

PROFORMA FOR SUBMITTING INFORMATION ON SOLID WASTE MANAGEMENT

Name of City/Town:	Panaji	District:	
Name of Municipal Body:	Municipal corporation	Division:	
Address:		State:	Goa
Telephone:		Fax:	
Email:		Website:	
<ul style="list-style-type: none"> • DEMOGRAPHY 			
.1	Name of Officer In-Charge		
.2	Area of Municipal Corporation /Council (Please provide map showing legal limits of municipal body) (km ²)	3702	
.3	No. of wards / zones		
.4	Total population (as per 1991 census)	42,915	
.5	Total population (as per 2001 census)	59,066	
.6	Population		
	<ul style="list-style-type: none"> • Urban • Slums 		
.1	Floating population		
.2	Total no. of household		
.3	Average maximum temperature (°C)	33	
.4	Average minimum temperature (°C)	21	
.5	Average yearly maximum rainfall (mm)	2860 MM	
.6	Average maximum humidity		
.7	Average minimum humidity		
.8	Average depth of water table		
.9	Altitude (<i>i.e.</i> mean sea level)		

- **GENERATION OF MUNICIPAL SOLID WASTE**

- .1 Total MSW generation (MT/day) 32
- .2 MSW generation (gms/capita/day) 0.54
- .3 Of the total MSW generated

- Quantity of domestic MSW (MT/day)
- Quantity of commercial MSW (MT/day)
- Quantity of industrial (non-toxic and non-hazardous) waste (MT/day)
- Quantity of waste from markets (MT/day)
- Quantity of waste from hotels and restaurants (MT/day)

- .1 Composition of MSW (Attach separate sheet)

- Physical characteristics
 - Biodegradable (%) 61.75
 - Recyclables (%) 17.44
 - Inert, ash, debris (%)
- Chemical characteristics
 - Carbon (%) 28.875
 - Nitrogen (%) 1.52
 - Phosphorous (%) 0.58
 - Potassium as (%) 1.70
 - C/N ratio 23.77
 - Sulphur ppm 519
 - Moisture % 47
 - High Calorific value 2211

- **SWEEPING**

- .1 Total length of roads (with or without footpath) (km)
 - Total length of cement-concrete roads (km)
 - Total length of asphalted roads (km)
 - Total length of Kutchha roads (km)
- .1 Total no. of sweepers employed

- 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)
- .3 Sweeping carried out at a location by
- One sweepers
 - Two sweepers
 - Three or more sweepers
- .4 Sweeping waste is put in a...
- Box type wheel barrow
 - Containerised handcart
 - Cane or bamboo basket
 - Roadside bin
 - Open dump
 - Directly in the vehicle
 - All seven days a week
- .5 Frequency of sweeping
- .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
- Long handle (No.:)
- .11 Any other equipment provided
(e.g. spade, shovel, tikow)
- .12 Protective gear provided
(e.g. leather hand gloves, gumboots, mask)
- **COLLECTION, STORAGE AND TRANSPORTATION**
- .1 Area covered for collection of MSW
- .2 No. of households covered
- .3 No. of households covered under door-to-door
collection (bell ringing)
- .4 Is the collection carried out by municipal
authority or private contractor or NGO?
- .5 Is the segregation is carried out at source? Yes/No
If no, what steps have been taken?
- .6 Total quantity collected (MT/day)

- .7 MSW collected in mixed form (MT/day)
- .8 MSW collected in segregated form (MT/day)
- .9 Whether littering is prohibited by the municipality? Yes/No.
- .10 Whether litterbins are provided? Yes/No
- .11 Frequency of waste collection
- Once in 24 hours
 - Twice in 24 hours
 - Thrice in 24 hours
 - Alternate days
 - Any other frequency (Please mention)
- .12 Is waste collected every day
i.e. 7 days a week and 365 days a year? Yes
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? Yes/No
(i.e. 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?

