

ANNEXURE-R-1

**CURRENT STATUS AND ACTION PLAN
FOR
MUNICIPAL SOLID WASTE MANAGEMENT
IN MADHYA PRADESH (JULY 2015)**



**URBAN DEVELOPMENT
&
ENVIRONMENT DEPARTMENT (UDED)
BHOPAL (MADHYA PRADESH)**

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1- 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.

2- 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. GoI 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.

3- Current Situation

1. 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:

1. Indore	Outsourced secondary collection and waste processing of 500 TPD to a private operator. But the result was not satisfactory because of many reasons.
2. Gwalior	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. But none have succeeded in achieving the result.
3. Ujjain and Jabalpur	Both have recently outsourced waste processing to private operator. The results are yet to be assessed.

4. Rewa	It also outsourced secondary transportation of waste. But the results have not been satisfactory.
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The State Govt. has also instructed all ULBs to start door to door collection (DTDC) in at least 8/4 wards of the town which is being followed by almost 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. In Indore and Bhopal around 30% DTDC is being done by NGOs, RWAs and ULB staff.

Some of the smaller ULBs have started 100% door to door collection (DTDC) and composting. But there is no provision for scientific disposal of waste as no Landfill site has been constructed. This is being done by the Private Operator. The status of door to door collection is given in Annexure 1.

Name of ULB	Population	Quantity of waste generated (TPD)	% Collected waste (TPD)	Quantity of waste used for composting(TPD)
INDORE	2195274	878	702	500
BHOPAL	1922130	769	615	0
MORENA	288330	101	101	101
JAWARA	72847	22	22	22
BEGAMGANJ	34031	9	9	9
MANAWAR	30393	8	8	8
SEONI-MALWA	30100	8	8	8
RAJGARH	29726	7	7	7
ALIRAJPUR	28498	7	7	7
MAHESHWAR	24411	6	6	6
ALOT	24115	6	6	6
CHITRAKOOT	23316	6	6	6
TIMARNI	22359	6	6	6
ANUPPUR	19899	5	5	5
SONKATCH	16545	4	4	4
TAAL	14913	4	4	4
GAUTAMPURA	14584	4	4	4
RANAPUR	12371	3	3	3
SAILANA	11989	3	3	3
NAMLI	9774	2	2	2
PIPLODA	8294	2	2	2
TONK-KHURD	7979	2	2	2

The State Govt. has been issuing regular instructions to ULBs for implementing SWM as per provisions of MSW Rules 2000. It also got Govt. land allotted to ULBs for landfill facility to around 200 ULBs, almost 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. **Photographs showing below represent current status in ULB's, where SWM activities are going on:**





4- Action Plan for Solid Waste Management in Madhya Pradesh

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 regional approach 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

The regional approach is based on two major factors

- 1. Nature of Waste** – This factor will provide separate consideration for Municipal Solid Waste (MSW), e-waste, biomedical waste, effluent treatment plant waste, thermal power plant waste and industrial hazardous waste. Inter-linkage between various waste streams such as MSW, effluent treatment plant waste, should be promoted. However, Different types of solid waste eventually reach any one of the following three types of landfills
 - **Hazardous landfill sites** for disposal of hazardous waste from MSW, industrial waste, e-waste
 - **MSW landfill sites for MSW**, which includes commercial, residential, institutional and other waste generated - green waste generated in the project area inclusive of private markets, recreation centres, public places, within the limits of ULBs either in solid or semi-solid form excluding residential/ industrial hazardous waste but including treated bio-medical waste.
 - **Large quantity of non-hazardous waste for construction and demolition waste**, thermal power plant waste
- 2. Geographical location of ULBs** - The formation of clusters of Municipal corporations, Municipalities and Nagar Parishads is based on their geographical location. Each cluster will have a regional landfill site for scientific processing and disposal of waste, along with satellite stations for storage/ material recovery/ processing of waste to reduce the transportation costs.

4.1- Long term Plan

A Regional approach will be followed for the waste management.

- **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.
- **Regional Integrated MSW facilities:** The whole state has been divided into ~26 clusters for MSW management. 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 2000 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 and waste storage units.

These projects will be developed on PPP basis as Integrated Solid Waste Management Projects, leveraging on the technical as well as O&M expertise of private sector. A combination of grant from GoMP and concessional loan from MPUIF/MPUDC 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.

The images below portray the system under proposed integrated solid waste management projects in Madhya Pradesh.



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.

