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28-04-2015

JHARKHAND

BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL
BENCH, NEW DELHI

O.A. NO.: 199 OF 2014

IN THE MATTER OF:

Almitra H. Patel

Applicant

Versus

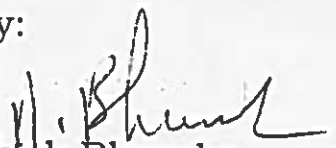
Union of India & Ors.

Respondents

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New Delhi
Dated: 28-04-2015

8675

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AFFIDAVIT ON BEHALF OF STATE OF JHARKHAND

I, Amaresh Kumar Sinha aged about 61 years, R/o 651, Plot # 5, Sector # 7, DWARKA, New Delhi- 110075, working as Officer on Special Duty, Urban Development Department, Government of Jharkhand, do hereby solemnly affirm and declare as under:-

1. That I am working as Officer on Special Duty, Urban Development Department, State of Jharkhand and as such aware of the facts and circumstances of this case, based upon the records maintained in my office with respect to the present matter and duly authorized to affirm this affidavit.



That the Hon'ble Tribunal, vide its order dated 20.03.2015 has *inter alia* directed all the States to file an affidavit in the light of the judgment of Tribunal in Original Application No. 40 of 2013 in the matter of People for Transparency Through Kamal Anand v. State

of Punjab, decided on 25.11.2014 and judgment with regard to the State of Haryana dated 20.03.2015 in the matter of Almitra H. Patel v. Union of India, Original Application No. 199 of 2014.

3. That present affidavit is being filed by the State of Jharkhand in compliance of the aforesaid order of this Hon'ble Tribunal.
4. That the State of Jharkhand has 39 Urban Local Bodies (ULBs) consisting urban population of 53,05,359. Out of the 39 ULBs there are 4 Municipal Corporation namely Ranchi, Dhanbad, Deoghar & Chas, 2 notified areas- JNAC, 14 Nagar Parishads & 19 Nagar Panchayats:
5. That the Solid Waste Management Projects were sanctioned under the Jawaharlal Nehru Urban Renewal Mission (JnNURM) in six ULBs namely Ranchi, Dhanbad, Jamshedpur (UA), Chas, Hazaribagh & Lohardaga.
6. That among the aforesaid six ULBs, in two places namely Ranchi and Dhanbad the working agency M/s A2Z was terminated due to non performance and the re-tender for selection of an agency in Ranchi has been floated. That in Jamshedpur the allotment of work is under consideration.
7. That under the State Project, ULBs namely Pakur Nagar Panchayat received sanction on 21.02.2014,



Jhumritilaiya on 29.03.2012, Chakradarpur on 12.03.2012, Bundu Nagar Panchayat on 19.08.2010 & Chaibasa Nagar Parshad on 05.02.2013. That under the 12th and 13th Finance Commission there ULBs namely Madhupur, Giridih and Gumla have been sanctioned. A table showing current status of Solid Waste Management Project in Jharkhand is annexed herewith and marked as **Annexure-A** and a table showing status of the project sanctioned for SWM is annexed herewith and marked as **Annexure-B**.

8. That out of the 39 ULBs, currently, land is available in 20 ULBs. That the proposed land fill sites in all the ULBs are away from the habitation. These sites have been selected in conformity with the criteria specified under the Municipal Solid Waste (Management & Handling) Rules, 2000.
9. That the DPRs are being prepared for the ULBs where land is available. That the JUIDCO Ltd. (a corporation under Urban Development Department) has been authorized for preparation and implementation of Solid Waste Management Project (SWM Project) vide letter No. 4510 dated 24.10.2014.
10. That the JUIDCO Ltd. has been assigned the work of hiring the Project Management Consultant for the



procurement of Private Concessionaires for the Supervision & Quality control of the SWM Project.

11. That the agency namely Regional Center for Urban & Environmental Studies (RCUES), Lucknow was engaged for preparation of DPRs in 23 ULBs. That M/s MSV Infra, M/s Ketki Consultant, Ranchi, M/s Jharkhand Infrastructure, Ranchi, M/s Nav Bharat Jagriti Kendra, M/s WAPCOS & M/s Vision EIS were engaged by the Urban Development Department for preparation of DPR for 12 ULBs. That the consultants for the preparation of DPRs for the remaining ULBs namely Koderma, Chas, Lohardaga and Bishrampur will be appointed by the end of April-2015.
12. That for the 19 ULBs, where land is unavailable, the concerned Executive Officers/Deputy Commissioners have been directed to identify and acquire the Government lands wherever available or they can purchase the private land. That to support the ULBs in ways possible for the same, directions from the department has been sent to all Deputy Commissioners vide letter no. 152 dated 15.01.2015.
13. That for the 12 ULBs where DPRs were prepared earlier, they are being revised in accordance with the current scheduled rates, new technological innovations &



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equipments as per the Municipal Solid Waste (Management & Handling) Rules, 2000 and as per the guideline of Swachh Bharat Mission issued by MoUD, Government of India in the month of December, 2014.

14. That the draft plan of Jharkhand Model for Municipal Solid Waste Management has been prepared by Urban Development Department and a copy of the said draft plan was placed on record, before this Hon'ble Tribunal, vide diary no. 424 of 2015 dated 20.02.2015. That for the ready reference of this Hon'ble Tribunal, a copy of the said draft plan for Jharkhand Model for Municipal Solid Waste Management is annexed herewith and marked as **Annexure-C.**

15. That the Solid Waste Management Projects in all the ULBs is being proposed to be executed on Public Private Partnership (PPP) basis as stated in the Swachh Bharat Mission (SBM) guidelines.

16. That as directed, all the ULBs are taking initiatives for collection and transportation of Solid Waste. That the Jamshedpur Utilities and Services Company Ltd. (JUSCO) is doing MSW projects in Jamshedpur and doing the work of segregation/treatment and disposal as per the rules.



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17. That the annexures are true and correct copies of their respective originals.

AK Sarda

DEPONENT

VERIFICATION:

Verified on this day 27th day of April 2015 that the contents of this affidavit are true and correct to the best of my knowledge and belief and are based upon the records maintained in the office. No part of it is false and no material fact has been concealed therefrom.

