

PROFORMA FOR SUBMITTING INFORMATION ON SOLID WASTE MANAGEMENT

Name of City/Town:	Nagpur	District:	Nagpur
Name of Municipal Body:	Nagpur Municipal Corporation	Division:	Nagpur
Address:	-	State:	Maharashtra
Telephone:	533832	Fax:	
Email:		Website:	
<ul style="list-style-type: none"> <li><b>DEMOGRAPHY</b></li> </ul>			
.1	Name of Officer In-Charge	Health Officer	
.2	Area of Municipal Corporation /Council (Please provide map showing legal limits of municipal body) (km <sup>2</sup> )	217 sq. kms	
.3	No. of wards / zones	Prabhag no - 45 , zone -10 , Wards -136	
.4	Total population (as per 1991 census)	16,24,175	
.5	Total population (as per 2001 census)	20,40,175	
.6	Population	-	
	<ul style="list-style-type: none"> <li>Urban</li> <li>Slums</li> </ul>	7,50,000	
.1	Floating population	2,00,000	
.2	Total no. of household	4,25,000	
.3	Average maximum temperature (°C)	-	
.4	Average minimum temperature (°C)	-	
.5	Average yearly maximum rainfall (mm)	-	
.6	Average maximum humidity	-	
.7	Average minimum humidity	-	
.8	Average depth of water table	-	
.9	Altitude (i.e. mean sea level)	-	

- **GENERATION OF MUNICIPAL SOLID WASTE**

.1	Total MSW generation (MT/day)	700
.2	MSW generation (gms/capita/day) per person	350
.3	Of the total MSW generated	
	• Quantity of domestic MSW (MT/day)	613
	• Quantity of commercial MSW (MT/day)	35
	• Quantity of industrial (non-toxic and non-hazardous) waste (MT/day)	0
	• Quantity of waste from markets (MT/day)	40
	• Quantity of waste from hotels and restaurants (MT/day)	12
.1	Composition of MSW (Attach separate sheet)	
	• Physical characteristics	
	○ Biodegradable (%)	
	○ Paper (%)	3.2 to 9
	○ Plastic (%)	1 to 2
	○ Glass (%)	.2 to 0.9
	○ Metal (%)	-
	○ Inert, ash, debris (%)	-
	○ Rags (%)	-
	○ Stone (%)	-
	○ Rubber / Tyre (%)	-
	○ Coconut shell (%)	-
	• Chemical characteristics	
	○ Carbon (%)	
	○ Nitrogen (%)	
	○ Phosphorous as P <sub>2</sub> O <sub>5</sub> (%)	
	○ Potassium as K <sub>2</sub> O (%)	
	○ C/N ratio	
	○ Calorific value (kCal/kg)	714 to 1398
	○ Density of MSW (kg/m <sup>3</sup> )	
	○ Moisture content (%)	
	○ Organic (%)	12 to 18

	○ Moisture content ( %)	20 to 44
	<b>• SWEEPING</b>	
.1	Total length of roads (with or without footpath) (km)	11000
	• Total length of cement-concrete roads (km)	30
	• Total length of asphalted roads (km)	1000
	• Total length of Kutchha roads (km)	70
.1	Total no. of sweepers employed	3890
	• Departmental	-
	• Contracted	-
.1	Working hours of sweepers	-
.2	Norms of sweeping (e.g. one sweeper per ... population, or one sweeper per ... sq. m. area, or one sweeper per ... RMT road)	Depend on the circumstances
.3	Sweeping carried out at a location by	<b>Wheel barrow, container handcarts, plastic bins, cane baskets containers</b>
.4	Sweeping waste is put in a...	-
.5	Frequency of sweeping	No information
.6	Total no. of wheel barrows provided	-
.7	Total no. of containerised handcarts provided	-
.8	Total capacity of wheel barrow (kg)	-
.9	No. of containers and its capacity in kg	-
.10	Type of broom provided	-
.11	Any other equipment provided (e.g. spade, shovel, tikow)	-
.12	Protective gear provided (e.g. leather hand gloves, gumboots, mask)	-
	<b>• COLLECTION, STORAGE AND TRANSPORTATION</b>	
.1	Area covered for collection of MSW	Entire city
.2	No. of households covered	4,25,000
.3	No. of households covered under door-to-door collection (bell ringing)	30%
.4	Is the collection carried out by municipal authority or private contractor or NGO?	Departmentally & private agency
.5	Is the segregation is carried out at source?	-

	If no, what steps have been taken?	-
.6	Total quantity collected (MT/day)	700
.7	MSW collected in mixed form (MT/day)	-
.8	MSW collected in segregated form (MT/day)	-
.9	Whether littering is prohibited by the municipality?	-
.10	Whether litterbins are provided?	-
.11	Frequency of waste collection	-
.12	Is waste collected every day <i>i.e.</i> 7 days a week and 365 days a year?	-
	If no, give details	-
.13	Total number, type, size, and capacity of storage bins / container / trailers provided	-
.14	Whether the bins are open or closed?	-
.15	Whether all bins are attended/cleaned daily? <i>(i.e.</i> 7 days a week and 365 days a year)	-
	If no, mention details	-
.16	Whether the lifting of waste from the bins is manual or mechanical?	40% Manual / dumper placer – 60%

