

# Plastic Circular Cities Program

## *Mira-Bhayander Vasa-Virar*

Presented at Godrej One, Vikhroli

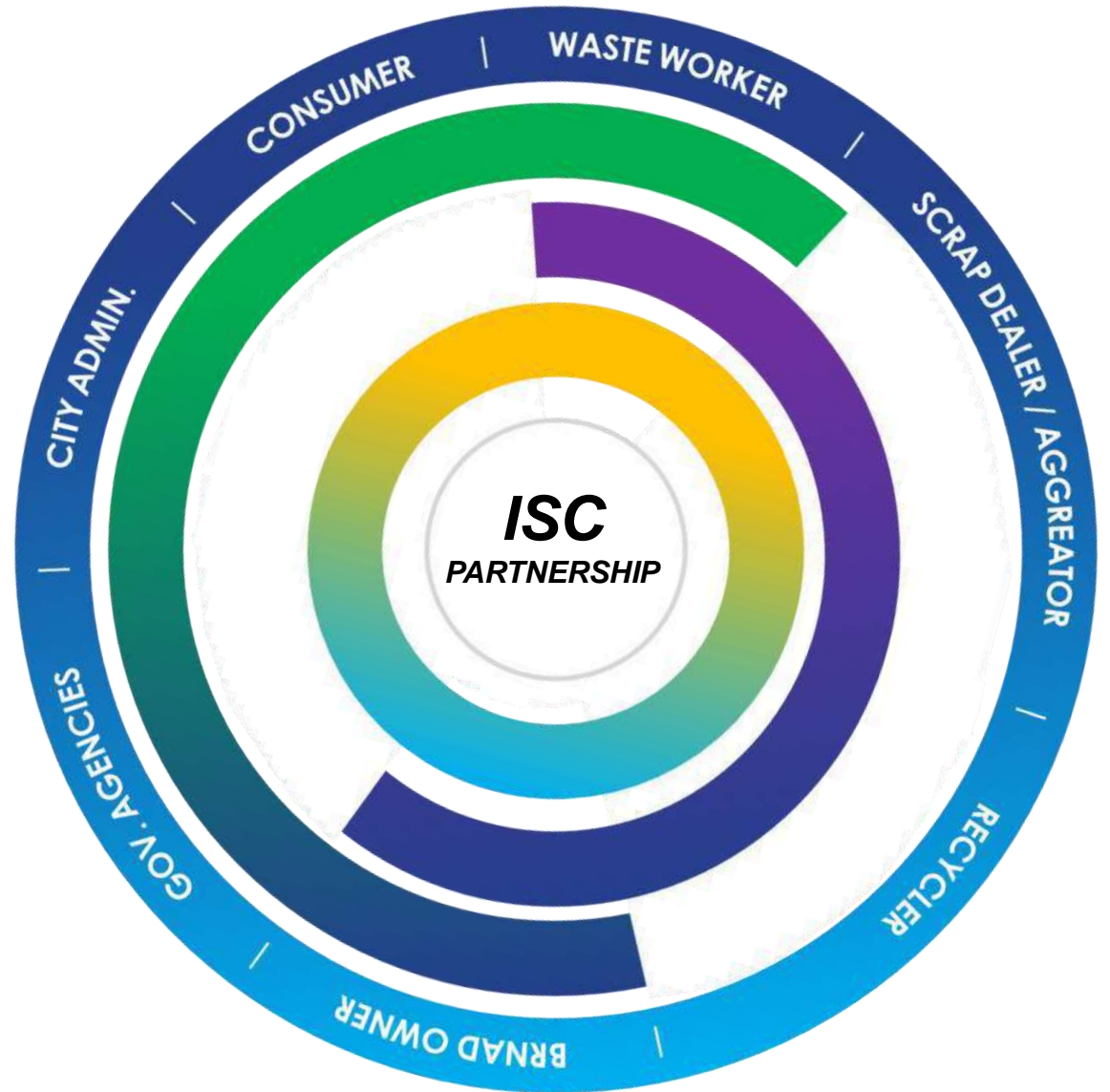
1<sup>st</sup> March 2024



# OUR COLLECTIVE VISION FOR CIRCULARITY

***TO SPEARHEAD  
INNOVATION IN  
CIRCULARITY FOR  
PLASTICS ACROSS CITIES\*  
TO MAKE REPLICABLE  
MODELS ACROSS  
MAHARASHTRA AND  
SCALE TO INDIA***