AK Sarda

DEPONENT



ATTESTED

NOTARY PUBLIC, DELHI
27/04/15

IDENTIFIED BY

D. Sharma

Current Status of SWM project in Jharkhand

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S.no	District	Name of ULB	Population	Name of Consultant	status of land	Status of DPR
1	Dhanbad	Dhanbad Municipal Corporation	1162472	WAPCOS	Yes	Approved by CSMC on 20.02.09, working Agency A2Z is terminated and fresh is to be being invited
2		Chirkunda Nagar Panchayat	45508	RCUES, Lucknow	Yes	DPR need to be revised
3	Ranchi	Ranchi Municipal Corporation	1073427	MSV Infra	Yes	Approved by CSMC working Agency A2Z is terminated and fresh tender have been invited.
4		Bundu Nagar Panchayat	21054	RCUES, Lucknow	Yes	DPR under revision.
5	East Singbhum	Chakulya Nagar Panchayat	16306	RCUES, Lucknow	Under process	DPR under preparation
6		Jugsalal Municipality	49660	MSV Infra	Yes	DPR sanctioned by CSMC on 17.02.11 amounting Rs. 36 crore .Contract awarded to SPML for combined Jugsalal, Jamshedpur NAC, Mango NAC,Adityapur , however it is under dispute.
7		Jamshedpur NAC	677350	MSV Infra	Yes	DO
8		Mango NAC	223805	MSV Infra	Yes	
9	Saralkela Kharsawan	Adityapur Nagar Parshad	174355	MSV Infra	Yes	DO
10		Saralkela Nagar Panchayat	14252	RCUES, Lucknow	Yes	DPR need to be corrected
11	Hazaribagh	Hazaribagh Nagar Parishad	142489	Nawbharat jagriti Kendra	Under process	DPR UNDER PREPARATION

12	Bokaro	Chas Nagar Parishad	141640	Not awarded	Under process	NA
13		Phusro Nagar Parshad	89178	RCUES, Lucknow	Under process	DPR UNDER PREPARATION
14	Lohardaga	Lohardaga Nagar Parishad	57411	Not awarded	Yes	NA
15	Giridih	Giridih Nagar Parishad	114533	RCUES, Lucknow	Yes	DPR modified, updated and under technical evaluation.
16	Gumla	Gumla Nagar Panchayat	51264	Jharkhand Infrastructure	Yes	DPR to be modified and updated
17	Sahebganj	Sahebganj Nagar Parishad	88214	RCUES, Lucknow	Yes	DPR being modified and updated
18		Rajmahal Nagar Panchayat	22514	RCUES, Lucknow	Yes	DPR being modified and updated
19	Deoghar	Deoghar Nagar Nigam	203123	RCUES, Lucknow	Under process	DPR to be modified and updated.
20		Madhupur Nagar Parshad	55238	RCUES, Lucknow	Yes	DPR to be modified and updated
21	Koderma	Jhumritilaya Nagar Parishad	87876	RCUES, Lucknow	Yes	DPR modified, updated and submitted
22		Koderma Nagar Panchayat	24633	Not awarded	Under process	NA
23	Chatra	Chatra Nagar Parishad	49985	RCUES, Lucknow	Under process	DPR under preparation
24	Simdega	Simdega Nagar Panchayat	42944	RCUES, Lucknow	Under process	DPR under preparation
25	Godda	Godda Nagar Panchayat	48480	RCUES, Lucknow	Yes	DPR to be modified and updated
26	Khunti	Khunti Nagar Panchayat	36390	RCUES, Lucknow	Under process	DPR under preparation

27	Dumka	Dumka Nagar Parshad	47584	MSV Infra	Under process	DPR under preparation
28		Basukinath Nagar Panchayat	17123	Ketki Consultant Ranchi	Under process	DPR under preparation
29	Jamtara	Mihjam Nagar Panchayat	40463	RCUES, Lucknow	Yes	DPR under preparation
30		Jamtara Nagar Panchayat	29415	RCUES, Lucknow	Yes	DPR under preparation
31	West Singbhum	Chaibasa Nagar Parshad	69565	RCUES, Lucknow	Under process	DPR under preparation
32		Chakradharp ur Nagar Parshad	56531	RCUES, Lucknow	Under process	DPR under preparation
33	Medininaga r	Medininagar Nagar Parshad	78396	MSV Infra	Under process	DPR is submitted
34		Hussalnabad Nagar Panchayat	29241	RCUES, Lucknow	Under process	DPR under preparation
35	Gharwa	Gharwa Nagar Panchayat	46059	RCUES, Lucknow	Under process	DPR under preparation
36	Latehar	Latehar Nagar Panchayat	26981	RCUES, Lucknow	Under process	DPR under preparation
37	Palamu	Bishrampur Nagar Panchayat	42925	Not awarded	Under process	NA
38	Gharwa	Manjhiaon Nagar Panchayat	18349	Vision EIS consultancy Private Ltd.	Under process	DPR under preparation
39	Pakur	Pakur Nagar Panchayat	45840	RCUES, Lucknow	Yes	DPR need to be modified and updated

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Status of Project Sanctions of SWM Projects

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S .no	District	Name of ULB	Year of project sanction
1	Dhanbad Municipal Corporation	JnNURM, (UIG)	2009-10
2	Ranchi Municipal Corporation	JnNURM, (UIG)	2008-09
3	Hazaribagh Nagar Parshad	JnNURM (UIDSSMT)	2008-09
4	Chas Nagar Parshad	JnNURM (UIDSSMT)	2008-09
5	Lohardaga Nagar Parshad	JnNURM (UIDSSMT)	2008-09
6	Pakur Nagar Panchayat	State	2013-14
7	Jhumritilaiya Nagar Parshad	State	2011-12
8	Gumla Nagar Panchayat	12 th FC	2009
9	Giridih Nagar Parshad	12th FC	2010-11
10	Sahebganj Nagar Parshad	12th FC	2009
11	Chakradharpur Nagar Parshad	State	2011-12
12	Chaibasha Nagar Parshad	State	2012-13
13	Godda Nagar Panchayat	State	2008
14	Madhupur Nagar Panchayat	13th FC	2012
15	Jamshedpur NAC	JnNURM , (UIG)	2010-11

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झारखण्ड सरकार

GOVT. OF JHARKHAND
URBAN DEVELOPMENT DEPARTMENT

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JHARKHAND MODEL FOR MUNICIPAL SOLID WASTE MANAGEMENT

(DRAFT PLAN)



RANCHI-2015

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1. BACKGROUND

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There are 39 Urban Local Bodies in Jharkhand generating approximately 1435 tons of Municipal Solid Waste (MSW) every day. As a techno-economical approach, the Department of Urban Development, Government of Jharkhand has prepared model for collection, processing and disposal of municipal solid waste at individual ULB level as well as wherever possible clusters are made comprising of 2 to 3 Urban Local Bodies (ULBs) in close proximity. Jharkhand has planned to develop these projects on Public-Private-Partnership (PPP) basis and the solid waste management will be carried out in all the urban local bodies in the state as per the Jharkhand Model for MSW Management Plan-2014. This plan is designed centrally at state level with local adaptations of all ULBs individually as well as in clusters..

