



Jamnagar Municipal
Corporation



DPR for Door-to-Door & Public Areas Waste Collection Jamnagar Municipal Corporation

February 2018



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Preparation of Detailed Project Report on Solid Waste Management for Jamnagar

February 2018



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Disclaimer

The report refers to information collected during Urban Management Centre's (UMC) team visit and secondary information provided by the staff of Solid Waste Management (SWM) Department, Jamnagar Municipal Corporation (JMC).

During the course of the visits and report preparation we were provided with both written and verbal information. Nothing has come to our attention to cause us to believe that the data or maps provided by various sources are not true or not correct. We believe this information to be authentic and therefore have not conducted an independent audit of the same. No investigations of the title of the tangible and intangible assets have been made and matters of a legal nature relating to the title of the assets have not been considered.

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Acronyms and Abbreviations

BOT	Build Operate Transfer
C&D Waste	Construction and Demolition waste
CAP-EX	Capital Expenditure
C&D	Construction and Demolition
CPHEEO	Central Public Health and Environmental Engineering Organisation
DPR	Detailed Project Report
DWC	Darbar Waste Corporation
14 th FC	14 th Finance Commission
JMC	Jamnagar Municipal Corporation
MIS	Management information system
MLA	Member of Legislative Assembly
MoUD	Ministry of Urban Development
MP	Member of Parliament
MSW	Municipal Solid Waste
NGT	National Green Tribunal
NULM	National Urban Livelihood Mission
O & M	Operation and Maintenance
OPEX	Operational Expenditure
PPP	Public Private Partnership
RDF	Refuse Derived Fuel
SBM	Swachh Bharat Mission
SHG	Self Help Group
SJMMSVY	Swarnim Jayanti Mukhya Mantri Shehari Vikas Yojana
SLB	Service Level Benchmark
SLS	Sanitary Landfill Site
SOP	Standard Operating Procedure
SPCBs	State Pollution Control Board
SWM	Solid Waste Management
ULB	Urban Local Body
UMC	Urban Management Centre

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Executive summary

The Jamnagar Municipal Corporation has prepared the following projects and its funding requirements under the Swachh Bharat Mission (SBM). The projects and the investments have been phased as

1. Short Term for Swachh Bharat Mission (upto FY 2019-20)
2. Long Term post SBM (from FY 2020-21 to 2027-28)

The Central, State and City share as per the SBM guidelines is 35%, 35% and 30% respectively.

	Short Term for SBM (till FY 2019-20)		Long Term (FY 2020-21 to 2027-28)		TOTAL (FY 2019-20 to 2027-28)	
	Quantity	Amount (INR)	Quantity	Amount (INR)	Quantity	Amount (INR)
A. Primary collection (Door-to-Door)						
Dustbins for distribution to properties	3,65,618	4,02,17,980	-	-	3,65,618	4,02,17,980
Mini Tipper (1 MT)	138	7,11,52,500	221	17,14,32,736	359	24,25,85,236
3-Wheeler Tipper (0.5 MT)	13	39,00,000	13	57,30,379	26	96,30,379
Big compactors (12 MT)	7	2,77,44,000	13	6,79,30,600	20	9,56,74,600
Dead Animals Lifting Van (Big)	1	20,00,000	1	29,38,656	2	49,38,656
Dead Animals Lifting Van (Small) Tata 407	1	15,00,000	1	22,03,992	2	37,03,992
Open body truck with crane arm for C&D (10 MT)	1	30,00,000	1	44,07,984	2	74,07,984
Open body tractor-trolley with crane arm for C&D (5 MT)	3	22,50,000	3	33,05,988	6	55,55,988
A. SUB-TOTAL (Primary Collection)		15,17,64,480		25,79,50,336		40,97,14,816
B. Secondary waste collection						
6-bin Handcarts	1,103	82,70,000	1,103	1,21,51,343	2,205	2,04,21,343
Set of 6-bins	1,103	10,71,792	7,719	1,08,54,111	8,821	1,19,25,903
Protective gear for drain cleaners	1,084	37,18,322	2,016	96,89,086	3,100	1,34,07,407
Protective gear for street sweepers	2,528	1,01,48,403	10,112	6,05,32,115	12,640	7,06,80,518
Big compactors (12 MT)	10	3,40,00,000	8	3,99,65,724	18	7,39,65,724
Small compactors (5 MT)	5	99,00,000	4	96,97,565	9	1,95,97,565
Street Sweeping Machines (Big)	2	1,08,00,000	2	1,58,68,743	4	2,66,68,743
Street Sweeping Machines (Small)	1	16,50,000	1	24,24,391	2	40,74,391
Litter bins	2,446	30,52,358	9,783	1,82,06,382	12,229	2,12,58,741
New bins to be procured (660 litres)	953	4,24,09,600	-	25,03,70,565	953	29,27,80,165
B. SUB-TOTAL (Secondary Collection)		12,50,20,475		42,97,60,025		55,47,80,501

