the collector.

It is essential for municipal bodies to adopt more systematic approach towards planning and management for solid waste

Against this background RCUES of AILSG, Mumbai organised a Regional Specialised Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste' on 15th & 16th March, 2018 at Aurangabad, Maharashtra. This programme was supported by MoHUA, GoI.

Key Objective

The key objective of the programme was to expedite the process of achieving goals of effective solid waste management in India with a focus on 100% segregation of waste at source, as envisaged in SBM, Urban and SWM Rules - 2016.

Participation

16 participants comprising municipal councillors, chief officers, SWM engineers, sanitary inspectors from urban local bodies of Maharashtra and Gujarat attended this programme.



Participants during the programme at Aurangabad, Maharashtra.

Introduction

On day one, Mrs. Maleka Ansari, Research Officer, RCUES of AILSG, Mumbai welcomed participants. The Introductory session highlighted the activities conducted by RCUES of AILSG, Mumbai in training and research area. Mrs. Ansari also briefed about the programme coverage and activities to be conducted in the training programme.

Technical Sessions

Mr. Prashant Kulkarni, Training Coordinator, Maharashtra Environmental Engineering Training and Research Academy (MEETRA), Nashik, discussed on 'Review of SWM & SBM', 'SWM Rules - 2016 & Legal Framework for SWM' and 'Importance of IEC for effective Solid Waste Management'. He covered the provisions of the SWM Rules - 2016 and legal provisions, by comparative analytical difference of management pattern. He also emphasized on SWM Rules which were notified by the Government of India in April, 2016 and its effective implementation at the level of urban local bodies. He pointed that a systematic approach was adopted for preparation of DPR of solid waste management under SBM as per the Government of Maharashtra's policy. Further he drew attention to the segregation of solid waste and decentralisation of disposal process by adopting various techniques like composting for wet waste.



Mr. Prashant Kulkarni, Training Coordinator, MEETRA, Nashik addressing the participants.

He discussed a study conducted by Central Pollution Control Board (CPCB) and National Environmental Engineering Research Institute (NEERI) and pointed out that municipal solid waste contained 40-60% organic waste, 10-20% dry

waste which is recyclable, metals and glass make up only about 1% each of the MSW stream, the inert – street sweepings, drain silt, and construction and demolition (C&D) debris – make up 25% of the MSW stream.

Ms. Gauri Mirashi, Founder, Civic Response Team (CRT), Aurangabad presented on 'Solid Waste Management: Segregation & Treatment'. She mentioned the work CRT was involved in the field of SWM, which included arranging training for officials as well as awareness campaign for citizens in SWM. She stressed on collection efficiency and recycling process of solid waste. She also discussed about disposal of solid waste under decentralisation system, highlighting various good practices adopted by cities of Ratnagiri, Mahabaleshwar and Aurangabad. She also informed that CRT teams were providing active support to the above-mentioned urban local bodies.



Ms. Gauri Mirashi, Founder, CRT, Aurangabad addressing the participants.

Further she pointed out that the advantages of waste segregation should be conveyed to the residents through demonstration in their locality in order to make them realise the ill effects of mixed waste and bring about segregation at source.

Mr. Sunil Bhondge, Director, Greeny, Pune, delivered a session on 'Community Participation in SWM – focus on Segregation'. He highlighted the activities conducted by Greeny for preservation of environment. He mentioned that Greeny has been working towards engaging the community for cleanliness work, motivating citizens for behavioral change and developing good habits through street play. Greeny has also conducted awareness camps on clean city movements. He said that community participation was key to achieving 100% segregation in SWM. He stated that the rules

when implemented should be aimed towards attaining a collective participation from the people in order to achieve effective results. He also discussed about his experiences of SWM awareness in other cities of Maharashtra such as Shirdi, Alandi, Phaltan, Karad and Saswad.



Mr. Sunil Bhondge, Director, Greeny, Pune addressing the participants.

Field Visit

On day two, a field visit was arranged at Vaijapur city's SWM plant and the supporting projects implemented for making the city zero garbage. Chief Officer of Vaijapur briefed about the city's SWM Projects implemented under SBM to make their city clean. Vaijapur city falls under the class 'C' municipal area, having population 45,000 approximately. In the past, the cleanliness in the city and management of solid waste was at a dismal condition. The city generated 3 tons solid waste per day which included 2 tons wet waste and 1 ton dry waste.