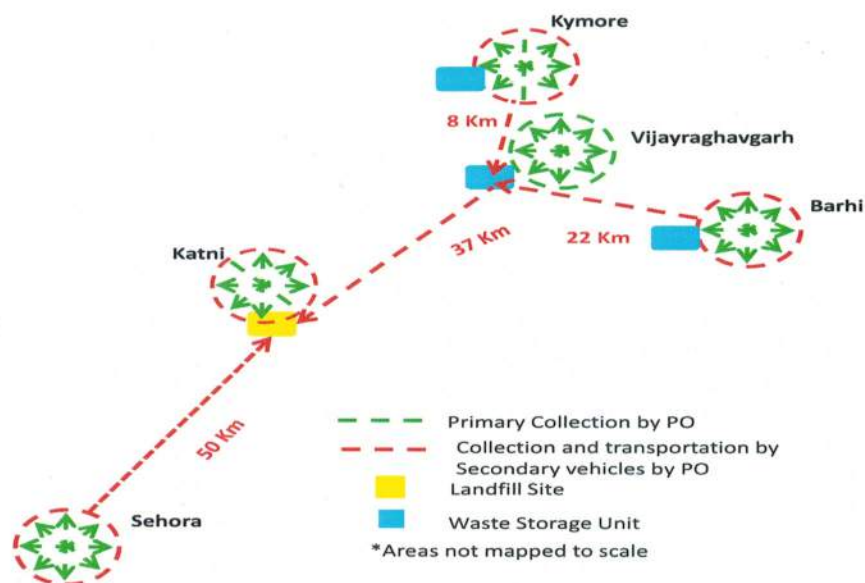
Parameters	SLBs	Effect on Project Scope
Household level coverage of solid waste management services	100%	100% Coverage of the project area in all ULBs.
Efficiency of collection of Municipal solid waste	100%	100% Door to door collection and transportation in covered vehicles, preventing <ul style="list-style-type: none"> • Spillage and consumption by stray animals • Any MSW spillage/loss while transportation

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"> • Proper leachate collection & drainage system, • Efficient gas collection system • Odour control mechanisms • Proper green cover, giving it an aesthetic look.
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.
Extent of cost recovery in SWM services	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)
Efficiency in collection of SWM charges	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.

4.2 States' Initiative for implementing ISWM Projects

To start with the State decided to implement ISWM Katni and ISWM Sagar project.

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:

Coverage			
State	Madhya Pradesh, India	District	Katni; Jabalpur
Towns:	Katni, Sihora, Kymore, Sihora and Vijayraghavgarh	Population	320,000 (2014)
Average Inter Town Distance	40 Km	Total MSW Generated (per day)	~ 95 MT
Salient Project Features			
Project Components	Door to Door Collection, Transportation, Segregation, Scientific treatment and safe disposal as per MSW Rules'2000; User Charge Billing and conducting IEC activities.	Project Cost (Approx.)	INR 35.39 Crores
Implementation Modality	Public Private Partnership – Design, part-Finance, Build, Operate & Transfer	Concession Period	21 years including implementation
Institutional arrangement	All five ULBs entered into an inter ULB agreement authorizing the bigger ULB to act as lead member of the cluster.	Operational modality	A. A monitoring committee comprising of all chief Executive 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.
			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.
Sources of Funds for CAPEX	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). a. 30% of the estimated cost of the project plus any cost overrun by the Concessionaire.	Project OPEX	Private Operator
		Support to ULBs for paying Tipping fee	Grant from GoMP for the initial 4-5 years
		Payment Guarantee on Behalf of ULBs	Payment Guarantee from GoMP for payment of tipping fee to Concessionaire.
Waste Processing location	Katni or any other ULB where land is available and the selected Concessionaire desires to use.	Land Fill Site (free of all encumbrances)	6.3 Hectare land in Katni(land already acquired), EC in process
Potential Revenue Streams for Private Operator	Tipping Fee from implementing agency, Sale of processed by-products	Employee Rehabilitation	Not required

B. ISWM Sagar Project: Further, as a representative 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.



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

- **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:** SMW being an O&M intensive project for a long term, 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 a lower tipping fee based bidding model has been adopted. Tipping Fee model allows the private operator to leverage on the O&M strength of the operator 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 I 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.
- **O&M support to ULBs:** Given limited user charge collection during the starting phase of the project, GoMP will provide O&M support to ULBs for payment of tipping fee for initial years (4-5 years) linked to the user charge applicability schedule.
- **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.

4.3 Current Status of the ISWM Projects Katni & Sagar

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 IGF-GHK 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.

Selection of agency for appointment as Independent Engineer is underway. It is expected to be completed by the end of August 2015.

The concessionaire may start door to door collection, secondary collection and transportation by Oct/Dec 2015 in both the projects. The complete process of collection, transportation and segregation, waste processing and disposal in Sanitary Landfill may start by May/June 2016, well before the deadline Sept/Oct 2016 of the project.

4.4 Ongoing Activities

As an immediate action, the following activities are being conducted.

