MINISTRY OF ENVIRONMENT AND FORESTS
NOTIFICATION
New Delhi, the 25th September 2000.

S.O. 908(E). - Whereas the draft of the Municipal Solid Wastes (Management and Handling) Rules, 1999 were published under the notification of the Government of India of the Ministry of Environment and forests number S.O. 783(E), date, the 27th September, 1999 in the Gazette of India, part II, Section 3, Sub-section (ii) of the same date inviting objections and suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the date on which the copies of the Gazette containing the said notification are made available to the public;

And whereas copies of the said Gazette were made available to the public on the 5th October, 1999;

And whereas objections and suggestions received from the public in respect of the said draft rules have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by section 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules of regulate the management and handling of the municipal solid wastes, namely: --

1. Short title and commencement. --

(1) These rules may be called the Municipal Solid Wastes (Management & Handling) Rules, 2000.

(2) Save as otherwise provided in these rules, they shall come into force on the date of their publication in the Official Gazette.

2. Application. -- These rules shall apply to every municipal authority responsible for collection**,** segregation, storage, transportation, processing and disposal of municipal solid wastes**.**

3. Definitions. -- In these rules, unless the context otherwise requires, --

(i) **"anaerobic digestion"** means a controlled process involving microbial decomposition of organic matter in the absence of oxygen;

(ii) **"authorization"** means the consent given by the Board or Committee to the "operator of a facility" ;

(iii) **"biodegradable substance"** means a substance that can be degraded by micro-organisms;

(iv) **"bioethanation"** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich bio-gas ;

(v) **"collection"** means lifting and removal of solid wastes from collection points or any other location ;

(vi) **"composting"** means a controlled process involving microbial decomposition of organic matter;

(vii) **"demolition and construction waste"** means wastes from building materials debris and rubble resulting from construction, re-modeling, repair and demolition operation ;

(viii) **"disposal"** means final disposal of municipal solid wastes in terms of the specified measures to prevent contamination of ground-water, surface water and ambient air quality ;

(ix) **"From"** means a Form appended to these rules;

(x) **"generator of wastes"** means persons or establishment generating municipal solid wastes ;

(xi) **"landfilling"** means disposal of residual solid wastes on land in a facility designed with protective measures against pollution of ground water, surface water and air fugitive dust, wind blow litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emission, slope instability and erosion ;

(xii) **"leachate"** means liquid that seeps through solid wastes or other medium and has extracts of dissolved or suspended material from it ;

(xiii) **"lysimeter"** is a devise used to measure rate of movement of water through or from a solid layer or is used to collected percolated water for quality analysis;

(xiv) **"municipal authority"** means Municipal Corporation, Municipality, Nagar Palika, Nagar Nigam, Nagar Panchayat, Municipal Council including notified area committee (NAC) or any other local body constituted under the relevant statutes and, where the management and handling of municipal solid waste is entrusted to such agency ;

(xv) **"municipal solid waste"** includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes;

(xvi) **"operator of a facility"** means a person who owns or operates a facility for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes and also includes any other agency appointed as such by the municipal authority for the management and handling of municipal solid wastes in the respective areas;

(xvii) **"pelletisation"** means a process whereby pellets are prepared which are small cubes or pieces made out of solid wastes and includes fuel pellets which are also referred as refuse derived fuel;

(xviii) **"processing"** means the process by which solid wastes are transformed into new recycled products;

(xix) **"recycling"** means the process of transforming segregated solid wastes into raw materials for producing new products, which may or may not be similar to the original products;

(xx) **"Schedule"** means a schedule appended to these rules;

(xxi) **"segregation"** means to separate the municipal solid wastes into the groups of organic, inorganic, recyclables and hazardous wastes;

(xxii) **"State Board or the Committee"** means the State Pollution Control Board of a State, or as the case may be, the Pollution Control Committee of a Union Territory;

(xxiii) **"storage"** means the temporary containment of municipal solid wastes in a manner so as to prevent littering, attraction to vectors, stray animals and excessive foul odour;

(xxiv) **"transportation"** means 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;

(xxv) **"vadose water"** water which occurs between the ground, surface and the water table that is the unsaturated zone;

(xxvi) "vermicomposting" is a process of using earthworms for conversion of bio-degradable wastes into compost.

4. Responsibility of Municipal Authority. -

1. Every municipal authority shall, within the territorial area of the municipality, be responsible for the implementation of the provisions of these rules and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes.

