



Trainer's Handbook

**Training Manual for Urban Local Bodies on Developing a
Plastic Waste Management Strategy and Action Plan**

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Contents

List of Abbreviations.....	3
Background	4
Objectives of the Handbook	5
Target Audience of the Handbook	5
Trainers and Facilitators	6
Logistics of Training Programme.....	6
Plans for Delivering Training Programme.....	8
Setting Context-Introduction to the Training Programme	8
Module I: Understanding Plastic Waste – Global and National Scenario .	9
Session Delivery	9
Module Outline.....	10
Module II: Plastic Waste Management Rules and Guidelines in India ...	10
Session Delivery	10
Module Outline.....	11
Module III: Plastic Waste Management Strategy and Action Plan –	
Commitment and Baseline Assessment	12
Session Delivery	12
Module Outline.....	13
Module IV: Plastic Waste Management Strategy and Action Plan: Gap	
Analysis and Plan Development.....	14
Session Delivery	14
Module Outline.....	15
Module V: Plastic Waste Management Strategy and Action Plan:	
Implement, Monitor and Enhance	16
Session Delivery	16
Module Outline.....	17

Module VI: Compendium of Plastic Waste Management Actions.....	18
Session Delivery	18
Module Outline.....	18
Module VII: Learning and Challenges of Developing Plastic waste Management Strategy and Action Plan – A Case of Hyderabad.....	19
Session Delivery	19
Module Outline.....	19
Training Evaluation and Valediction	20
Annexure 1: Pre-training Evaluation Form	21
Annexure 2: Post Training Evaluation Form	23
Annexure 3: Reference Materials for Training Modules.....	25

List of Abbreviations

AV	Audio Visual
CCC	Command Control Centre
EPR	Extended Producers Responsibility
GHMC	Greater Hyderabad Municipal Corporation
IEC	Information, Education and Communication
KPI	Key Performance Indicator
MLP	Multi-layered Plastic
MSW	Municipal Solid Waste
PPP	Public Private Partnership
PWM	Plastic Waste Management
Q&A	Question and Answer
SDG	Sustainable Development Goal
SUPs	Single Use plastics
ULB	Urban Local Body

Background

To date, 75% of all plastics ever produced are discarded as waste and the volumes are growing at an unprecedented rate (WWF, the Ellen MacArthur Foundation and BCG, 2020). Plastic pollution is one of the fastest-growing threats globally and has even been termed as a 'pandemic' by the UN Environment. The ever-increasing burden of managing plastic waste has become challenging for Urban Local Bodies (ULBs). Due to the absence of a holistic plastic waste management system in place, most of the South Asian cities are neither collecting nor processing the plastic waste scientifically; as a result of which tonnes of plastic waste end up in the oceans, rivers, and fertile lands, thereby, impacting the natural ecosystems.

Traditionally, the well-established sustainable waste management hierarchy is overlooked while formulating plastic waste management solutions; cities are adopting far less preferred options such as plastic to fuel processing or incineration instead of emphasising on strategies that would reduce the use of plastics and foster reuse. One of the key enablers for tackling plastic waste at the beginning of the value chain lies in the administrative and political will of the leadership and sustained education to bring a significant cultural and behavioural shift away from the rampant use of plastics, mainly single use plastics. This calls for rethinking the existing plastic waste management system and shifting towards a sustainable and scientific system which is restorative and regenerative by design and also creates economic opportunities, thereby promoting a circular economy.

Given this background, during the course of the project 'Development of Knowledge, Training and Capacity Building Materials on Plastic Waste Management' funded by the Institute for Global Environment Strategies (IGES) Centre Collaborating with UNEP on Environmental Technologies (CCET), the United Nations Environment Programme-International Environmental Technology Centre (UNEP-IETC) Japan, ICLEI South Asia designed a training compendium for Urban Local Bodies, providing step-wise guidance for the development and implementation of a Holistic Plastic Waste Management Strategy and Action Plan. This compendium consists of seven modules. The training modules also include first-hand experience and learnings from the activities undertaken by the Greater Hyderabad municipal Corporation (GHMC) during the project 'Enhancing Circular Economy Perspectives - Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation'. The training modules are also supplemented with relevant reference material.

The seven modules included in the training compendium include:

Module I: Understanding Plastic Waste – Global and National Scenario

Module II: Plastic Waste Management Rules and Guidelines in India

Module III: Plastic Waste Management Strategy and Action Plan: Commitment and Baseline Assessment

Module IV: Plastic Waste Management Strategy and Action Plan: Gap Analysis and Plan Development

Module V: Plastic Waste Management Strategy and Action Plan: Implement, Monitor and Enhance

Module VI: Compendium of Plastic Waste management Actions

Module VII: Learning and challenges of developing Plastic Waste Management Strategy and Action Plan – A Case of Hyderabad

This Trainer's Handbook can be used by trainers in India and also the Asia-Pacific region to organise a training programme on developing 'Plastic Waste Management Strategy and Action Plan for Urban Local Bodies (ULBs)'. It is to be noted that the training material is developed considering the context of ULBs and solid waste management in India. However, other than module II, which elaborates on the legal framework for municipal solid waste and plastic waste management in India, the remaining modules are useful to ULB all across the Asia-Pacific region; especially to ULBs which are starting to develop and work on relevant programmes.

The Handbook is developed to facilitate impactful training methods and choreograph an effective learning experience for ULBs. Aspects of monitoring and evaluating the training programme are also addressed. Pre-training assessment forms and post- training feedback forms are enclosed as annexes.

Objectives of the Handbook

The training modules are developed to achieve the following two objectives:

- To impart an overall understanding of plastic waste management;
- To deliberate and develop an insight on guiding principles for developing a plastic waste management strategy and action plan at the city level

The Handbook is prepared with the objectives of:

- Assisting trainers and facilitators in design, delivery and evaluation of the training programme
- Providing guidance on session delivery and reference materials for each module
- Helping trainers and facilitators understand the flow of the training modules
- Guiding trainers and facilitators on conducting group activities and exercises

The training modules will assist in strengthening the technical and managerial capacity of municipal engineers, municipal health officers, senior to mid-level municipal officials, waste management programme implementation officers, policy-makers, practitioners, NGOs and CSOs involved in waste management and all other key stakeholders.

Target Audience of the Handbook

The Handbook is a guiding resource for all professionals with proven knowledge and skills who would want to use the developed training modules to organise a training programme on developing Plastic Waste Management Strategy and Action Plan for Urban Local Bodies (ULBs).

Trainers and Facilitators

The programme will need at least 1 trainer and 1 facilitator for delivering each of the modules both in online and in-person set up. Depending on the number of participants, the trainer needs to decide on the number of facilitators required for supporting group activities.

