

**ACTION PLAN**  
**FOR**  
**MUNICIPAL SOLID WASTE MANAGEMENT**  
**IN MADHYA PRADESH**

**(Revised February 2017)**



**URBAN DEVELOPMENT & HOUSING DEPARTMENT (UD&HD)**

**GOVERNMENT OF MADHYA PRADESH**

## INDEX

1. Background & Introduction.....	4
2. Directions of Hon'ble NGT	
3. Need of Municipal Solid Waste Management.....	4
4. Past prevailing situation of MSWM & Practice .....	4
5. Initiatives of State Government for ISWM.....	6
6. Action Plan for Waste Management in the State.....	9
6.1 Long term Plan – Cluster based Regional Landfill approach.....	9
6.2 Implementation of Cluster based ISWM Project on Regional Landfill approach.....	14
a. ISWM Projects Katni	
b. ISWM Project Sagar	
6.3 Current Status of Integrated Solid Waste Management (ISWM) projects, cluster based on regional landfill approach.....	18
a. ISWM Projects Sagar & Katni	
b. ISWM Project Jabalpur	
c. ISWM Projects Bhopal, Rewa, Indore and Gwalior	
d. ISWM Projects Bids Floated	
e. Other remaining ISWM Projects	
6.4 Institutional Mechanism for implementation of ISWM Projects.....	24
A. Project Management Structure	
B. Responsibility of Monitoring Committee	
C. Responsibility of Independent Engineer	
7. Investment Requirement and phasing.....	27
7.1 Revised Investment Requirement	
8. Steps Forward - Future Action Plan & Timeline.....	29
Annexure – 1 .....	31



## 1. Background & Introduction

Madhya Pradesh is a state with a population of 72.5 million covering 9.5% of the total area of the country (308,000 Sq.). The urban population of the state is across 378 ULBs which has increased to 20 million in 2011 from 16.1 million in 2001, growing at a CAGR of ~2.2%. The high rate of urbanization has led to increased focus on urban infrastructure and Municipal service delivery which has further led to increased investment requirement in the urban development. However, this rate of urbanization has resulted in generation of large quantities of Municipal Solid Waste in big cities as well as small towns also.

Thus, preparation of object and time-targeted action plan for management of municipal solid waste (MSW), for each city and town in the state is essential in accordance with the population and developmental growth, so that environmental conditions improve and makes city liveable for every citizen.

## 2. Directions of HON'BLE NGT

Hon'ble National Green Tribunal (NGT) in OA No 199 of 2014 (Almitra H. Patel Vs Union of India) on 12<sup>th</sup> January, 2017 directed State government to *“file complete and detailed Action Plan and affidavits to show how the municipal solid waste in the State would be processed and degradation of environment and public health resulting here from would be prevented. As part of this Action Plan they would also required to submit a total solid waste generated and how that solid waste was required to be treated in a time bound manner in regard to this directions.”*

## 3. Need for Municipal Solid Waste Management

Solid Waste Management is a part of public health and sanitation, and according to the Indian Constitution, falls within the purview of the State list. Since this activity is non-exclusive, non-rivalled and essential, the responsibility

for providing the service lies within the public domain. The activity being of a local nature is entrusted to the Urban Local Bodies by 12th Schedule of 74th Amendment of the Constitution. Supreme Court direct all the ULBs to manage Municipal Solid Waste in accordance with “MSW Management and Handling Rules 2000”, hence all ULBs are obliged to carry collection, transportation, segregation, processing and scientific disposal of MSW as per the mandated rules. Govt has also framed eight parameters as Service Level Benchmarks (SLBs) for MSW in 2009 and 13th Finance Commission links the disbursement of Performance Grant to ULBs with the level of achievement of SLBs, as specified in Chapter 10 of its report. Importantly, National Green Tribunal has stipulated ULBs to follow NGT’s all environmental rules and norms in order to avoid adverse environmental effects of MSW activities. The scientific management of Municipal Solid Waste Management includes:

- **Waste minimization and reduction at source**
- **Door to door collection** of waste from all residential, commercial, institutional establishments in covered vehicles in compliance with MSW Rules 2000 and in accordance with SLB for MSW.
- **100% Segregation** of waste at source in accordance with SLB for MSW
- **Covered Bins** for secondary collection in compliance with MSW Rules 2000
- **Secondary collection and transportation** in covered vehicles in compliance with MSW Rules 2000
- **Covered waste transfer/storage stations** in compliance with MSW Rules 2000 and CPCB/SPCB norms, if required.
- **More than 80% Waste recovery/recycling** in accordance with SLB for MSW
- **Scientific processing** in compliance with MSW Rules 2000 and CPCB/SPCB norms
- **Scientific disposal** of inert in compliance with MSW Rules 2000 and CPCB/SPCB norms
- **100% cost recovery of O &M expenses from user charges as mandatory urban reform stipulates and 90% collection efficiency of user charges** in accordance with SLB for MSW.

#### 4. Past prevailing situation of MSWM & Practice

The Solid Waste Management in all ULBs should have started as directed by the Honourable Supreme Court of India by 2005. But due to non availability of trained and knowledgeable manpower, lack of financial resources, operational non viability because of inadequate quantity of waste generated in maximum number of ULBs, the complete management of MSW as per rules could not be implemented in any of ULBs.

However some of the bigger ULBs have been implementing it on a piece meal basis. Some examples are as follows:

<b>1. Indore</b>	Outsourced secondary collection and waste processing of 500 TPD to a private operator. But the result was not satisfactory because of many reasons.
<b>2. Gwalior</b>	It was the first town in Madhya Pradesh which got Sanitary Landfill constructed and started managing it. It also outsourced door to door collection (DTDC) to a private operator. All the operations stopped later on
<b>3. Ujjain</b>	Have recently outsourced waste processing to private operator. The complete results are yet to be assessed.
<b>4. Rewa</b>	It also outsourced secondary transportation of waste. But the results have not been satisfactory.

#### 5. Initiative of State Government for Integrated Solid Waste Management (ISWM)

The State Govt. has been issuing regular instructions to ULBs for implementing SWM as per provisions of MSW Rules 2000/2016. It also got Govt. land allotted to all ULBs for processing / landfill facility, all large towns i.e. above 50000 populations. The State Govt. had been providing support to ULBs through grants from **Mukya Mantri Swachta Mission** as initiative of State Govt. for sanitation, for purchasing of equipments and vehicles for Solid Waste

Management. Now this scheme has been merged with **Swachhha Bharat Mission (SBM)** launched by Govt. of India.

At some places waste processing for composting is being done by engaging private operators for waste processing. But in none of the places Integrated Solid Waste Management has been implemented fully as per MSW rules.

Many ULBs of the State are regularly conducting IEC activities for citizens and explaining them the importance of collecting waste in a segregated manner.

**Below: Photographs represent status of waste management in ULB's:**



The State Govt. has also instructed all ULBs to start door to door collection (DTDC) in every ward of the town which is being followed across all ULBs. Many NGOs are involved in door to door collection in some of the areas of many towns. Many Resident Welfare Associations are also engaged in door to door collection in their own colonies. Collection & Transportation is being done by urban local bodies. The status of door to door collection across the state is shown in table below.