2. The municipal authority or an operator of a facility shall make an application in prescribed Form for grant of authorization for setting up waste processing and disposal facility including landfills from the State Board or the Committee in order to comply with the implementation programme laid down.

3. The municipal authority shall comply with these rules as per the implementation schedule laid down.

4. The municipal authority shall furnish its annual report in prescribed Form II.-

   (a) To the Secretary-incharge of the Department of Urban Development of the concern State or as the case may be of the Union Territory, in case of a metropolitan city; or

   (b) To the District Magistrate or the Deputy Commissioner concerned in case of all other towns and cities,

   with a copy to the State Board or the Committee on or before the 30th day of June every year.

5. Responsibility of the State Government and the Union Territory Administrations. –

(1) The Secretary-incharge of the Department of Urban Development of the concerned State or the Union Territory, as the case may be, shall have the overall responsibility for the enforcement of the provisions of these rules in the metropolitan cities.

(2) The District Magistrate or the Deputy Commissioner of the concerned district shall have the overall responsibility for the enforcement of the provisions of these rules within the territorial limits of their jurisdiction.

6. Responsibility of the Central Pollution Control Board and the State Board or the Committees. –

(1) The State Board or the Committee shall monitor the compliance of the standards regarding ground water, ambient air, leachate quality and the compost quality including incineration standards as specified.

(2) The State Board or the Committee, after the receipt of application from the municipal authority or the operator of a facility in prescribed Form, for grant of authorization for setting up waste processing and disposal facility including landfills, shall examine the proposal taking into consideration the views of other agencies like the State Urban Development Department, the town and Country Planning Department, Air Port or Air Base Authority, the Ground Water board or any such other agency prior to issuing the authorization.

(3) The State Board or the Committee shall issue the authorization in prescribed Form to the municipal authority or an operator of a facility within forty-five days stipulating compliance criteria and standards as specified including such other conditions, as may be necessary.

(4) The authorization shall be valid for a given period and after the validity is over, a fresh authorization shall be required.

(5) The Central Pollution Control Board shall co-ordinate with the State Boards and the Committees with particular reference to implementation and review of standards and guidelines and compilation of monitoring data.

7. Management of Municipal Solid Waste. –

(1) Any municipal solid waste generates in a city or a town, shall be managed and handled in accordance with the compliance criteria and the procedure laid down.

(2) The waste processing and disposal facilities to be set up by the municipal authority on their own or through an operator of facility shall meet the specification and standards as specified.

8. Annual Reports. –

(1) The State Boards and the Committees shall prepared and submit to the Central pollution Control Board an annual report with regard to the implementation of these rules by the 15th of September every year in prescribed Form.

(2) The Central pollution Control Board shall prepare the consolidated annual review report on management of municipal solid wastes and forward it to the Central Government alongwith its recommendations before the 15th of December every year.

9. Accident Reporting. –

When an accident occurs at any municipal solid wastes collection, segregation, storage, processing, treatment and disposal facility or landfill site or during the transportation of such wastes, the municipal authority shall forthwith report the accident in prescribed Form to the Secretary-incharge of the Urban Development Department in metropolitan cities, and to District Collector or Deputy Commissioner in all other cases.

SCHEDULE I

[See rules 4(2) and (3)]

Implementation Schedule

SL. No.	Compliance Criteria	Schedule
1.	Setting up waste processing and disposal facilities.	By 31.12.2003 or earlier.
2.	Monitoring the performance of waste processing and disposal facilities.	Once in six months.
3.	Improvement of existing landfill sites as per provisions of these rules.	By 31.12.2001 or earlier.
4.	Identification of landfill sites for future use and making site(s) ready for operation.	By 31.12.2002 or earlier.

Schedule – II

[See rules 6(1) and (3), 7(1)]