	Short Term for SBM (till FY 2019-20)		Long Term (FY 2020-21 to 2027-28)		TOTAL (FY 2019-20 to 2027-28)	
	Quantity	Amount (INR)	Quantity	Amount (INR)	Quantity	Amount (INR)
C. Waste Processing and Disposal						
Tractor mounted loader for dumpsite	2	30,00,000	2	44,07,984	4	74,07,984
Front End Loader with Back Hoe - 30x Type for dumpsite	1	35,00,000	1	51,42,648	2	86,42,648
Sanitary Landfill Site	1	11,08,57,436	-	-	1	11,08,57,436
Dumpsite remediation	1	4,19,39,459	-	-	1	4,19,39,459
C. SUB-TOTAL (Waste Processing and Disposal)		15,92,96,895		95,50,672		16,88,47,527
D. Miscellaneous						
Mobile Court Van for Sanitation	1	30,00,000	1	44,07,984	2	74,07,984
Power bucket cleaning machine set for clearing waste from drains	2	20,00,000	2	29,38,656	4	49,38,656
D. SUB-TOTAL (Miscellaneous)		50,00,000		73,46,640		1,23,46,640
GRAND TOTAL (A+B+C)		44,10,81,850		70,46,07,635		1,14,56,89,484

Source of funding	% share	Amount (INR)
Central + State Share	70%	30,87,57,295
JMC Share	30%	13,23,24,555
TOTAL		44,10,81,850

Status of SWM Rules 2016 compliance of Jamnagar. All requisites have been complied with.

S. No.	SWM Rules 2016 Provisions	Compliance Status/ Suggestion
1	POLICIES	
1.1	Prepare a solid waste management plan	"Zero Waste (Litter Free) Master Plan, Jamnagar" has been prepared in December 2017 as a part of the SWM DPR preparation.
1.2	Frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules	JMC has prepared Draft Public Health Bye-laws as per the SWM Rules 2016 and will be submitted to the State Government for approvals
1.3	Organisations of waste pickers or informal waste collectors and formation of Self Help Groups	274 waste pickers have been issued ID cards and registered to collect waste
2	COLLECTION	
2.1	Arrange for door to door collection of segregated solid Waste	Door-to-Door waste collection contract given to 2 contractors to cover the entire city
2.2	Direct street sweepers not to burn tree leaves	JMC issued an order to all sanitary workers under Nirmal Gujarat in 2007 to end burning of solid waste. Since then, no waste is burned including tree leaves.
2.3	Collect separately waste from sweeping of streets	Separate collection system comprising street sweepers and 400 secondary collection bins are

