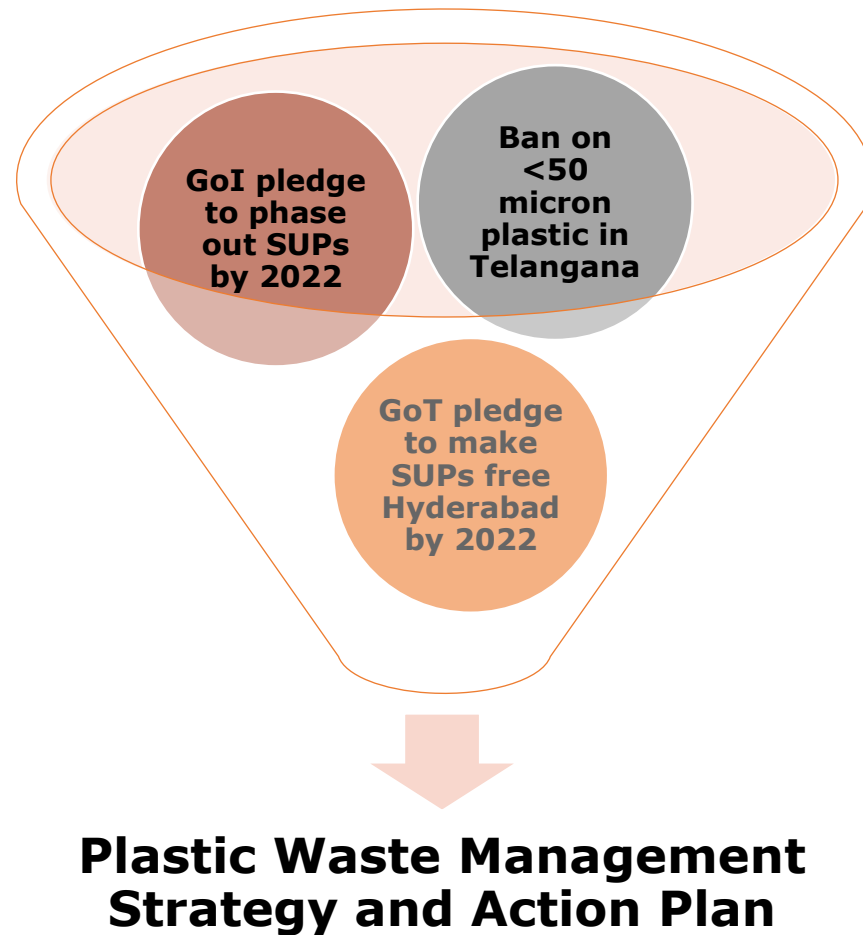


# Learning and challenges of developing Plastic waste Management Strategy and Action Plan – A Case of Hyderabad

## Module VII



# Why a strategy for GHMC?



## KTR sets target to make Hyderabad single-use plastic free



The Hans India

2 Jun 2018 3:52 PM IST



### HIGHLIGHTS

Telangana IT Minister KT Rama Rao on Friday flagged off 100 Swachh Auto tippers and 20 electronic vehicles for GHMC employees at People's Plaza in Hyderabad.



Telangana IT Minister KT Rama Rao on Friday flagged off 100 Swachh Auto tippers and 20 electronic vehicles for GHMC employees at People's Plaza in Hyderabad.

Recalling that the GHMC passed a resolution to ban all plastic items, KTR unveiled grand plans to make Hyderabad a 'single use plastic-free city' by 2022.

Single-use plastic items include use and throw products such as glass, plastic carry bag, plate, spoon.

United Nations Environment Programme (UNEP) Executive director, Eric Solheim participated in the event and urged the people to avoid plastic.

Mayor Bonthu Rammohan, commissioner, GHMC, B Janardhan Reddy and senior officials were also seen in attendance.

(Source: The Hans India, 2<sup>nd</sup> June, 2018)



# Objectives

## To develop a Holistic Strategy and Action Plan for Plastic Waste Management

Quick assessment of existing municipal solid waste and plastic waste management in the city

Identify key opportunities for improvement and provide recommendations

Preparation of holistic plastic waste management strategy and action plan

Identify suitable pilot/model projects and implement it

Dissemination and policy implication





# Holistic strategy and action plan for Plastic Waste Management

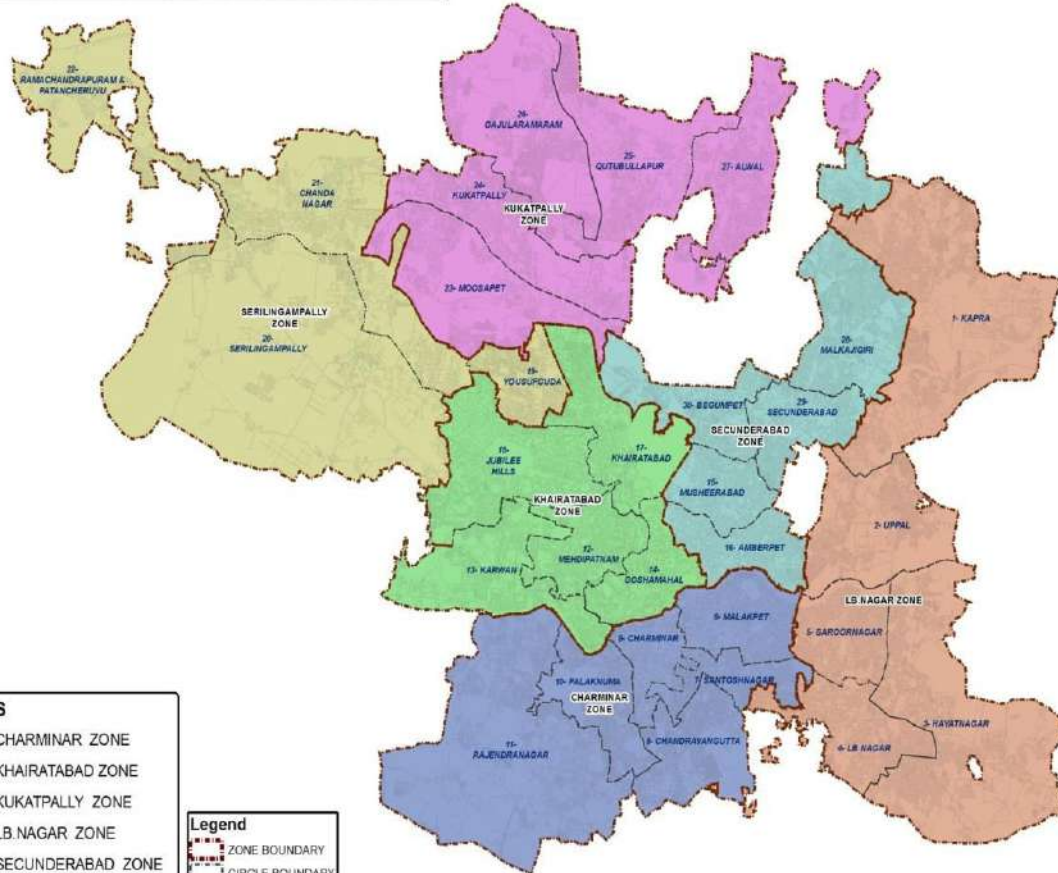


**Methodology adopted for preparation of PWM Strategy and Action Plan**



# Brief of study area

MAP SHOWING CIRCLES AND ZONES IN GHMC



- ZONES**
- CHARMINAR ZONE
  - KHAIKATBAD ZONE
  - KUKATPALLY ZONE
  - LB NAGAR ZONE
  - SECUNDERABAD ZONE
  - SERILINGAMPALLY ZONE

**Legend**

- ZONE BOUNDARY
- CIRCLE BOUNDARY
- ROADS

<b>Area</b>	625 sq. km.
<b>Population</b>	7.6 million (in 2014)
<b>Zones</b>	6 (LBNagar, Charminar, Khairathabad, Secunderabad, Kukatpally, Serilingampally)
<b>Circles</b>	30
<b>Wards</b>	150

<b>MSW Generation Rate:</b> 4500-5000 TPD
<b>Per Capita Waste Generation:</b> 582 gm/day
<b>Coverage of Door-to-Door Collection of Waste:</b> 100%
<b>Collection Efficiency:</b> 88%
<b>Extent of Segregation of Waste:</b> 11-12%
<b>Landfill Site:</b> Yes
<b>Swachh Sarvekshan Rank:</b> 23 <sup>rd</sup> in 2020