MANAGEMENT OF MUNICIPAL SOLID WASTES

SL. No.	Parameters	Compliance criteria
1.	Collection of municipal solid wastes	1. Littering of municipal solid waste shall be prohibited in cities, towns and in urban areas notified by the State Governments. To prohibit littering and facilitate compliance, the following steps shall be taken by the municipal authority, namely:- (i) Organizing house-to-house collection of municipal solid wastes through any of the methods, like community bin collection (central bin), house-to-house collection, collection on regular pre-informed timings and scheduling by using bell ringing of musical vehicle (without exceeding permissible noise levels); (ii) Devising collection of waste from slums and squatter areas or localities including hotels, restaurants, office complexes and commercial areas; (iii) Wastes from slaughter houses, meat and fish markets, fruits and vegetable markets, which are biodegradable in nature, shall be managed to make use of such wastes; (iv) Bio-medical wastes and industrial wastes shall not be mixed with municipal solid wastes and such wastes shall follow the rules separately specified for the purpose; (v) Collected waste from residential and other areas shall be transferred to community bin by hand-driven containerized carts or other small vehicles; (vi) Horticultural and construction or demolition wastes or debris shall be separately collected and disposed off following proper norms. Similarly, wastes generated at dairies shall be regulated in accordance with the State laws; (vii) Waste (garbage, dry leaves) shall not be burnt; (viii) Stray animals shall not be allowed to move around waste storage facilities or at any other place in the city or town and shall be managed in accordance with the State laws. 2. The municipal authority shall notify waste collection schedule and the likely to be adopted for public benefit in a city or town. 3. It shall be the responsibility of generator of wastes to avoid littering and ensure delivery of wastes in accordance with the collection and segregation system to be notified by the municipal authority as per para 1(2) of this Schedule.

SL. No.	Parameters	Compliance criteria
2.	Segregation of municipal solid wastes	In order to encourage the citizens, municipal authority shall organize awareness programmes for segregation of wastes and shall promote recycling or reuse of segregation materials. The municipal authority shall undertake phased programme to ensure community participation in waste segregation. For this purpose, the municipal authorities with respective local resident welfare associations and nongovernmental organizations shall arrange regular meetings at quarterly intervals.
3.	Storage of municipal solid wastes	Municipal authorities shall establish and maintain store facilities in such a manner, as they do not create unhygienic and insanitary conditions around it. Following criteria shall be taken into account while establishing and maintaining storage facilities, namely; (i) Storage facilities shall be created and established by taking into account quantities of waste generation a given area and the population densities. A storage facility shall be placed that it is accessible to users; (ii) Storage facilities to be set up by municipal authorities or any other agency shall be so designed that wastes stored are not exposed to open atmosphere and shall be aesthetically acceptable and user-friendly; (iii) Storage facilities or 'bins' shall have 'easy to operate' design for handling, transfer and transportation of waste. Bins for storage of bio-degradable wastes shall painted green, those for storage of recycle wastes shall be painted black; (iv) Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.
4.	Transportation of municipal solid wastes	Vehicles used for transportation of wastes shall be covered. Waste should not be visible to public, nor exposed to open environment preventing their scattering. The following criteria shall be met, namely: -- (i) The storage facilities set up by municipal authorities shall be daily attended for clearing of wastes. The bins or containers wherever placed shall be cleaned before they start overflowing; (ii) Transportation vehicles shall be so designed that multiple handling of wastes, prior to final disposal, is avoided.

SL. No.	Parameters	Compliance criteria
5.	Processing of municipal solid wastes	Municipal authorities shall adopt suitable technology or combination of such technologies to make use of wastes so as to minimized burden on landfill. Following criteria shall be adopted, namely; (i) The biodegradable wastes shall be processed by composting, vermincomposting, anaerobic digestion or stabilization of wastes. It shall be ensured that compost or any other end product shall comply with standards as specified. (ii) Mixed waste containing recoverable resources shall follow the route of recycling. Incineration with or without energy recovery including pelletisation can also be used for processing wastes in specific cases. Municipal authority or the operator of a facility wishing to use other state-of-the-art technologies shall approach the Central Pollution Control Board to get the standards laid down before applying for grant of authorization.
6.	Disposal of municipal solid wastes	Land filling shall be restricted to non-biodegradable, inter waste and other waste that are not suitable either for recycling or for biological processing. Land filling shall also be carried out for residues of waste processing facilities as well as pre-processing rejects from waste processing facilities. Land filling of mixed waste shall be avoided unless the same is found unsuitable for waste processing. Under unavoidable circumstances or till installation of alternate facilities, land-filling shall be done following proper norms. Landfill sites shall meet the specification as given in Schedule - III.

SCHEDULE –III

[See rules 6(1) and (3), 7(2)]

Specification for Landfill Site

Site Selection

1. In areas falling under the jurisdiction of 'Development Authorities', it shall be the responsibility of such Development Authorities to identify the landfill sites and hand over the side to the concerned municipal authority for development, operation and maintenance. Elsewhere, this responsibility shall lie with the concerned authority.