It is recommended to have 1 facilitator each for the groups to make sure that the group is moving in the right direction. It is the responsibility of facilitators to ensure that all participants engage and participate actively during the group discussion. Further, it is suggested to invite a dignitary for delivering an inspirational key-note to motivate and create enthusiasm amongst the participants.

Ice breaking is important and the trainer and facilitator should ensure that all participants feel comfortable at the programme. Trainers and facilitators should announce housekeeping rules for the programme, such as muting participants when not speaking, or putting phones on silent mode. A slide will be shown at the beginning of the programme to explain the housekeeping rules.

Logistics of Training Programme

The training programme can be delivered through online platforms as well as in-person at a venue. It should be taken care under the both setups, that group activities could be performed seamlessly either through virtual break out rooms or ensuring enough space in the room during in-person trainings.

In case of online training, pre-registration of participants should be ensured to be able to share the joining link in advance. The table below provides all the key logistics required for conducting the training programme.

Table 1: Key Logistical Requirements for the Training Programme

Components	Online	In-person
Equipment	Computers/laptops, moderation materials such as notes or handouts. It is recommended that the trainees log in via a computer or laptop, but in case that is not possible, a smart phone or hand-held device may be used.	Apart from computer/laptop and moderation materials, important pieces of equipment required for offline programme include flip charts/white boards, pens, sticky notes, projector, mic and speaker.
Materials	All participants should be provided with reading material/ handouts at the end of each module.	All participants should be provided with reading materials/handouts, either in a hard copy or in pen drive at the end of each module.
Training Methods	<ul style="list-style-type: none"> • Presentation and lecture • Panel discussion 	<ul style="list-style-type: none"> • Presentation and lecture • Panel discussion

Components	Online	In-person
	<ul style="list-style-type: none"> • Breakout session • Quiz through mentimeter • Brainstorming and moderated discussion • Role play • Experience sharing/ peer to peer learning • Audio Visual (AV) Clips 	<ul style="list-style-type: none"> • Small group activity • Quiz (pen and paper) • Brainstorming and moderated discussion • Role play • Experience sharing/ peer to peer learning • Audio Visual (AV) Clips • Field visits
Schedule	The training programme is to be spread into modules and the trainer shall decide the duration of the programme.	The training programme is recommended to be scheduled for 1-1.5 days.
Pre and Post Training Evaluation and Certificate	<p>A pre-training assessment form to be shared with participants before the programme. The pre-training evaluation form will help to gather personal information including the expertise, experience, expectations of the participants from the programme which could be used to tailor the training programme accordingly. The pre-training assessment form can be designed on Google forms and shared with participants at least a week before the training.</p> <p>At the end of the programme a post training evaluation form will be shared. Evaluation form will be designed to assess the impact of training programme on participants, its usefulness in terms of uptake and implementation. Feedback must be obtained on the content, presentation, achievement of objectives, trainers and logistics of the training programme. The post-training feedback form can be designed in a Google form and shared with</p>	<p>Pre-training assessment form will be shared with the participants before the training programme. The pre-training evaluation form will help to gather personal information including the expertise, experience, expectations of the participants from the programme which could be used to tailor the training programme accordingly. The hard copies of the pre-training assessment form can be shared with the participants right at the beginning of the training programme.</p> <p>At the end of the programme a post training evaluation form will be shared. Evaluation form will be designed to assess the impact of training programme on participants, its usefulness in terms of uptake and implementation. Feedback must be obtained on the content, presentation, achievement of objectives, trainers and logistics of the training programme. The hard copies of the feedback form should be shared with the participants at the end of the</p>

Components	Online	In-person
	<p>participants. A sample feedback form is attached as an Annexure 3.</p> <p>A certificate could be provided to the participants who complete the training programme.</p>	<p>training programme and collected before they leave. A sample feedback form is attached as an Annexure 3.</p> <p>A certificate could be provided to the participants who complete the training programme.</p>

Plans for Delivering Training Programme

The developed training material consists of seven modules; the suggested duration of each module is as follows:

Module Name	Presentation	Exercise
Setting Context- Introduction to the Training programme	20 minutes	-
Module I: Understanding Plastic Waste – Global and National Scenario	40 minutes	20 minutes
Module II: Plastic Waste Management Rules and Guidelines in India	50 minutes	10 minutes
Module III: Plastic Waste Management Strategy and Action Plan: Commitment and Baseline Assessment	90 minutes	30 minutes
Module IV: Plastic Waste Management Strategy and Action Plan: Gap Analysis and Plan Development	90 minutes	30 minutes
Module V: Plastic Waste Management Strategy and Action Plan: Implement, Monitor and Enhance	3 hours	1 hour
Module VI: Compendium of Plastic Waste management Actions	1 hour	-
Module VII: Learning and challenges of developing Plastic Waste Management Strategy and Action Plan – A Case of Hyderabad	40 minutes	-
Training Evaluation and Valediction	20 minutes	-

Setting Context-Introduction to the Training Programme

The facilitator will inaugurate the programme and invite a key note speaker to address the trainees on the importance of plastic waste management and the leadership role ULBs should play to gradually reduce the burden of plastic pollution. The facilitator will then begin the session with a warm welcome to the participants, introduce trainers, self-introduction and participants' introduction followed by an ice-breaking event. S/he will give an overview of the overall programme and explain objectives and design of the programme. The facilitator will hand over to the trainer for further deliberation.

Module I: Understanding Plastic Waste – Global and National Scenario

Session Delivery

The trainer will present the contents and key points to be covered in the first module. S/he will set the context by introducing types and nature of plastics especially its recyclability and economic value. The trainer will further deliberate on the global magnitude of plastic waste pollution and its scenario in developing nations with specific focus on India. S/he will give a brief overview of the principles of PWM such as waste management hierarchy and circular economy, and overall contribution of holistic PWM practices to Sustainable Development Goals (SDGs). At the end of the module, the trainer will provide evidence-based information on types of plastic waste generated from different sources like residential, commercial and other areas in Hyderabad.

Exercise 1: In continuation, the first exercise of the module is planned to help trainees understand and identify the source of plastic waste in their respective cities. This is a group activity where the trainees will be divided into teams of 3 to 5 members each and the trainer will ask them to:

- list down the major sources of plastic waste in the city along with specifying the bulk generators
- categorise the types of plastic waste on the basis of their recyclability and economic value

This will help the trainees to get clarity on the key points of plastic waste generation and the potential economic opportunity that can be harnessed out of the plastic waste. This is the stepping stone for addressing issues of plastic waste and to incorporate circularity into the system.

Exercise 2: For the second exercise, the trainees will be divided into groups of 5 or more, ideally incorporating trainees from different backgrounds in each group. The trainer will ask the groups to:

- Define Single Use Plastics (SUPs) for their respective city or state
- Identify measures that can be taken in order to promote the 6Rs – identify at least 1 measure for each R.