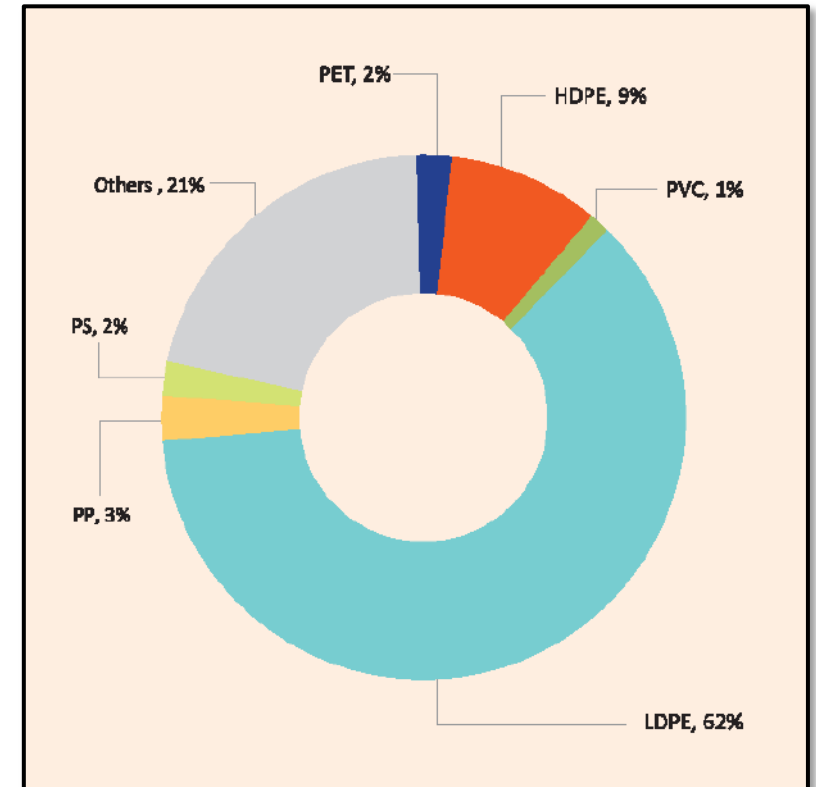
(Source: PAS Telangana Data book 2016)



# Plastic waste generation in Hyderabad

- Residential area: Waste generation - **296.93 g/c/d in LIGs and 345 g/c/d in other residential areas** (MIGs and HIGs)
- **LDPE** is the highest generated category of plastic waste: **46.34% in LIGs and 41.81% in other residential areas**
- PVC is the **least produced category** of plastic waste
- Market areas generate largest fraction of plastic waste: **41.40%** of which LDPE constituted almost **37%**
- LDPE constituted **40%** of plastic waste generated in vegetable market
- Plastic waste from restaurants consists of almost **80%** LDPE
- LDPE constituted largest fraction of plastic waste at the Jawahar Nagar processing site with **62%**

Characterisation of plastic in MSW collected at Transfer Stations

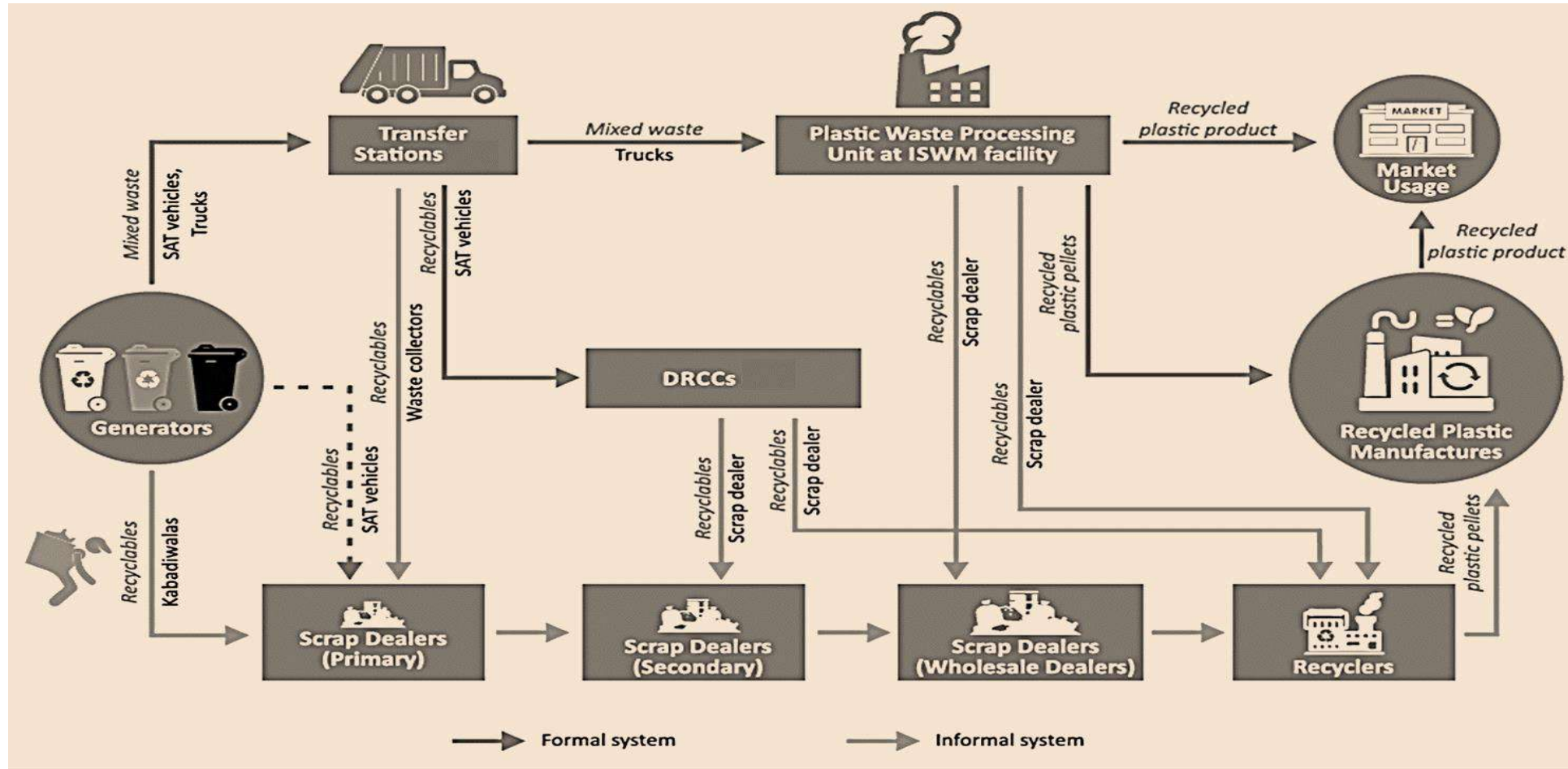


(Source: ICLEI South Asia, 2019)

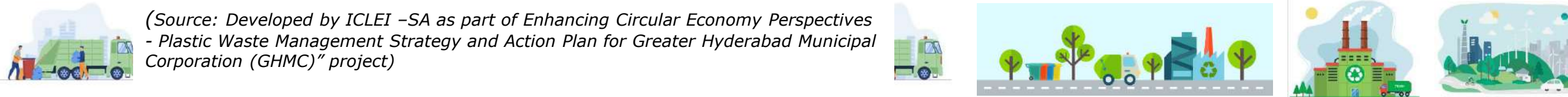




# Plastic waste management value chain in Indian cities



(Source: Developed by ICLEI –SA as part of Enhancing Circular Economy Perspectives - Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation (GHMC) project)



# Gap analysis



## Institutional Framework

- Inadequate staff allocation
- Unavailability of required infrastructure
- Irregular performance monitoring and reporting system
- Lack of integration between formal and informal sector
- Inefficient grievance redressal system
- Absence of technical enabling of service provisioning



## Regulatory Mechanism

- Need for strict regulatory measures
- Absence of scientific environmental control measures



## Issues in Financial Instrument

- Absence of structured taxation, subsidy/incentive mechanism to promote sustainable practices
- Inadequate budgetary allocation to support optimum human resource and upgraded infrastructure

**No tipping floor in transfer station**



**Open burning of waste**



**Unutilised vehicle compartment**





# PWM strategies and action plan

## Strategy 1

Reduce generation of plastic waste at source

- Zero Single Use Plastics (SUPs) waste generation by **2025**

## Strategy 2

Ensure segregated collection and transport of plastic waste to registered waste processing facilities

- 100% source segregated waste collection and transport system to facilitate scientific processing, by year **2030**

## Strategy 3

Promote maximum recycling and explore opportunities for co-processing of plastic waste

- 100% processing of non-hazardous plastic waste through recycling, reuse, reprocessing and co-processing by **2030**



# PWM strategies and action plan (Contd.)

## Strategy 4

Create awareness among all stakeholder groups through Information, Education and Communication (IEC) activities

- All major stakeholders are aware of harmful impacts of plastic waste and have adopted necessary measures by **2027**

## Strategy 5

Strengthen governance and implement a Monitoring and Evaluation Framework

- Creating an efficient institutional structure for holistic management of plastic waste by 2025 **2027**