2. OBJECTIVES

- 2.1 The objective of solid waste management is to achieve high standards of cleanliness in the towns and cities of Jharkhand for achieving healthy, hygienic and livable environment.
- 2.2 Safeguard the Environmental sanitation and public hygiene by minimizing pollution and contamination of land, soil and water
- 2.3 Objectives of Jharkhand Solid Waste Management will be governed as per the Municipal Solid Wastes (Management & Handling) Rules, 2000. These rules shall apply to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid waste. Every municipal authority shall within the territorial area of the municipality, will be responsible for the implementation of the provision of these rules. Municipalities will mandatorily follow the implementation schedule-I for setting up of waste processing and disposal facility including landfill, Schedule-II for Management of Municipal Solid Waste, Specifications for Landfill Sites of Schedule-III and Standards for Composting, Treated Leachates and Incinerations of Schedule-IV.

3. MANAGEMENT PRINCIPLES OF JHARKHAND MSW PLAN

The Jharkhand Municipal Solid Waste Plan is based on following principles and these are adopted during the implementation of Jharkhand MSW:

- 3.1 Design Period: Municipal Solid Waste Management involves activities associated with generation, storage, collection, transfer & transport, processing, recovery and disposal of solid waste, which are environmentally compatible adopting principles of economy, aesthetics, energy and conservation. It encompasses planning, organisation, administration, financial, legal and engineering aspects involving inter-disciplinary relationships. While preparing a municipal solid waste management plan, the following design period (time-frame) involving all such activities as stated above would have to be decided depending upon the necessity of solid waste management plan:

(i) Medium term plan: 5-15 years

(ii) Long term plan: 15-25 years

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3.2 Population forecast: The design population will have to be estimated with due regard to all the factors governing the future growth and development of the project area in the industrial, commercial, educational, social and administrative spheres. Special factors causing sudden emigration or influx of population should also be foreseen to the extent possible. A judgment based on these factors would help in selecting the most suitable method of deriving the probable trend of the population growth in the area or areas of the project from the mathematical methods, graphically interpretation wherever necessary.

3.3 Effective segregation at source as well as during processing, collection and transportation.

3.4 Maximum resources recovery

3.5 Effective treatment

3.6 Safe disposal

3.7 Polluters to pay

4. SALIENT FEATURES OF THE JHARKHAND MSW MANAGEMENT PLAN THROUGH PPP:

4.1 Some of the examples of the areas where private sector participation can be considered are Door to door collection of domestic waste, door to door collection of commercial waste, door to door collection of hospital waste, hotel waste, construction waste, market waste, setting up and operation and maintenance of waste disposal facility, setting up and operation and maintenance of waste treatment plants, supplying vehicles on rent, supplying vehicles on lease, repairs and maintenance of vehicles at a private garage, transportation of waste on contractual basis, etc

4.2 Segregation at source into Bio-degradable and Non-Biodegradable waste through two bin system to be preferred.

4.3 Bin Free system to be adopted wherever feasible.

4.4 Latest technology involving Incineration, Waste To Energy, Refuse Derived Fuel (RDF), composting etc. would be employed.

4.5 Not more than 20-25% waste would be allowed to be disposed of in the Engineered Sanitary Land Fill (SLF) sites.

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4.6 Adopting polluters to pay principle, each and every household would have to pay for MSW services and violators would be fined. A special fund (from 13th finance, JnNURM, State budget) have been created at State level for implementation of the project.

4.7 Multi tier management system: Monitoring committees and implementation cells at State level, ULB level and cluster level, Also Project Management Consultant is being appointed for implementation of SWM projects across Jharkhand. For some of the ULBs where DPR is already prepared, tender for project management consultancy services is invited by JUIDCO (Jharkhand Urban Infrastructure Development Company Limited), An autonomous agency under administrative control of Urban Development, Govt. of Jharkhand in order to select the private entity on PPP mode. Concerned Local body will be working as executing agency for implementation of SWM.

5. JHARKHAND.MSW OPERATION PLAN:

5.1 There are three possible approaches that is to be adopted for SWM project in Jharkhand:

1. Individual approach at ULB level
2. Cluster approach by combining 2 to 3 ULBs in close proximity having a common landfill site.
3. 3 to 4 local bodies combined together as single cluster and allocated to single private entity during tendering for operation where in waste processing and landfill site may not be common and could located separately in respective ULBs.

5.2 Broadly, the Jharkhand MSW Operation Plan involves:

1. Door to door collection, collection through street sweeping, cleaning of drains and segregation of MSW at Source
2. Transportation that includes conveyance of municipal solid wastes from place to place hygienically through specially designed transport system so as to prevent foul odour, littering, unsightly conditions and accessibility to vectors
3. Segregation that includes separation of the municipal solid wastes into the groups of organic, inorganic, recyclables and hazardous wastes
4. Processing which means the process by which solid wastes are transformed into new or recycled products
5. Resource recovery wherever possible in form of energy
6. Scientific Disposal of municipal solid wastes in terms of the specified measures to prevent contamination of ground-water, surface water and ambient air quality

The schematic diagram for the Comprehensive MSW Management Plan is as under :

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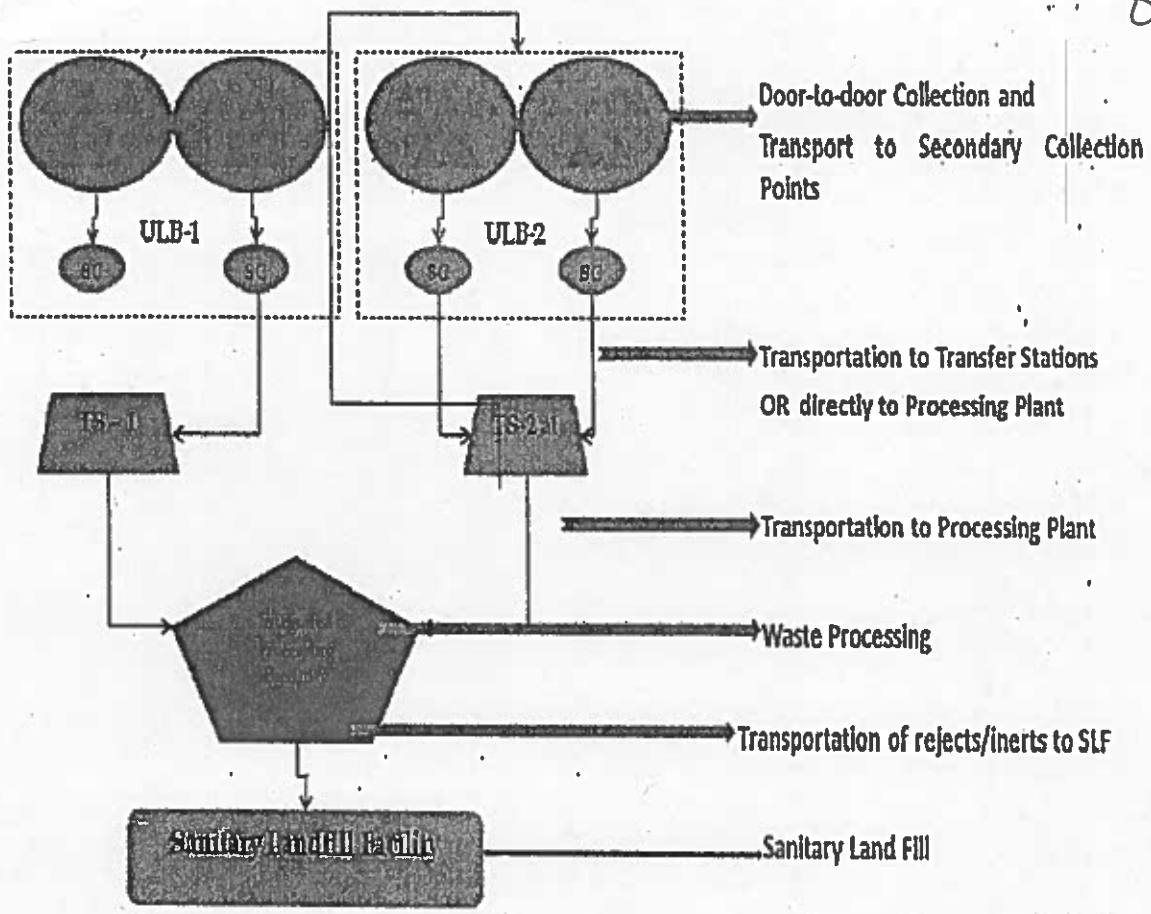