The Municipal Council, especially chief officer, with the help of CRT, Aurangabad arranged training for officials as well as awareness campaign for citizens. CRT, Aurangabad conducted survey, route mapping, door to door collection, designing compost plant for biodegradable waste disposal and its implementation, IEC through poster, hoardings, wall painting with cleanliness message, bachat gat meetings, Bhajani Mandali meetings etc. Vaijapur has managed to achieve cleanliness and segregation of solid waste without adopting any sophisticated technologies and very limited funds, i.e. Rs. 2.90 lakhs for one year.

The participants then visited Vinayak Nagar, to witness the door to door collection of waste segregated in six categories besides wet waste collection. The participants were also taken to the decentralized composting plants implemented at various points of the city. The participants visited the oldest roadside dumping site at Veergaon, and the sorting site adjacent to the dumping ground, where rag pickers were engaged in sorting the garbage and separating non-recyclable items from the recyclable ones. Each rag picker earned approximately Rs.250/- to 300/- by selling recyclable items to scrap dealers, who usually visited the sorting site. Consequently, the participants also visited 24 pits compost plant at Yeola road, outside area the Veergaon dumping site.

Conclusion

Mrs. Ansari concluded the training programme and gave a vote of thanks to the resource persons, officials of Vaijapur Municipal Council and participants. Attendance certificates were distributed to the participants at the end of the visit.

Glimpses of Field Visit



Regional Specialized Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste'

16th & 17th March, 2018, Chandrapur, Maharashtra.

The key pointers of the agenda for this programme were to familiarize participants about various waste segregation methods, SWM Rules - 2016, introduce various treatment technologies and facilitate a site visit to Ballarpur where good practices of 100% segregation have been implemented.

Introduction

Urban India is the world's third largest generator of solid waste with 1,43,449 metric tonnes of municipal solid waste created every day, according to Central Pollution Control Board report (2014-2015), and these figures increase every day with an increase in population. The collection, segregation and scientific disposal of waste can be a herculean effort for civic bodies and it is one of the biggest challenges faced by Indian cities. The management of municipal solid waste in India has continued to be a severe problem not only because of environmental and aesthetic concerns but also because of the enormous quantities generated every day.

The Swachh Bharat Mission (SBM) was launched on 2nd of October, 2014 with a vision to achieve a clean India by overcoming the above-mentioned obstacles and to improve hygiene, waste management and sanitation across the country. Solid Waste Management (SWM) is an important component of this Mission dealing with cycle of waste (generation to disposal). The Solid Waste Management Rules - 2016, has empowered the ULBs to effectively manage solid waste in their cities. These rules mandate the segregation of waste at source.

There is a need to enhance the existing system of solid waste management practiced by the ULBs through adopting various technologies and to empower them to recognize the gaps in the present system in alignment with the SBM to achieve a clean India.

Against this background, Regional Centre for Urban & Environmental Studies (RCUES) of All India Institute of Local Self-Government (AIILSG), Mumbai organized a

Regional Specialized Training Programme on Solid Waste Management with a focus on 100% Segregation of Solid Waste' on 16th & 17th March, 2018 at Chandrapur, Maharashtra. This programme was supported by MoHUA, GoI.

Key Objective

The key objective of the programme was to expedite the process of achieving goals of effective solid waste management in India with a focus on 100% segregation of waste at source, as envisaged in SBM, Urban and SWM Rules - 2016.

Participation

27 participants including Presidents, Vice-Presidents, Chairman of various committees, Municipal Councillors, Chief Officers, SWM Engineers, Sanitary Inspectors from urban local bodies of Maharashtra attended this programme.



Participants during the programme at Chandrapur, Maharashtra.

Inauguration

The training programme was inaugurated by Mrs. Yogita Banpurkar, Chairperson, Bramhapuri Municipal Council in the presence of Dr. S. Y. Bodkhe, Sr. Principal Scientist, National Environmental Engineering Research Institute (NEERI), Nagpur, Mr. Manoj Kumar Shah, Chief Officer, Chimur Municipal Council, Mr. Mangesh Khawale, Chief Officer, Bramhapuri Municipal Council and Mr. Jayant Pathak, Regional Director, AILSG, Nagpur by lighting the traditional lamp.