.17 Vehicle details					
Dumper placer (with 4.5 m <sup>3</sup> / 8 m <sup>3</sup> containers)					
Open truck					
Open truck with tipping					
Tractor-trailer without tipping					
Auto rickshaw with or without tipping					
Tricycle with or without tipping					
Any other type (please mention)					

.18 Collection details								
Type of vehicle	No. of vehicles used	No. of shifts	Capacity (MT)	No. of trips/ shift	Distance travelled / shift	Quantity of MSW carried / shift (MT)	Quantity of MSW carried out / day (MT)	No. of workers / vehicle
Compactor (mobile)	-	-	-	-	-	-	-	-
Dumper placer (with 2.5 m <sup>3</sup> containers)	37	-	3	-	-	555	-	-
Dumper placer (with 4.5 m <sup>3</sup> / 7 m <sup>3</sup> containers)	-	-	-	-	-	-	-	-
Open truck	17	-	4	2	10 kms	136	-	-
Open truck with tipping	6	-	3	3	10	36	-	-
Tractor-trailer with tipping	-	-	-	-	-	-	-	-
Tractor-trailer without tipping	-	-	-	-	-	-	-	-
Auto rickshaw with/ without tipping	-	-	-	-	-	-	-	-
Tricycle with/without tipping	-	-	-	-	-	-	-	-
Any other type	-	-	-	-	-	-	-	-
<b>Total</b>								
.19	If the vehicles are open to atmosphere, are they covered with temporary plastic sheet?			Yes/No				
• <b>COLLECTION SYSTEM</b>								
.1	Approximate MSW collected (MT)			700				
	o Household (urban)			277				

	o Slums	175
	o Street sweeping	140
	o Shops & commercial establishments	35
	o Markets	40
	o Hotels, restaurants, eating housesGardens, parks, fairs	12
	o Slaughter houses	-
	o Building sites (debris, earth, etc.)	15
.2	No. of premises / establishments	
	o Households	-
	o Shops, commercial establishments	-
	o Slums, households, population	-
	o Vegetable and fruit markets	-
	o Fish and meat markets	-
	o Hawkers	-
.3	No. of hotels, restaurants, eating houses	-
	o Grade / class I	-
	o Grade / class II	-
	o Grade / class III	-
	o No. of star hotels	-
.4	Guesthouses	-
.5	Marriage halls	-
.6	Hostels	-
.7	Cinema halls	-
.8	Theatres	-
.9	Stables and no. of animals	-
.10	Hospitals/ clinics/ nursing homes Total no. of beds	-
.11	Parks, gardens, recreation places like lakes, amusement parks	-
.12	Building sites (under construction)	-
.13	Slaughter houses	-

- **PROCESSING AND DISPOSAL OF MSW**
- .1 Total quantity of MSW processed (MT/day) -
- .2 Technology / technologies adopted -
  - Composting (MT/day) -
  - Vermiculture (MT/day) -
  - Pelletisation (MT/day) -
  - Waste to energy (MT/day) -
- .3 Composting -
  - Compost produced (MT/year) -
  - Is it done mechanically? -
  - Is it the compost sold? -
  - If yes, the quantity sold (MT/year) -
  - Total revenue generated (Rupees/year) -
- .1 Vermi-composting -
  - Vermi-compost produced (MT/day) -
  - Is the vermi-compost sold? -
  - If yes, the quantity sold (MT/year) -
  - Total revenue generated (Rupees/year) -
- .1 Pelletisation -
  - Pellets produced (MT/day) -
  - Are the pellets sold? -
  - If yes, the quantity sold (MT/year) -
  - Total revenue generated (Rupees/year) -
- .1 Waste to energy -
  - Energy produced (MW/MT/day) -
    - Incineration -
    - Pyrolysis -
    - Bio-methanation -
    - Any other (Please mention) -
  - Revenue generated (Rupees/year) -
- .1 Dumping grounds/landfill sites -



- MSW disposed off by open dumping (MT/day) [mixed/inert] -
- MSW disposed off by controlled dumping (MT/day) [mixed/inert] -
- MSW disposed off by sanitary landfill (MT/day) [mixed/inert] -
- No. of dumping grounds/ landfill sites -
- Whether municipality legally owns them? -
- Area of each dumping ground/ landfill site -
- Whether the area will be sufficient for next 25 years -
- If no, then what steps have been taken to acquire land? -
- Distance (in km) of dumping ground / landfill site from ... -
  - Habitation -
  - Drinking water source -
  - Religious or monument places -
- Distance from airport or airbase -
- Has it been designed scientifically -
- Has the existing dumping ground been upgraded as required by MSW Rules, 2000 -
- If no, what steps have been taken (provide details) -
- .1 Whether the following facilities are provided -
  - Weighbridge -
  - Fencing -
  - Approach roads/ internal roads -
  - Lighting facility -
  - Site office with monitoring equipment -
  - Managerial staff and manpower -
  - Covering material used daily as per Rules 2000 -
  - Is it available in sufficient quantity? -