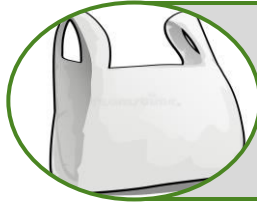
# Implementing Ban on SUPs

## Suggested SUP Items to be Banned



PP and PS servewares, Plastic films on steel plate, Plastic straws, Cardboard/paper plates and cups with plastic film/liner, Sandwich box, Cling wraps

Single use decoration items including thermocol decorations, PVC flex and banners



Plastic carry bags <50 micron, Unnamed plastic carry bags, Uncertified compostable / starch-based carry bags

Mineral water pouch and water bottles <200 ml, Plastic packaging without brand names and contact information

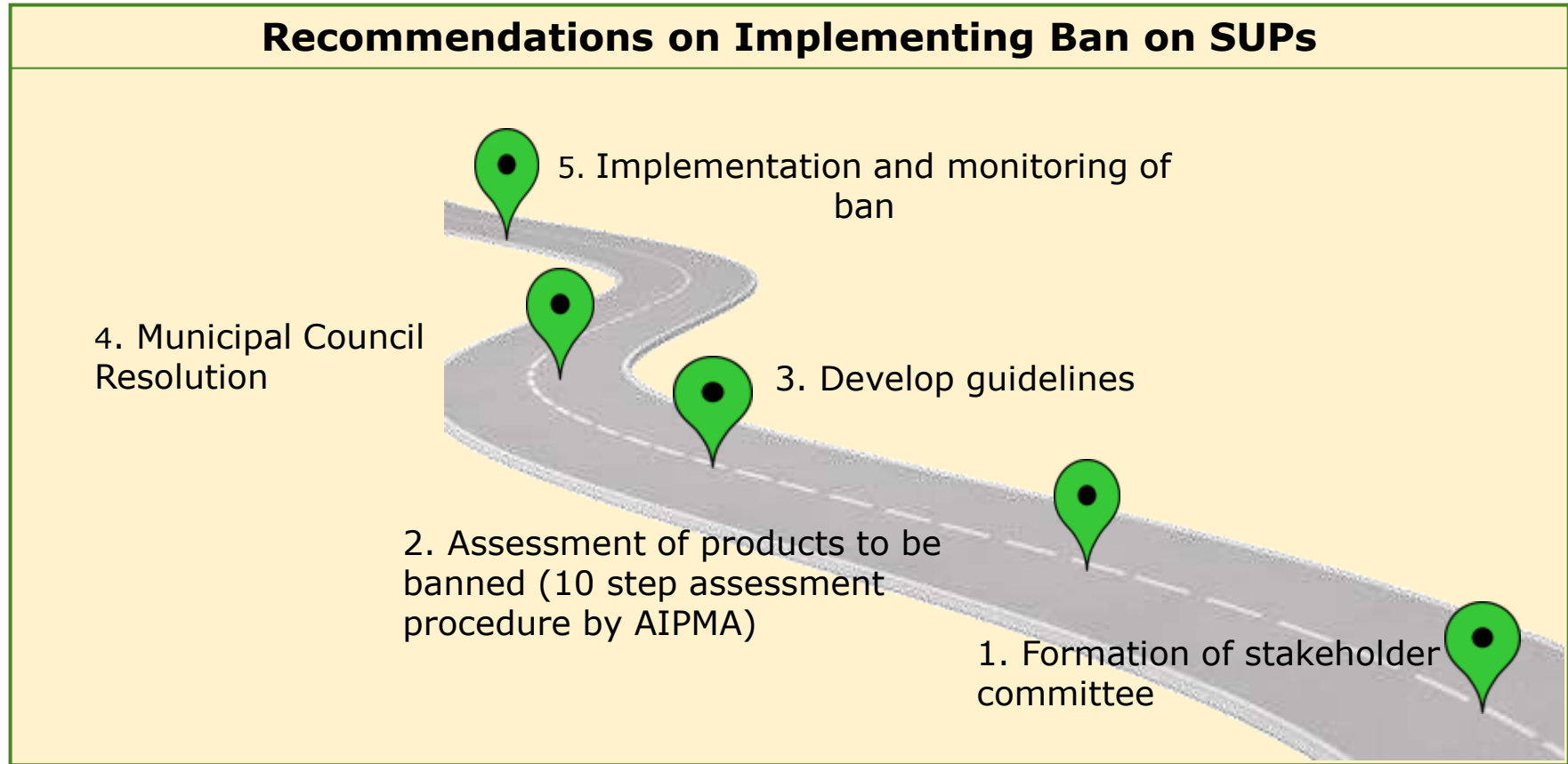


(Source: The VOA News, 29th Sep, 2019; <https://www.voanews.com/south-central-asia/indias-sikkim-state-leads-countrys-plastic-ban-bar-bags> )





# Implementing Ban on SUPs



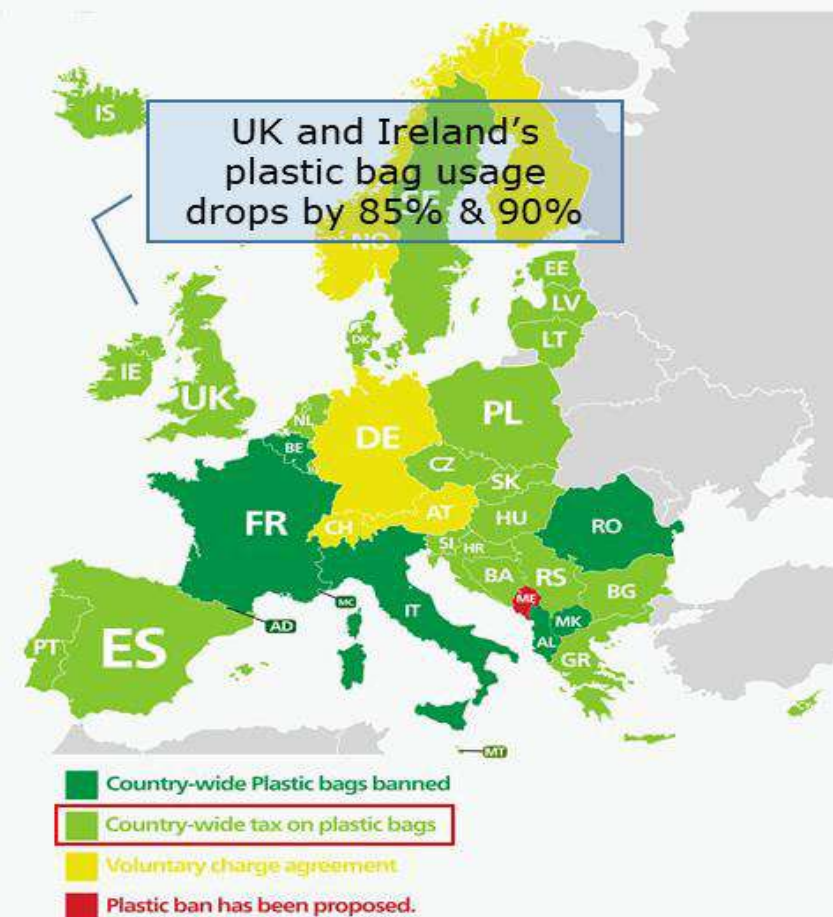
# Policy measures to restrict SUPs

## Preferential Procurement by Large Generators

- Procurement of bio-degradable alternatives -part of organisation policy or procurement policy
- Procurement of **reparable, reusable, recyclable plastic products** without composite or harmful material
- For example: Ghent Sustainable Public Procurement Strategy; City of Malmö Furniture Framework