2. Selection of landfill sites shall be based on examination of environmental issues. The Department of Urban Development of the State or the Union territory shall co-ordinate with the concern organization for obtaining the necessary approvals and clearance.

3. The landfill site shall be planned and designed with proper documentation of a phased construction plan as well as a closure plan.

4. The landfill sites shall be selected to make use of nearby wastes processing facility. Otherwise, wastes processing facility shall be planned as an integral part of the landfill site.

5. The existing landfill site, which continues to be used for more than five years, shall be improved in accordance of the specifications given in the Schedule.

6. Bio-medical wastes shall be disposed off in accordance with Bio-medical Wastes (Management and Handling) Rules, 1998 hazardous wastes shall be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989, as amended from time to time.

7. The landfill site shall be large enough to last to 20-25 years.

8. The landfill site shall be away from habitation clusters, forest areas, water bodies, monuments, National Parks, Wetland and places of important culture, historical or religious interest.

9. A buffer zone of no-development shall be maintained around landfill site and shall be incorporated in the Town Planning Department's land-use plans.

10. Landfill site shall be away from airport including airbase. Necessary approval of airport or airbase authorities prior to the setting up of the landfill site shall be obtain in cases where the site is to be located within 20 km of an airport or airbase.

Facilities at the Site

11. Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.

12. The landfill site shall be well protected to prevent entry of unauthorization persons and stray animals.

13. Approach and other internal roads for free movement of vehicles and other machinery shall exist at the landfill site.

14. The landfill site shall have wastes inspection facility for monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

15. Provisions like weighbridge to measure the quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.

16. Utilities such as drinking water (preferably bathing facilities for workers) and lighting arrangement for easy landfill operations when carried out in night hours shall be provided.

17. Safety provisions including health inspections of workers at landfill site shall be periodically made.

Specification for land filling

18. Wastes subjected to land filling shall be compact in thin layers using landfill compactors to achieve high density of the wastes. In high rainfall areas where heavy compactors cannot be used, alternative measures shall be adopted.

19. Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up as per Schedule I.

20. Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper draining barms shall be constructed to divert run-off away from the active cell of the landfill.

21. After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall be meet the following specifications, namely;

    (a) The final cover shall be barrier, soil layer comprising 60 cm of clay or amended soil with permeability coefficient less that $1x10^{-7}$ cm/sec.

    (b) On top of the barrier soil layer, there shall be a drainage layer of 15 cm.

    (c) On top of the drainage layer, there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.

Pollution Prevention

22. In order to prevent pollution problems from landfill operations, the following provisions shall be made, namely:--

    (a) Diversion of storm water drains to minimized leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions;

(b) Construction of a non-permeable living system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite barrier having 1.5 mm high density polyethylene (HDPE) geomembane, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than $1x10^{-7}$ cm/sec. The highest level of water table shall be at least two matter below the base of clay or amended soil barrier layer;

(c) Provisions for management of leachate collection and treatment shall be made. The treated leachates shall meet the standards specified in Schedule – IV;

(d) Prevention of run-off from landfill area entering any stream, river, lack or pond.

Water Quality Monitoring

23. Before establishing any landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 meters of the periphery of landfill site shall be periodically monitored to ensure that the ground water is not contaminated beyond acceptable limit as decided by the Ground Water Board or the State Board or the Committee. Such monitoring shall be carried out to cover different seasons in a year that is summer, monsoon and post-monsoon period.

24. Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) is to be considered after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose, namely;

SL No.	Parameters	IS 10500: 1991 Desirable limit (mg/l except for pH)
1	Arsenic	0.05
2	Cadmium	0.01
3	Chromium	0.05
4	Copper	0.05
5	Cyanide	0.05
6	Lead	0.05
7	Mercury	0.001
8	Nickel	-
9	Nitrate as NO_3	45.0
10	pH	6.5 – 8.5
11	Iron	0.3
12	Total hardness (as $CaCO_3$)	300.0
13	Chlorides	250
14	Dissolved solids	500
15	Phenolic Compounds (as C_6H_5OH)	0.001
16	Zinc	5.0
17	Sulphate (as SO_4)	200

Ambient Air Quality Monitoring

25. Installation of landfill gas control system including gas collection system shall be made at landfill site to minimize odour generation, prevent off-site migration of gases and to protect vegetation planted on the rehabilitated landfill surface.

26. The concentration of methane gas generated at landfill site shall not exceed 25 percent of the lower explosive limit (LEL).