This exercise will throw light on the importance of incorporating multidisciplinary perspectives into PWM system and integrated team work to bring cohesiveness in the planning process.

The groups will be supported by facilitators during the activities to ensure that the discussion is moving in the right direction.

At the end, the groups will be asked to present key discussion points. Trainers and the facilitators will moderate the discussion regarding the different types (tiers, unique geography etc.) of cities that the participants belong to, what the major sources of plastic waste would be in cities and PWM system practiced in different cities. A short film may be used for highlighting the issues of plastic pollution that might generate interest among the participants to learn further and contribute for the cause.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 4, 5- Understanding plastics - Types and nature (recyclability, economic value etc.) • Slide 7-11- Plastic waste - A Global Overview • Slide 13- Plastic waste in India • Slide 14-18- Single Use Plastics (SUPs) in India • Slide 19-PWM value chain in India • Slide 21-23- Principles of plastic waste management- waste hierarchy and circular economy • Slide 24-27- Plastic waste management-Contribution to Sustainable Development Goals (SDGs) • Slide 28, 29- Sources of plastic waste in cities- example of Hyderabad
Methodology used	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Group exercises • Brainstorming and moderated discussion • AV clips
Training Aid	<p>The session is designed for both online and in-person training.</p> <p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. It should also be ensured that the online platforms have the facility for breakout rooms/sessions to be able to conduct group work. The link for joining the training programme should be shared with the participants at least one day in advance.</p> <p>For the exercise and discussions, Padlet or Miro can be used. Google sheet can be helpful as well in this regard. Whiteboard in the conferencing platforms can also be used for the purpose.</p> <p>For in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.</p>
Time allotted	60 mins

Module II: Plastic Waste Management Rules and Guidelines in India

Session Delivery

The trainer will present the content and key points to be discussed in the second module. S/he will primarily talk about Plastic Waste management Rules 2016, Draft Plastic Waste Management (Amendment) Rules and other national guidelines, programmes, regulations and Indian Standards pertaining to plastic waste management. The trainer will introduce the participants to PWM Rules through its evolution over time and the underlying guidance to it as inherent in SWM Rules, 2016.

Further s/he will delve into the salient features and mandates under PWM Rules. Afterwards the trainer will share a summary of all other programmes and guidelines prevalent in India regarding plastic waste management.

It is important for the trainer to encourage the trainees to discuss various activities undertaken in their cities in relation to the different policy and regulatory framework. This will support peer to peer learning and inspire cities to adopt good practices.

Exercise (Quiz): At the end of the module, a quiz will be conducted through the use of “mentimeter” to assess the knowledge gained by the participants from the session. In case of an in-person training programme, the trainer/facilitator will share the hard copy of the quiz sheet and instruct the trainees to record their responses in it and the quiz sheets will be collected in sometime.

This exercise will enable the trainees to assess their understanding on the existing regulatory and policy framework and underlying opportunities that can be utilised to formulate a holistic plastic waste management strategy and action plan.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 3- Timeline-Plastic Waste Management Legislations in India • Slide 5-23- Plastic Waste Management (PWM) Rules, 2016 • Slide 24, 25- Draft Plastic Waste Management (Amendment) Rules, 2021 • Slide 26-29- National Programmes/Regulations and Guidelines • Slide 30-32- Other Regulations and Guidelines
Methodology Used	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Quiz • Moderated discussion
Training Aid	<p>The session is designed for both online and in-person training.</p> <p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. It should also be ensured that the online platforms have the facility for breakout rooms/sessions to be able to conduct group work. The link for joining the training programme should be shared with the participants at least one day in advance.</p> <p>For the exercise and discussions, Padlet or Miro can be used. Google sheet can be helpful as well in this regard. Whiteboard in the conferencing platforms can also be used for the purpose.</p> <p>For an in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.</p>

Time Allotted	60 min
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Module III: Plastic Waste Management Strategy and Action Plan – Commitment and Baseline Assessment

Session Delivery

The trainer will begin the session by giving an overview of the key points to be covered in the third module. S/he will guide the trainees through a simplified step by step process of developing a plastic waste management strategy and action plan. The trainer will define the overall planning process and methodology in brief and discuss the process of establishing the intent and goals of plastic waste management, that set the premise for the overall process. The importance of a waste management cell, stakeholder consultation and advisory committee are emphasised. Further into this module, the trainer will present the methodology for conducting a baseline assessment that includes a review of the existing policy framework, and analysis of secondary data and primary data collected through a quantification and characterisation survey of municipal solid waste. During the discourse, the trainer will emphasise on the process to be followed for quantification and characterisation of plastic waste and to conduct a brand audit.

Exercise: After the lecture, an exercise will be conducted where a collage of commonly found plastic waste components in the municipal waste stream will be demonstrated and the participants will be asked to:

- identify and categorize the items into 7 plastic resin types
- arrange the items according to commonly known FMCG brands

During the online training session, participants can use Padlet/Miro/Google sheet for responding. While for in-person trainings, the exercise could be conducted using an exercise sheet. The trainer/facilitator will collect the exercise sheet back from all the trainees at the end of the stipulated time.

This activity will strengthen the participants' knowledge to associate products of daily usage with the plastic resin code and the major accountable brands to be brought under the purview of EPR.

The trainer shall initiate an open conversation regarding the experiences of ULBs on conducting municipal solid waste and plastic waste quantification and characterisation survey, challenges associated and solutions foreseen. During the process, the trainer should highlight the importance of meticulous baseline assessment in identifying the most appropriate collection and transport mechanism, and the selection of treatment and processing technology. The discussion should focus on harmful impacts of SUPs and MLPs and promote environment friendly alternatives.

Field Visit (In-person training programme)

A field visit is recommended for an in-depth understanding of the on-ground situation. The field visit can showcase segregated collection and transport practices, scientific plastic recycling facilities, Dry Resource Collection Centres and/or Material Recovery Facilities, -depending on the presence of such facilities in the city.

Before the field visit, the facilitator shall briefly inform the group about the facilities and associated uniqueness, challenges and success factors. If possible, handouts with information on sites to be visited should be prepared in advance and distributed to the group.