## Taxation Mechanism

### Bag Bans Legislation In The Europe

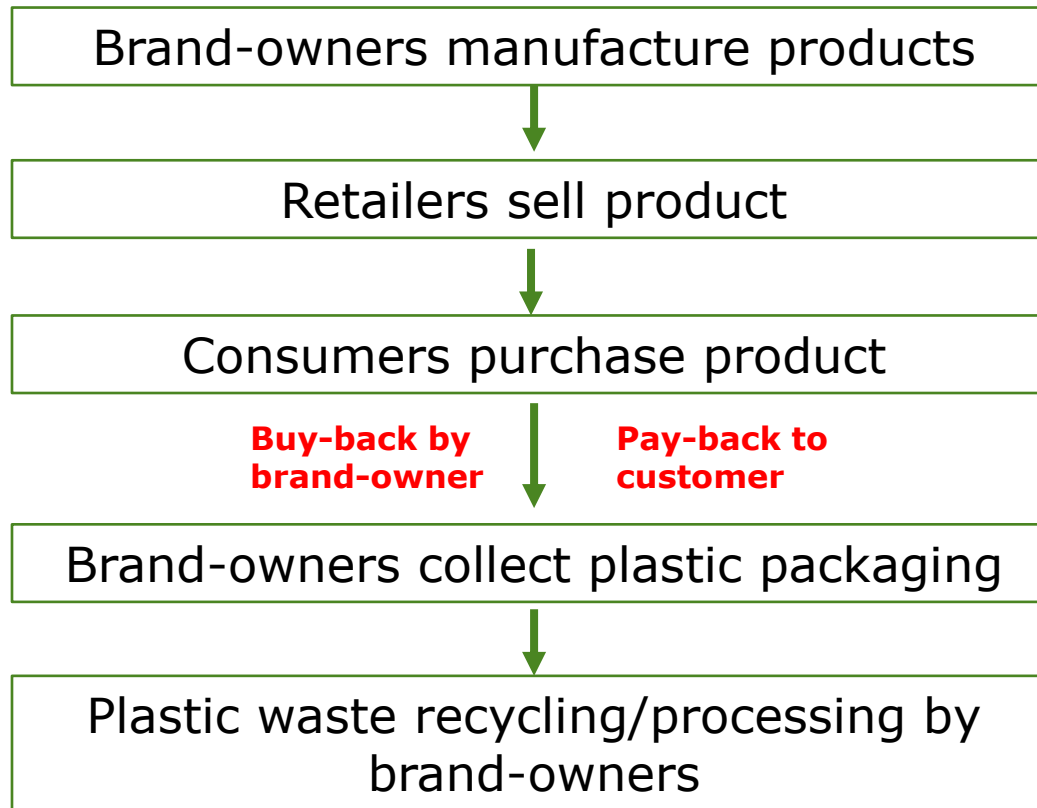


(Source: <https://homesgu.com/where-are-plastic-bags-banned-or-taxed-around-the-world/>)



# Policy measures to restrict SUPs

## Buy-Back under EPR



### ITC Hotels to go single use plastic free with its front of the house functions

The work is already in progress to make back of the house single use plastic free by December, 2019

by Nisha Shukla / 18 Sep 2019



(Source: [ITC Hotels to go single use plastic free with its front of the house functions](#) - Business - Hotelier India)





# Policy measures to restrict SUPs

## Green Protocol for Events

Eco-friendly container



Cloth 'Welcome' banner



Glass serveware for public events



# Enhancing access and availability of existing alternatives

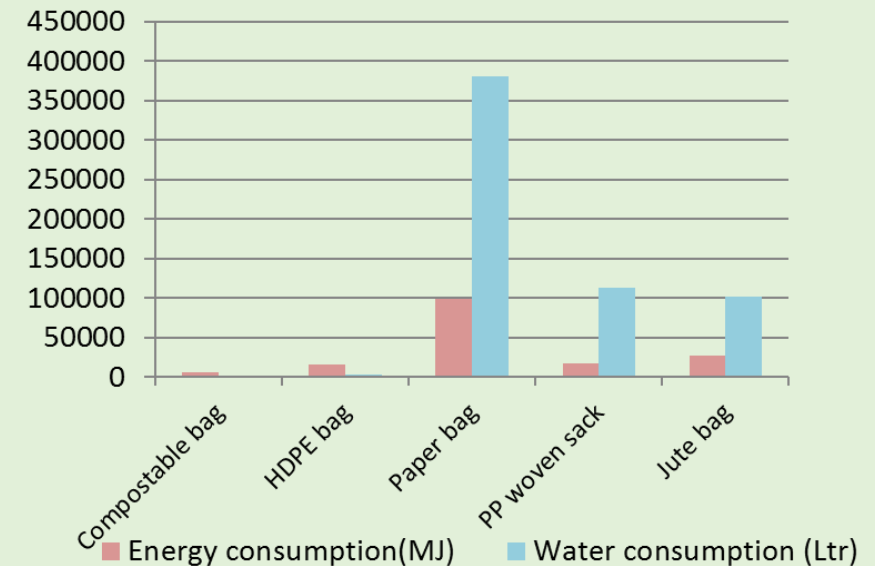
## Marketing and Promotion of Starch Based Bio-polymer Products through R&D

### Replacement of SUP carry bags

- CPCB certified vegetable starch bags (tapioca, corn, sugarcane) - **Rs 2-8/pc**
- Paper/cloth/jute bags - **Rs 3-25/pc**



### Comparison of resource consumption for production of 1 ton of types of bags



(Source: [https://cpcb.nic.in/uploads/plasticwaste/LCA\\_Report\\_15.05.2018.pdf](https://cpcb.nic.in/uploads/plasticwaste/LCA_Report_15.05.2018.pdf))



# Enhancing access and availability of existing alternatives

Encourage and Establish Small Scale Cottage Industries for Manufacture of Alternative Materials Leveraging Government Programmes

## National Level Programmes



**Mahila E-haat**



**PMEGP**

Prime Minister's Employment Generation Programme



Pradhan Mantri  
**मudra**  
Yojna



## State level Programmes (Telangana)





# Promote research & development for new alternative & innovative packaging

## Promote R&D for New and Viable Alternatives

Direct funding (I-STEM etc.)

Awards and recognitions

Government schemes (T-Hub, T-SEED etc.)



## Product Packaging with Plastic Substitute or Reduced Plastic Use



**Packaging substitute-** Mushroom packaging by IKEA & Paper cushioning by Amazon, **Reduced plastic packaging** by Danish Crown

(Source: <https://news.yahoo.com/ikea-commits-biodegradable-mushroom-packaging>

<https://english.fleischwirtschaft.de/economy/news/Sustainability-Danish-Crown-introduces-new-climate-friendly-packaging-40700>)

# Promote research & development for new alternative & innovative packaging

## Packaging for Easy Recycling

Change in Plastic Design

No or very less addition of dark colour and additives



## Worldwide Eco-labelling Schemes





# Pilot interventions

Substituted single use plastic bags with **CPCB certified tapioca starch based biodegradable biopolymer bags** for a period of 1 month in Naubat Pahad (Birla Mandir) market area

## SUPs found in Market



## Starch bag distribution to shopkeepers





# Pilot interventions

## Training of SHG for manufacture of cloth bags

- **Capacity:** 600 bags in a month
- **Human capital:** 3 hours /day by 20 women
- **Sale price:** Rs. 95 INR per bag
- **Potential market:** Rythu Bazar, Begam Bazar, Cottage Industry Exhibition
- **Support From GHMC:** financial and marketing and promotion

### Cloth bag manufacturing by SHG



# Ensure segregation and management of waste at source

Ensure segregated collection and transport of plastic waste

## Infrastructure Upgradation

- Twin-bin for segregated waste storage ✓
- Wet waste- daily collection ✓
- Dry waste- alternate day collection ✓
- Separate waste collection system for domestic hazardous waste ✓
- Promoting in-situ wet waste processing ✓
- Segregated waste storage by bulk waste generators ✓



Property  
tax rebate  
for on-site  
waste  
management



# Ensure segregation and management of waste at source

Ensure segregated collection and transport of plastic waste

## Institutional and Policy Instrument

Mandatory waste segregation by bulk generators through bye-law



Permission to enter sites as per bye-laws



Penalisation for non-compliance

Bulk waste generator's monitoring cell



Once in six months monitoring



(Source: <https://docplayer.net/153833951-Integrated-waste-management-with-decentralized-approach-case-study-indore-india.html>)