27. The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to directly escape to the atmosphere or for illegal tapping. Passive venting shall be allowed if its utilization or flaring is not possible.

28. Ambient air quality at the landfill site and at the vicinity shall be monitored to meet the following specified standards, namely:-

SL. No.	Parameters	Acceptable levels
(i)	Sulphur Dioxide	120 µg/ m^3 (24 hours)
(ii)	Suspended Particulate Matter	500 µg/ m^3 (24 hours)
(iii)	Methane	Not to exceed 25 percent of the lower explosive limit (equivalent to 650 mg/ m^3)
(iv)	Ammonia daily average (Sample duration 24 hrs)	0.4 mg/m^3 (400 µg/ m^3)
(v)	Carbon monoxide	1 hour average: 2 mg/ m^3 ur average: 1 mg/ m^3

29. The ambient air quality monitoring shall be carried out by the concerned authority as per the following schedule, namely: -

    (a) Six times in a year for cities having population of more than fifty lakhs;

    (b) Four times in a year for cities having population between ten and fifty lakhs;

    (c) Two times in a year for town or cities having population between one and ten lakhs.

Plantation at Landfill Site

30. A vegetative cover shall be provided over the completed site in accordance with the following specifications, namely: -

    (a) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be allowed to grow;

    (b) The plants grown be such that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized;

(c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

(d) Plantation to be made in sufficient density to minimized soil erosion.

Closure of Landfill Site and Post-care

31. The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely:-

(a) maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(b) Monitoring leachate collection system in accordance with the requirement;

(c) Monitoring of groundwater in accordance with requirements and maintaining groundwater quality;

(d) Maintaining and operating the landfill gas collection system to meet the standards.

32. Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous and leachate analysis comply with the specified standards.

Special Provisions for Hilly Areas

33. Cities and towns located on hills shall have location-specific methods evolved for final disposal of solid wastes by the municipal authority with approval of the concerned State Board or the Committee. The municipal authority shall set up processing facilities for the utilization of biodegradable organic wastes. The inert and non-biodegradable waste shall be used for building roads or filling up appropriate areas on hills. Because of constraints in finding adequate land in hilly areas, wastes not suitable for road lying or filling up shall be disposed of in special designed landfills.

Schedule – IV

[See rules 6(1) and (3), 7(2)]

Standards for Composting, Treated Leachates and Incineration

1. The waste processing or disposal facilities shall include composting, incineration, pelletisation, energy recovery or any other facility based on state-of-the-art technology duly approved by the Central Pollution Control Board.

2. In case of engagement of private agency by the municipal authority, a specific agreement between the municipal authority and the private agency shall be made particularly, for supply of solid waste and other relevant terms and conditions.

3. In other to prevent pollution problems from compost plant and other processing facilities, the following shall be complied with, namely:-

(i) The incoming wastes at site shall be maintained prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility.

(ii) Necessary precautions shall be taken to minimize nuisance of odour, files, rodents, bird menace and fire hazard.

(iii) In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of wastes to the landfill site;

(iv) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and be not allowed to pile at the site. Recyclable shall be routed through appropriate vendors. The non-recyclable shall be sent for well-designed landfill site(s).

(v) In case of compost plant, the withdraw area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 107 cm/sec. The base shall be provided with 1 to 2 percent slope and circled by lined drains for collection of leachate or surface run-off;

(vi) Ambient air quality monitoring shall be regularly carried out particularly for checking odour nuisance at down-wind direction on the boundary of processing plant.

(vii) In order to ensure safe application of compost, the following specification for compost quality shall be met, namely:-

Parameters	**Concentration not to exceed *(mg/kg dry basis, except pH value and C/N ratio)**
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20 – 40
pH	5.5 – 8.5

*Compost (final product) exceeding the above stated concentration limits shall not be used for good crops. However, it may be utilized for purposes other than growing food crops.