•	Gas venting arrangement	-
•	Leachate collection system	-
•	<b>INSTITUTIONAL ARRANGEMENTS</b>	
.1	SWM services provided in the city/town by	Health officer
.2	Total no. of Supervisory Staff provided (e.g. Health officer/ Assistant Health officer/ Chief Sanitary Inspector/ sanitary Inspector/ Sanitary Supervisors, etc.)	65
.3	Total no. of sweepers/ Pourakarmikas/ labourers/ Mukadam/ Jathedars/ Daffedars, etc.	4241
.4	Organisational structure	-
•	<b>PRIVATISATION</b>	
.1	Whether any of the following service is privatised?	-
•	Sweeping	-
•	Door-to-door collection	-
•	Community collection	-
•	Transportation	-
•	Processing of MAW	-
•	Sanitary landfilling	-
	If yes, provide details	--
	If no, whether any future plans for privatisation	-
•	Details of NGO/ CBO/ Residential groups involved in any schemes/ projects initiated by municipal body in SWM/ clean city program	-
•	<b>COST IMPLICATIONS IN SWM</b>	
.1	Expenditure (in Rupees/Year)	

	• Total cost of SWM services under various heads		
	• Establishment including salaries, uniforms, etc		2,507 lakhs
	• Tools, equipment, and consumables including disinfectant		20 lakhs
	• Operation and maintenance of garbage vehicles including fuel, oil, spare parts, tyres, batteries, etc		200 Lakhs
	• Hiring charges for contractors' vehicle & machinery, bulldozers, JCBs, etc		---
	• Other miscellaneous expenses		200 Lakhs
.1	The above total cost in terms of following activities (Rupees/Year)		
	• Sweeping cost	}	2,150 lakhs
	• Collection cost		
	• Transportation cost		30 lakhs
	• Processing cost		
	• Disposal / sanitary landfill cost		
.1	Cost recovery		
	• Tipping fee or trade refuse charges (Rupees/Year)		6,50,000
	• Revenue generation (by sale of compost, vermi-compost, energy/ gas, etc. (Rupees/Year)		2920 lakhs
	• Annual expenditure for SWM services		2,927 lakhs
	Cost of SWM services in Rupees per capita per year		143
	Cost of SWM services in Rupees per tonne of MSW		1146
	• <b>OTHER FACILITIES</b>		
.1	What facilities are provided for the following?		-

• Biomedical waste	There are 48 hospitals under the corporation. At present incinerate is the method followed for disposal of bio-medical waste. There are 515 private hospitals and clinics. Out of these 160 are covered by the common incineration facility.
• Diary related activities	3
• Slaughter house and unauthorised slaughtering	-
• Construction, demolition, debris and silt	-
• Encroachments on footpaths, in parks	-
• How many slums have been identified and whether there are provided with sanitation facilities?	-
• Is there any enforcement wing for taking renal actions?	-
Recovery of administrative charges	-
Fines under Municipal/Police Act	-
Recourse to Municipal Act bye-laws	-
• Whether any cases are registered and settled during last three years?	-
No. of cases registered during last three years	-
No. of cases settled during last three years	-
Total recovery during last three years	-
• <b>SPECIAL/ UNIQUE SCHEMES OR INITIATIVES<sup>1</sup></b>	
.1 Recycling schemes for plastic, PET bottles	-
.2 Encouraging community activity such as ALM <sup>2</sup> formation	-
.3 Encouraging people's participation by building-wise or building complex-wise waste segregation and processing of organic waste by vermi-composting or composting	-
.4 Training needs for sanitary workers on health and safety issue	-
.5 Development of tools and implements	-

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<sup>1</sup> Details of schemes can be provided on a separate sheet

<sup>2</sup> Advance Locality Management

.6 Please provide list of potential NGO for implementing any of the initiatives (any association registered with municipal body/ unregistered local area management) -

• **AWARENESS**

.1 Are you aware of the various notifications of the Ministry of Environment and Forests, Government of India -

- Municipal Solid Waste (Management and Handling) Rules, 2000 -
- Recycled Plastics Manufacture and Usage Rules, 1999 -
- Biomedical Waste (Management and Handling) Rules, 1998 -
- Coastal Regulatory Zones Rules, 1991 (amended up to 2002) -

Place: Mumbai

Date: 19- 1- 2005

Signature of the Municipal Commissioner /  
The Health Officer/ The Chief Engineer (SWM)

Stamp

Note: Please provide small note on the geographical and historical background of the city, tourist places, monuments, pilgrimage places, main industrial areas, industries, GNP, GDP, Airport, Airbase, main events and main people of national and international importance, *etc.*