The facilitator shall be responsible for conducting a well-organised field activity. S/he can request for assistance of the concerned officials of the ULB to be present during the field visit and provide relevant information to the group. Post visit, an informal discussion could be conducted for the participants to share their observations and learnings.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 3 - Overall process to develop plastic waste management action plan • Slide 5, 6 - Ascertain Commitment • Slide 7-12 - Form Waste Management Cell/ Stakeholder Advisory/Consultation Committee • Slide 14, 15 - Review policies/ programs/ legal framework • Slide 16-40 - Assess Baseline Situation
Methodology Used	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Individual exercise • Moderated discussion
Training Aid	<p>The session is designed for both online and in-person training.</p> <p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. It should also be ensured that the online platforms have the facility for breakout rooms/sessions to be able to conduct group work. The link for joining the training programme should be shared with the participants at least one day in advance.</p> <p>For the exercise and discussions, Padlet or Miro can be used. Google sheet can be helpful as well in this regard. Whiteboard in the conferencing platforms can also be used for the purpose.</p> <p>For in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.</p>

Time Allotted	120 mins
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Module IV: Plastic Waste Management Strategy and Action Plan: Gap Analysis and Plan Development

Session Delivery

The trainer will begin the session by presenting the contents and discussing key points to be covered in the fourth module. In this module, the trainer will delve into the different tools and techniques of conducting gap analysis and the overall process of plan development. The trainer will elaborate on the key actions to be undertaken for assessing and identifying technical, financial, administrative, operation, and maintenance gaps in the existing PWM system by using tools such as comparison with standards and benchmark, material flow analysis, SWOT analysis and last but not the least incorporating feedback received through stakeholder consultation. Moving ahead, the trainer will explain the methods of population projections and calculation of future waste generation that forms an integral part of plan development; followed by reinforcing the various principles of sustainable plastic waste management such as waste management hierarchy and circular economy that guide the strategies and action plans. In continuation, the trainer will focus on prioritising various identified actions, stipulating a timeframe, formulating the plan and the process of ratification and approval of the plan in the council.

Exercise: The participants will be divided in groups of 3-4 and will be instructed to work on the following components using Padlet/ Miro/ Google sheet:

- Identify major gaps across the value chain of plastic waste management
- Propose at least one solution for each stage of waste segregation, collection and transport and recycling and processing.

For in-person programme, the group will use flipcharts/whiteboards to work out the exercise and present to the audience.

This exercise will help the participants to brainstorm and identify issues in the PWM system which might have been discounted earlier and devise innovative solutions, applying newly gained knowledge and concepts.

At the end, the trainer will ask the groups to present the concerns and solutions in an open forum. By referring to the key takeaways from the discussion, the trainer shall try to contextualise the proposed solutions into the concept of circular economy and waste management hierarchy; in case of an incongruity, the trainer shall try to guide the participants to the most feasible solution. S/he shall wrap up the session by highlighting the need for multi-stakeholder engagement for planning and implementing the actions proposed by the trainees.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 3 - Overall process to develop plastic waste management action plan • Slide 5, 6 - Overall description of Assess and Identify Gaps • Slide 7, 8 - Comparison of existing situation with standards/benchmarks • Slide 9-11 - Material flow analysis • Slide 12-27 - SWOT analysis • Slide 28-31 - Stakeholder consultation • Slide 33 - Overall process of develop an Action Plan • Slide 34-38 - Future projection • Slide 39-42 - Identifying viable strategies and action plan • Slide 43 - Time frame • Slide 44- 47 - Prioritizing actions • Slide 48-50 - Ratification and approve
Methodology Used	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Group exercise • Brainstorming and moderated discussion
Training Aid	<p>The session is designed for both online and in-person training.</p> <p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. It should also be ensured that the online platforms have the facility for breakout rooms/sessions to be able to conduct group work. The link for joining the training programme should be shared with the participants at least one day in advance.</p> <p>For the exercise and discussions, Padlet or Miro can be used. Google sheet can be helpful as well in this regard. Whiteboard in the conferencing platforms can also be used for the purpose.</p> <p>For in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.</p>
Time Allotted	120 mins

Module V: Plastic Waste Management Strategy and Action Plan: Implement, Monitor and Enhance

Session Delivery

In this module the trainer will focus on the processes and methods to implement the action plan devised earlier, monitoring mechanisms and its enhancement in future. For the ease of delivery and uptake, this module is divided into 3 sections.

In the 1st section, the trainer will discuss the various implementation models to be adopted such as developing regulatory and policy framework, service provisioning, Extended Producers Responsibility (EPR), engagement of industry/R&D sector, community mobilisation through Information Education Communication (IEC) campaign and capacity building.

In the 2nd section, the trainer will inform the participants about the available sources of finance and financing mechanisms. The nuances of engaging private entities, various Public Private Partnership (PPP) structures, types of agreements and end-to-end tendering process will be discussed.

In the 3rd section, the trainer will highlight the institutional structure required for implementing monitoring mechanisms, role of Command Control Centre (CCC) and share a list of indicative Key Performance Indicators (KPIs) to be considered across stages of PWM value chain. This will help in institutionalising the process of periodic review and will eventually decide the need for modification and scale up of the action plan, if required.

Exercise: After the technical discourse, a role play based group exercise is planned. The trainer will organise the participants into 3 groups - each group representing one aspect of the plastic waste management chain: collection/segregation, transport, recycling/processing. Each group will further get organised into two parties - one representing the ULB and another representing the private sector. The trainer will instruct the groups to perform the following in Padlet/ Miro/ Google sheet:

- Work out an implementation model by discussing among parties for one of the solutions identified earlier
- Define the respective KPIs and monitoring framework for each aspect of the PWM chain

For an in-person programme, the participants will use flipcharts/whiteboards to work out the exercise and present to the audience.

The aim of the exercise is to enable participants to role-play and understand the challenges faced by various actors along the value-chain, with an aim to enable and plan for collaborative action. Finally, the group will be asked to present the outcomes, with trainer/facilitator moderating the session. There could be a brief question and answer session between the groups. To showcase the significance of a strong implementation and monitoring mechanism, the trainer shall play relevant AV clips (web links provide in the list of reference material in the appendix to this handbook) and wrap up the session by summarising the success factors of that case study.

Module Outline

<p>Slide Description</p>	<p>Module VA</p> <ul style="list-style-type: none"> • Slide 3 - Overall process to develop plastic waste management action plan • Slide 5-7 - Delineate implementation/ operational model • Slide 8 - Delineate implementation/ operational model- Policy oriented action • Slide 9, 10 - Delineate implementation/ operational model- Industrial/ R&D engagement • Slide 11 - Delineate implementation/ operational model- service provisioning • Slide 12-20- Delineate implementation/ operational model- EPR • Slide 21-25 - Delineate implementation/ operational model- IEC and Capacity Building • Slide 26 - Roles and responsibility matrix • Slide 27 - Example of Hyderabad <p>Module VB</p> <ul style="list-style-type: none"> • Slide 3 - Overall process to develop plastic waste management action plan • Slide 4-6 - Financing mechanism • Slide 7-30 - Engagement of private entities <p>Module VC</p> <ul style="list-style-type: none"> • Slide 3 - Overall process to develop plastic waste management action plan • Slide 5-8 - Establish monitoring system • Slide 9-21 - KPIs • Slide 22,23 - periodic review • Slide 24 - Modification and scale up • Slide 26 - Review and enhance the action plan • Slide 27 - Identify new priorities • Slide 28, 29 - Prepare revised action plan
<p>Methodology Used</p>	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Role play • Brainstorming and moderated discussion • Audio visual clip
<p>Training Aid</p>	<p>The session is designed for both online and in-person training.</p> <p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. It should also be ensured that the online platforms have the facility for breakout</p>