## Awareness Generation

IEC campaign: Dappu Nrithyam



D2D campaign



D2D pamphlet distribution

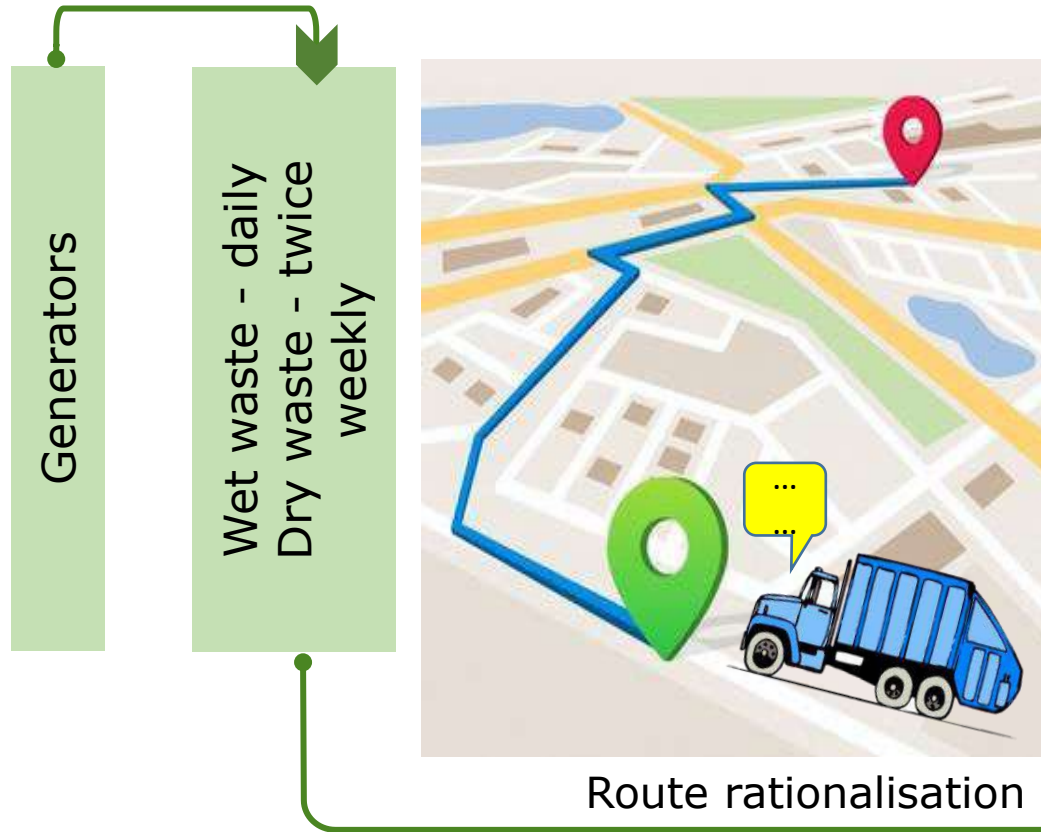




# Strengthening primary collection and transport

Ensure segregated collection and transport of plastic waste

## Infrastructure Upgradation



Buy-back by brand-owners under EPR

DRCC upgradation - model of Indore DRCC



Registered recycler

Standardised pricing of recyclables (utilisation of EPR corpus fund)

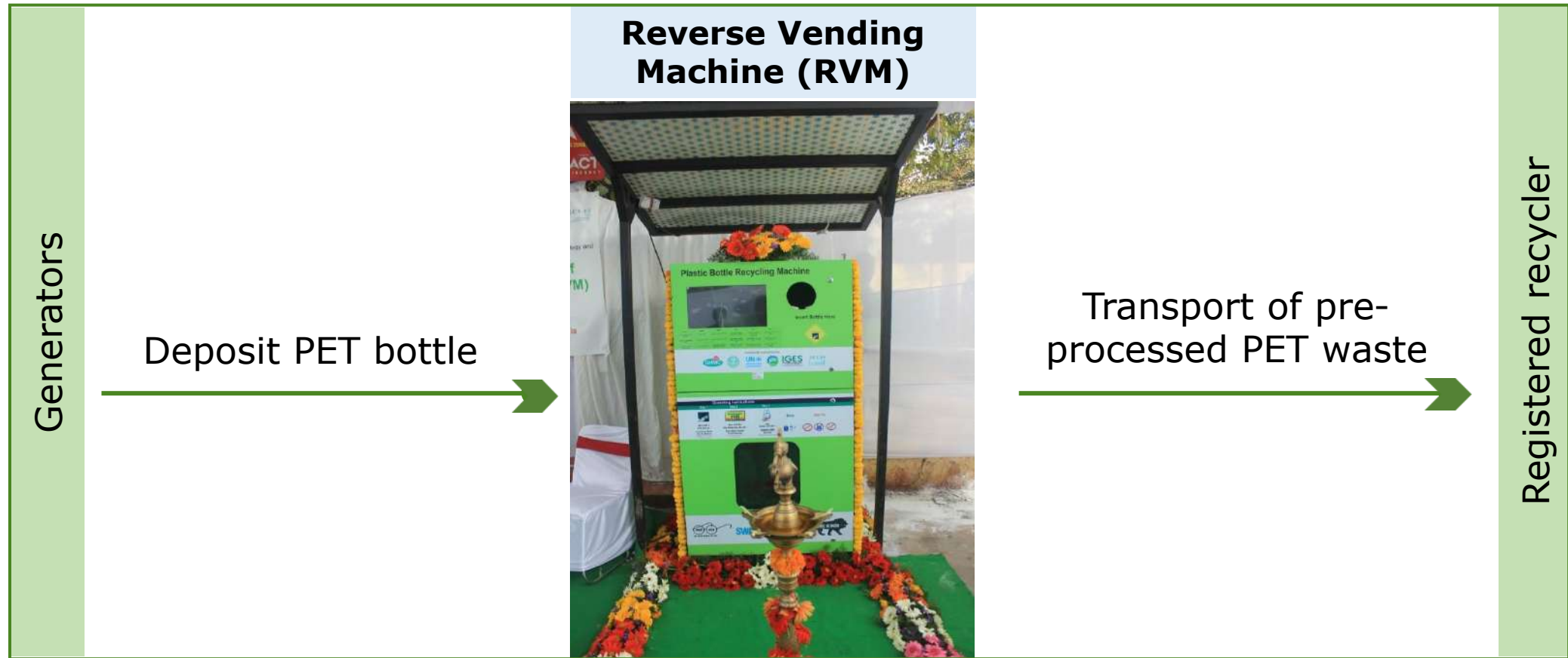




# Strengthening primary collection and transport

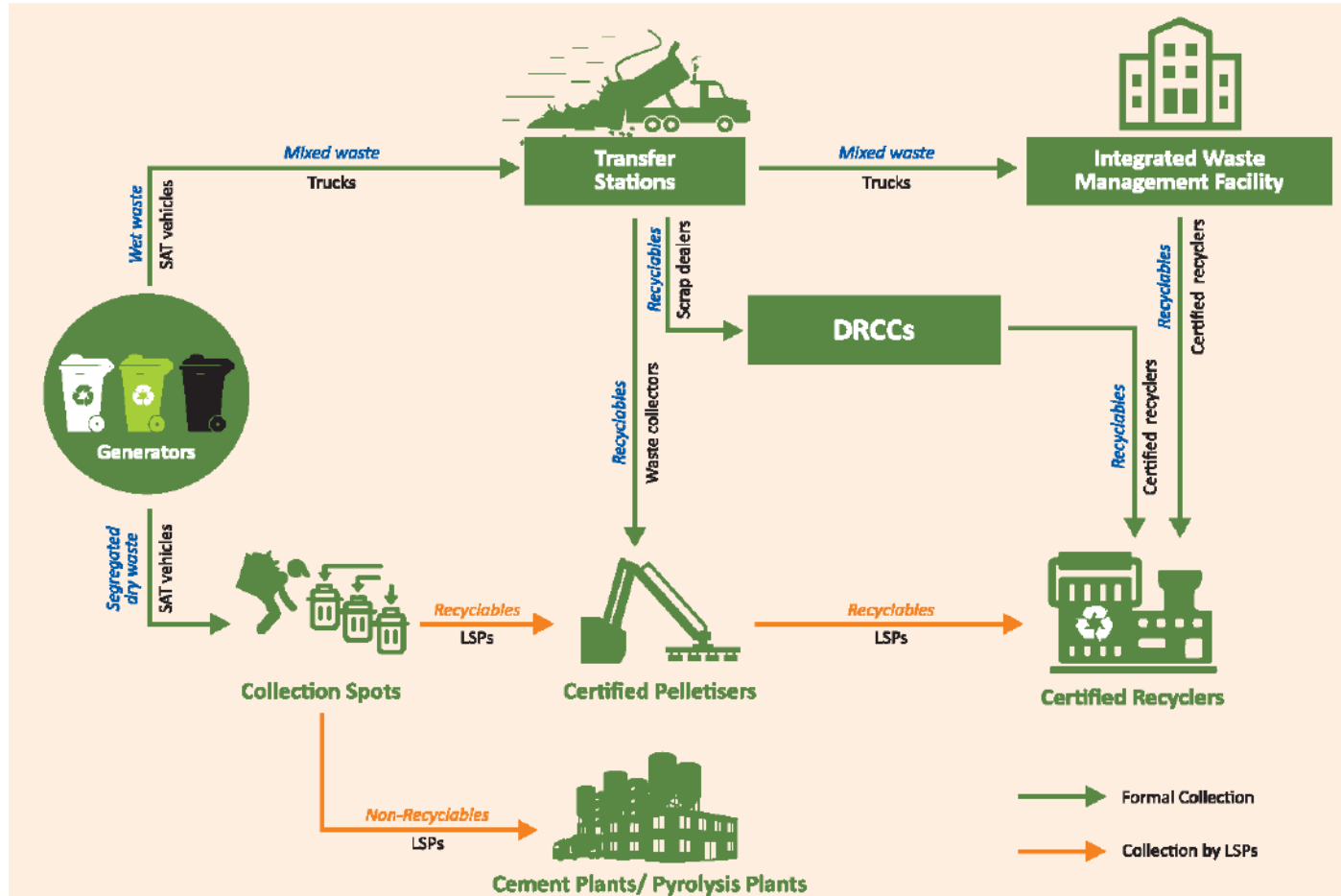
Ensure segregated collection and transport of plastic waste