Total No. of Wards	Ward with 100% door to door collection, Nos.
6999	4136

Many of the smaller ULBs have started 100% door to door collection (DTDC) and also treating waste through composting. However, as presently there is no Landfill site has been constructed, the scientific disposal of reject/inert is not being done

**Below: Photographs depicting Door to Door Collection across the State:**





## 6. Acton plan for Waste Management in the State –

### **Integrated Solid Waste Management on Cluster based Regional Landfill approach on PPP mode.**

The urbanization pattern in MP is quite skewed, as shown in table below. Only 15 ULBs have population greater than 2 lakhs while 318 ULBs have population less than 50,000. The scientific solid waste management in ULBs, with population less than 1 lakh, would be uneconomical and would result in huge financial burden on the ULBs, apart from being operationally non viable for smaller ULBs because of very less quantity of waste being generated. Most of these ULBs further lack the financial as well as the technical capacity to carry out the solid waste management. Hence, cluster approach on regional landfill for implementing Solid Waste Management in the State looks to be the only solution.

Population Range	Number of ULBs
<20,000	210
20,000 - 50,000	107
50,000 – 1,00,000	28
1,00,000 – 2,00,000	18
>2,00,000	15

#### **6.1. Long term Plan – Cluster based Regional Landfill approach for Waste**

Considering the prevalent situation of waste management across the state Government has decided to implement Integrated Solid Waste Management (ISWM) on regional landfill approach on cluster based model across all ULBs in the state, through Public Private Partnership (PPP) mode.

The clusterization has been designed considering two factors; first is optimizing the waste and second being the logistics. Clusters generating around 150 TPD and within a radius of 50-70 Km's has been formed.

Also, considering the lack of financial resources, technical knowhow and paucity of funds implementing projects through Public Private Partnership (PPP) mode has been envisaged.

- **Regional Integrated MSW facilities:** The whole state has been divided into ~26 clusters for MSW management (Details list towns in cluster is attached in Annexure-1).

1	Sagar Cluster (11 ULBS)	11	Chhatarpur Cluster (28 ULBS)	21	Mandsaur Cluster (22 ULBS)
2	Katni Cluster (05 ULBS)	12	Damoh Cluster (12 ULBS)	22	Vidisha Cluster (15 ULBS)
3	Jabalpur Cluster (01 ULBS)	13	Bhind Cluster (14 ULBS)	23	Shajapur Cluster (26 ULBS)
4	Bhopal Cluster (08 ULBS)	14	Narsinghpur Cluster (15 ULBS)	24	Ratlam Cluster (17 ULBS)
5	Rewa Cluster (28 ULBS)	15	Singrauli Cluster (01 ULBS)	25	Chhindwara Cluster (20 ULBS)
6	Indore Cluster (08 ULBS)	16	Betul Cluster (08 ULBS)	26	Pithampur Cluster (24 ULBS)
7	Gwalior Cluster (16 ULBS)	17	Balaghat Cluster (13 ULBS)		
8	Burhanpur Cluster (10 ULBS)	18	Shahdol Cluster (16 ULBS)		
9	Dewas Cluster (24 ULBS)	19	Shivpuri Cluster (10 ULBS)		
10	Hoshangabad Cluster (14 ULBS)	20	Guna Cluster (11 ULBS)		

Name of Clusters for Integrated Solid Waste Management on Regional Landfill approach

In each of the clusters, a regional Integrated Solid Waste Management (ISWM) Facility will be developed where waste collected and transported from all the ULBs will be processed and disposed in a scientific landfill site as per MSW Rules 2016 and other statutory requirements.

Further, satellite waste storage and satellite processing facilities may be developed in each of the clusters to minimize the transportation costs. Therefore, each cluster will have a combination of ISWM Facility, satellite segregation-cum-processing units (if required) and waste storage units.

PPP mode will allow state government to leverage on the technical as well as O&M expertise of private sector. A combination of grant from

GoMP and concessional loan will be provided to ULBs, based on their financial capacity. The private sector will contribute the remaining cost of infrastructure creation /equipment and will carry out various activities of MSW management - door to door collection, transportation, segregation, processing and disposal, in accordance with MSW Rules and relevant statutory requirements. The private operator shall conduct Information, Education and Communication activities throughout the concession period, so that the citizens adopt segregation at source and follow other instructions and pay user charges regularly. This will help in achieving the objectives and making projects sustainable.

**Below: Images portray the system under proposed ISWM Projects**



- **Hazardous & e-waste disposal facilities:** Four hazardous & e-waste waste facilities are planned at zonal level i.e. in Bhopal, Indore, Jabalpur, and Gwalior. The residential/ industrial hazardous waste and e-waste will be transported to these facilities and will be processed and disposed by relevant technologies. These four projects will be planned as PPP projects with private operator responsible for collection, transportation, processing and disposal of waste.

The table below shows the impact that the proposed projects will bring after implementation in comparison to the Service Level Benchmarks laid down by Govt. of India.

Parameters	SLBs	Effect on Project Scope
Household level coverage of solid waste management services	100%	100% Coverage of the project area in all ULBs.
Efficiency of collection of Municipal solid waste	100%	100% Door to door collection and transportation in covered vehicles, preventing <ul style="list-style-type: none"> <li>• Spillage and consumption by stray animals</li> <li>• Any MSW spillage/loss while transportation</li> </ul>
Extent of segregation of Municipal solid waste	100%	100% segregation of waste collected from all the ULBs through automatic segregators, along with de-odorizing and waste spillage control mechanisms.
Extent of Municipal solid waste recovered	80%	Recyclable components will be reused, bio-degradable will be scientifically processed and recovered as either manure, RDF etc ,and the inert will be disposed in landfill site, hence encouraging more than 80% recovery and reuse of waste
Extent of scientific disposal of Municipal solid waste	100%	100% scientific disposal of the inert waste in the allocated landfill site, with <ul style="list-style-type: none"> <li>• Proper leachate collection &amp; drainage system,</li> <li>• Efficient gas collection system</li> <li>• Odour control mechanisms</li> <li>• Proper green cover, giving it an aesthetic look.</li> </ul>
Efficiency in redressal of customer complaints	80%	A centrally located GPS tracker and customer care centre for quickly identifying the problematic area and service needs by directing the nearest vehicle/ resource to the

		location, resulting in efficient and timely complain attendance.
<b>Extent of cost recovery in SWM services</b>	100%	The cost recovery will be addressed through levying of affordable user charges on citizens. (Rs 60-80 for APL & Rs 30-40 for BPL in Municipal Corporations and Municipal Councils and Rs 40 for APL and Rs 20 for BPL in Nagar Parishads)
<b>Efficiency in collection of SWM charges</b>	90%	This will be achieved by rendering high quality service for initial years and once this is institutionalized, it is expected that user charges recovery will not be an issue.

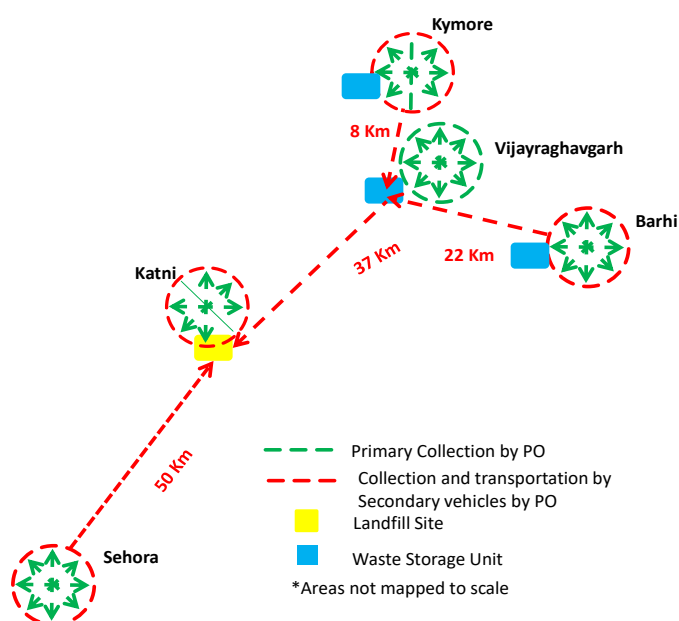
**In addition to the above, the following additional points have been considered while designing the projects.**