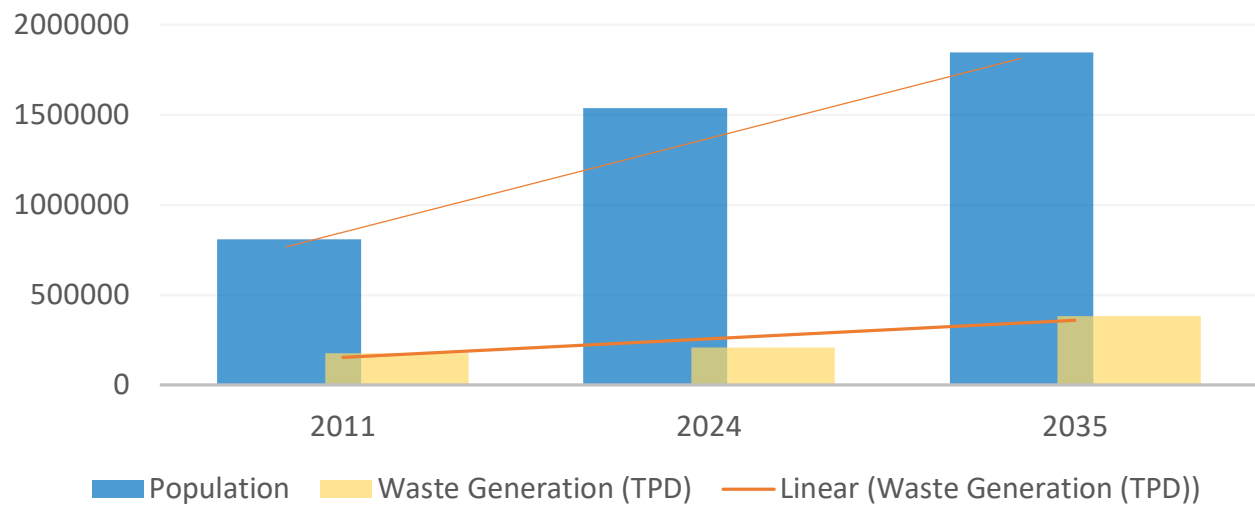
*\*Cities with population of 1 million and above*



# MUMBAI METROPOLITAN REGION



### Population & Waste Generation Projection



# GEOGRAPHIES AND ITS DEMOGRAPHICS AT A GLANCE



## MIRA-BHAYANDER

Population : 15,39,529  
Municipal Area : 79.5 sq.km  
No. of SWM Zones - 2  
Waste Generation : 520 TPD

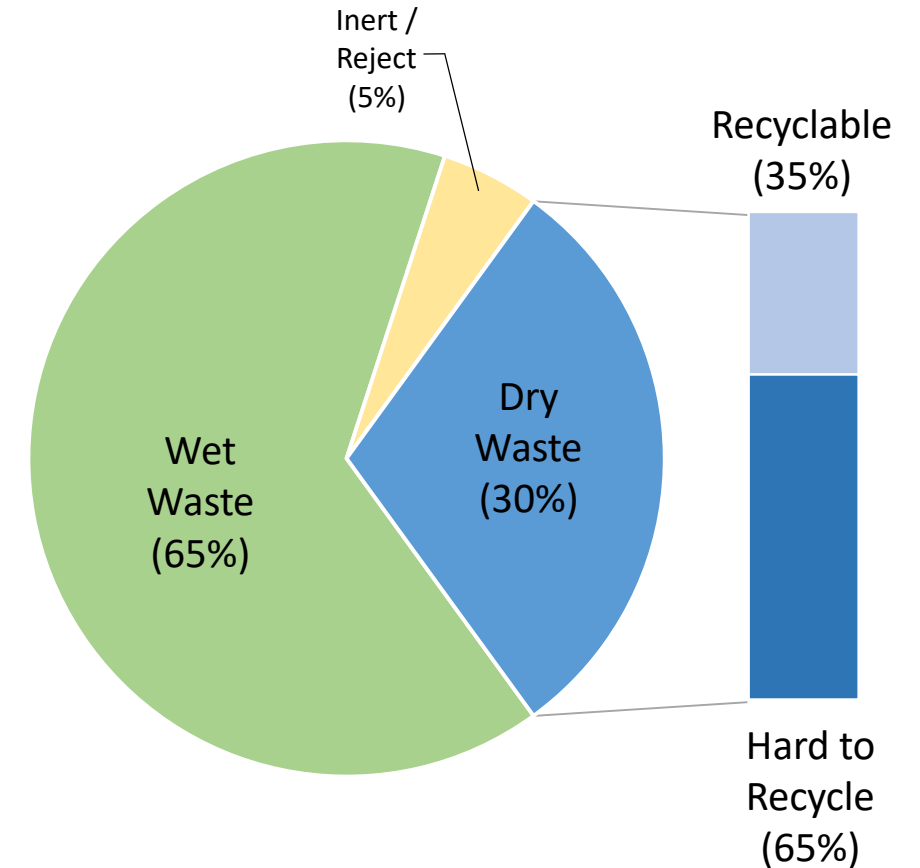


## VASAI-VIRAR

Population : 22,00,000  
Municipal Area : 311 sq.km  
No. of SWM Zones - 20  
Waste Generation : 620 TPD

# POTENTIAL TO RECOVER 65% OF DRY WASTE INTO CIRCULARITY

SCALE	MIRA-BHAYANDAR*	VASAI-VIRAR **
Population (current)	15,39,529	19,01,273
Number of Households	3,58,030	8,24,218
Number of Waste Workers and Pickers	3000 Formal + 200 Waste Pickers	3400 Formal + 250 Waste Pickers
Total Waste Generated	520 TPD	620 TPD
Total Wet Waste	65%	48%
Total Dry Waste	30%	27%
Inert/ Reject (from MSW)	5%	25%