Inaugural Function at Chandrapur, Maharashtra.

In the opening remark Mr. Jayant Pathak, Regional Director, AILSG, Nagpur welcomed participants and briefed them about the programme coverage of the Training Programme and activities to be conducted. The two day programme included presentations, experience sharing participatory activities, and site visit to demonstrate good practices developed under solid waste management.

Mrs. Yogita Banpurkar, President, Bhamhapuri Municipal Council stated that the success of Sustainable Clean cities would be dependent upon the effective implementation of the guidelines and technologies in the sector. Hence such workshops are key to knowledge-sharing and for capacity building of all the members and officials of the ULBs. She wished the programme a success.

Technical Sessions

The first technical session was on review of Swachh Bharat Mission (SBM) and Solid Waste Management (SWM),



Mr. Jayant Pathak, Regional Director, AILSG, Nagpur addressing the participants.

Mr. Jayant Pathak delivered a session with overview of Solid Waste Management Rules - 2016 with reference to SBM. He discussed the SWM Rules - 2016 by emphasizing on the segregation of waste at source, a basic need for channelizing the waste to wealth by implementing the strategy of reduce, recycle, reuse and recovery. Further Mr. Pathak deliberated upon the necessary actions which should be implemented by every city and supported by the citizens: creating environmental awareness, encouraging plantation, proper disposal of garbage as per the SWM rules, 100% segregation of solid waste, maintaining hygiene, following three R concept (reduce, recycle, reuse), minimization of plastic use, preserving water, preserving environment by reduction of carbon emissions, efforts to minimize air pollution.



Dr. S. Y. Bodkhe, Sr. Principal Scientist, NEERI, Nagpur addressing the participants.

Second session was on Solid Waste Management: Segregation and Treatment, delivered by Dr. S. Y. Bodkhe, Sr. Principal Scientist, NEERI, Nagpur. With reference to the provisions given in SWM Rules - 2016, he explained various technologies which can be used for processing solid waste. Particularly, he demonstrated various technologies for composting waste relevant to the ULBs. Dr. Bodkhe talked about the Rapid Composting Plant implemented in Nagpur, which involved aerobic composting process for organic fraction of municipal solid waste. The 4 ton compost pilot plant caters to 240 houses and population of 1000 people.

The third and fourth session were conducted post lunch on Good Practices in SWM, with a presentation by ULBs.

Mr. Vinod Jadhav, Chief Officer of Bhadrawati Municipal Council presented the status of his city in SWM initiatives under SBM. He discussed the implementation of Self Help Groups (SHGs) in sustainable waste management through various efforts undertaken by the council. He also stressed on the importance of gaining people's participation and spreading awareness through IEC Programs in implementing SBM. He discussed the efforts taken by the Municipal Council in setting up decentralized waste treatment plants and incorporating vermicomposting in managing waste.



Mr. Vinod Jadhav, Chief Officer, Bhadrawati Municipal Council addressing the participants.

Mr. Vipin Muddha, Chief Officer, Ballarpur Municipal Council elaborated on the good practices adopted by the Council in waste disposal, particularly efforts taken in safe

disposal of plastic waste by various methods with the help of local expert. He also discussed their campaign conducted with the help of various public groups for a cleanliness drive at the historical fort situated in Ballarpur.



Mr. Vipin Muddha, Chief Officer, Ballarpur Municipal Council addressing the participants.

Day one concluded with closing remarks by Mr. Anil Dhanorkar, President, Bhadrawati Municipal Council. He expressed his views and experiences on SWM in his ULB, as a leader of the Municipal Council. He thanked the AIILSG team for conducting this training programme.

Site Visit

On day two, Mr. Jayant Pathak reviewed the proceedings of the 1st day in the morning and briefed the participants about the exposure visit to the Ballarpur Municipal Council, in Chandrapur District.

The participants visited the Waste Processing Site of Ballarpur Municipal Council, Mr. Vipin Muddha, Chief Officer and Mr. Shabbir, Sanitary Inspector of the Council and other staff members of the site. Mr. Muddha introduced participants about the waste collection system, segregation at the processing site. He explained the separate arrangements made for processing Plastic, Glass, Metal and other waste. The Council had appointed a contractor for composting treatment of organic waste and started selling the compost in local agriculture market. Plastic waste was crushed with the help of crushing machine and used in making innovative public utility products such as benches, guards around trees, manhole covers, street light poles etc. The Council had used

crushed plastic waste in the construction of roads the previous year. It was tested in the summer and rainy seasons and the results were established as a success.