- **Clear work definition with existing workers:** Existing sweepers will be used for sweeping, road cleaning and other specific activities. Given the limited manpower available with ULBs, focussed street cleaning as well as drain cleaning will result in quality job.
- **Bidding Parameter:** SWM being an O&M intensive project where service delivery is the key deliverable, continuously and throughout the concession period, there is a high risk in forecasting the future and thus private operators accordingly place a high factor of safety in pricing the implicit risk, therefore instead of viable gap funding, bidding parameter a tipping fee based bidding model has been adopted. Tipping Fee model allows the private operator to leverage on the O&M strength as well as bring in sustainable technological solutions.
- **Financial Structure:** A mix of grant from GoMP + concessional loan to ULBs and private sector investment has been proposed in these projects.
- **Affordable user charges:** The acceptable user charges of Rs/month/household of Rs 60-80 for Above Poverty Line households and Rs 30-40 for Below Poverty Line households to be levied in bigger towns and Rs 40-20 for APL and BPL in all Nagar Parishads of the State.

- **Implementation Modality:** The projects have been framed on Design part Finance Built Operate and Transfer basis with a performance Based O&M for 21 year Concession period. Further the private operator is given the freedom to use appropriate technology for MSW processing, making the bids Technology Neutral.
- **Payment Guarantee Mechanisms by GoMP:** Full guarantee by GoMP will be provided for tipping fee payment to Private Operator in case ULBs delay the payment of tipping fee to the concessionaire, with a state intercept, wherein GoMP deducts the portion of payment from various devolutions already being done to ULBs.
- **Information, Education and Communication (IEC) activities and Environment Health and Social Campaigns:** The private operator will carry out IEC and EHS activities to educate citizens and ULB employees for their role in making the cities clean.
- **Robust monitoring framework:** Apart from the Independent Engineer, a Monitoring Committee, composed of CMOs of all ULBs as well as 4-5 sanitary officers from each ULB, will be constituted to monitor the day to day activities.

## 6.2. IMPLEMENTATION OF CLUSTER BASED ISWM PROJECT ON REGIONAL LANDFILL APPROACH.

**A. ISWM Katni Project:** The state has planned Katni Cluster on the above lines. The image below shows the operational plan for Katni cluster. The proposed project will cater to ~95 MT waste/day, collectively from Katni, Sihora, Kymore, Vijayraghavgarh and Barhi. The ISWM Facility has been planned in Katni while waste



storage units may be planned in Kymore, Vijaygarhgarh and Barhi for temporary storage of waste (2-3 days) before transporting to ISWM Facility in Katni to minimize the transportation expenses.

The table below highlights key features of this project:

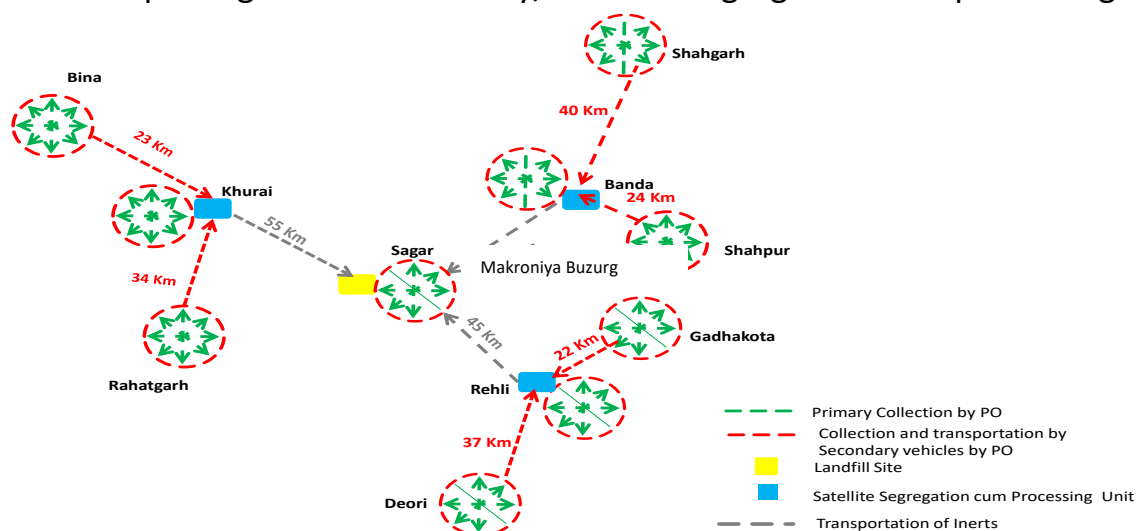
<b>Coverage</b>			
<b>State</b>	Madhya Pradesh, India	<b>District</b>	Katni; Jabalpur
<b>Towns:</b>	Katni, Sihora, Kymore, Sihora and Vijayraghavgarh	<b>Population</b>	320,000 (2014)
<b>Average Inter Town Distance</b>	40 Km	<b>Total MSW Generated (per day)</b>	~ 95 MT
<b>Salient Project Features</b>			
<b>Project Components</b>	Door to Door Collection, Transportation, Segregation, Scientific treatment and safe disposal as per MSW Rules'2000; User Charge Billing and conducting IEC activities.	<b>Project Cost (Approx.)</b>	INR 35.39 Crores
<b>Implementation Modality</b>	Public Private Partnership – Design, part-Finance, Build, Operate & Transfer	<b>Concession Period</b>	21 years including implementation
<b>Institutional arrangement</b>	All five ULBs entered into an inter ULB agreement authorizing the	<b>Operational modality</b>	A. A monitoring committee comprising of all chief Executive

	<p>bigger ULB to act as lead member of the cluster.</p>		<p>Officers of ULBs was authorized through a resolution by ULBs to take all decisions which shall be implemented by the CEO of lead member i.e. Katni.</p> <p>B. To help and monitor day to day activities of concessionaire, an agency to be appointed to act as Independent Engineer for the full Concessionaire period.</p>
<p><b>Sources of Funds for CAPEX</b></p>	<p>70% of the estimated cost of the project comprises of 50% Grant to ULBs by State plus 20% loan to ULBs (through DFID supported MPUIF).</p> <p>a. 30% of the estimated cost of the project plus any cost</p>	<p><b>Project OPEX</b></p>	<p>Private Operator</p>
		<p><b>Support to ULBs for paying Tipping fee</b></p>	<p>Grant from GoMP for the initial 4-5 years</p>
		<p><b>Payment Guarantee on Behalf of ULBs</b></p>	<p>Payment Guarantee from GoMP for payment of tipping fee to Concessionarie.</p>



	overrun by the Concessionaire.		
<b>Waste Processing location</b>	Katni or any other ULB where land is available and the selected Concessionaire desires to use.	<b>Land Fill Site (free of all encumbrances)</b>	6.3 Hectare land in Katni(land already acquired), EC in process
<b>Potential Revenue Streams for Private Operator</b>	Tipping Fee from implementing agency, Sale of processed by-products	<b>Employee Rehabilitation</b>	Not required

**B. ISWM Sagar Project:** Further, for a cluster with ISWM Facility, Satellite Segregation-cum-Processing units, the image below shows the operational plan for Sagar cluster. The Sagar cluster covers the MSW management in 11 ULBs. In this cluster, an Integrated Solid Waste Management Facility has been planned in Sagar. This ISWM Facility will cater to the waste from Sagar. Further, satellite waste segregation-cum-processing units have been proposed at Khurai, Rehli and Banda where waste from the neighbouring ULBs will be collected, segregated, processed and inert will be transported to Sagar for scientific disposal. Waste storage units may be planned at each of ULBs for temporary storage of waste before transporting it to ISWM facility/ Satellite segregation-cum-processing unit.