\*Data derived from on-field study

\*\* Data derived from Public Health Department, VVMC

# METHODOLOGY & STAKEHOLDERS INTERACTIONS FOR BASELINE STUDY



Alignment  
with Key  
Stakeholders



Alignment with ISC, Mira-Bhayander & Vasai-Virar



180 Community Households surveyed



10 RWAs with 1398 Households surveyed



Conduct  
Surveys  
&  
Waste  
Audits



5 Aggregators & 19 Scrap Dealers surveyed



151 Formal Workers & 5 Supervisors surveyed



32 Waste Pickers surveyed



Reviewing  
&  
Validating  
data



12 Waste Audits conducted - Landfill, Creek, BWG



76 BWGs & Institutions surveyed

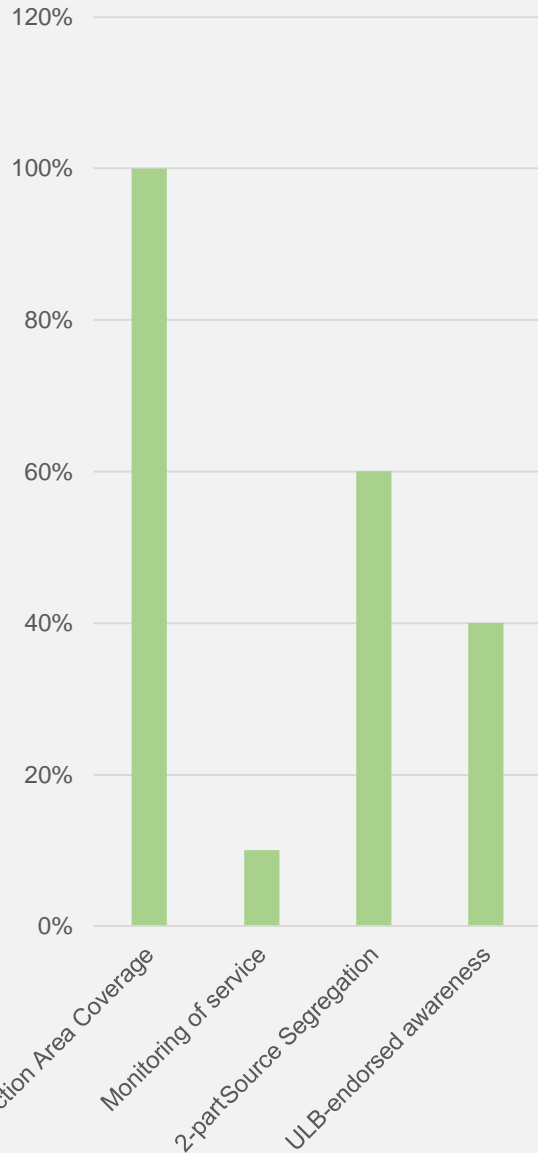


4 Good Waste Management Initiative studied



Analysis &  
Inferences

# GAP ANALYSIS : SEGREGATION AND COLLECTION SERVICE



## ULB SERVICE BENCHMARKS :

- Collection service at **D2D level @100%**
- Major RWAs practicing **source segregation @60%**
- **QR Code Monitoring** of segregated collection **service at @10%**
- **Awareness** and capacity building @ **40%**



## IDENTIFIED AREAS OF IMPROVEMENT :

- **Fringe communities** where segregation is **@30%**
- **Upgrade collection of infrastructure** in **High-density areas @20%**
- **Address GVPs & unsanitary Collection Points**
- **Tech-based monitoring for Collect. & transp.**

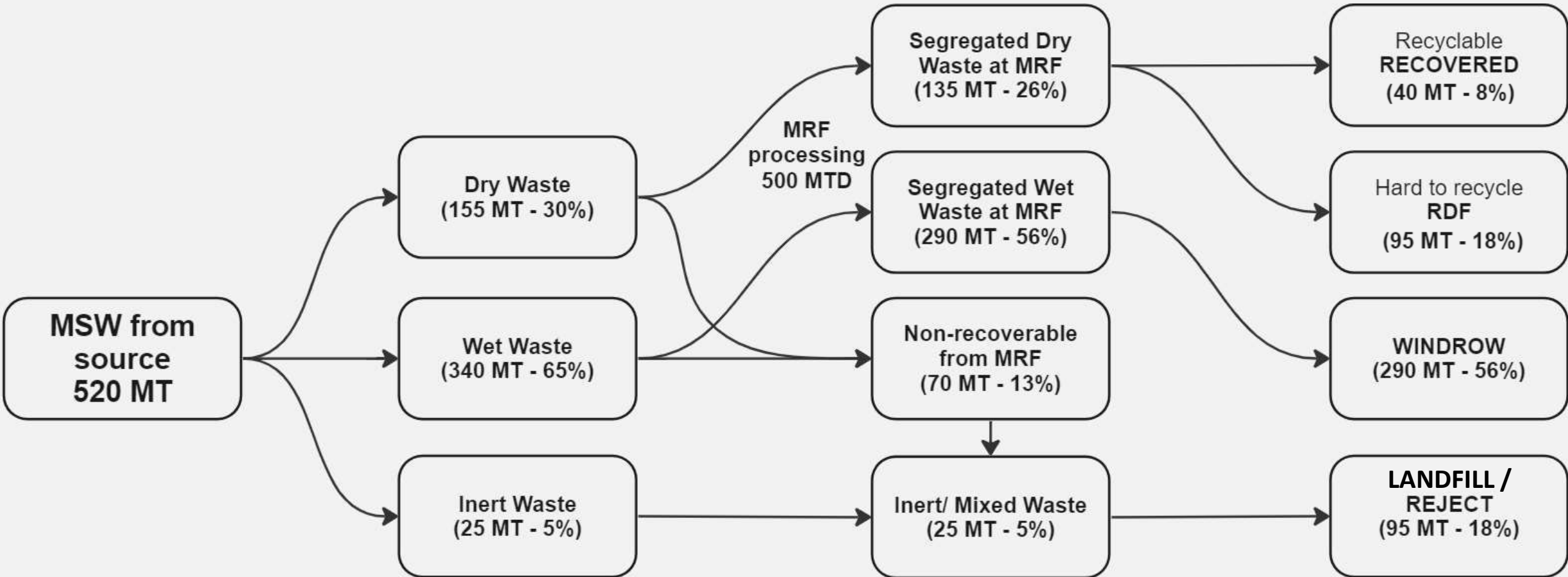


## IDENTIFIED CAUSES :

- **Pushcarts at High density areas**
- **Lack of Awareness among fringe communities.**