FIGURE-1-CLUSTER APPROACH

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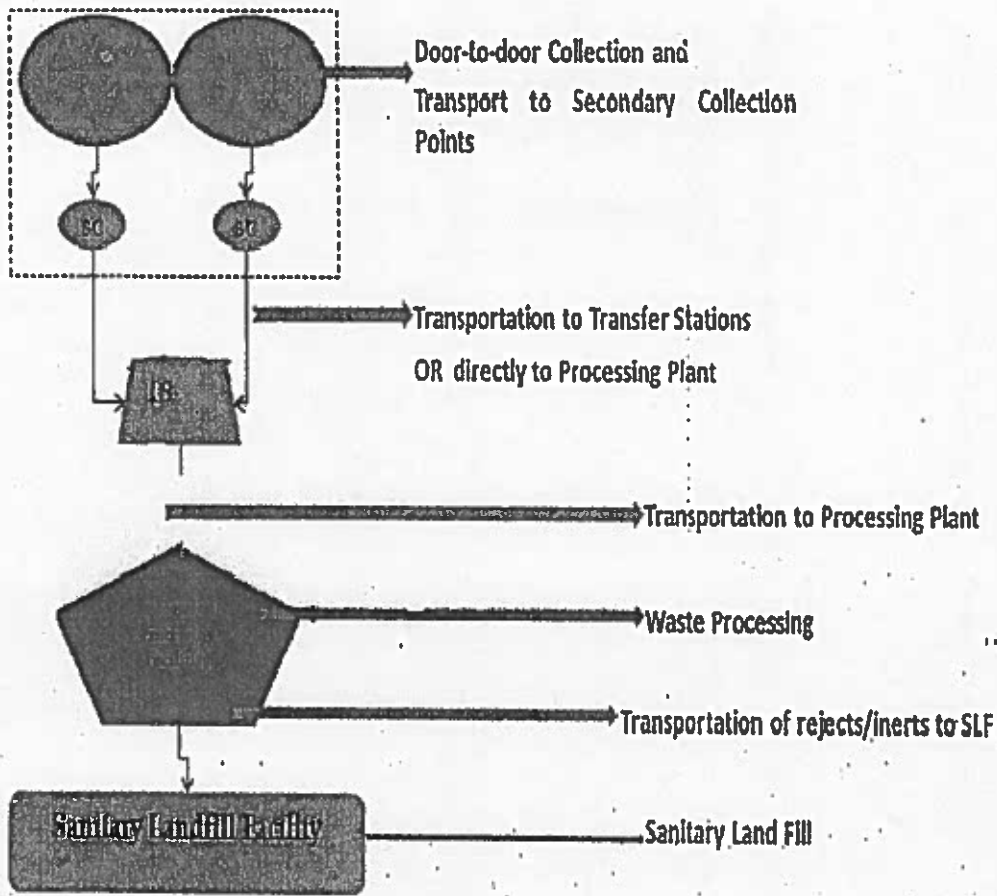


FIGURE-2-INDIVIDUAL APPROACH

The details of the procedures involved in the above said steps are as under:

5.3 Door to door collection and segregation of MSW at Source:

- 5.3.1 The households (HH) will be provided with two separate bins/containers, one each for biodegradable waste /wet waste (green color) and non-biodegradable/dry waste (white color).
- 5.3.2 Primary Segregation has to be done by waste generator at source and then by the waste collector at processing facility.
- 5.3.3 The waste from HH will be collected through Auto Tippers, E-rickshaws, vehicles like LCV etc. having compartmentalized containers.
- 5.3.4 The entire city would be divided into zones and the zones should be further divided into beats.

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- 5.3.5 The door to door collection will be done from 6.00 AM to 11.30 PM. However, the exact timings will be decided mutually by the Concessions Authority (Municipal Corporation) and the Bidder.
- 5.3.6 Depending upon the population of the city and no. of commercial/ institutional establishments, twin bin litter bins of capacity 80 litres will also be placed at every 250 meter on main roads at designated locations for keeping the waste generated from busy commercial area and main roads.
- 5.3.7 Depending upon the population of the city approximately 100-500 workers will be deployed by the Company for carrying out the above mentioned work of door to door collection and transportation of waste up to the processing facility.
- 5.3.8 The above quantities may vary depending upon the actual working design, routing and scheduling finalized mutually by the Concessions Authority and the Concessionaire (Bidder).
- 5.3.9 The fleet of vehicles covering three wheeler auto tipper of about 800 to 1000 litre capacity would be covering approx. 300 to 350 houses, Tata Ace or Auto tipper about 1800 Litre capacity covering approx. 600 to 650 houses depending on the workload.
- 5.3.10 Max 10% Community bins/; secondary collection points would be installed, if no door to door collection is possible in certain areas like congested narrow lanes or slums residents would be made aware of putting their wastes into the bins in segregated manner as specified.
- 5.3.11 Wherever it is feasible Container Free / Bin-less system will be adopted by eliminating the secondary collection points and Primary collection vehicle like auto tipper will transfer the waste to secondary transportation vehicle like Refuse Compactor with a carrying capacity of 7-14 Cum/ vehicle and it will transport the MSW to Transfer Station/Processing Site, or in some area/town whose lead distance to processing plant is less then primary transportation vehicle will directly transport the MSW to Transfer Station/Processing Site as the case may be.

5.4 Regulatory Measures for Waste Generators

5.4.1 Residents

Following would be regulated by existing Municipal law and penal action against all the waste generators including households, restaurants, hotels shops offices, institutions, workers will be levied, in case of defaults. The Govt. Of Jharkhand will regulate the following activities so that

- They will not throw any solid waste in their neighborhood, on the street, open spaces and vacant plots or into drains.