	<p>rooms/sessions to be able to conduct group work. The link for joining the training programme should be shared with the participants at least one day in advance.</p> <p>For the exercise and discussions, Padlet or Miro can be used. Google sheet can be helpful as well in this regard. Whiteboard in the conferencing platforms can also be used for the purpose.</p> <p>For in-person training programme, the participants will use flipcharts and whiteboards for the group exercise and presentation to the audience.</p>
Time Allotted	240 min

Module VI: Compendium of Plastic Waste Management Actions

Session Delivery

In this module, the trainer will demonstrate a range of prospective plastic waste management actions. The trainer will go through the slides for reflecting on examples of good practice primarily from India and a few global case studies. S/he will address each component of the value chain by highlighting a range of initiatives such as use of alternative products, ban/imposing tax on SUPs, sustainable procurement policy etc.

Considering that the module is very illustrative and brings in a number of examples across the country and globe, it is very impactful in generating interest and a sense of responsibility and fervour to adopt similar and relevant practices in the trainees' cities. To make the session engaging and interactive, the trainer shall ask participants to elaborate on similar actions that may have been adopted in their cities. S/he shall also motivate the trainees to share their experiences, challenges faced, success factors, or reasons for failure, outcome and learnings while undertaking these initiatives and channel the conversation towards identifying solutions for effective implementation of these actions.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 2- Circular Economy in plastic waste management • Slide 3, 4- Business models enhancing circular economy • Slide 5- 41- Illustrative descriptions of possible actions to be undertaken for each component of plastic waste management value chain
Methodology Used	<p>The different techniques used in the session include:</p> <ul style="list-style-type: none"> • Presentation and lecture • Moderated discussion
Training Aid	The session is designed for both online and in-person training.

	<p>For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly.</p> <p>For in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.</p>
Time Allotted	60 min

Module VII: Learning and Challenges of Developing Plastic waste Management Strategy and Action Plan – A Case of Hyderabad

Session Delivery

This module presents the case of Greater Hyderabad Municipal Corporation (GHMC) where the project ‘Enhancing Circular Economy Perspectives - Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation’ was implemented. The trainer will begin by briefly demonstrating the methodology adopted for developing the strategy and action plan. After presenting the key findings from baseline assessment and gap analysis, the trainer will explain the strategies and action plan conceptualised by Hyderabad. This is an apt example for any ULB looking to formulate a plastic waste management strategy and action plan.

Towards the end, the trainer shall open the forum for receiving queries from trainees regarding the experience of Hyderabad. Through this real time case, the trainees can gain an insight into the barriers, enablers and stimuli for developing and implementing a PWM strategy and action plan. The trainer shall encourage the participants to follow the pre-requisites for conceptualising, implementing and monitoring a holistic PWM strategy and action plan.

Module Outline

Slide Description	<ul style="list-style-type: none"> • Slide 2 - Why a strategy for GHMC • Slide 3 - Objectives • Slide 4 - Methodology adopted • Slide 5 - Brief of study area • Slide 6-8 - Key findings from baseline assessment and gap analysis • Slide 9- 10 - PWM strategy and action plan • Slide 11-21 - Reduce generation of plastic waste at source • Slide 22-29 - Ensure segregated collection and transport of plastic waste • Slide 30- 35 - Ensure maximum recycling and co-processing • Slide 36-38 - Awareness, attitude and behavioural change among stakeholders • Slide 39-47 - Strengthening institutional structure, monitoring and evaluation framework
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Methodology Used	The different techniques used in the session include: <ul style="list-style-type: none">• Presentation and lecture• Question and answer
Training Aid	The session is designed for both online and in-person training. For the online training, conferencing platforms such as Zoom, Webex could be explored. It should be ensured that the online platforms are user friendly. For an in-person training programme, the participants will use flipchart and whiteboard for the group exercise and presentation to the audience.
Time Allotted	40 mins

Training Evaluation and Valediction

At the end of the training programme, the facilitator will ask the participants to share their overall experience. Trainees will be requested to fill in an evaluation form before leaving. In case of online trainings, evaluations could be conducted through a Google Form while for the in-person trainings, hard copies of the evaluation form can be used. Certificates could be given to all the participants who complete the training.

The trainer will wrap up the programme by extending a vote of thanks and encouraging the participants to continue the collaboration with peers for continued learning and inspiration.

Annexure 1: Pre-training Evaluation Form

Name	
Gender	
Current Designation	
Experience in waste sector (Years):	<ul style="list-style-type: none">• Below 5• 5-10• 10-20• 20-30
Experience in plastic waste management (Years):	<ul style="list-style-type: none">• Below 1• 1-3• 3-5
Since when are you working with the current organisation:	
Describe the key responsibilities/ tasks you regularly perform?	
Have you ever been part of the process of developing city level Municipal Solid Waste/Plastic Waste Management (PWM) strategy and action plan? (Yes/No):	
What are the challenges you face while managing municipal solid waste and in particular plastic waste in your city?	
Have you attended any training on municipal solid waste/plastic waste in past? If yes, please share details (When, where and by whom the training was conducted?)	

How do you think that the present training will help you in your day to day work? Please indicate if you plan to use the learnings in your work in some way?

What kind of waste facilities would you like to visit to enhance your learning as part of this course?

What are your expectations from the training programme?

Annexure 2: Post Training Evaluation Form

1. Email:
2. Organisation Name:
3. Was the training helpful for your work: Yes: No:
4. Rate the training programme on following parameters (where 1: not upto the mark; 2: average; 3: good; 4: very good and 5 means excellent)

	1	2	3	4	5
A. Overall rating of the training program					
B. Evaluation of Workshop effectiveness					
1. Functioning of the training aid(s) used during the training					
2. Usefulness of the resource material					
3. Overall effectiveness of the workshop					
C. Evaluation of Resource persons					
1. Subject knowledge					
2. Training facilitation					
3. Demonstration skills					
4. Group work facilitation					
5. Co-ordination between resource persons & participants					
D. Facilities at the venue (for in-person programme)					
1. Facilities and cleanliness in the classroom					
2. Lodging					
3. Food					
4. Discipline					

5. How would you rate the different modules in terms of usability? (where 1: not upto the mark; 2: average; 3: good; 4: very good and 5 means excellent)