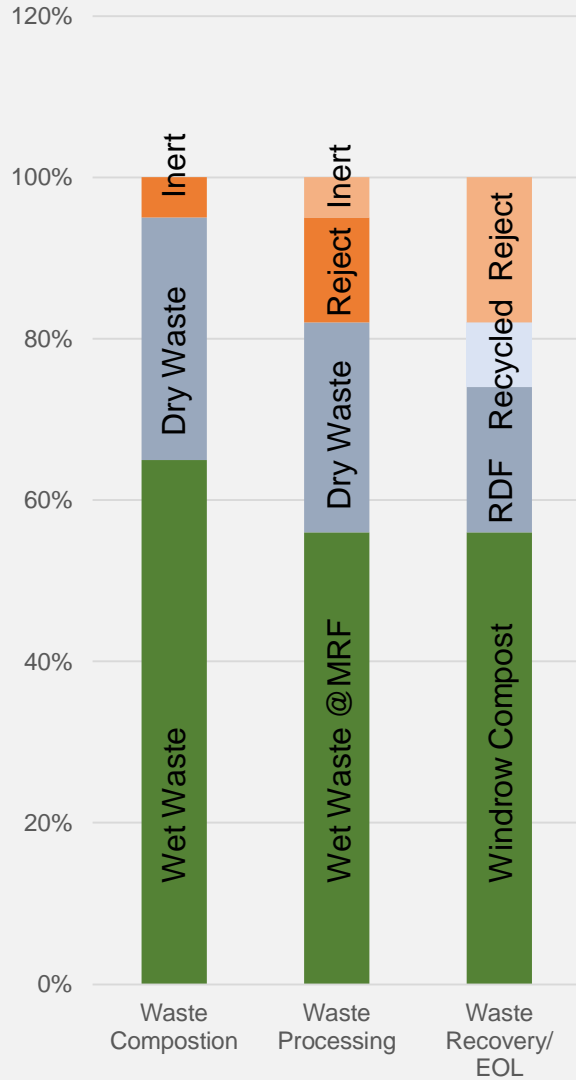
# GAP ANALYSIS : DAILY WASTE PROCESSING AT THE MRF



All figures indicated are in metric tonne per day.



# GAP ANALYSIS : WASTE PROCESSING



## SERVICE BENCHMARKS

- **90%** reaches the MRF
- With a limited rejection, **80%** is processed
- Recyclable – 8%, RDF – 18%, Compost – 56%
- Forward integration for RDF & Compost is complete



## IDENTIFIED AREAS OF IMPROVEMENT:

- **Focus on Higher recovery toward recycling**
- **Availability of equipment for value addition**
- **Capacity building for maintaining compliance**
- **Certifications and Licenses to gain better value**