- 8693
- They will (a) keep the food waste / bio-degradable as and generated, in any type of domestic waste container, with a cover, and (b) keep dry / recyclables wastes in bags or sacks.
 - Wet waste will not be disposed of in plastic carry bags.

5.4.2 Vegetable/Fruit Market Waste

- Large size closed containers with lid matching with proposed C&T system would be used for storage of waste in vegetable/fruit market.
- Waste from the shops/fruit market/vegetable market would be removed on a daily basis though Private party selected through MSW-PPP mode.
- Large closed containers kept in the fruit and vegetable markets would be removed during night time or non-peak hours and the waste from meat and fish markets would also be collected in closed containers and picked up by engaging a private party by the local body.

5.4.3 Marriage Hall/Kalyan Mandaps/Community Halls

- Suitable containers with lids which may match with the primary collection or transportation system of Private Party would be provided by these establishment at their cost and would be directly transported to a finalized place by Private party till the processing facility is not operational. Collection of Waste from marriage halls kalyan mandaps, community halls, etc. would be made on a daily basis on a full-cost recovery basis. The cost of such collection would be built into the charges for utilizing such halls/ collected by Private Party from such halls on the charges fixed by Urban Local Body.
- However On-site bio-digesters for food waste/ processing of food wastes by Bio-Methanation and composting would be encouraged.

5.4.4 Hospital/Nursing Homes/Pathological laboratories/Health Care Centres

These establishments produce bio-medical as-well-as ordinary waste. The management of Bio-medical waste is handled by the Jharkhand Pollution Control Board (JPCB) as per 'Biomedical Waste (Management and Handling) Rules 1999' (with subsequent amendments as the case may be). The JPCB has directed:

- These establishments shall refrain from throwing any bio-medical waste on the streets or open spaces as well as into municipal dust bins or domestic waste collection sites.
- They shall refrain from throwing any ordinary solid waste on footpaths, streets or open spaces.
- The Jharkhand Pollution Control Board (JPCB) said conditional authorization of nursing homes in the capital would be renewed only after they get their bio-medical waste disposed at the common incinerator. The JPCB has made it mandatory for nursing homes to use the incinerator.
- They are required to store waste in color-coded bins or bags as per the directions of the Govt. of India. Ministry of Environment Bio-medical Waste (Management & Handling) Rules 1998, and follow the directions of Central Pollution Control Boards and State Control Boards from time to time for the handling, transportation, treatment and disposal of biomedical waste.

5.4.5 Construction & demolition Wastes

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- Construction & Demolition Waste would be collected separately from MSW.
- The Charges/ rates per tonne for C&D collection waste would be fixed and would be levied from the person, who is producing C&D.
- C&D waste from small quantity generators (<2 Tonne) arising from repair/minor renovation/small construction work may be transported to designated locations in the city and the charges may be collected by MSW C&T PPP service provider at a volumetric rates fixed by ULB. Waste Generators have to pay directly to PPP service provider. Large quantity generators or their demolition/construction contractors can transport the waste at their own cost and pay per tonne charges to MSW-C&D PPP service provider at the rates fixed by Local Body.
- In the city with large population, a separate site would be designated for collection and processing of C&D Waste.
- Wherever the quantity of C&D waste generation is more, a separate agency (s) for collection & management of C&D waste may be selected and accordingly Processing Plants for C&D Waste may be planned.

5.4.6 Garden Waste

- Horticulture waste would be collected in separate vehicles
- Wherever the waste quantity is high, separate charges for Horticulture waste would be fixed and charged from the private gardens/lawn plots.
- Private party would collect the horticulture waste and would be allowed to run a compost plant.
- In case of private parks, gardens and lawn plot etc., it would be stored in the premises and kept ready for handing over to the MSW-PPP party and the waste be processed accordingly.

5.4.7 Dairy and Cattle-Shed Waste

- The dairies and cattle breeders having sheds within the city limits are already being moved outside the city limits through formulation of Dairy Schemes.

5.4.8 Provision of Litterbins on Streets in Public Places

- With a view to ensure that streets and public places are not littered with waste materials such as used cans, cartons of soft drinks, used bus tickets, wrappers of chocolates or empty cigarette cases and the like generated while on a move. Litter bins would be provided on important streets, markets, public places, tourist spots, bus and railway stations, large commercial complexes etc. at a distance ranging from 100 meters to 250 meters depending on the local condition.
- Similar bin for disposal of animal droppings would be placed in posh areas.
- Removal of waste from these litterbins would be done by MSW-C&T PPP partner.
- Advertisement rights on the bins for a specified period or by allowing them to put their names on the bins as a sponsor may be given to the Private Partner.
- Litterbins would be put in push as well as poor area in the proportion decided by allocation plan of Private Partner and Urban Local Bodies.

5.5 Management of Storage Points in the city

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- All the wastes collected through Primary Collection System from the households shops and establishments would be taken to the processing or disposal site either directly necessitating a large fleet of vehicles and manpower or through cost effective systems which are designed to ensure that all the waste collected from the sources of waste generation is transported within reasonable time.
- Out of 100 %, maximum of 10% of Storage Depots/Secondary Collection Points in a city would be allowed, where direct transferring of door to door waste to the larger fleet is not feasible. The storage facilities/ secondary collection point must not create unhygienic and unsanitary conditions around the waste bins. This means that it would be:
 - i. Out of reach of stray animals.
 - ii. Would not obstruct the traffic of spread on road.
 - iii. Easily accessible in terms of distance for the user.
 - iv. Fully covered and not exposed.
 - v. Able to hold the expected waste generated, depending on the size and population of the area.
 - vi. Concrete / pucca structure with roofing, to prevent Vector and bird menace, under and adjoining areas of dustbins at Secondary Collection Points
 - vii. Aesthetically acceptable.
 - viii. Designed to be easy to operate, handle, transfer and transport.