The Council had also created slug beds for making compost, for waste generated from septic tanks. The Council also intended to establish a sewage treatment plant (STP) on the waste processing site.

In the view of creating awareness among citizens, students and other councils about various processes for waste disposal and other sanitation, environment related measures and demonstrate good practices, the Council is creating a sanitation park on this site. Models of Ideal Toilet with Septic tank, Bio-Gas plant, Rainwater harvesting, composting pits, Ideal Hand Pump would be exhibited with technical information alongside.

Ballarpur Municipal Council have created a beautiful picnic site - Ganpati Ghat, which was previously a spot for open defecation, near Wardha River. The participants visited the tar road created with the use of 8% plastic waste.

The participants also visited the site for the Historical Fort. Ballarpur Municipal Council with effective public participation, organised a successful cleanliness drive at the Ballarpur Fort. The Fort and its surrounding have drastically improved, with a Committee now working towards creating a development plan for establishing this as site for tourism activities.

Conclusion

After visiting all sites related to the good practices on SWM and having witnessed the effective utilization of the Municipal Waste, the participants visited the Office of the Municipal Council. The Municipal Officers welcomed all participants by presenting them with a book as a token of gratitude. All the participants expressed their views and certificates of participation were handed to them by Mr. Vipin Mudhha.

The training programme was concluded by Mr. Jayant Pathak by proposing a vote of thanks to the ULB officials, resource persons and participants.



Mr. Vipin Muddha, Chief Officer, Ballarpur Municipal Council presenting books to the participants as a token of gratitude.

Glimpses of Site Visit



Testimonials



Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste' **6th & 7th March, 2018, Aurangabad, Maharashtra.**

Mr. Vitthal Dake, Chief Officer, Vaijapur Municipal Council.

"RCUES, Mumbai has taken a good initiative to build the capacities of Municipal functionaries in alignment with Swachh Bharat Mission. Just like Vaijapur Municipal Council has taken up a drive in door to door collection, segregation, other cities can also start such a drive. This kind of capacity building programmes will be instrumental in initiating such drives at city level."

Mr. Deepak Patel, Sanitary Inspector, Jamnagar Municipal Corporation.

"I am attending such type of training programme for the first time. The experience was enriching and sharing this platform with other participants facilitated peer learning. Urban local bodies should emphasize more on the segregation of SWM. I am grateful to RCUES, Mumbai for a very informative programme."

Training Programme on 'Solid Waste Management with a focus on 100% Segregation of Solid Waste' **15th & 16th March, 2018, Aurangabad, Maharashtra.**

Mrs. Neelam Kamble, Chief Officer, Patoda Nagar Panchayat, Maharashtra.

"In my opinion, this was one of the most useful training programmes I have attended, with a unique platform to share knowledge and experience of the ULBs and their success stories in the different aspects of SWM. The reference material provided to us was informative, making us aware of the new technologies and good practices which can be replicated in other towns and cities."

Mr. Nitin Revanwar, City Engineer, Kej Municipal Council, Maharashtra.

"I felt that the technical sessions were very systematically planned and I learned many useful IEC techniques for motivating citizens, which I intend on applying in my everyday SWM work. This was an extremely enlightening training programme, especially the experience sharing, which I'm glad to have been a part of. The RCUES Team has also been very cooperative throughout the programme."

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Director,
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Member

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Dr.(Mrs.) Sudha Mohan

Member

Professor & Head,
Department of Civics & Politics,
University of Mumbai, Vidyanagari,
Mumbai.

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**Regional Centre for Urban and Environmental Studies
All India Institute of Local Self Government, Mumbai**

M. N. Roy Human Development Campus, Plot No.6, 'F' Block,
Bandra Kurla Complex, Opp. Govt. Colony Bldg. No. 326,
Near Uttar Bhartiya Sangh, TPS Road No. 12,
Bandra (E), Mumbai – 400051.

Tel. No. : (022) 26571713 / 14 / 61805600

Fax No.: 61805666

Email.: dir.rcues@aiilsg.org ; rcuestraining@aiilsg.org

Website: www.aiilsg.org/rcues