## Infrastructure Upgradation



# Strengthening primary collection and transport

## Infrastructure Upgradation



Ensure segregated collection and transport of plastic waste

Proposed system of transportation of recyclables through LSPs

- Provide linkage through GHMC approved LSPs
- MoU between LSPs, GHMC and Recycler/Pyrolysis facility
- LSPs earn profit by direct dealing with recyclers
- Continuous monitoring by GHMC through cloud based application developed by LSP

(Source: Developed by ICLEI –SA as part of "Enhancing Circular Economy Perspectives - Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation (GHMC)" project, 2020)



# Strengthening primary collection and transport

Ensure segregated collection and transport of plastic waste

## Training of SAT Operators

Training of SAT operators on segregated waste collection



SUNYA model of segregated waste collection for SAT operators

## Institutional Strengthening



Monitoring by GHMC

Penalty for non-performance



Waste generators

Complaint

Non-compliance

Seamless Grievance Redressal System

Penalty





# Strengthening secondary collection and transport

Ensure segregated collection and transport of plastic waste

## Infrastructure Upgradation

Example of upgraded transfer station from Indore



Example of upgraded transport vehicle from Indore



(Source: <https://docplayer.net/153833951-Integrated-waste-management-with-decentralized-approach-case-study-indore-india.html>)

## Upgradation of Command Control Centre

Digital Door Numbering of generators



Geo-tagging of vehicles



Geo-tagging of scrap dealers



Geo-tagging of DRCCs and TSs



GHMC Web Platform

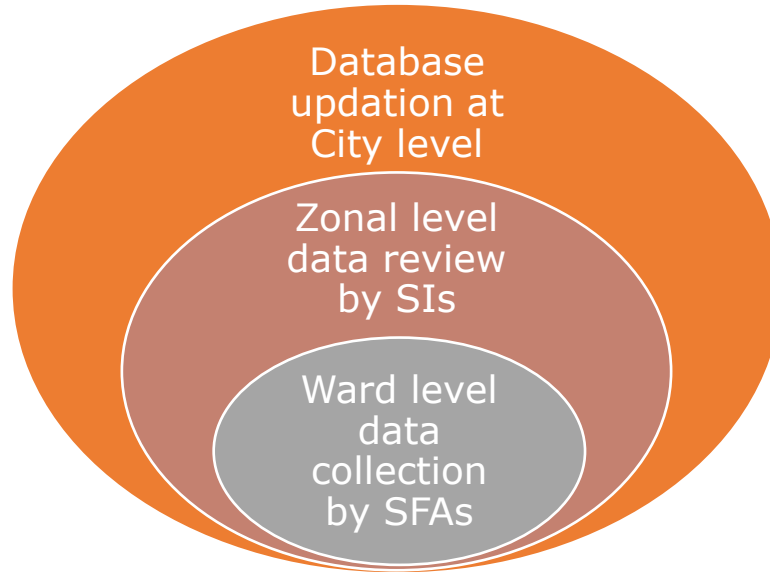


# Strengthening secondary collection and transport

Ensure segregated collection and transport of plastic waste

## Integration of Informal Workers

Informal sector



Integration within GHMC



Flow of recyclables



Twice-a-year data collection by SFAs and CBOs in a specific format

Enforcement of regulation by TSPCB



# Improving efficiency of recycling industries

## Environmental Regulation for Plastic Recycling Units

### Melting and ignition point of various polymers

Plastic	Melting Point Range	Ignition Temperature
ABS	88°-125°	416°
Acrylics	91°-125°	560°
Cellulosics	49°-121°	475°-540°
Nylons	160°-275°	424°-532°
Polycarbonate	140°-150°	580°
Polyesters	220°-268°	432°-488°
Polyethylene Id	107°-124°	349°
Polypropylene	158°-168°	570°
Polystyrene	100°-120°	488°-496°
Polyurethanes	85°-121°	416°
PTFE	327°	530°
P.vinylideneclor	212°	454°
PVC	75°-110°	435°-557°
Wool		228°-230°
Cotton		250°
Rubber		260°-316°

### Flue gas emission standards

Parameters	Emission standards
Particulates	50 mg/Nm <sup>3</sup>
HCl	50 mg/Nm <sup>3</sup>
SO <sub>2</sub>	200 mg/Nm <sup>3</sup>
CO	100 mg/Nm <sup>3</sup>
Total Organic Carbon (TOC)	20 mg/Nm <sup>3</sup>
HF	4 mg/Nm <sup>3</sup>
NOx	400 mg/Nm <sup>3</sup>
Total dioxins and furans	0.1 mg TEQ/Nm <sup>3</sup>
Cd + Th + their compounds	0.05 mg/Nm <sup>3</sup>
Hg and its compounds	0.05 mg/Nm <sup>3</sup>
Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm <sup>3</sup>

- Ideal temperature for extrusion should be within a limit of 20-30% above melting temperature
- Ignition temperature should not be crossed at any point of time

(Source: CIPET, 2019; Solid Waste Management Rules, 2016)





# Improving efficiency of recycling industries

## Marking of Society of Plastic Industry (SPI) Code



PETE



HDPE



PVC



LDPE



PP

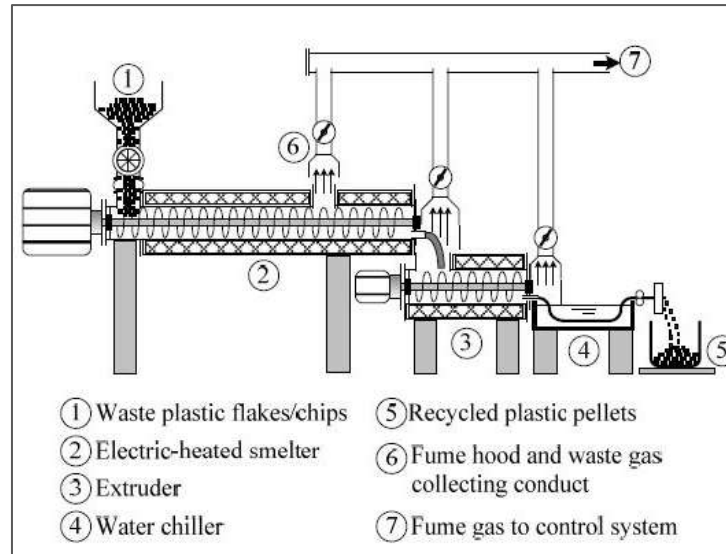


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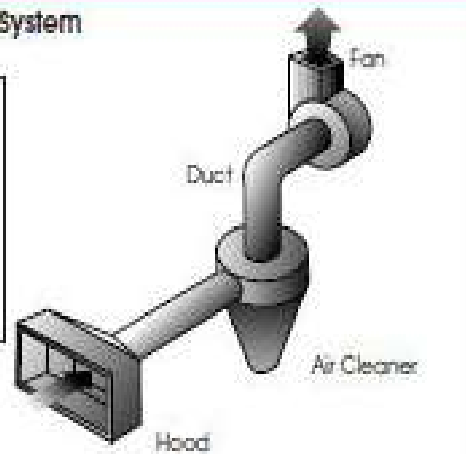


OTHER

## Environmental Control Mechanism for Extrusion



### Components of LEV System

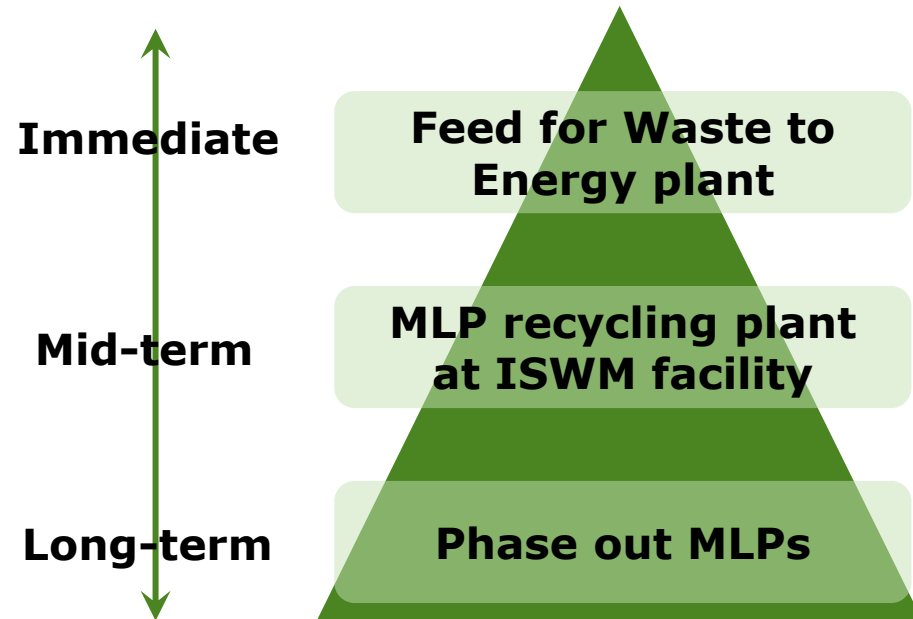


(Source: <https://aaqr.org/articles/aaqr-13-01-tn-0014.pdf>;  
[https://www.dupont.com/content/dam/dupont/amer/us/en/transportationindustrial/public/documents/en/Ventilati  
on brochure en 200108.pdf](https://www.dupont.com/content/dam/dupont/amer/us/en/transportationindustrial/public/documents/en/Ventilati%20on%20brochure%20en%20200108.pdf))