5.6 TRANSPORTATION OF MUNICIPAL SOLID WASTE

- Segregated transportation of segregated MSW would be ensured.
- Based on the requirement and availability of space, transfer stations would be planned and provided.
- Transportation of the waste at waste storage depots/ secondary collection points (which would be maximum 10%) is essential through covered vehicles to ensure that no garbage bin/container overflows and waste is not seen littered on streets.
- Waste would be transported in covered vehicles like Refuse compactor /dumper placer etc. The waste collected by Primary Collection vehicles would be directly transported to these covered vehicles at Waste Shifting Points.
- A route Plan for Primary and Secondary Collection System would be made
- Daily Transportation of Litter bins, before they start overflowing; if required twice or thrice a day.
- No. of vehicles and number of trips would depend on the quantity, type of waste, number of containers, type of vehicle etc. The approximate vehicle requirement for transportation of MSW for a city having one to two lakh population is illustrated in table below:

**Services includes road cleaning and drain-cleaning together with SWM.*

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A city having one lakh population to two lakh population	Proposed Vehicle Requirement			
	Type of Vehicle			
	Four wheel-auto tipper(1800 ltr)	Three wheel auto tipper(1000 ltr)	E-rickshaw with hydraulic tipper(800 ltr)	Refuse compactor (07 cum)
	30	11	09	02

Manpower Requirement for Proposed Collection & Transportation System for a city having one lakh to two lakh population			
Sr. No	Particulars	Details	Requirement
1	Primary Collection		
	Auto tipper	Four worker plus 15% absentees	138
	Three wheeler auto tipper	Two worker plus 15% absentees	25
	E-rickshaw	Two worker plus 15% absentees	21
	Driver for four wheeler auto tipper		30
	Driver for three wheeler auto tipper		11
	Driver for four E-rickshaw		09
	Supervisors		12
	Labor for drain cleaning		45
2	Secondary Collection & Transportation		
	Refuse compactor(7 cum)	Drivers(One for each)	02
	Helper /Worker (One for each)		02
	Supervisor (One)		1
	Total		296

5.7 Scientific MSW Processing and Safe disposal of MSW in Jharkhand

5.7.1 The Waste would be processed and disposed of as per the characterization and quantity of waste in the respective cluster/ULB

- MSW-PPP will adopt suitable technology or combination of such technologies to make use of wastes so as to minimize the burden on landfills.

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- The biodegradable wastes shall be processed by composting, vermin-composting, anaerobic digestion or any appropriate biological processing for stabilization of wastes as per the standards.
 - Mixed waste containing recoverable resources will follow the route of recycling or other appropriate technologies.
 - Land filling would be restricted to non-biodegradable, inert waste and other waste that are not suitable either for recycling or for biological processing.
 - Maximum 20-25% of the total Waste reaching to the Processing Site would be land filled.

5.7.2 MSW PROCESSING/ TREATMENT TECHNIQUES

The Processing technology for each cluster or ULB varies as per the quantification of waste and waste characterization in each cluster/ULB. For selection of suitable processing technology several parameters are considered namely Indian experience, quantity and quality of waste, capital investments, scale of operation, Recurring expenditure, environmental impact etc.

5.7.3 RECOMMENDED WASTE PROCESSING TECHNOLOGY

Based on the above criteria, an individual compost plant for small town/city is selected. However, an Integrated MSW processing facility for the big cities will be set up and it will comprise of:

- a) Compost plant
- b) RDF Plant
- c) Waste to Energy facility (WTE)

(a) **Compost Plant:** The fraction of waste less than 50 mm in size which is predominantly comprises of organic waste will be used for composting by Windrow method.

(b) **Pelletisation/Refuse Derived Fuel (RDF):** The fraction of waste more than 50 mm in size which predominantly comprises of combustible waste will be used for RDF preparation. The raw MSW is processed for concentrating the combustible fraction of it by segregating the non-combustible portion. The complete process involves drying. Removal of non-combustibles by air separation (density separation, grinding or shredding of combustible fraction usually by a hammer mill, mixing and production of pellets under high pressure. The pellets can be transported easily and stored for many months without any disintegration. These pellets could be used for heating in the boilers and the generated steam, in turn, is used to produce power. Pellets also, can be used along with conventional fuels for industrial operations

(c) Waste to Energy Plant

MSW will be processed for energy recovery before disposal into the landfill site. Only inert or processing rejects are to be land filled in the range of 20-25 percent of total waste transported to the site. The processing scheme would comprise of the following:

- i. MSW Pre-Processing section
- ii. Waste to Energy plant
- iii. Ash handling plant
- iv. Flue gas treatment plant

(i) **Bio-methanation Plant:** The green waste will be treated by Bio-methanation plant (more commonly called Anaerobic Digestion. In this method, the waste is treated in closed vessels where, in the absence of oxygen, microorganisms break down the organic matter into a stable residue, and

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generate a methane- rich biogas in the process. This biogas can then be used as a source of renewable energy to produce electricity, which can be sold to help balance the cost of operating the Bio-methanation-plant. The solid residue, which remains after Bio-methanation, comprises solid/fibrous material and liquid represents an effective organic material, which can be sold as 'manure' or blended into organic compost. The aqueous liquor is a nutrient-rich fertilizer, which can be used to recycle nutrients back to agricultural land.

(ii) Incineration : It is a controlled combustion process for burning solid waste in presence of excess air (oxygen) at high temperature of about 1000C and above to produce gases and residue containing non-combustible material. One of the most attractive features of the incineration process is that it can be used to reduce the original volume of combustible MSW by 80-90%. In some of the newer incinerators designed to operate at temperatures high enough to produce a molten material before cooling it may be possible to reduce the volume to about 5% or less. MSW can also be co-fired as an additional source in coal-based power plants.

(iii) Incineration with Heat recovery

The incineration process which is used for volume reduction, may also lead to heat recovery.

5.8 Sanitary Landfill Site

5.8.1 Sanitary waste disposal facility would be planned for the safe disposal of processing rejects and non-biodegradable components of solid waste and it is envisaged that sanitary landfill site would receive/accommodate about 20% of processing rejects and inerts per day from the total MSW processed at processing plant.

5.8.2 Sanitary Land Fill Facility: Development of landfill site should be subjected to rigorous planning. Key elements in developing a common scientific landfill site for a cluster would comprise:

- Site Clearance,
- Sub-division of site into major operational phases,
- Progressive excavation for landfill earthworks,
- ordered development of operational phases in working land filling cells,
- advance preparation of the lining system on the landfill base,
- Sequential infilling of land filling cells and operational phases and early and timely capping of land filled cells.

The following sections explain the broad specifications of developing each of the landfill components:

5.8.3 Buffer Zones:

A vegetative cover comprising of trees and shrubs will have to be provided as buffer zone between landfill site and the nearby localities. In addition to the buffer zone a compound wall/rigid fencing all round the land fill site to a height of 3m or as suitable, shall also to be constructed, to totally seclude the site from outside activities.

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5.8.4 Containment of Potential Pollutants: Containment measures such as composite liners at the bottom and lateral sides of the landfill, and surface capping after the land filling is completed, are required to control the pollutants and mitigate subsequent impacts on environment.

5.8.5 Surface Capping: To minimize the ingress of water into the site after completion, it is proposed to form an engineered capping layer. This will comprise a multi layer system.

5.8.6 Leachate Collection and Removal : The leachate collection shall be achieved through the following measures:

- Gravity drainage and grading of the floor of the landfill cell to fall into a sump, located at the lowest point of the cell. The gradients shall be 2 per cent for main drainage with 1 per cent cross fall.
- Installation of leachate drainage blanket above the basal mineral liner over the floor of each cell and partially up the side walls, constructed of free drainage coarse granular fill comprising of graded 50mm crushed rock laid to a depth of 400mm with a permeability of 1×10^{-4} cm/sec.
- Inclusion of perforated HDPE pipes in the drainage blanket to facilitated leachate flow with pipes laid on a typical spacing of 50m.
- Overlaying granular drainage blanket with 100m thick free draining fine granular fills of medium to coarse sand to act as a filter and protective layer.
- Removal of leachate is effected by leachate collection chambers built up with successive lifts of waste and side slope risers located on the site perimeter.
- The submersible pumps or adductor pumps should be used to remove leachate from the sumps and the collection chambers should be linked by permanent pipe work to the treatment plant.
- The precise methods and degree of treatment shall accommodate the fluctuations in leachate generation.