Dumper
 placer (with
 4.5 m³ / 7
 m³
 containers)
 Open truck
 Open truck
 with tipping
 Tractor-
 trailer with
 tipping
 Tractor-
 trailer
 without
 tipping
 Auto
 rickshaw
 with/
 without
 tipping
 Tricycle
 with/withou
 t tipping
 Any other
 type

Total

.19 If the vehicles are open to atmosphere, are they covered with temporary plastic sheet? Yes/No

• **COLLECTION SYSTEM**

.1 Approximate MSW collected (MT)

- Household (urban) 8.883
- Hospital 0.328
- Street sweeping 2.016
- Shops & commercial establishments 1.335
- Markets 2.0
- Hotels, restaurants, eating houses 6.345
- Office and institution 1.301

.2 No. of premises / establishments

- Households

- Shops, commercial establishments
- Slums, households, population
- Vegetable and fruit markets
- Fish and meat markets
- Hawkers
- .3 No. of hotels, restaurants, eating houses
 - Grade / class I
 - Grade / class II
 - Grade / class III
 - 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? Yes/No

Is it the compost sold? Yes/No

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? Yes/No

If yes, the quantity sold (MT/year)

- Total revenue generated (Rupees/year)

.1 Pelletisation

Pellets produced (MT/day)

Are the pellets sold? Yes/No

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 Yes/No
- 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 Yes/No
- Has the existing dumping ground been upgraded as required by MSW Rules, 2000 Yes/No
If no, what steps have been taken (provide details)
- .1 Whether the following facilities are provided
 - Weighbridge Yes/No
 - Fencing Yes/No
 - Approach roads/ internal roads Yes/No
 - Lighting facility Yes/No
 - Site office with monitoring equipment Yes/No
 - Managerial staff and manpower Yes/No
 - Covering material used daily as per Rules 2000 Yes/No
 - Is it available in sufficient quantity? Yes/No

	• Gas venting arrangement	Yes/No
	• Leachate collection system	Yes/No
	• INSTITUTIONAL ARRANGEMENTS	
.1	SWM services provided in the city/town by	Municipality/ Private contractor/ NGO
.2	Total no. of Supervisory Staff provided (e.g. Health officer/ Assistant Health officer/ Chief Sanitary Inspector/ sanitary Inspector/ Sanitary Supervisors, etc.)	
.3	Total no. of sweepers/ Pourakarmikas/ labourers/ Mukadam/ Jathedars/ Daffedars, etc.	
.4	Organisational structure	(Furnish separate sheet)
	• PRIVATISATION	
.1	Whether any of the following service is privatised?	
	• Sweeping	Yes/No
	• Door-to-door collection	Yes/No
	• Community collection	Yes/No
	• Transportation	Yes/No
	• Processing of MSW	Yes/No
	• Sanitary landfilling	Yes/No
	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	
	• COST IMPLICATIONS IN SWM	
.1	Expenditure (in Rupees/Year)	

- Total cost of SWM services under various heads
- Establishment including salaries, uniforms, *etc*
- Tools, equipment, and consumables including disinfectant
- Operation and maintenance of garbage vehicles including fuel, oil, spare parts, tyres, batteries, *etc*
- Hiring charges for contractors' vehicle & machinery, bulldozers, JCBs, *etc*
- Other miscellaneous expenses

.1 The above total cost in terms of following activities (Rupees/Year)

- Sweeping cost
- Collection cost
- Transportation cost
- Processing cost
- Disposal / sanitary landfill cost

.1 Cost recovery

- Tipping fee or trade refuse charges (Rupees/Year)
- Revenue generation (by sale of compost, vermi-compost, energy/ gas, *etc.* (Rupees/Year)
- Annual expenditure for SWM services

Cost of SWM services in Rupees per capita per year

Cost of SWM services in Rupees per tonne of MSW

- **OTHER FACILITIES**

.1 What facilities are provided for the following?

- Biomedical waste
- Diary related activities
- 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? Yes/No
- 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? Yes/No
- No. of cases registered during last three years
- No. of cases settled during last three years
- Total recovery during last three years
- **SPECIAL/ UNIQUE SCHEMES OR INITIATIVES¹**
- .1 Recycling schemes for plastic, PET bottles Yes/No
- .2 Encouraging community activity such as ALM² formation Yes/No
- .3 Encouraging people's participation by building-wise or building complex-wise waste segregation and processing of organic waste by vermi-composting or composting Yes/No
- .4 Training needs for sanitary workers on health and safety issue Yes/No
- .5 Development of tools and implements Yes/No
- .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 Details of schemes can be provided on a separate sheet

² Advance Locality Management

.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:

Date:

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.*