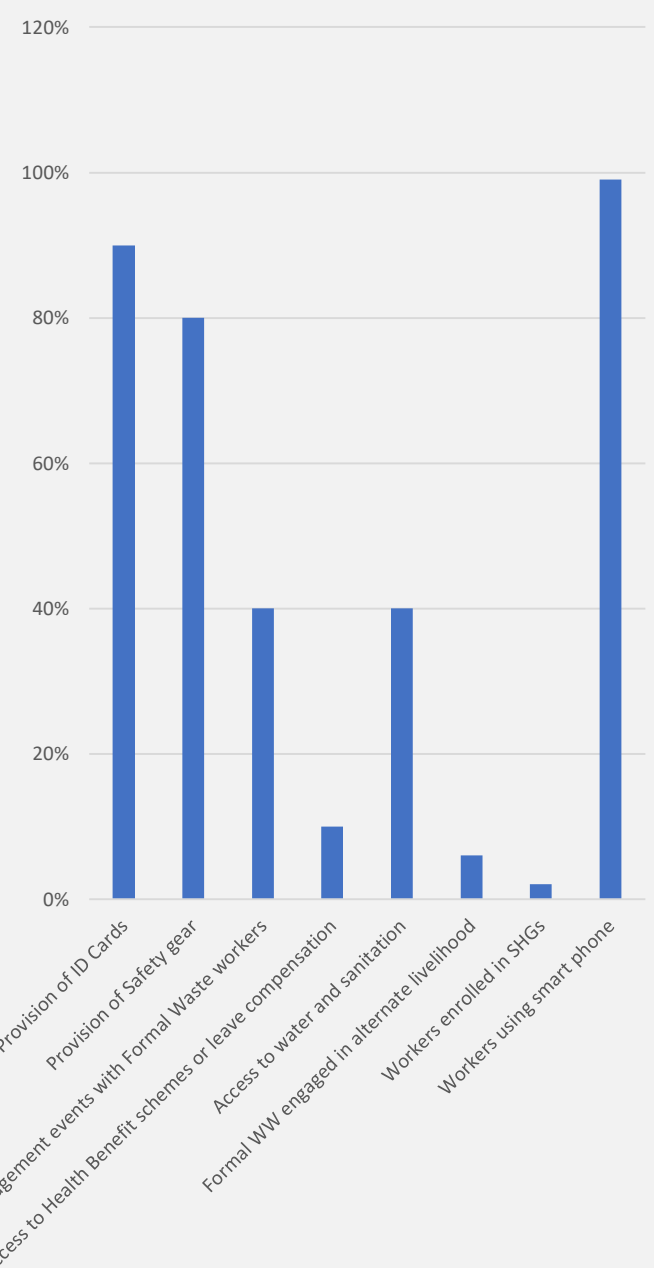


## IDENTIFIED CAUSES

- **Lack of appropriate equipment and training**
- **Lack of good quality source segregated material**
- **Innovation for recycling flexibles not initiated**
- **Facility not upgraded to EPR practices yet**



# GAP ANALYSIS : SOCIAL AND FINANCIAL INCLUSION OF WASTE WORKERS



## SERVICE BENCHMARKS

- Occupational ID with **90% waste workers**
- Access to **safety gear for 80% workforce**
- Engagement event and **access to WASH @40%**
- Almost all WW capable of **using smart phones 99%**



## IDENTIFIED AREAS OF IMPROVEMENT:

- **Improve access to health benefits and schemes**
- **Create opportunities for entrepreneurship**
- **Provide capacity building for alternate livelihood**



## IDENTIFIED CAUSES

- **Prolonged working hours, lack of permission granted for days off or time taken to attend for medical check-ups**
- **Awareness & opportunities to participate in SHG or alternate livelihoods is compromised**





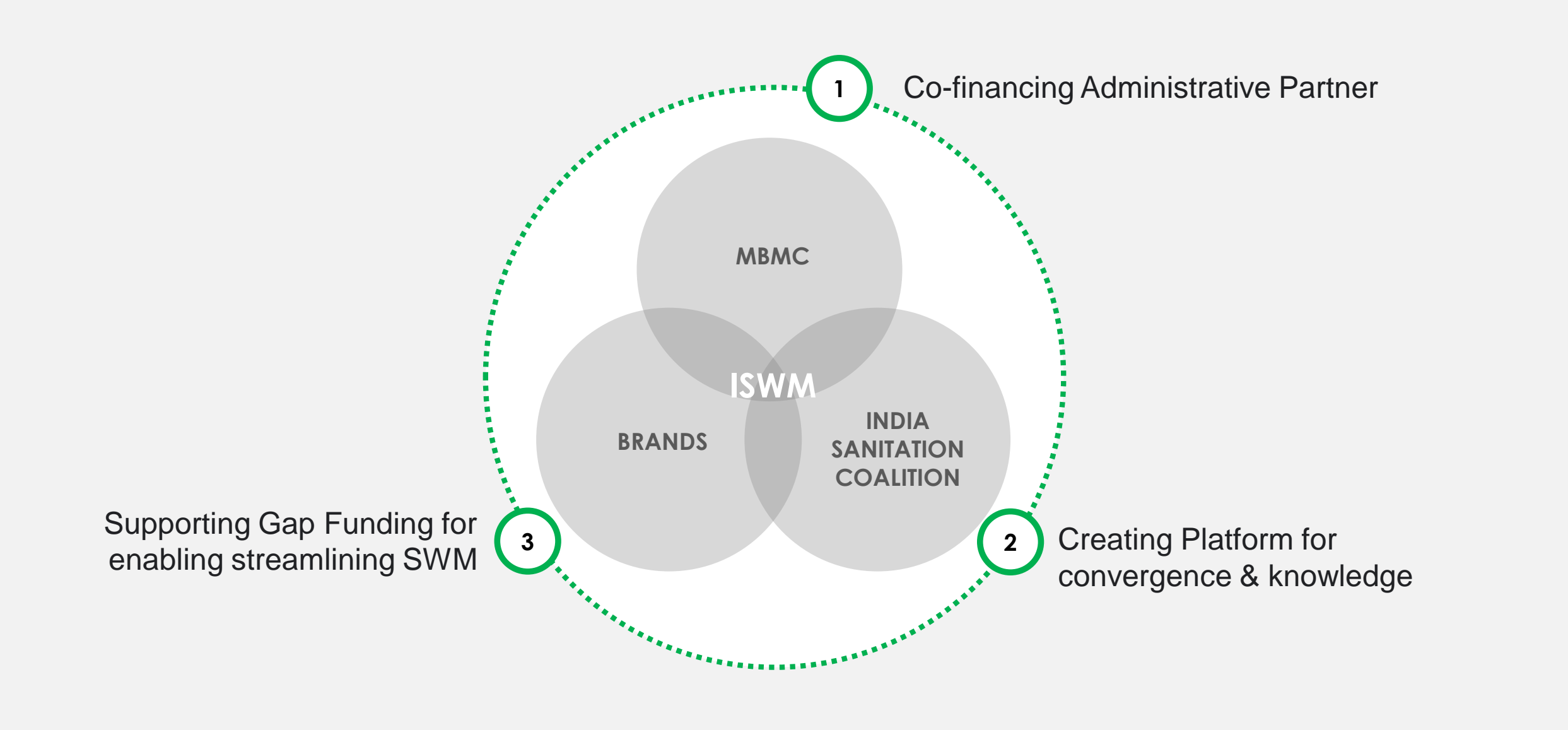
# RECOMMENDATIONS

# OUR COLLECTIVE VISION

*“TO CREATE AN **ECOSYSTEM** FOR  
BUILDING **SELF-SUSTAINING & CIRCULAR CITIES**  
BY CREATING **WASTE TO**  
**VALUE CENTRIC BUSINESS MODELS** “*