5.8.7 Landfill Gas and Management : The primary measures to restrict the uncontrolled migration of landfill gas from the site will comprise,

- Low permeability containment layers and systems installed on the base and side walls
- Permeable gas drainage blanket of 0.3m thickness laid beneath the capping layer and
- Vertical gas vents and extraction wells.

5.8.8 Surface Restoration

The landfill will be brought up to its pre-settlement level in stages and capped off in a program of progressive restoration, to limit the ingress of water into the site and to facilitate the control of landfill gas. The capping will be a composite structure comprising of four layers of an engineered seal designed to prevent water ingress and egress of landfill gas and an agricultural cap comprising of subsoil drainage layer. A suitable vegetative cover will have to be established on the closed site to ensure slow surface runoff, promote evapo-transpiration of rainfall, retain moisture in the cap and enhance the formation of a soil structure in the agriculture soil.

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5.8.9 Other Measures: Specific attention shall be paid to mitigate the following undesirable and potentially deleterious effects of:

- Litter blown from the disposal / tipping area
- Scavenging animals and insects attracted to the sites
- Flies and Bird attraction
- Odour arising out of waste deposition and degradation
- Dust from landfill operations
- Mud generated from waste, cover, capping materials and site excavation works
- Fire and smoke control and
- Noise of operating plant.

These effects can be minimized by providing local litter, arrestor, fencing, strategically placed in relation to the discharge point, erecting site security fencing for excluding scavenging animals, bird scaring techniques for avoiding bird nuisance, etc.

6. MANAGEMENT ASPECTS

A Private partner in relation to collection, transportation, processing and disposal of all waste, including workshop facilities, would be selected by competitive bidding process. The private Partner would be responsible for collection waste and debris and vehicle deployment and maintenance. The agency would work as per MSW (Handling and Management) Rules, 2000 and the latest rules amended time to time. Advanced work schedule would be prepared and followed every month.

6.1 Financial Management

Solid Waste management (SWM) is part of public health and sanitation and is under the purview of state list under the Constitution of India. Any solid waste management system will require provision of financial resources. For the smooth running of solid waste management system, following provisions are made:

- a) Private partner would charge a Tipping Fee. Tipping Fee is the amount, which he quotes per tone for the collection, transportation, processing and disposal (CTP &D) of MSW. There is a provision of increase of Tipping Fee for every years starting from the Financial Year of completion date of CTP&D. The whole system is performance based and appropriately framed with in-built monitoring and penalty mechanisms.
- b) State level fund (from 13th finance, JnNURM, State level fund for SWM) would be created, which would be under the preview of Director, Municipal Administration, Govt. of Jharkhand. This fund would be utilized to manage the expenses of monitoring cell formed at State level-ULB level and wherever applicable at Cluster Level, payment of Independent Agency at each ULB, would given through the local body/nodal agency (for the payment of Tipping Fee of MSW-PPP operator).
- c) Provision of creation of Tipping Fee Fund in each municipality is made for smooth functioning of the project, which should be an amount equivalent to the amount payable to the Concessionaire/MSW- PPP for three months for the collection & Transportation or Collection, Transportation, Processing & Disposal as the case may be. .

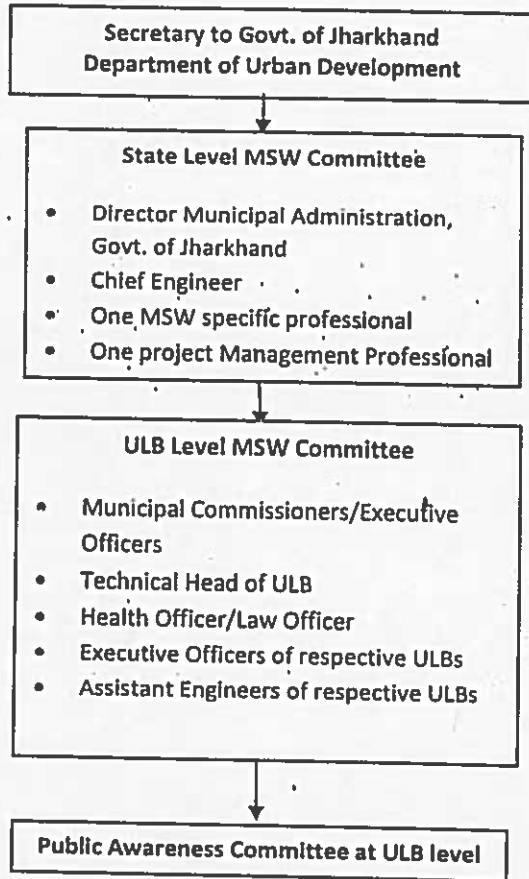
2701

d) Beneficiaries also share the responsibility of waste management following the 'Polluters pay principle'. Following User Charges as per the plot size are defined and charged from each household:

e) Department of Urban Development., Jharkhand is in the process of making arrangements to collect these user charges by collecting it with Electricity Bills, through outsourced agencies

6.2 Institutional Framework

The following Institution set up would be created to implement and monitor the efficient MSW management.



6.3 Mobile Sanitation Courts

It is the tendency of the public to take their civic responsibilities lightly. It is therefore necessary that while on one hand people are motivated to participate effectively in keeping the cities clean, there should be a fear of punishment if they fail to discharge their civic obligations. Provision of Mobile Sanitation Courts is therefore very useful to ensure stopping littering on roads/ public places and compliance of other legal provisions in this regard. The mobile sanitation court would be able to generate funds to be used for MSW management from the fines that may be imposed by the court.

6.4 Redressal of Public Grievances

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Website/ electronic /Online Complaint redressal system along with complaints registration to the concerned office is to be formed for the better efficiency of the system, where the complaint is resolved within 24 hours from time to time of registering the complaints. In case of non-redressal of complaint, penalty mechanism is also to be formed.