	1	2	3	4	5
Module I: Understanding Plastic Waste – Global and National Scenario					
Module II: Plastic Waste Management Rules and Guidelines in India					
Module III: Plastic Waste Management Strategy and Action Plan: Commitment and Baseline Assessment					
Module IV: Plastic Waste Management Strategy and Action Plan: Gap Analysis and Plan Development					
Module V: Plastic Waste Management Strategy and Action Plan: Implement, Monitor and Enhance					
Module VI: Compendium of Plastic Waste management Actions					
Module VII: Learning and Challenges of Developing Plastic waste Management Strategy and Action Plan – A Case of Hyderabad					

6. What can be improved for future training programmes?

Annexure 3: Reference Materials for Training Modules

Reference Materials: Module I	
Reading Materials	<ul style="list-style-type: none"> • Azoulay, D. e. (2019). <i>Plastic and Health: The Hidden Costs of a Plastic Planet</i>. Center for International Environmental Law. Available at: https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf. Retrieved June, 2021 • Bheda, H. (n.d.). <i>Industry Perspective on Single Use Plastic</i>. All India Plastic Manufacturers Association. • Centre for Science and Environment (CSE). (2019). <i>The Plastics Factsheet 2</i>. CSE. Available at: https://cdn.cseindia.org/attachments/0.28582200_1570445163_factsheet-2.pdf. Retrieved June, 2021 • Chattopadhyay, S., Dr. Kumar, N. (2020). <i>A Circular Plastics economy Strategy for India</i>. New Delhi: Confederation of Indian Industry (CII). • d'Ambrières, W. (2019). Plastics recycling worldwide: current overview and desirable changes. <i>The Journal of Field Actions Field Actions Science Reports</i>, 12-21. • Interactive data available at: https://www.unep.org/interactive/beat-plastic-pollution/?_ga=2.79740754.439414754.1623668490-830865776.1617251359. Retrieved June, 2021 • Kantar, Euro Panel, GFK. (2019). <i>Who Cares, Who Does? Consumer response to plastic waste</i>. Kantar, Euro Panel, GFK. Available at: https://www.kantarworldpanel.com/global/News/Who-Cares,-Who-Does-Consumer-response-to-plastic-waste#download. Retrieved June, 2021 • Onogawa et al. (2020) <i>Enhancing Circular Economy Perspectives - Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation (GHMC)</i>. Hyderabad: Greater Hyderabad Municipal Corporation (GHMC), United Nations Environment Programme, Institute for Global Environmental Strategies, ICLEI- South Asia. • Ministry of Housing & Urban Affairs, Govt. of India. (2019). <i>Plastic Waste Management: Issues, Solutions & Case Studies</i>. New Delhi: Ministry of Housing & Urban Affairs, Govt. of India. • Naguran, M. (2018, June 7). <i>Single-use Plastic Bans to Prevent Pollution</i>. Available at: https://www.gaiadiscovery.com/planet/single-use-plastic-bans-prevent-pollution. Retrieved January, 2021 • Plastic Pollution Free Tamil Nadu. (2018). <i>About Plastic Ban</i>. Available at: https://www.plasticpollutionfreetn.org/about_ban.php. Retrieved November, 2020 • The Energy and Resources Institute. (2018). <i>Fact Sheet on plastic waste in India</i>. New Delhi: The Energy and Resources Institute. • The Pew Charitable Trusts and SYSTEMIQ. (2020). <i>Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution</i>. The Pew Charitable Trusts. Available at: https://www.oneplanetnetwork.org/sites/default/files/breakingtheplasticwave_report.pdf. Retrieved June, 2021 • United Nations Environment programme. (2018, April 26). <i>How the Indian state of Sikkim is working to end plastic pollution</i>. Available at:

	<p>https://www.unep.org/news-and-stories/story/how-indian-state-sikkim-working-end-plastic-pollution. Retrieved November, 2020</p> <ul style="list-style-type: none"> • United Nations Environment programme. (2018). <i>SINGLE-USE PLASTICS: A Roadmap for Sustainability</i> (Rev. ed., pp. vi; 6). Available at: https://www.unep.org/resources/report/single-use-plastics-roadmap-sustainability. Retrieved June, 2021 • United Nations Environment Programme (UNEP). (2014). <i>Valuing Plastics: The Business Case for Measuring, Managing and Disclosing Plastic Use in the Consumer Goods Industry</i>. United Nations Environment Programme (UNEP). Available at: https://wedocs.unep.org/handle/20.500.11822/9238. Retrieved June, 2021 • World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company. (2016). <i>The New Plastics Economy — Rethinking the future of plastics</i>. Available at: https://www.ellenmacarthurfoundation.org/assets/downloads/ElleMacArthurFoundationTheNewPlasticsEconomyPages.pdf. Retrieved June, 2021 • WWF, the Ellen MacArthur Foundation and BCG. (2020). <i>The Business Case for a UN Treaty on Plastic Pollution</i>. WWF. Available at: https://f.hubspotusercontent20.net/hubfs/4783129/Plastics/UN%20treaty%20plastic%20poll%20report%20a4_single_pages_v15-web-prerelease-3mb.pdf. Retrieved June, 2021
<p>Audio Video Clips</p>	<ul style="list-style-type: none"> • https://www.youtube.com/watch?v=iO3SA4YyEYU • https://www.youtube.com/watch?v=1nDbkfCt2t4 • https://www.youtube.com/watch?v=ju_2NuK5O-E • https://www.youtube.com/watch?v=RS7IzU2VJIQ