### **6.3. Current Status of the ISWM Projects, Cluster Based on Regional Landfill approach**

#### **a) ISWM Projects Katni (05 ULBs) & Sagar (11 ULBs)**

The Feasibility Study Report (FSR) was prepared by ICF-GHK the consulting agency for DFID aided MP Urban Infrastructure Investment Programme (MPUIIP) of Urban Administration and Development Directorate, after collection of data and field visits. The concept of the project along with the Feasibility Study Report (FSR) was explained to the citizens in an open workshop conducted at all ULBs by UADD officials and consultants. After getting approval of ULBs through a resolution the RfP documents for both the projects were prepared by the consulting teams and the approval of these documents was done by State Level Empowered Committee (for PPP Projects) headed by Chief Secretary GoMP.

Transparent bidding process was conducted for both the projects. UADD provided support to ULBs in bidding and an expert team consisting of consultants, UADD officials, experts and ULB officials did the evaluation of bids.

M/S Ramky Enviro., Hyderabad was the preferred bidder for both the projects. The concession agreement for both the projects has been signed and the process of implementing the project is underway.

The concessionaire has started door to door collection, secondary collection and transportation for both the project in Dec-2015. However, as there was delay in securing environmental clearance, and other multiple factors beyond the control of concessionaire the ISWM facility operations was also delayed. At present, the construction and establishing the plant has begun and the full operations of plant and associated facilities including waste processing and final disposal is expected to start by May 2017.

Also, due to high efficiency of waste collection, transportation from all the towns of both the project area, all the cities are clean, littering of waste is minimal and there has been considerable improvement in environmental conditions, which is also shown in the chart below. The citizens of these cities

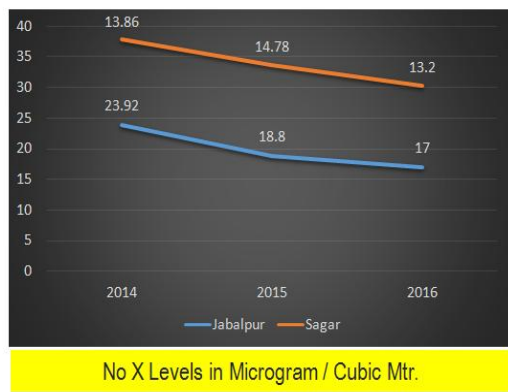
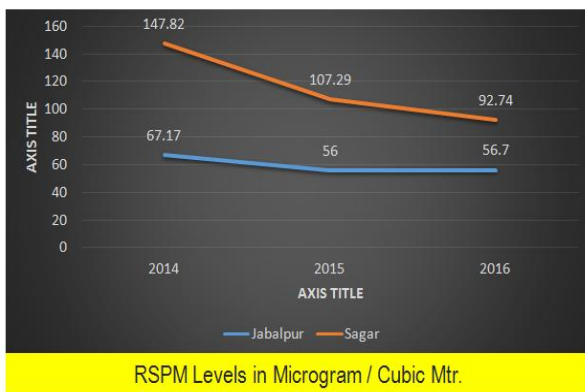
are not only satisfied with the projects but also cooperating and putting efforts towards success of the project.

An agency, InfraEn, Bangalore has been appointed as the Independent Engineer for monitoring of implementation and operation & maintenance (O&M) activities of the projects.

**Current scenario**



12



**RSPM and NOx Levels in Jabalpur and Sagar**

**b) ISWM Project Jabalpur**

Collection, transportation, treatment and disposal of waste from the city have begun, and energy is being produced from the waste. The project is fully operations since Dec 2016 and around 7-8 MW of power is being generated daily.

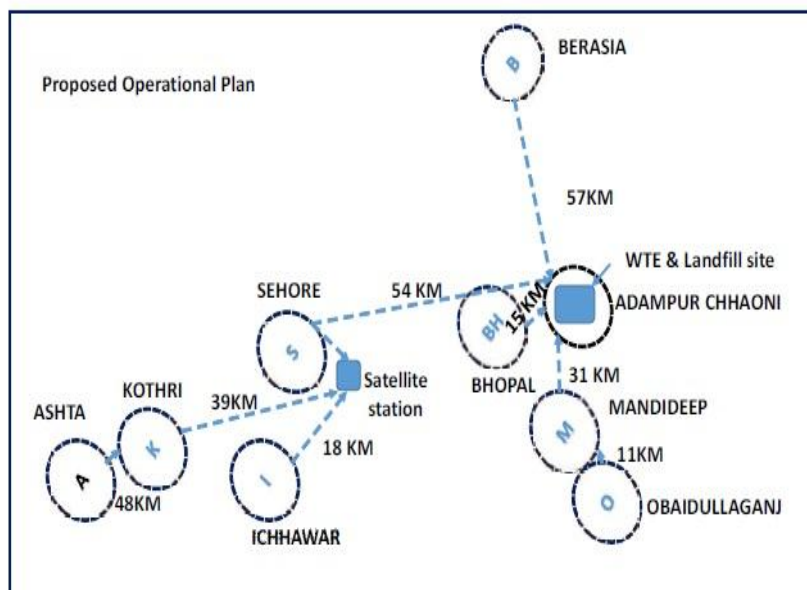


### c) ISWM Project Bhopal, Rewa, Indore & Gwalior

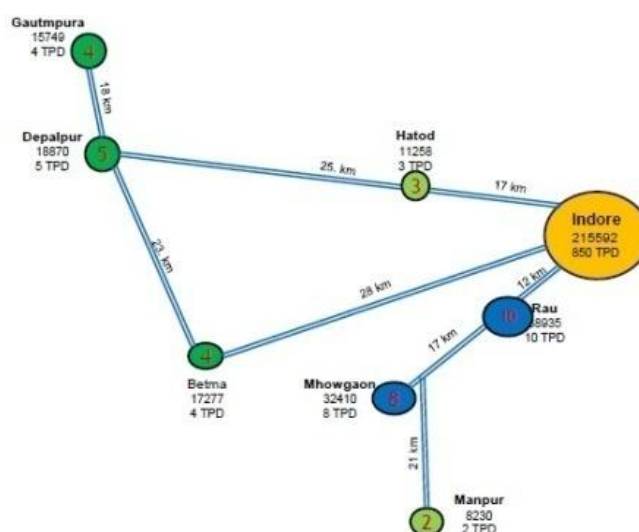
The concessionaire for Bhopal (8 ULBs) and Rewa (28 ULBs) Cluster, have been selected and are at various stages of preparation of implementing projects. Both these projects are Waste to Energy project. Five Clusters Jabalpur, Bhopal, Rewa, Indore and Gwalior shall be Waste to Energy Projects.

The bids for Indore (08 ULBs) and Gwalior (16 ULBs) cluster are under evaluation and concessionaire agreement for both the clusters is expected to be signed by mid of March 2017.