# Improving efficiency of recycling industries

## Dealing with Multi-Layered Plastics (MLPs)



## Decentralised Pre-processing and Pelletisation Units in PPP Model

- Partnership with SHGs and CBOs
- Away from residential areas

(Source: M/s Uflex Limited, July 2019)



# Optimising other plastic waste processing technologies

## Reprocessing of non-recyclable plastic into fuel

- Proper pre-treatment of non-recyclable fraction to be used in WtE plant in ISWWM facility
- Efficient pre-sorting to ensure chloride content  $<1.5\%$  for feedstock in co-processing plant
- Waste audit by processing facilities
- BIS certification for end-product of plastic to fuel processing
- Setting up industry-specific emission standards for plastic to fuel technology

## Encouraging use of plastic waste in road construction

### Pre-treatment



Shredding into 0.6-2.36 mm  
Absence of PVC fraction

### Regulation and promotion

- Notification from GHMC and MAUD, Telangana
- Quality and durability assessment by R&B Dept., Telangana
- Support R&D by National Council for Cement and Building Materials, National Academy of Construction and National Institute of Construction Management and Research

(Source: Guidelines for the Use of Waste Plastic in Hot Bituminous Mixes (dry process) in Wearing Courses)





# Evolving market instruments for optimum plastic waste recycling

Ensure maximum recycling and co-processing

## Green Certification for Recycled Plastic

- No mutagenic or toxic substances used in production
- Availability of proof of traceability of the materials used
- Certification by PCB
- Minimum 30% of recycled plastic composition by mass

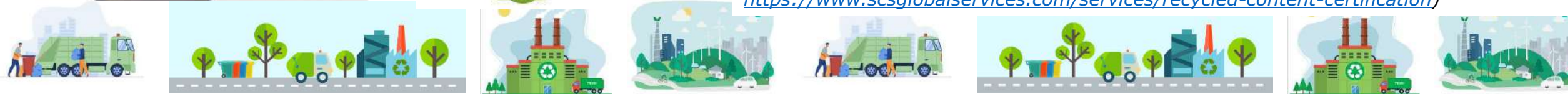
## Research and Development on Plastic Recycling Technologies



## Examples of recycled product certification systems



(Source: <https://www.tuv.com/india/en/green-product-mark.html>;  
<https://www.scsglobalservices.com/services/recycled-content-certification>)



# Evolving market instruments for optimum plastic waste recycling

## Preferential Procurement of Recycled Products

Preferential procurement spearheaded by GHMC, TSPCB, PWD

**Indicative process for developing preferential procurement policy adopted from the city of Pittsburgh, Pennsylvania.**

- Gathering information about recycled products, vendors, etc.
- Formation of Recycled Products Committee to develop policy
- Evaluating usability of products
- Developing procurement policy and procurement guidelines



# IEC activities for waste generators

Target Group	Category	IEC Method	IEC Tool	Recommended Annual Implementation Frequency
Generators	Plastic waste generation, collection, processing	Door-to-door campaign	Distributing pamphlets (residential units)	Quarterly
			One-to-one meetings and discussions with bulk generators	
			Distributing pamphlets (other generators)	
		Mass awareness activity	Pledge for 'No Single-Use Plastic'	Once every 2 months
			Notification circulation on social media	Annual
			Advertisements in mass-media/print media	Weekly
			Audio-visual clips before shows in movie theatres	Daily
			Advertisements on public transport, on blank side of tickets, etc.	Selected shows throughout the year
				Throughout the year





## IEC activities for waste generators (Contd.)

Target Group	Category	IEC Method	IEC Tool	Recommended Annual Implementation Frequency
Generators	Plastic waste generation, collection, processing	Promotion using brand ambassador	Community involvement exercises	Monthly
		Cultural event	Mass awareness generation using traditional art forms	Monthly
		Workshops and lectures	Lectures, workshops and seminars	Throughout the year
		Competitive events	Competitive events for students and social groups	Quarterly
			Awarding local champions	



# IEC activities for sanitation staff and recycling units

Target Group	Category	IEC Method	IEC Tool	Recommended Annual Implementation Frequency
Sanitary staff and SAT workers Informal sector DRCC, Recyclers and Manufacturers	Plastic waste collection, transport and processing	Inter-personal communication (IPC)	IPC with SAT workers, SFAs, DRCC operators and workers	Once every 2 months
			IPC	Once every 2 months
			IPC with other sanitation workers, recycling and manufacturing unit operators and workers	Bi-annual
		Training programme	Classroom training sessions	One time
			On-ground demonstration	Once every 2 months
			Handbook/manual distribution	One time
			Sensitisation at dumpsites for waste pickers	Bi-annual
		Exposure visit	Visits to recycling and manufacturing units	Annual




## Recommended improvements

Target Area		Recommended Action		Responsible Authority	
Staffing pattern		<p>Recruitment for vacant position for adequate sanitary staff:</p> <ul style="list-style-type: none"> <li>Sanitary Inspectors (SIs)- 30</li> <li>Sanitary Supervisors (SSs)- 30</li> <li>Sanitary Jawans (SJs)- 150</li> <li>Sanitary Field Assistants (SFAs)- 150</li> </ul>		GHMC	
Physical infrastructure		<ul style="list-style-type: none"> <li>Route rationalisation</li> <li>Expansion to unserved/underserved area</li> <li>Backup vehicles</li> </ul>		GHMC	
Grievance redressal system		<ul style="list-style-type: none"> <li>Action within 24 hours</li> <li>Weekly reporting by SIs</li> </ul>		GHMC	




## Recommended improvements (Contd.)




Target Area		Recommended Action		Responsible Authority	
Centralised Control Command Centre (CCC)		<ul style="list-style-type: none"> <li>• Geo-tagging of all facilities and stakeholders across value-chain</li> <li>• Route rationalisation</li> <li>• Monitoring through upgraded CCC</li> </ul>		GHMC	
Waste audit		<ul style="list-style-type: none"> <li>• Availability of data across value chain for mass balance calculation</li> <li>• Third party engagement for waste audit</li> <li>• Corrective actions based on waste audit</li> </ul>		GHMC	



# Monitoring mechanism

Target Area 	Recommended Action 	Responsible Authority 
Waste generators	<ul style="list-style-type: none"><li>• Monthly user charge collection by SFAs, penalty for default</li><li>• Prior permission for organising large event, spot fine for non-compliance</li><li>• Monitoring for imposing penalty and environmental compensation for littering and open burning</li><li>• Bulk waste generator monitoring cell for timely monitoring and reporting</li><li>• Initial penalty and environmental compensation for further non-compliance</li><li>• Aware system for best practice case</li></ul>	GHMC

## Monitoring mechanism (Contd.)

Target Area 	Recommended Action 	Responsible Authority 
SAT operators and scrap dealers	<ul style="list-style-type: none"> <li>Monitoring of attendance by SFAs</li> <li>Monitoring of segregated waste collection, transportation and disposal</li> <li>Updation of ward specific information on scrap dealers by SFAs</li> <li>Monitoring by SIs through CCC</li> </ul>	GHMC
Transfer stations	<ul style="list-style-type: none"> <li>Monthly visual inspection</li> </ul>	GHMC








## Monitoring mechanism (Contd.)

<b>Target Area</b> 	<b>Recommended Action</b> 	<b>Responsible Authority</b> 
<p>Plastic manufacturing units Plastic recycling and processing units</p>	<p>Monitoring and reporting of:</p> <ul style="list-style-type: none"> <li>• Industries' registration and stipulated renewal twice a year</li> <li>• Emission control mechanism in recycling units</li> <li>• Plastic products' resin codes every 3 months</li> <li>• Proportion of recycled plastic in products every 3 months</li> <li>• Quarterly inspection of ISWM facility</li> <li>• Feeding process and CEMS in co-processing plants</li> <li>• Feasibility assessment and land allocation by SEZs, Industrial Estates and Parks</li> </ul>	<p>TSPCB</p>
<p>Miscellaneous</p>	<ul style="list-style-type: none"> <li>• Implementation of EPR</li> <li>• Air and water quality testing at designated locations</li> </ul>	<p>TSPCB</p>