# STRATEGIC PARTNERSHIP MODEL FOR ENABLING CIRCULARITY

Envision a Public Private Partnership model for setting up a state of the art SWM model



# REQUEST FOR SUPPORT FROM KEY STAKEHOLDERS

Parameter	Brand	Urban Local Body
C&T	<ul style="list-style-type: none"> <li>Support to <b>develop DPR</b> for infrastructure development.</li> <li>Support in bringing in <b>systemic upgradation of C&amp;T</b> process</li> <li>Support development of <b>monitoring tool for improved service</b></li> <li>Support in <b>improving service level benchmarks</b> for SWM</li> </ul>	<ul style="list-style-type: none"> <li><b>Seek State funding</b> through DPR for infrastructure development</li> <li><b>Upgrade vehicle fleet</b> to e-vehicles for reducing Carbon footprint</li> <li>Deploy <b>centralized dashboard</b> to monitor service delivery</li> <li>Deploy dedicated team of experts to document for Survekshan</li> </ul>
Source Segregation	<ul style="list-style-type: none"> <li>Support in developing <b>mass awareness</b> campaigns</li> <li>Support for <b>Waste Reduction &amp; Zero Waste initiatives</b></li> <li><b>Capacity Building</b> of Municipal Staff &amp; waste workers</li> </ul>	<ul style="list-style-type: none"> <li><b>Enforcement</b> of Segregated Collection and monitoring</li> <li>Mandating &amp; <b>developing regulations</b> for source segregation</li> <li>Setting up <b>Control room</b> for real time service monitoring</li> </ul>
Social & Financial Inclusion of Waste Workers (WW)	<ul style="list-style-type: none"> <li>Facilitate <b>access to social &amp; financial inclusion</b> for workers</li> <li>Provision of <b>PPE kits</b> and training compliant processes</li> <li>Conducting medical camps for continued well-being of WW</li> </ul>	<ul style="list-style-type: none"> <li>Formalizing work force through <b>provision of Occupational ID</b></li> <li><b>Mandating use of safety standards</b> and PPE kits</li> <li>Ensuring <b>social inclusion</b> of WW via felicitations</li> </ul>
Waste Processing	<ul style="list-style-type: none"> <li>Support in best <b>technology identification for circularity</b></li> <li><b>Viability Gap Funding</b> support for recovery of low value plastics</li> <li>Support in developing <b>compliant eco-system</b></li> </ul>	<ul style="list-style-type: none"> <li>Develop <b>DBOT models to onboard operators</b> for circularity</li> <li><b>Development of Recycling capabilities</b> within the city</li> <li>Endorsement and <b>registration to claim EPR</b></li> </ul>

# INTERVENTIONS 01 : STREAMLINING COLLECTION OF WASTE

## Activities – Support by Brand

- Deploy QR code and Monitoring Technology
- Develop ICCC aligned with monitoring tech.
- GPS-based route mapping and monitoring
- Develop DPR to unlock funds for TSP, C&T infra

## Support by Government

- Continue and improve efficiency of 100% C&T
- Publish DPR for and RFP for ISWM mandating 100% segregated collection & monitoring

### Cost for 3.5lac Property Units

### Time

Rs.76 lakh (capex for technology)

Rs.10 lakh (yearly maintenance)

Rs.1.2 cr. (capex for 10 vehicles)

Rs.24 lakh (capex for 30 TSP)

Rs.10 lakh (DPR one-time)

36 months



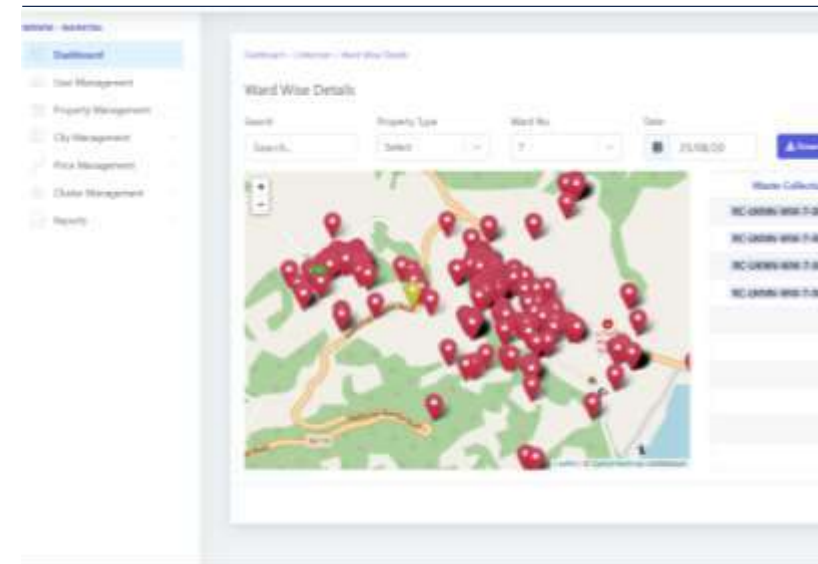
Deploy Temporary Storage Points at identified areas