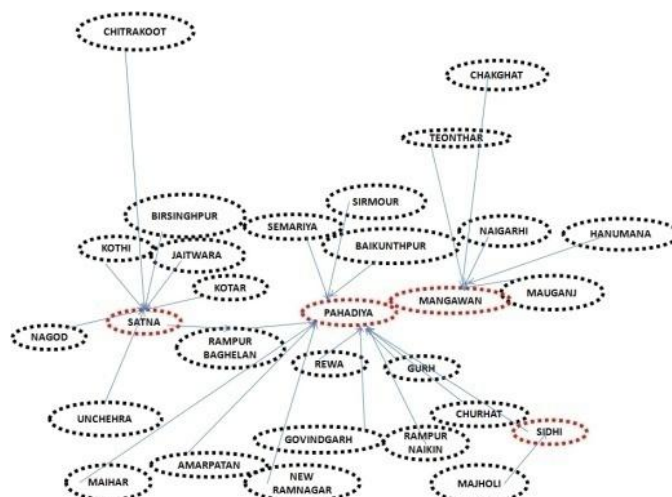
- **Name of Cluster: Bhopal Cluster**
- Towns: Ashta, Berasia, Bhopal, Ichhawar, Kothri, Mandideep, Obedullaganj, Sehore
- Est. Project Cost. (Rs. Cr):465.76
- Total MSW Generated (TPD): 1065
- Concession Period:21 years including implementation
- Implementation Modality: Public Private Partnership
- Institutional arrangement: An inter ULB agreement authorizing the biggest ULB to act as lead member of the cluster.
- Technology for Waste Treatment: Waste to Energy
- Location of ISWM Facility including Landfill site: Adampur Chawni



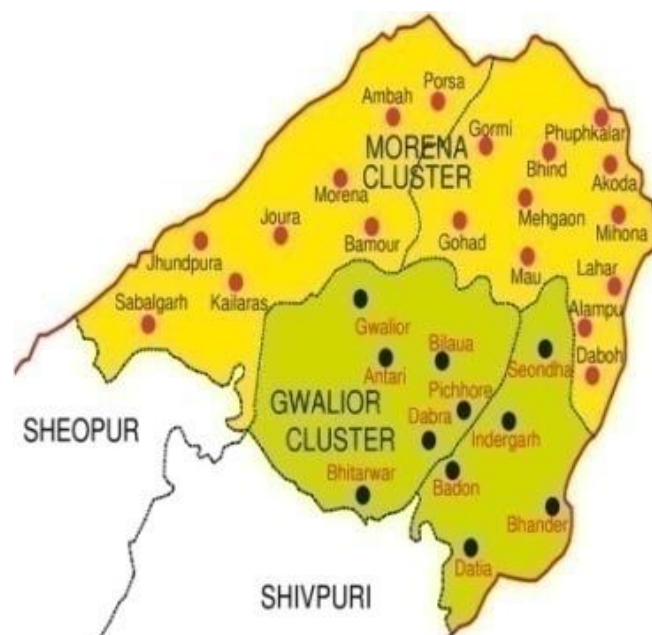
- **Name of Cluster: Indore Cluster**
- Towns: Betma, Depalpur, Hatod, Indore, Manpur, Mhowgaon, Rau, Runji-Gautampura
- Est. Project Cost. (Rs. Cr): 470.0
- Total MSW Generated (TPD): 1004
- Concession Period: 21 years including implementation
- Implementation Modality: Public Private Partnership
- Institutional arrangement: An inter ULB agreement authorizing the biggest ULB to act as lead member of the cluster.
- Technology for Waste Treatment: Waste to Energy
- Location of ISWM Facility including Landfill site: Vil. Devguradiya



- **Name of Cluster: Rewa Cluster**
- Towns: Amarpatan, Baikunthpur, Birsinghpur, Chakghat, Chitrakoot, Churhat, Govindgarh, Gurh, Hanumana, Jaitwara, Kotar, Kothi, Maihar, Majhauri, Mangawan, Mauganj, Nagod, Naigarhi, New Ramnagar, Rampur Baghelan, Rampur Naikin, Rewa, Satna, Semaria, Sidhi, Sirmour, Teonthar, Unchahara
- Est. Project Cost. (Rs. Cr): 158.0
- Total MSW Generated (TPD): 340
- Concession Period: 21 years including implementation
- Implementation Modality: Public Private Partnership
- Institutional arrangement: An inter ULB agreement authorizing the biggest ULB to act as lead member of the cluster.
- Technology for Waste Treatment: Waste to Energy
- Location of ISWM Facility including Landfill site: Vil. Padhadiya



- **Name of Cluster: Gwalior Cluster**
- Towns: Antari, Badoni, Bhandar, Bhitwar, Bilaua, Dabra, Datia, Gwalior, Indergarh, Pichhore, Morena, Jhundpura, Sabalgarh, Bamor, Joura, Kailaras
- Est. Project Cost. (Rs. Cr): 259.0 Cr
- Total MSW Generated (TPD): 605
- Concession Period: 21 years including implementation
- Implementation Modality: Public Private Partnership
- Institutional arrangement: An inter ULB agreement authorizing the biggest ULB to act as lead member of the cluster.
- Technology for Waste Treatment: Waste to Energy
- Location of ISWM Facility including Landfill site: Vil. Kedarpur



**Gwalior Cluster**

#### **d) ISWM Projects – Bids Floated**

The bids of Khandwa (10 ULBs), Hoshangabad (14 ULBs), Dewas (24 ULBs) have been floated. The concessionaire for these clusters shall be finalized by end of March 2017, and concessionaire agreement is expected to be signed by end of April 2017.

The concessionaire has been given freedom for the selection of waste processing technology for these clusters.

#### **e) Action plan for remaining ISWM Projects**

The feasibility study reports for remaining 16 clusters has also been got prepared by the department. The bid documents for each cluster are being prepared and State government intends to finalize the selection of concessionaire for all clusters by the end of June 2017. The concessionaire shall be given freedom for the selection of waste processing technology for these clusters. Detailed Cluster wise status and action plan with proposed timeline is discussed in Section 8.

It is expected that all projects may become functional by June 2019.

#### **6.4. Institutional Mechanism for implementation of Proposed Integrated Solid Waste Management Projects**

For each of the proposed cluster, an inter ULB agreement is being signed among the participating ULBs, wherein the ULB contributing the maximum amount of waste and having the sanitary landfill site shall act as the lead ULB and take all steps for implementation of integrated solid waste management projects. The Lead ULB shall perform the following roles and responsibilities for successful execution of the project.

- Providing unencumbered land for landfill site
- Facilitating the concessionaire with all the necessary clearances and approvals required for the implementation of the project
- Appoint Independent Engineer Unit and arrange for payment of professional fee as per the monthly invoices
- Interfacing between GoMP and participating ULBs;
- Managing special account created for SWM for all project related transactions with GoMP and participating ULBs
- Managing escrow account with the concessionaire
- Performance monitoring of concessionaire and the Management Unit
- Convening regular meetings of Monitoring Committee

#### **A. Project Management Structure**

The Management structure comprises the following:

- a) Monitoring Committee (MC)** – comprising the Chief Executive Officers of Parties to supervise contract management and monitor the performance of Concessionaire and MU.
- b) Independent Engineer (IE)** – a private consultancy organization identified through transparent competitive bidding process by



NPNK, for supervision of implementation, operation and maintenance of the Project on a daily basis.