Reference Materials: Module II

<p>Reading Materials</p>	<ul style="list-style-type: none"> • Solid Waste Management (SWM) Rules, 2016. Available at: indiaenvironmentportal.org.in/files/file/Solid%20Waste%20Management%20Rules,%202016.pdf • Plastic Waste Management (PWM) Rules, 2016. Available at: https://cpcb.nic.in/displaypdf.php?id=cGxhc3RpY3dhc3RlL1BXTV9HYXpldHRlLnBkZg==. • Guidelines for Swachh Bharat Mission – Urban, 2017. Available at: http://swachhbharaturban.gov.in/writereaddata/SBM_Guideline.pdf?id=gqoz5ytp0n8xztkb • Central Public Health & Environmental Engineering Organisation (CPHEEO). (2016). <i>Revised Manual on Municipal Solid Waste Management</i>. Available at: http://cpheeo.gov.in/cms/manual-on-municipal-solid-waste-management-2016.php. • Central Public Health & Environmental Engineering Organisation (CPHEEO). (2018). <i>Guidelines on Usage of Refuse Derived Fuel in Various Industries</i>. Available at: http://swachhbharaturban.gov.in/writereaddata/SBM%20RDF%20Guidelines.pdf?id=gqoz5ytp0n8xztkb.
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	<ul style="list-style-type: none"> • Ministry of Housing and urban Affairs, Govt. of India. (2017). Bulk Solid Waste Generators- A Step by Step Guidance for Urban Local Bodies to implement the Solid Waste Management Rules, 2016. Available at: http://swachhbharaturban.gov.in/writereaddata/Bulk%20Waste%20Generator%20Book.pdf?id=gqoz5ytp0n8xztkb. Retrieved June, 2021 • Central Public Health & Environmental Engineering Organisation (CPHEEO). (2020). <i>Swachh Bharat Mission – Urban: Advisory on Landfill Reclamation</i>. Available at: https://drive.google.com/file/d/1NRL_AGR2mvydUQOEQ6Lcct43M-8JvG0P/view?id=zcms5w1je6khw&id=gqoz5ytp0n8xztkb. Retrieved June, 2021 • Central Public Health & Environmental Engineering Organisation (CPHEEO). (2020). <i>Swachh Bharat Mission – Urban: Advisory on Material Recovery Facility for Municipal Solid Waste</i>. Available at: https://drive.google.com/file/d/1MIP6L9WWJmOPB5_n00Wlyumgok8rMnT_/view?id=87rbbm26m4ugt&id=gqoz5ytp0n8xztkb. • Protocol for STAR RATING OF GARBAGE FREE CITIES. Available at: http://swachhbharaturban.gov.in/writereaddata/Protocol%20for%20Star%20Rating%20of%20Garbage%20Free%20Cities.pdf?id=gqoz5ytp0n8xztkb. • Guidelines on use of Plastic Waste in Road Construction (Provisional), 2019. Available at: https://rdso.indianrailways.gov.in/works/uploads/File/WKS-G-16.pdf • Indian Standards regarding plastics. Available at: http://www.cercervis.nic.in/PDF/APR_JUN_2018.pdf • Ministry of Environment, Forest and Climate Change . (2020). <i>Guideline Document Uniform Framework for Extended Producers Responsibility</i>. New Delhi: Ministry of Environment, Forest and Climate Change. • National Policy on Biofuels 2018. Available at: http://www.indiaenvironmentportal.org.in/files/file/national%20policy%20on%20biofuel%202018.pdf • Indian Road Congress Guidelines for the Use Of Waste Plastic In Hot Bituminous Mixes (Dry Process) In Wearing Courses (IRC:SP: 98-203), 2013. Available at: https://www.tce.edu/sites/default/files/PDF/IRC-Spec=Road-with-plastic-waste.pdf • Hazardous Waste (Management, Handling & Trans boundary Movement) Rules, 2016. Available at: http://iwma.in/HWM%20Rules.pdf • <u>Various state level policies, municipal by-laws, government orders, circulars, and notifications etc.</u>
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Reference Materials: Module III, IV, V

<p>Reading Materials</p>	<ul style="list-style-type: none"> • Break free from plastic. (2020). <i>Brand Audit Toolkit</i>. Available at: https://www.breakfreefromplastic.org/brandaudittoolkit/. Retrieved April 5, 2021 • Central Public Health and Environmental Engineering Organisation. (2016). <i>Manual on Municipal Solid Waste Management</i>. New Delhi: Ministry of Urban Development, Govt. of India.
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	<ul style="list-style-type: none"> • Canadian Council of Ministers of the Environment. (2018). <i>Strategy on Zero Plastic Waste</i>. Canadian Council of Ministers of the Environment. Available at: http://extwprlegs1.fao.org/docs/pdf/can189817.pdf. Retrieved June, 2021 • Centre for Science and Environment. (2020). <i>Managing Plastic Waste in India: Challenges and Agenda</i>. New Delhi: Centre for Science and Environment. Available at: https://www.cseindia.org/content/downloadreports/10352. • Documentation for the Waste Reduction Model (WARM). Available at: https://www.epa.gov/warm/documentation-waste-reduction-model-warm. Retrieved June, 2021 • GIZ, University of Leeds, Eawag-Sandec, Wasteaware (2020). User Manual: Waste Flow Diagram (WFD): A rapid assessment tool for mapping waste flows and quantifying plastic leakage. Version 1.0. Principal Investigator: Velis C.A. Research team: Cottom J., Zabaleta I., Zurbruegg C., Stretz J. and Blume S. Eschborn, Germany. Available at: https://www.giz.de/fachexpertise/downloads/giz-waste-flow-diagram-user-manual.pdf. Retrieved June, 2021 • ICRA Management Consulting Services Limited INDIA. (n.d.). Toolkit for Public Private Partnership frameworks in Municipal Solid Waste Management: Volume 1- Overview and Process. GOI ADB PPP Initiative. • Infrastructure Development Corporation (Karnataka) Limited. (2018). <i>Adapted from presentation on Contracting and Tendering for PPPs</i>. • Ministry of Environment, Forest and Climate Change. (2020). <i>Guideline Document Uniform Framework for Extended Producers Responsibility</i>. New Delhi: Ministry of Environment, Forest and Climate Change. • Niti Ayog. (2020). Bidding Documents for Public Private Partnership in Integrated Solid Waste Management and Integrated Liquid Waste Management. New Delhi: Niti Ayog, Govt. of India. • Stockholm International Water Institute (SIWI). (2020). <i>Source-to-Sea Analysis of Plastic Waste Management: Vu Gia-Thu Bon River Basin</i>. SIWI. Available at: https://www.siwi.org/wp-content/uploads/2020/06/VGTB-Plastic-Report_FINAL.pdf. Retrieved June, 2021 • UNESCAP. (2008). <i>A Primer to Public-Private Partnerships in Infrastructure Development</i>. Available at: https://www.unescap.org/ttdw/ppp/ppp_primer/225_concessions.html. Retrieved March, 2021
Audio-Video Clips	<ul style="list-style-type: none"> • https://www.youtube.com/watch?v=zSdwzfbQFCw • https://www.youtube.com/watch?v=wmjZfD-NSig • https://www.youtube.com/watch?v=2-ZgxJfHlyU • https://www.youtube.com/watch?v=OljMz6loCvI&t=108s • https://www.youtube.com/watch?v=mroIEz5YEDU