6.5 Other Standard procedures to be adopted

- A manual of standardized procedure would be established for the activities of the entire MSWM system.
- These procedures would be mandatory and established for each default. The same penalties should apply whether the system is operated directly by a ULB or by an external contractor.
- A surveillance mechanism would be created to investigate every instance of non-compliance reported to the ULBs using fast and modern communication means such as SMS by mobile to the authorities.
- The staff responsible for solid waste management would be professionally qualified and trained.
- The operation manual would be available to each staff.
- Each staff member would be given responsibility in terms of specific activity along with date time in writing.
- The duty assignment records would be maintained in a Master File which would be checked by officers of Nodal office on regular basis.
- Training of the MSWM staff would be planned and implement properly.
- Penalty would be levied in case of default.
- Project Engineer and nodal officer would submit a monthly report including duty performed by him and how it is matching with the assignment given to him.
- In case of deviation, sufficient reason would be recorded

- Every ward would be monitored for its cleanliness and satisfaction of the citizen.
- The monitoring results would be complied on monthly basis and submitted to the Nodal office in the form of a monthly report.
- The report would be reviewed by the Commissioner. In case of any problem in SWM system, the Project Engineer would discuss it with Commissioner of the Municipal Corporation and suggest remedial measures.
- There would be a quarterly meeting of the Private Partner and Municipal Corporation to discuss the problem and remedial measures.
- The outcome of the meeting would be recorded in form of minutes and communicated to State Level Committee within 15 days of the meeting.
- There would be a separate cell at State Level for Monitoring management of MSWM System in the State.
- This cell would constantly interact with the Project Engineer/ Nodal Officer on performance of MSWM System and other related issues.

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- In case of unsatisfactory observations, the cell should issue notice to the Private Partner under EPA, 1986.
- An annual report on the performance of city wise MSW System record would be prepared city-wise and submitted to the State Boards highlighting all the important points including deficiencies and annual expenditure.
- It may be useful to involve local communities in monitoring the functioning of the entire MSWM System.
- It is necessary to have a cadre of professional staff in municipalities headed by technically qualified chief executives for planning and implementation of MSWM System
- To further strengthen the institutional arrangements for the purpose of management of Municipal Solid Waste, a dedicated MSW Division at state level as well as local level would be constituted. This cell shall be involved in activities related to, inter alia, program development support, program monitoring at state level as well as cluster level, coordination with ULBs, monitoring of MSW activities as per the Solid Waste Management (Handling and Disposal) Rules, 2000, provide guidance to all ULBs, creating public awareness through Non-Government Organizations, etc.

7. THE CURRENT STATUS OF JHARKHAND MSW PLAN IS AS UNDER:

S.no	District	Name of ULB	Population	Name of Consultant	status of land	Status of DPR
1	Dhanbad	Dhanbad Municipal Corporation	1162472	WAPCOS	Yes	The services of A2Z have been terminated. Selection of new agency is in process
2		Chirkunda Nagar Panchayat	45508	RCUES, Lucknow	Yes	DPR need to be revised
3	Ranchi	Ranchi Municipal Corporation	1073427	MSV Infra	Yes	The services of A2Z have been terminated. Selection of new agency is in process
4		Bundu Nagar Panchayat	21054	RCUES, Lucknow	Yes	Revised DPR is submitted
5	East Singhbhum	Chakulya Nagar Panchayat	16306	RCUES, Lucknow	Land acquisition is under process	DPR under preparation
6		Jugsalai Municipality	49660	MSV Infra	Yes	DPR sanctioned by CSMC amounting to Rs.36 cr. Work awarded to SPML on 17.02.11 Agreement is being
7		Jamshedpur NAC	677350	MSV Infra	Yes	

8904

8		Mango NAC	223805	MSV Infra	Yes	resigned. Selection of new agency is in process.
9	Saraikela Kharsawan	Adityapur Nagar Parshad	174355	MSV Infra	Yes	
10		Saraikela Nagar Panchayat	14252	RCUES, Lucknow	Yes	DPR need to be corrected
11	Hazaribagh	Hazaribagh Nagar Parishad	142489	Nav Bharat Jagriti Kendra	Land acquisition under process	DPR under preparation
12	Bokaro	Chas Nagar Parishad	141640	Not awarded	Land acquisition Under process	NA
13		Phusro Nagar Parshad	89178	RCUES, Lucknow	Land acquisition Under process	DPR under preparation
14	Lohardaga	Lohardaga Nagar Parishad	57411	Not awarded	Yes	NA
15	Giridih	Giridih Nagar Parishad	114533	RCUES, Lucknow	Yes	DPR modified, updated and submitted
16	Gumla	Gumla Nagar Panchayat	51264	Jharkhand Infrastructure	Yes	DPR to be modified and updated
17	Sahebganj	Sahebganj Nagar Parishad	88214	RCUES, Lucknow	Under process	DPR to be modified and updated
18		Rajmahal Nagar Panchayat	22514	RCUES, Lucknow	Under process	DPR to be modified and updated
19	Deoghar	Deoghar Nagar Nigam	203123	RCUES, Lucknow	Under process	Revised DPR submitted on 21/01/2013
20		Madhupur Nagar Parshad	55238	RCUES, Lucknow	Yes	DPR to be modified and updated
21	Koderma	Jhumritilaiya Nagar Parishad	87876	RCUES, Lucknow	Yes	DPR modified, updated and submitted
22		Koderma Nagar Panchayat	24633	Not awarded	Under process	
23	Chatra	Chatra Nagar Parishad	49985	RCUES, Lucknow	Under process	DPR under preparation
24	Simdega	Simdega Nagar Panchayat	42944	RCUES, Lucknow	Under process	DPR under preparation
25	Godda	Godda Nagar Panchayat	48480	RCUES, Lucknow	Yes	DPR to be modified and updated
26	Khunti	Khunti Nagar Panchayat	36390	RCUES, Lucknow	Under process	DPR under preparation
27	Dumka	Dumka Nagar Parshad	47584	MSV Infra	Under process	DPR under preparation
28		Basukinath Nagar Panchayat	17123	Ketki Consultant Ranchi	Under process	DPR under preparation
29	Jamtara	Mihijam Nagar Panchayat	40463	RCUES, Lucknow	Yes	DPR under preparation

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30		Jamtara Nagar Panchayat	29415	RCUES, Lucknow	Yes	DPR under preparation
31	West Singhbhum	Chaibasa Nagar Parshad	69565	RCUES, Lucknow	Under process	DPR under preparation
32		Chakradharpur Nagar Parshad	56531	RCUES, Lucknow	Under process	DPR under preparation
33	Medininagar	Medininagar Nagar Parshad	78396	MSV Infra	Under process	DPR is submitted
34		Hussainabad Nagar Panchayat	29241	RCUES, Lucknow	Under process	DPR under preparation
35	Gharwa	Gharwa Nagar Panchayat	46059	RCUES, Lucknow	Under process	DPR under preparation
36	Latchar	Latchar Nagar Panchayat	26981	RCUES, Lucknow	Under process	DPR under preparation
37	Palamu	Bishrampur Nagar Panchayat	42925	Not awarded	Under process	NA
38	Gharwa	Manjhiaon Nagar Panchayat	18349	Not awarded	Under process	NA
39	Pakur	Pakur Nagar Panchayat	45840	RCUES, Lucknow	Yes	DPR need to be modified and updated

H. Bheem
T. J. S. C. S.