10 Evs for segregated collection across 70,000 PU



QR Code scanning piloted by MBMC in 2 wards



Integration of Technology for C&T

# INTERVENTIONS 02 : OUTREACH FOR AWARENESS FOR SEGREGATION

## Activities – Support by Brand

- Conduct IEC for Behavioural change
- Conduct activities & visible change initiative in public domain
- Partner with Institutions, BWG to go Zero-Waste
- Drafting and Enforcement of policies via DPR

## Support from the Government

- Awareness among residential areas to be scaled to entire city
- Bye-laws for Bulk-waste-generators
- Deployment of marshals for anti-littering monitoring

## Cost for 3.5lac Property Units

- Rs.76 lakh (opex for IEC in Yr.1)
- Rs.20 lakh (for 25 visible interventions)
- Rs.25 lakh (annual opex for 50 institutes)
- Rs.10 lakh (DPR one-time)

## Time

36 months



Source segregation Awareness & Training for Citizens



Institutional level Awareness & Zero waste Initiatives



Engagement in Cleanup drives & Rallies



Exposure visits to Processing facilities



# INTERVENTIONS 02 : INCLUSION OPPORTUNITIES FOR WASTE WORKERS

## Activities – Support by Brand

- Conduct medical camps, distribute PPE kits and showcase importance of usage
- Facilitate access to benefits to create safety net for marginalized communities
- Establish program to purchase waste at fair market price in lieu of segregated material collected and deposited at facility

## Existing/ Proposed Government Plans

- Expediting process of documentation
- Provision of official ID cards and safety gear
- Publish contribution of WW, WP in media

## Cost for 3000 waste workers

- Rs.7 lakh (annual medical camps)
- Rs.12 lakh (for bi-annual PPE kits)
- Upto Rs.5 per kg - Incentive to purchase hard to recycle material from WP
- Rs.9 lakh for training and capacity building

## Time

36 months



Facilitate access to health & social schemes



Social recognition, legal identity & dignity



Facilitate free of cost Medical camps for WW



Entrepreneurship opportunities, skilling & certifications

# INTERVENTIONS 04: ENABLING RECYCLING CAPABILITIES

## Activities

- Unlock capital for infra development
- Upgrade existing MRF to a compliant facility
- Develop DBOT model to onboard operators
- Enable revenue sharing with operator
- Reduce waste reaching landfill

## Existing Government Alignment

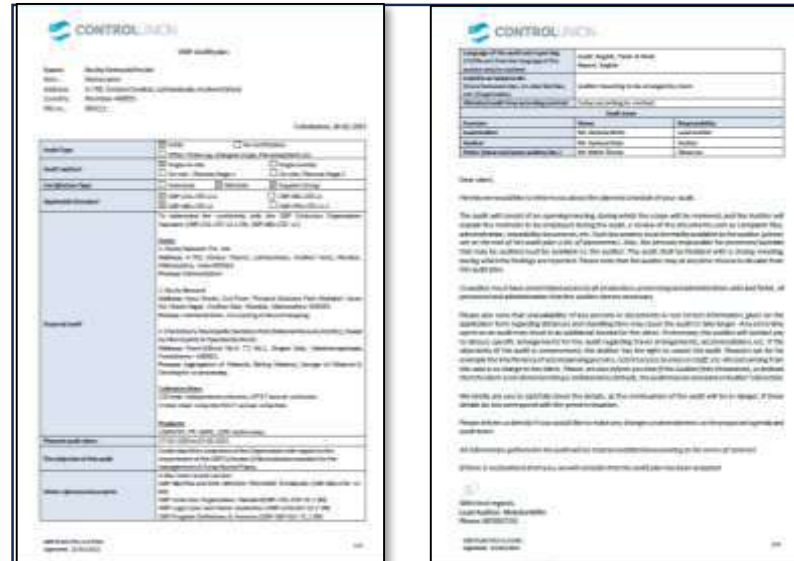
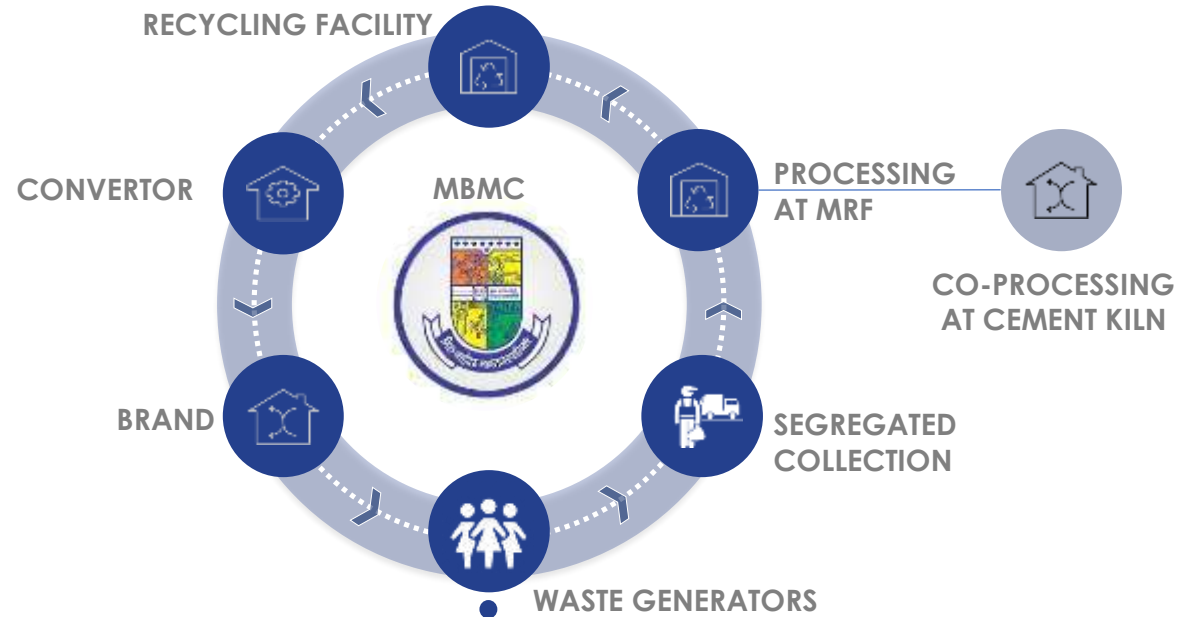
- Alignment to upgrade existing MRF
- Readiness to seek State funding for Infra
- Proactiveness to resolve multi level roadblocks