# Institutional framework and capacity building (Contd.)

Target Area 	Recommended Action 	Responsible Authority 
Capacity development of vigilance team	<ul style="list-style-type: none"> <li>• Vigilance on banned items as per Telangana State Circular No. Roc. No. E-13108, dated 16 October, 2019)</li> <li>• Training on identification of banned items and respective actions</li> <li>• Assigning specific job and target to employees</li> <li>• Provisioning of required tools and equipment</li> </ul>	GHMC
Capacity development of sanitation staff	<ul style="list-style-type: none"> <li>• Training on monitoring through CCC</li> <li>• Training on collation of data and preparation for waste audit</li> </ul>	GHMC




# Institutional Framework and capacity building (Contd.)

Target Area	Recommended Action	Responsible Authority
Promote CSR framework	<ul style="list-style-type: none"><li>Develop PPP model based programs to attract CSR investments</li><li>Encourage corporates, brand-owners, importers and distributors to implement their EPR through CSR activities</li><li>Provide advisory and guidelines to invest in CSR projects in line with plastic waste management strategy of GHMC and GoT</li></ul>	GHMC
Miscellaneous	<ul style="list-style-type: none"><li>Life cycle assessment of alternative materials</li><li>Assessment and publication of best technology options for Telangana</li></ul>	TSPCB



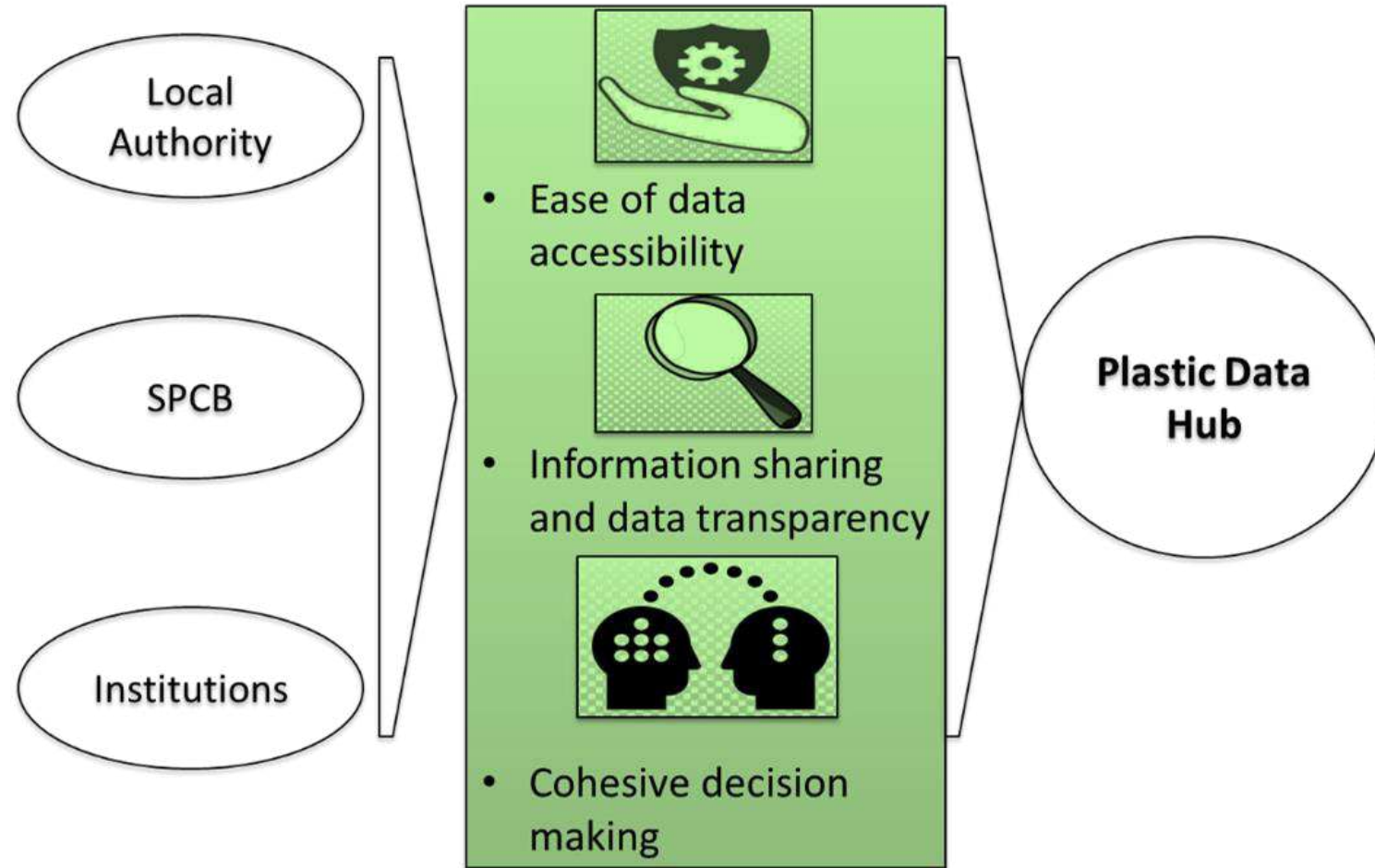
# Institutional Framework and capacity building (Contd.)

Strengthening institutional structure, monitoring and evaluation framework

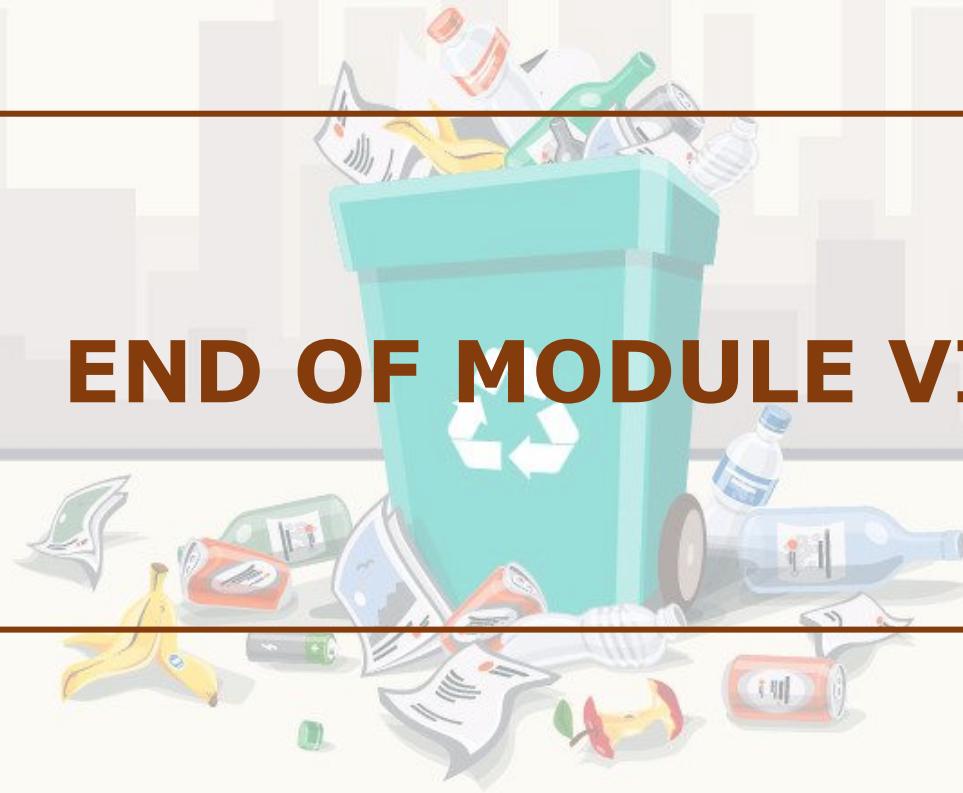
Target Area 	Recommended Action 
Coordinating committee between GHMC, TSPCB and TID	<ul style="list-style-type: none"><li>• Form committee for coordination of activities between organisations</li><li>• Organise quarterly meetings</li><li>• Develop and review byelaws and review implementation of PWM rules</li><li>• Coordinated inspections and technical review of industrial units</li><li>• Timely reporting to CDMA in compliance with Telangana SWM Policy and Strategy</li><li>• Develop future CDP and CSP incorporating aspects of holistic plastic waste management</li></ul>



# Data integration across institutions



# END OF MODULE VII







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## Disclaimer

The Training Modules on developing 'Plastic Waste Management Strategy and Action Plan for Urban Local Bodies(ULBs)' is prepared by ICLEI-Local Governments for Sustainability, South Asia under the contract- Development of Knowledge, Training and Capacity Building Materials on Plastic Waste Management based on the activities of GHMC, supported by the IGES Centre Collaborating with UNEP on Environmental Technologies (CCET). The views expressed in this document do not necessarily represent the official decision or stated policy of the United Nations Environment Programme. The citing of trade names in this document does not constitute any endorsement.

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