## **B. RESPONSIBILITY OF MC**

### ***a) DURING PROJECT PREPARATION PHASE***

- i. To ensure that ULBs shares the signed Concession Agreement with the Parties;
- ii. To ensure that Lead ULB shares the signed Contract Documents of MU and IE procured through transparent process;

### ***b) PROJECT IMPLEMENTATION PHASE***

During the Project Implementation Phase, MC shall;

- i. meet at least once in a month or more to review the project implementation process;
- ii. issue necessary instruction to Parties to this Agreement for compliance with the proviso of Concession agreement from time to time;
- iii. issue necessary instructions/notices to Concessionaire in consultation with MU & IE to ensure compliance with the provisions of this Agreement and Concession Agreement;
- iv. Review the appraisal report prepared by IE/ MU of the Project Implementation and Operation Plan (PIOP) prepared by the Concessionaire and decide the actions to be initiated based on the recommendations of MU in line with the provisos of Concession Agreement for its acceptability and financial implications.
- v. Amicably resolve any dispute between IE & MU related to project construction and O&M;

### ***c) PROJECT OPERATION & MAINTENANCE (O&M) PHASE***

- i. During Project Operation and Maintenance Phase, MC shall meet once in a Month and shall decide on following matters;
  - (a) Providing concurrence on actual MSW transported by Concessionaire from the various ULBs Governed by Parties and deviation thereon;
  - (b) Final Payment to be made by Parties and to be deposited in Escrow Account for onward payment to Concessionaire;
  - (c) Taking appropriate action in case of default by either of Party;
  - (d) Penalty or Incentive to be provided to Concessionaire as the case may be;
- ii. MC can revise the Service Delivery Target provided, it has been requested by the Party, however those Service Delivery Target cannot be changed if MC opines that those suggested changes will affect the Project performance; and to ascertain the acceptability of suggested changes MU may hire Expert services at its own cost;

### **C. RESPONSIBILITY OF INDEPENDENT ENGINEER AGENCY**

IE responsibility shall be following:

#### ***a) DURING PROJECT IMPLEMENTATION PHASE***

MU shall undertake detailed appraisal of PIOP submitted by Concessionaire and as the case may be, shall advice MC to issue instruction for corrective action to be taken by Concessionaire. MU may follow up for compliance of such instruction and action taken by Concessionaire.

#### ***b) PROJECT OPERATION & MAINTENANCE (O&M) PHASE***

- i. MU will undertake routine monitoring of project performance against the Service Level Benchmark (SLB) set in Concession Agreement and achievement or non-achievement of those SLB shall be reported to MC; thus in turn penalty/incentive shall be imposed by MC in consultation with IE as per the Penalty or Incentive Structure set out in Concession Agreement.
- ii. IE/MU will review the financial plan, which would include capital investment required for improvement in service

delivery, sources of proposed investments funding, estimates of revenue and expenditure for the O&M activities including the options for revenue improvement and expenditure minimization;

- iii. MU shall advice MC to set out the payment the mechanism thereon to Concessionaire for capital investments, O&M expenses and Tipping Fee payable;

## 7 Investment Requirement and phasing

The total capital investment required for implementing Integrated Solid Waste Management in all 378 ULBs shall be around 3045 crores. It is based on the maximum per capita cost Rs 1500/- as suggested in the guideline of “**Swachcha Bharat Mission**”, circulated by Govt. of India. This investment shall be phased in 3 years.

Further, the investment required will be covered by a mix of central Govt VGF, State government grants, State govt. concessional loan to ULBs and share of private operator. Under the “**Swachcha Bharat Mission**” scheme, a VGF of 20% shall be provided to the solid waste management projects. The States Govt. shall provide 20% grant and 30% concessional loan if required for making project financially viable at a lesser rate to ULB. The share of private operator shall be 30% or more if the cost exceeds the estimated cost.

The grant in being provided for reducing the concessionaire’s investment so that tipping fee is reasonable. This will help in providing affordable use charges.

**The State Govt. Intends to select the concessionaire for all projects by June-2017. The target is to start all Waste to Energy (WtE) projects by June-2019 and Waste to Compost (WtC) projects by March-2019**

### 7.1 Revised Investment Requirement

The approximate Investment required for phase wise implementation of the project is detailed below:

	2015-16	2016-17	2017-18
Cluster Phasing	02 Clusters	10 Clusters	14 Clusters
Name of Cluster	Sagar, Katni	Bhopal, Rewa, Gwalior, Indore, Hoshangabad, Khandwa, Dewas, Chhatarpur, Damoh, Bhind	Vidisha, Shajapur, Chhindwara, Betul, Shivpuri, Guna, Shahdol, Singrauli, Balaghat, Narsinghpur, Pithampur, Mandsaur, Ratlam
Grant from Central govt. (20%) & State Govt. (20%)	73.22	713.80	458.40
Concessionaire Share	31.78	1031.20	687.60
<b>Total estimated Investment</b>	105.00	1745.00	1146.00

(\*Amount in Crores)

## 8 Steps Forward – Future Action Plan & Timelines

The State Govt. Intends to select the concessionaire for all projects by June-2017. The target is to start all Waste to Energy (WtE) projects by June-2019 and Waste to Compost (WtC) projects by March-2019.

S.No	Name of Cluster	No. of ULBs	Est. waste Generation	Type of Processing	Status	Remarks	Timeline
1	Sagar	11	185	Compost	Under EC	M/s Ramky Enviro Engineers Ltd	Environmental Clearance of project
2	Katni	5	92	Compost	Construction Started	M/s Ramky Enviro Engineers Ltd	Plant operational by June-2017
3	Jabalpur	1	450	Energy	Commissioned	M/s Essel InfraProjects Ltd	
4	Bhopal	8	1065	Energy	Concession agreement Signed	M/s Essel InfraProjects Ltd	DPR Preparation by Concessionaire is underway
5	Rewa	28	340	Energy	Concession agreement Signed	M/s Chennai MSW Private Ltd	
6	Indore	8	1004	Energy	Under Bidding	Concessionaire agreement signing is targeted	Concession agreement to be signed by Mid March 2017
7	Gwalior	16	543	Energy	Under Bidding	Concessionaire agreement signing is targeted	Concession agreement to be signed by Mid March 2017
8	Hoshangabad	14	164	Compost	Under Bidding	Concessionaire agreement signing is targeted	Concession agreement to be signed by 30 <sup>th</sup> April 2017
9	Burhanpur	10	176	Compost	Under Bidding	Concessionaire agreement signing is targeted	Concession agreement to be signed by 30 <sup>th</sup> April 2017
10	Dewas	24	151	Compost	Under Bidding	Concessionaire agreement signing is targeted	Concession agreement to be signed by 30 <sup>th</sup> April 2017
11	Bhind	14	261	Compost	Bid documents under preparation	FSR Consultant - M/s Royal HaskoningDHV	Bids expected to be publish by 28 <sup>th</sup> February 2017

12	Damoh	12	107	Compost	Bid documents under preparation	FSR Consultant - M/s MaRS Engg & Planning	Bids expected to be publish by 28 <sup>th</sup> February 2017
13	Chhatarpur	28	188	Compost	Bid documents under preparation	FSR Consultant - M/s MaRS Engg & Planning	Bids expected to be publish by 28 <sup>th</sup> February 2017
14	Vidisha	15	160	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Deloitte	Bids expected to be publish by 31 <sup>st</sup> March 2017
15	Shajapur	26	162	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Deloitte	Bids expected to be publish by 31 <sup>st</sup> March 2017
16	Chhindwara	20	173	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Royal HaskoningDHV	Bids expected to be publish by 31 <sup>st</sup> March 2017
17	Betul	8	89	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Royal HaskoningDHV	Bids expected to be publish by 31 <sup>st</sup> March 2017
18	Shivpuri	10	122	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Tata Consulting Eng.	Bids expected to be publish by 31 <sup>st</sup> March 2017
19	Guna	11	152	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Tata Consulting Eng.	Bids expected to be publish by 31 <sup>st</sup> March 2017
20	Shahdol	16	116	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Tata Consulting Eng.	Bids expected to be publish by 30 <sup>th</sup> April 2017
21	Singrauli	1	71	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Tata Consulting Eng.	Bids expected to be publish by 30 <sup>th</sup> April 2017
22	Balaghat	13	97	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Ecopro-Meghraj	Bids expected to be publish by 30 <sup>th</sup> April 2017
23	Narsinghpur	15	556	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Ecopro-Meghraj	Bids expected to be publish by 30 <sup>th</sup> April 2017
24	Pithampur	24	241	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s Ecopro-Meghraj	Bids expected to be publish by 30 <sup>th</sup> April 2017
25	Mandsaur	22	160	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s MaRS Engg & Planning	Bids expected to be publish by 30 <sup>th</sup> April 2017
26	Ratlam	17	171	Compost	FSR Prepared. Bid Documents to be prepared	FSR Consultant - M/s MaRS Engg & Planning	Bids expected to be publish by 30 <sup>th</sup> April 2017

The proposed formation of Clusters, Population (Projected from Census 2011 data) and MSW generation is given herewith.