Reference Materials: Module VI and VII

Reading Materials	<ul style="list-style-type: none"> • Akenji, L.; Bengtsson, M.; Kato, M.; Hengesbaugh, M.; Hotta, Y.; Aoki-Suzuki, C.; Gamaralalage, P.J.D. & Liu, C. (2019). <i>Circular Economy and Plastics: A Gap-Analysis in ASEAN Member States</i>. Brussels: European Commission Directorate General for Environment and Directorate General for International Cooperation and Development, Jakarta: Association of Southeast Asian Nations (ASEAN).
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	<p>Available at: https://www.switchasia.eu/site/assets/files/2315/circular_economy_and_plastics_asean.pdf. Retrieved June, 2021</p> <ul style="list-style-type: none"> • California Integrated Waste Management Board. (2007). <i>Recycled Products Procurement Policy</i>. City of Pittsburg: California Integrated Waste Management Board. • Bheda, H. (n.d.). <i>Industry Perspective on Single Use Plastic</i>. All India Plastic Manufacturers Association. • Central Pollution Control Board. (2015). <i>Assessment & Quantification of Plastics Waste Generation in Major Cities</i>. New Delhi: MoEFCC, Govt. of India. Available at: https://optoce.no/wp-content/uploads/2019/03/CPCBCIPET-Assessment-and-Quantification-of-Plastics-Waste_2015.pdf. Retrieved September, 2019 • Chang, S.-T., Chou, M.-S., & Chang, H.-Y. (2014). Elimination of Odors Emitted from Hot-Melting of Recycle PS by Oxidative Reductive Scrubbing. <i>Aerosol and Air Quality Research</i>, 14, 293-300. doi: 10.4209/aaqr.2013.01.0014. • Central Pollution Control Board. (2018). <i>Life Cycle Assessment (LCA) Study of Plastics Packaging Products</i>. New Delhi: Ministry of Environment, Forest & Climate Change, Govt. of India. • Dr. Modak, Prasad. (2021). <i>Practicing Circular Economy</i>. CRC Press. • Dr. Warsi, S. A. (n.d.). Presentation on Integrated Waste Management with Decentralized Approach Case Study- Indore, India. • du Pont de Nemours and Company. (2011). <i>Proper Use of Local Exhaust ventilation During Processing of Plastics</i>. du Pont de Nemours and Company. • Ellen Macarthur Foundation. (2020). <i>Financing the circular economy: Capturing the opportunity</i>. Ellen Macarthur Foundation. Available at: https://www.switchasia.eu/site/assets/files/2619/financing-the-circular-economy.pdf. Retrieved June, 2021 • European Commission. (2020). <i>Circular Economy Action Plan: For a cleaner and more competitive Europe</i>. European Commission. Available at: https://www.switchasia.eu/site/assets/files/2380/new_circular_economy_action_plan.pdf. Retrieved June, 2021 • European Commission and ICLEI – Local Governments for Sustainability. (2016). <i>Buying green: A handbook on green public procurement Third Edition</i>. Luxembourg: European Union. • EcoRecycle Victoria, Gertsakis, John., Lewis, Helen. (2003). Sustainability and the Waste Management Hierarchy: A discussion paper on the waste management hierarchy and its relationship to sustainability. Available at: http://www.helenlewisresearch.com.au/wp-content/uploads/2014/05/TZW_-_Sustainability_and_the_Waste_Hierarchy_2003.pdf. Retrieved June, 2021 • Green Protocol Initiatives in Kerala. Information available at: http://sanitation.kerala.gov.in/green-protocol/. Retrieved June, 2021 • Homesgu.com. (2020). <i>Where Are Plastic Bags Banned Or Taxed Around The World?</i> Available at: https://homesgu.com/where-are-plastic-bags-banned-or-taxed-around-the-world/. Retrieved March, 2021 • Indian Road Congress. (2013). Guidelines for the Use of Waste Plastic in Hot Bituminous Mixes (Dry process) in Wearing Courses. New Delhi, India: Indian Roads Congress.
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	<ul style="list-style-type: none"> • Indore Municipal Corporation. (2019). SWM Initiatives under Swachh Bharat Mission. • Ferrari, K., Gamberini, R., Rimini, B. (2016). <i>The Waste Hierarchy: A Strategic, Tactical and Operational Approach for Developing Countries: The Case Study Of Mozambique</i>. International Journal of Sustainable Development and Planning. 11(5):759-770. DOI:10.2495/SDP-V11-N5-759-770. Available at: https://www.researchgate.net/publication/308395625 <u>The waste hierarchy A strategic tactical and operational approach for developing countries the case study of Mozambique</u>. Retrieved June, 2021 • Lacy, P., Keeble, J., & McNamara, R. (2014). <i>Circular Advantage: Innovative Business Models and Technologies to Create Value in a World without Limits to Growth</i>. Accenture. • Ministry of Environment, Forest and Climate Change. (2016, April 8). <i>Solid Waste Management Rules</i>. New Delhi, India: Ministry of Environment, Forest and Climate Change. • Ministry of Housing and Urban Affairs. (2018). <i>Transforming urban landscapes of India: Success Stories in Solid Waste Management</i>. New Delhi: Ministry of Housing and Urban Affairs, Govt. of India. • Ministry of Housing and Urban Affairs. (2018). <i>Transforming urban landscapes of India: Success Stories in Information and Communications Technology</i>. New Delhi: Ministry of Housing and Urban Affairs, Govt. of India. Available at: http://swachhbharaturban.gov.in/writereaddata/SBM%20ICT%20Coffee%20Table%20Book_A4.pdf?id=gqoz5ytp0n8xztkb. Retrieved June, 2021 • Ministry of Housing and Urban Affairs. (2018). <i>Transforming urban landscapes of India: Success Stories in Information, Education & Communication (IEC) & Behavior Change</i>. New Delhi: Ministry of Housing and Urban Affairs, Govt. of India. Available at: http://swachhbharaturban.gov.in/writereaddata/SBM%20IEC%20Coffee%20Table%20Book.pdf?id=gqoz5ytp0n8xztkb. Retrieved June, 2021 • Newton, D., Srivastava, A., & Bhangale, R. (2019). <i>Plastics Policy Playbook Strategies for a Plastic-Free Ocean</i>. Ocean Conservancy and Trash Free Seas Alliance. • Pune Municipal Corporation. (2018). SWM Initiatives under Swachh Bharat Mission. • Singh, U., Mathew, R., Kumar, N., Swarnakar, M. (2019). <i>Plastic lifecycle management: An insight into a plast-less economy</i>. New Delhi: Grant Thornton India LLP. Available at: https://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/plastic-life-cycle-management_an-insight-into-plast-less-economy.pdf. Retrieved June, 2021 • Scientific Certification Systems Inc. (https://www.scsglobalservices.com/services/recycled-content-certification). Retrieved March, 2021) • TÜV Rheinland Green Product Mark. (https://www.tuv.com/india/en/green-product-mark.html). Retrieved December, 2020) • TMC, MPCB, Dept. of Env., GoM. (2019). <i>An Illustrated Guidebook for Plastic and Thermocol Ban Notification</i>. Thane: TMC, MPCB, Dept. of Env., GoM. • United Nations Development Programme. (2021). <i>Plastic Waste Management Programme (2018-2024)</i>. Available
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	<p>at:https://www.in.undp.org/content/india/en/home/projects/plastic-waste-management.html. Retrieved March, 2021</p> <ul style="list-style-type: none">• United Nations Environment Programme (2021). <i>Single-use plastic tableware and its alternatives– Recommendations from Life Cycle Assessments</i>. United Nations Environment Programme (UNEP). Available at: https://www.lifecycleinitiative.org/wp-content/uploads/2021/03/UNEP-D001-Tableware-Report_Lowres.pdf. Retrieved June, 2021
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