- ULBs have been directed to get the clearances from SPCB for the sustainability of land where ISWM and Waste Processing facility has been planned.
- These ULBs have been directed to conduct all relevant tests such as waste generation tests, waste characterization tests, required for developing solid waste management projects.
- ULBs have been directed to collect the information necessary for planning solid waste management projects.
- ULBs have been directed to consult and collaborate with SPCB for speed tracking the approvals for ISWM facilities

5- Institutional Mechanism for implementation of Proposed Integrated Solid Waste Management Projects

For each of the proposed cluster, an inter ULB agreement will be signed among the participating ULBs, wherein the ULB contributing the maximum amount of waste or having the sanitary landfill site shall act as the lead ULB and will undertake all the bidding process for the selection of private operator for implementation of integrated solid waste management projects. The Lead ULB shall perform the following roles and responsibilities for successful execution of the project.

- Acting as a consortium leader to procure Private Operator
- Providing unencumbered land for landfill site
- Facilitating the PO with all the necessary clearances and approvals required for the implementation of the project
- Appoint Independent Engineer Management 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 Private Operator
- Performance monitoring of PO and the Management Unit
- Convening regular meetings of Monitoring Committee

6- 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/ Management Unit (MU)** – 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.

6.1- 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;

6.2- RESPONSIBILITY OF IE / MU

MU 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 advise MC to set out the payment 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 "**Swachhha 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 "**Swachhha 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 at a lesser rate to ULB. The share of private operator shall be 30% or more if the cost exceeds the estimated cost. These grants and concessional loans shall be provided by newly established "Madhya Pradesh Urban Development Company" (MPUDC).

The above financial structure has been designed in such a way that private operator need not invest more than 30%, as higher investment by PO may result in high tipping fee which in turn will be realised through user charges to be levied on citizens. The success of the project depends on user charges being affordable on wide spectrum of the society.

UADD has instructed ICF-GHK, the consulting agency of MPUIIP to complete the process of selection of concessionaire for Bhopal and Rewa clusters by 31st Dec 2015. The dept is empanelling consulting agencies for preparation of feasibility study reports of remaining 22 clusters and intends to get it prepared by 31st Dec 2015. UADD has also started the process of selecting Project Development Consulting agency that shall carry out the rest of the work i.e. Appraisal of Feasibility Study Report (FSR), consulting and getting approval of ULBs and citizen through open workshops, preparation of RFPs, getting approval from various Govt. agencies, existing ULBs in inviting bids, its evaluation, signing of concession agreement, selection of Independent Engineers and monitoring of the project implementation process.

The State Govt. intends to fully implement Integrated Solid Waste Management in all ULBs by 2017.

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	4 Clusters	14 Clusters	08 Clusters
Private Operator's share (30%)	165.00	510	238.5
VGF (20%) from central govt.	110.00	340	159
State Govt's Share (20%)	110.00	340	159
ULB's share (30%) provided as loan from MPUIF/MPUDC	165.00	510	238.5
Total Investment requirement	550.00	1700.00	795.00

(*Amount in Crores)

The proposed formation of Clusters, Population (Projected from Census 2011 data) and MSW generation is given in Annexure-A

8- Annexure A

Name of Cluster	Town	Population (2015)	MSW Generation in TPD (2015)
1 Hoshangabad Cluster	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	559496	158

2 Vidisha Cluster	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	581553	161

3 Bhopal Cluster	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	2362362	996

4 Shajapur Cluster	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
	Total	609280	161

5 Betul Cluster	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
	Total	316895	89

6 Gwalior Cluster	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
	Total	1460054	545

7 Morena Cluster	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
	Sabargarh	43555	11
	Total	932811	260

8 Shivpuri Cluster	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	434951	122

9 Guna Cluster	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
	Total	533946	151

10 Indore Cluster	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
	Total	2294321	1004

11 Burhanpur Cluster	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
	Total	620590	177

12 Pithampur Cluster	Anjad	28389	7
	Badnawar	22588	6
	Barwaha	28573	7
	Barwani	59938	18
	Dahi	9189	2
	Dhamnod	34657	9
	Dhar	101420	30
	Dharamपुरi	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
	Total	866503	241

13 Dewas Cluster	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	542300	151

14 Katni Cluster	Barhi	15060	4
	Katni (MURwara)	239609	72
	Kymore	20888	5
	Sihora	47567	12
	Vijayraghvarh	9040	2
	Total	332164	95

15 Balaghat Cluster	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	360238	98

16 Chhindwara Cluster	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
	Harra	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	633031	173

17 Jabalpur Cluster	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	1500064	554

18 Mandsaur Cluster	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	572194	158

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

20 Ratlam Cluster	Alirajpur	30775	8
	Alot	26041	7
	Badawada	9395	2
	Bhavra	11844	3
	Dhamnod	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	614857	172

21 Rewa Cluster	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
	Majhauri	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	1044305	292

22 Shahdol Cluster	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	448491	117

23 Singrauli Cluster	Singrauli	237853	71
	Total	237853	71

24 Sagar Cluster	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	616948	175

25 Damoh Cluster	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	387371	108

26 Chhatarpur Cluster	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	694922	186
	Grand Total	20390746	6685

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