Name of Cluster	Town	Population (2015)	MSW Generation in TPD (2015)
<b>1 Hoshangabad Cluster</b>	Babai	18078	5
	Budni	18151	5
	Harda	80201	24
	Hoshangabad	127414	38
	Itarsi	107265	32
	Khirkiya	24553	6
	Nasrullaganj	25688	6
	Pipariya	52727	16
	Rehti	12539	3
	Seoni-Malwa	32505	8
	Shahganj	9190	2
	Sohagpur	27040	7
	Timarni	24145	6
	Total	<b>559496</b>	<b>158</b>

<b>2 Vidisha Cluster</b>	Badi	21169	5
	Baraily	37432	9
	Basoda	84543	25
	Begamganj	36750	9
	Gairatganj	19637	5
	Kurwai	16724	4
	Lateri	20349	5
	Raisen	47690	12
	Sanchi	9072	2
	Shamshabad	12234	3
	Silwani	20111	5
	Sironj	56651	17
	Sultanpur	11088	3

	Udaipura	19693	5
	Vidisha	168410	51
	Total	<b>581553</b>	<b>161</b>

<b>3 Bhopal Cluster</b>	Ashta	57433	17
	Berasia	33424	8
	Bhopal	1941873	874
	Ichhawar	16437	4
	Kolar	94903	28
	Kothri	11367	3
	Mandideep	64420	19
	Obedullaganj	24670	6
	Sehore	117835	35
	Total	<b>2362362</b>	<b>996</b>

<b>4 Shajapur Cluster</b>	Agar	40946	10
	Akodia	12583	3
	Badagaon	7794	2
	Badod	14939	4
	Biaora	53015	16
	Boda	10676	3
	Chhapiheda	9180	2
	Jirapur	23459	6
	Kanad	11293	3
	Khilchipur	20440	5
	Khujner	11647	3
	Kurawar	24215	6
	Machalpur	10233	3
	Nalkheda	18023	5
	Narsingharh	34912	9
	Pachore	29585	7
	Pankhedi (Kalapipal)	3876	1
	Polaykalan	13248	3



	Rajgarh	32101	8
	Sarangpur	40426	10
	Shajapur	74796	22
	Shujalpur	55317	17
	Soyatkalan	15962	4
	Susner	17745	4
	Suthaliya	11442	3
	Talen	11427	3
	<b>Total</b>	<b>609280</b>	<b>161</b>

<b>5 Betul Cluster</b>	Amla	32629	8
	Athner	12867	3
	Betul	111585	33
	Betul-Bazar	11479	3
	Bhainsdehi	12917	3
	Chicholi	10024	3
	MUltai	32371	8
	Sarni	93023	28
	<b>Total</b>	<b>316895</b>	<b>89</b>

<b>6 Gwalior Cluster</b>	Antari	10744	3
	Badoni	11133	3
	Bhander	27217	7
	Bhitarwar	20622	5
	Bilaua	13923	3
	Dabra	66172	20
	Datia	108295	32
	Gwalior	1138655	455
	Indergarh	24886	6
	Pichhore	13418	3
	Seondha	24989	6
	<b>Total</b>	<b>1460054</b>	<b>545</b>

<b>7 Bhind Cluster</b>	Akoda	13535	3
	Alampur	11540	3
	Ambah	50946	15
	Bamor	35461	9
	Bhind	213370	64
	Daboh	19543	5
	Gohad	63647	19
	Gormi	22506	6
	Jhundpura	10586	3
	Joura	45520	11
	Kailaras	27991	7
	Lahar	38524	10
	Mau	21756	5
	Mehgaon	23039	6
	Mihona	18288	5
	Morena	216498	65
	Phuphkalan	13668	3
	Porsa	42838	11
	Sabalgarh	43555	11
	Total	<b>932811</b>	<b>260</b>

<b>8 Shivpuri Cluster</b>	Badarwas	14655	4
	Badoda	19910	5
	Karera	30998	8
	Khaniyadhana	17145	4
	Kolaras	21361	5
	Narwar	20934	5
	Pichhore	19575	5
	Sheopur	77699	23
	Shivpuri	194355	58
	Vijaypur	18319	5
	Total	<b>434951</b>	<b>122</b>

<b>9 Guna Cluster</b>	Aron	30248	8
	Ashoknagar	88365	27
	Bairad	18863	5
	Chachaura-Binaganj	23606	6
	Chanderi	35724	9
	Guna	195389	59
	Isagarh	13588	3
	Kumbhraj	21281	5
	Mungaoli	28284	7
	Raghogarh - Vijaypur	67129	20
	Shadora	11469	3
	<b>Total</b>	<b>533946</b>	<b>151</b>

<b>10 Indore Cluster</b>	Betma	17277	4
	Depalpur	18870	5
	Hatod	11258	3
	Indore	2151592	968
	Manpur	8230	2
	Mhowgaon	32410	8
	Rau	38935	10
	Runji-Gautampura	15749	4
	<b>Total</b>	<b>2294321</b>	<b>1004</b>

<b>11 Burhanpur Cluster</b>	Bhikangaon	17513	4
	Burhanpur	227733	68
	Chhanera	23814	6
	Khandwa	216774	65
	Mundi	13919	3
	Nepanagar	32053	8
	Omkareshwar	10867	3
	Pandhana	14788	4
	Sanawad	41835	10
	Shahpur	21294	5
	<b>Total</b>	<b>620590</b>	<b>177</b>

<b>12 Pithampur Cluster</b>	Anjad	28389	7
	Badnawar	22588	6
	Barwaha	28573	7
	Barwani	59938	18
	Dahi	9189	2
	Dhamnood	34657	9
	Dhar	101420	30
	Dharampuri	17670	4
	Karahi & Padlya Khurd	8315	2
	Kasrawad	24567	6
	Khargone	125429	38
	Khetia	17002	4
	Kukshi	30594	8
	Maheshwar	26361	7
	Manawar	32821	8
	Mandav	11508	3
	Mandleshwar	13329	3
	Palsud	10921	3
	Pansemal	13138	3
	Pithampur	136282	41
	Rajgarh	22319	6
	Rajpur	22620	6
	Sardarpur	7876	2
	Sendhwa	60997	18
	<b>Total</b>	<b>866503</b>	<b>241</b>

<b>13 Dewas Cluster</b>	Bagli	11134	3
	Bhaurasa	13138	3
	Dewas	312681	94
	Hatpiplya	18811	5
	Jawar	8862	2
	Kannod	19162	5