S. No.	SWM Rules 2016 Provisions	Compliance Status/ Suggestion
		emptied by compactors and 700 open spots cleaned by tractors from the city
2.4	Collect horticulture, parks and garden waste separately and process in the parks and gardens	JMC has installed 1 Organic Waste Composter in JMC office and plans to implement it in 5 parks and gardens in the city
2.5	Setup material recovery facilities or sorting facility	The proposed W2E plant is designed for mechanical waste sorting and material recovery
2.6	Establish waste deposition centres for domestic hazardous waste, safe storage and transportation of the domestic hazardous waste	JMC proposes domestic hazardous waste collection kiosks at all ward offices
3	TRANSPORTATION	
3.1	Set up covered secondary storage facility	400 Secondary bins are placed in the city. In addition, the proposed Waste to Energy W2E plant will have a waste holding facility (12 m deep bunker for secondary storage)
3.2	Transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility	Segregation has been proposed in the SWM Master Plan and JMC has engaged an agency to build-operate a 20 MT bio-methanation plant at Lalpur Bypass. It is expected that the operations would commence in April 2018. JMC has proposed distribution of 2 bins to all properties and placed two 660 litre secondary collection bins. The waste from these bins would be transported to the processing plants in a segregated manner.
3.3	Transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility	All waste will be transported in a segregated manner to the proposed W2E plant.
3.4	Transport construction and demolition waste	C&D waste is transported in a segregated manner to the existing dump site.
4	TREATMENT	
4.1	Solid waste processing facilities * bio-methanation, microbial composting, vermicomposting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes * waste to energy processes including refused derived fuel	JMC is contracting Abellon Clean Energy to setup a W2E plant for processing of all waste generated in the city. In addition to the W2E, a 20 MT bio-methanation plant would be operational from April 2018 in Jamnagar.
4.2	Ensure that the operator of a facility provides personal protection equipment	The operator would comply with applicable safety regulations and has been included in the concessionaire agreement
4.3	Promote setting up of decentralised compost plant or bio methanation plant at suitable locations	JMC has installed 1 Organic Waste Composter in JMC office and plans to implement it in 5 parks and gardens in the city
5	DISPOSAL	
5.1	Construction, operation and maintenance of sanitary landfill and associated infrastructure	A sanitary landfill (SLF) site has been identified and its construction has been proposed in the SWM Master Plan
5.2	Grant of authorisation for setting up waste processing, treatment or disposal facility	JMC is contracting Abellon Clean Energy to setup a W2E plant for processing of all waste generated in the city. In addition to the W2E, a

S. No.	SWM Rules 2016 Provisions	Compliance Status/ Suggestion
		20 MT bio-methanation plant would be operational from April 2018 in Jamnagar.
5.3	Stop land filling or dumping of mixed waste	Dumping of mixed waste in the existing dump site would be stopped once W2E plant is operationalised
5.4	Allow only the non-usable, non-recyclable, nonbiodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill	Only the non-usable, non-recyclable, nonbiodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities will be allowed for disposal in the sanitary landfill
5.5	Investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of biomining and bio-remediation	Existing dumpsite at Gulabnagar has been identified and its remediation has been proposed as per the SWM Master Plan
5.6	In absence of the potential of bio-mining and bioremediation of dumpsite, it shall be scientifically capped	
6	IEC	
6.1	Involve communities in waste management and promotion of home composting	A communication strategy and IEC plan is being prepared by JMC to cover all aspects listed in the SWM Rules 2016
6.2	Incentives may be provided to recycling initiatives by informal waste recycling sector	
6.3	Waste generators not to litter waste, send to segregated waste to authorised the waste pickers or waste collectors authorised	
6.4	Educate workers including contract workers and supervisors for door to door collection	
6.5	Training on solid waste management to waste-pickers and waste collectors	
6.6	Create public awareness through information, education and communication campaign	
7	FINANCIAL SUITABILITY	
7.1	Make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services	The proposed SWM Master Plan has outlined the provisions for capital and O&M expenses through various sources
7.2	User fee from waste generators	JMC has approved the following user charges in the FY 2018-19 budget <ol style="list-style-type: none"> 1. Residential – INR 10 to 20 monthly 2. Commercial – INR 10 to 30 monthly 3. Industrial – INR 20 to 50 monthly

The report assesses the existing situation of solid waste management in Jamnagar details followed by the proposed investments listed in the table above in the following sections.



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