## Cost

YTD

## Time

36 months

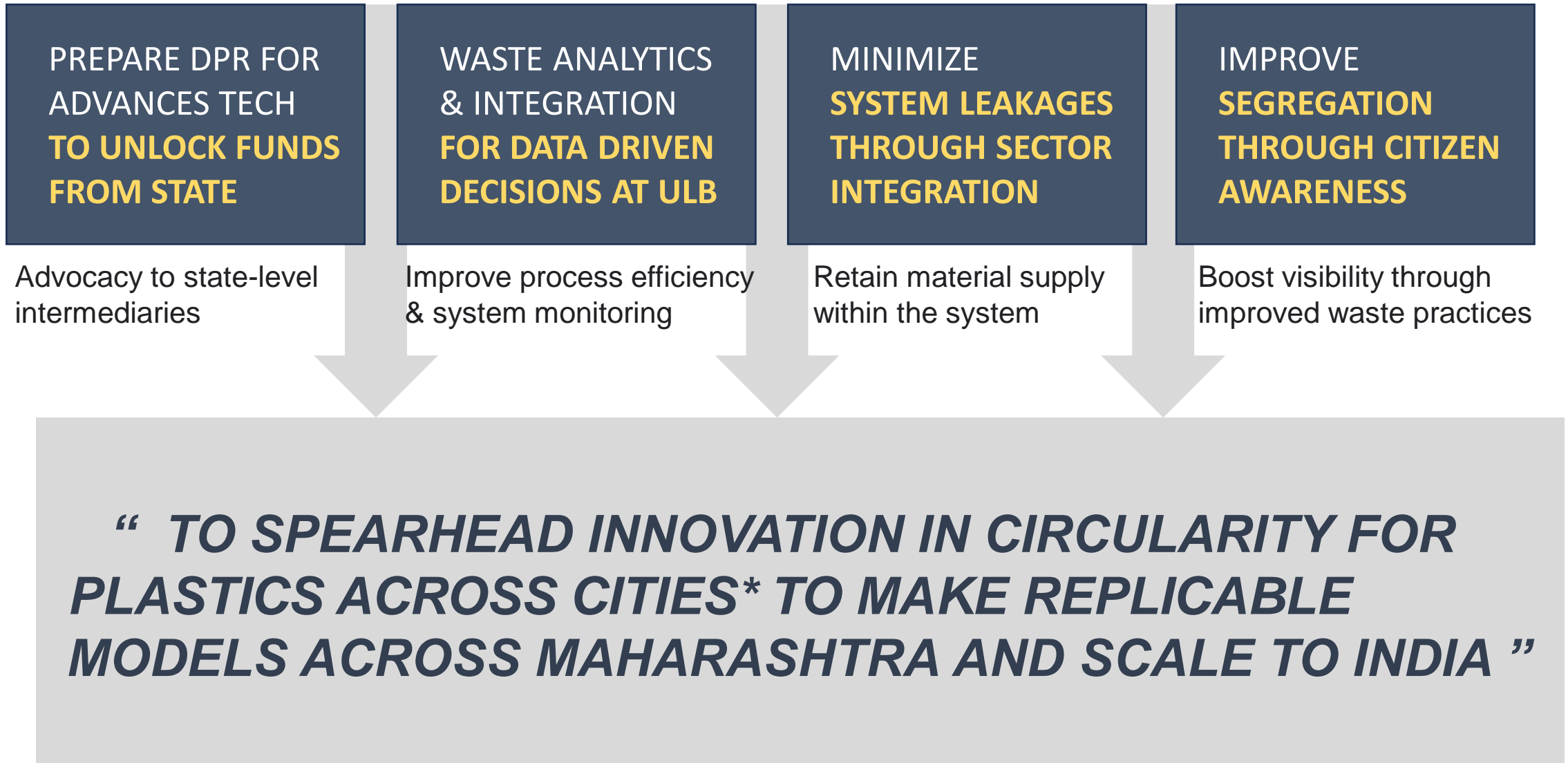


FOLLOW COMPLIANCE



UPGRADATION OF EXISTING MRF

# STRATEGIC PARTNERSHIP MODEL FOR ENABLING CIRCULARITY



*\*Cities with population of 1 million and above*

# SHOWCASING ECOSYSTEM PARTNERSHIPS



# SCALING THE MODEL



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# THANK YOU



RECOGNITIONS



ITC Sustainability Challenge