	Kantaphod	11236	3
	Karnawad	12166	3
	Khategaon	27443	7
	Loharda	9937	2
	Maksi	21693	5
	Nemawar	6456	2
	Pipalrawan	10423	3
	Satwas	15235	4
	Sawer	17440	4
	Sonkatch	17867	4
	Tonk Khurd	8616	2
	Total	<b>542300</b>	<b>151</b>

<b>14 Katni Cluster</b>	Barhi	15060	4
	Katni (MUrwar)	239609	72
	Kymore	20888	5
	Sihora	47567	12
	Vijayraghavarh	9040	2
	Total	<b>332164</b>	<b>95</b>

<b>15 Balaghat Cluster</b>	Baihar	17980	4
	Balaghat	90992	27
	Bamhani	11086	3
	Bichhiya	11260	3
	Dindori	23026	6
	Katangi	17436	4
	Lanji	14641	4
	Malajkhand	36906	9
	Mandla	59537	18
	Nainpur	26904	7
	Niwas	8907	2
	Shahpura	11873	3
	Waraseoni	29690	7
	Total	<b>360238</b>	<b>98</b>

<b>16 Chhindwara Cluster</b>	Amarwara	15271	4
	Badkuhi	10685	3
	Barghat	13067	3
	Bichua	1445	0
	Chand	13296	3
	Chandameta- Butaria	17815	4
	Chaurai Khas	13991	3
	Chhindwara	189036	57
	DaMUa	26633	7
	Dongar Parasia	46204	12
	Harrai	11879	3
	Jamai	24387	6
	Lakhnadon	18684	5
	Lodhikheda	10745	3
	Mohgaon	10701	3
	Neuton Chikhli Kalan	10626	3
	Pandhurna	49112	12
	Piplanarayanwar	9282	2
	Sausar	29653	7
	Seoni	110519	33
	Total	<b>633031</b>	<b>173</b>

<b>17 Jabalpur Cluster</b>	Barela	13628	3
	Bhedaghat	7189	2
	Chichali	10212	3
	Gadarwara	51407	15
	Gotegaon	30317	8
	Jabalpur	1154715	462
	Kareli	32320	8
	Katangi	20561	5
	Majholi	14265	4

	Narsimhapur	64757	19
	Panagar	30163	8
	Patan	15792	4
	Saikheda	11648	3
	Salichauka (Babai Kalan)	14280	4
	Shahpura	14688	4
	Tendukheda	14122	4
	Total	<b>150064</b>	<b>554</b>

<b>18 Mandsaur Cluster</b>	Athana	6972	2
	Bhanpura	22692	6
	Diken	8586	2
	Garoth	16330	4
	Jawad	18497	5
	Jiran	12438	3
	Kukdeshwar	12911	3
	Malhargarh	8998	2
	Manasa	28672	7
	Mandsaur	152984	46
	Nagri	7596	2
	Narayangarh	11005	3
	Nayagaon	7234	2
	NeeMUch	138831	42
	Piplya Mandi	16274	4
	Rampura	19831	5
	Ratangarh	8633	2
	Sarwaniya Maharaj	7275	2
	Shamgarh	26605	7
	Singoli	10284	3
	Sitamau	15179	4
	Suwasara	14367	4
	Total	<b>572194</b>	<b>158</b>

<b>19 Ujjain Cluster</b>	Badnagar	39349	10
	Khacharod	36922	9
	Mahidpur	37107	9
	Makdon	12611	3
	Nagda	108031	32
	Tarana	26898	7
	Ujjain	556374	195
	Unhel	15954	4
	Total	<b>833246</b>	<b>269</b>

<b>20 Ratlam Cluster</b>	Alirajpur	30775	8
	Alot	26041	7
	Badawada	9395	2
	Bhavra	11844	3
	Dhamnood	9007	2
	Jaora	80891	24
	Jhabua	38609	10
	Jobat	12933	3
	Meghnagar	13962	3
	Namli	10555	3
	Petlawad	16386	4
	Piploda	8957	2
	Ranapur	13359	3
	Ratlam	286077	86
	Sailana	12947	3
	Tal	16104	4
	Thandla	17015	4
	Total	<b>614857</b>	<b>172</b>

<b>21 Rewa Cluster</b>	Amarpatan	20960	5
	Baikunthpur	11103	3
	Birsinghpur	15485	4
	Chakghat	11531	3
	Chitrakoot	25179	6



	Churhat	16157	4
	Govindgarh	11390	3
	Gurh	15775	4
	Hanumana	18111	5
	Jaitwara	10459	3
	Kotar	8121	2
	Kothi	9495	2
	Maihar	43403	11
	Majhauili	12842	3
	Mangawan	14794	4
	Mauganj	28531	7
	Nagod	24371	6
	Naigarhi	11235	3
	New Ramnagar	23349	6
	Rampur Baghelan	14728	4
	Rampur Naikin	12890	3
	Rewa	254480	76
	Satna	305583	92
	Semaria	14520	4
	Sidhi	58671	18
	Sirmour	12827	3
	Teonthar	18400	5
	Unchahara	19915	5
	Total	<b>1044305</b>	<b>292</b>

<b>22 Shahdol Cluster</b>	Amarkantak	9088	2
	Anuppur	21489	5
	Beohari	26506	7
	Bijuri	35293	9
	Burhar	20830	5
	Chandia	17160	4
	Dhanpuri	48763	12
	Jaisinghnagar	8891	2
	Jaithari	9067	2
	Khand	11504	3

	Kotma	32077	8
	Nowrozabad	23631	6
	Pali	24107	6
	Pasan	30720	8
	Shahdol	93606	28
	Umaria	35759	9
	Total	<b>448491</b>	<b>117</b>

<b>23 Singrauli Cluster</b>	Singrauli	237853	71
	Total	<b>237853</b>	<b>71</b>

<b>24 Sagar Cluster</b>	Banda	33393	8
	Bina- Etawa	69684	21
	Deori	27680	7
	Garhakota	35340	9
	Khurai	55191	17
	Rahatgarh	34056	9
	Rehli	32752	8
	Sagar	296490	89
	Shahgarh	17602	4
	Shahpur	14760	4
	Total	<b>616948</b>	<b>175</b>

<b>25 Damoh Cluster</b>	Ajaigarh	17987	4
	Amanganj	14995	4
	Damoh	150710	45
	Devendranagar	13806	3
	Hatta	35059	9
	Hindoria	17279	4
	Kakarhati	9127	2
	Panna	63812	19
	Patera	10720	3
	Patharia	22706	6
	Pawai	15621	4
	Tendukheda	15549	4

	Total	<b>387371</b>	<b>108</b>
<b>26 Chhatarpur Cluster</b>	Bada Malhera	19800	5
	Badagaon	10024	3
	Baldeogarh	9804	2
	Barigarh	9630	2
	Bijawar	22152	6
	Buxwaha	11032	3
	Chandla	13864	3
	Chhatarpur	153482	46
	Garhi - Malhera	14713	4
	Ghuwara	14364	4
	Harpalpur	20009	5
	Jatara	18897	5
	Jeron Khalsa	10179	3
	Kari	11241	3
	Khajuraho	26437	7
	Khargapur	15996	4
	Laundi	23760	6
	Lidhora Khas	14010	4
	Maharajpur	25192	6
	Niwari	25619	6
	Nowgong	43822	11
	Orchha	12431	3
	Palera	18890	5
	Prithvipur	29031	7
	Rajnagar	15392	4
	Satai	11438	3
	Tarichar Kalan	8287	2
	Tikamgarh	85426	26
	Total	<b>694922</b>	<b>186</b>
	<b>Grand Total</b>	<b>20390746</b>	<b>6685</b>

The tentative clusters for MSW managements are shown in the image below and are detailed in the Appendix A.