4. The disposal of treated leachates shall follow the following standards, namely: -

Sl. No.	Parameters	Standards (Mode of Disposal)		
		Inland surface water	Public sewers	Land disposal
1	Suspended Solids, mg/L, max.	100	600	200
2	Dissolved Solids (inorganic), mg/L, max.	2100	2100	2100
3	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical Nitrogen (as N), mg/L, max.	50	50	-
5	Total Kjeldahl nitrogen (as N), mg/L, max.	100	-	-
6	Biochemical Oxygen Demand (3 days at 27^0C) max., (mg/L)	30	350	100
7	Chemical Oxygen Demand, mg/L, max.	250	-	-
8	Arsenic (as As), mg/L, max.	0.2	0.2	0.2
9	Mercury (as Hg), mg/L, max.	0.01	0.01	-
10	Lead (as Pb), mg/L, max.	0.1	1.0	-
11	Cadmium (as Cd), mg/L, max.	2.0	1.0	-
12	Total Chromuim (as Cr), mg/L, max.	2.0	2.0	-
13	Copper (as Cu), mg/L, max.	3.0	3.0	-
14	Zinc (as Zn), mg/L, max.	5.0	15	-
15	Nickel (as Ni), mg/L, max.	3.0	3.0	-
16	Cyanide (as CN), mg/L, max.	0.2	2.0	0.2
17	Chloride (as Cl), mg/L, max.	1000	1000	600
18	Fluoride (as F), mg/L, max.	2.0	1.5	-
19	Phenolic compounds (as C_6H_5OH) mg/L, max.			

Note : While discharging treated leachates into inland surface waters, quality of leachates being discharged and the quality of dilution water available in the receiving water body shall be given due consideration.

The incinerators shall meet the following operating and emission standards, namely: -

A. Operating Standards

(1) The combustion efficiency (CE) shall be at least 99.00%.

(2) The combustion efficiency is computed as follows: -

$$C.E. = \frac{\%CO_2}{\%CO_2 + \%CO} \times 100$$

B. Emission Standards

	Parameters	Concentration mg/Nm^3 at (12% CO_2 correction)
(1)	Particulate matter	150
(2)	Nitrogen Oxides	450
(3)	HCl	50
(4)	Minimum stack height shall be 30 meters above ground	-
(5)	Volatile organic compounds in ash shall not be more that 0.01%	-

Note :

1. Suitability designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits, if necessary.
2. Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.]
3. Chlorinated plastics shall not be incinerated.
4. Toxic metals in incineration ash shall be limited within the requlatory quantities as specified in the Hazardous Wastes (Management and Handling) Rules, 1989 as amended from time to time.
5. Only low sulphur fuel like LDO, LSHS or Diesel shall be used as fuel in the incinerator.

FORM – I

[*See* rules 4(2) and 6(2)]

Application for obtaining authorization

To

The Member Secretary

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1. Name of the municipal authority/name of the agency appointed by the municipal authority :

2. Correspondence address :

   Telephone No. :
   Fax No. :

3. Nodal Officer & designation (Officer authorized by the municipal authority or agency responsible for operation of processing or disposal facility) :

4. Authorization applied for (Please tick mark) : (a) Setting up & operation of waste processing facility
   (b) Setting up & operation of disposal facility

5. Detailed proposal of waste processing/disposal facility (to be attached) to include. :

5.1 Processing of waste

(i) Location of site
(ii) Name of waste processing technology
(iii) Details of processing technology
(iv) Quantity of waste to be processed per day
(v) Site clearance (from local authority)
(vi) Details of agreement between municipal authority and operating agency
(vii) Utilization programme for waste processed (Product utilization)
(viii) Methodology for disposal of waste processing rejects (quantity and quality)
(ix) Measures to be taken for privation and control of environmental pollution
(x) Investment on Project and expected returns
(xi) Measures to be taken for safety of workers working in the plant

5.2 Disposal of Waste

(i) Number of sites identified

(ii) Layout maps of site

(iii) Quantity of waste to be disposed per day

(iv) Nature and composition of waste

(v) Details of methodology or criteria followed for site selection

(vi) Details of existing site under operation

(vii) Methodology and operational details of land filling

(viii) Measures taken to check environmental pollution

Date: **Signature of Nodal Officer**

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FORM II

[*See* rules 4(4)]

Format of Annual Report to be submitted by the Municipal Authority

(i) Name of City/Town ……

(ii) (ii) Population…… ……

(iii) Name of municipal body and address ……..

…….

…….....

Telephone No. ……

Fax No. ……

(iv) Name of Incharge dealing

with municipal solid wastes ……..

with designation ……...

1. Quantity and composition of solid wastes

Total quality of wastes generated per day ……

(i) Total quantity of wastes collected per day ……

(ii) Total quantity of wastes processed for: ……

(a) Composting : ……

(b) Vermiculture : ……

(c) Pellets : ……

(d) Others, if any, please specify : …….

(iii) Total quantity of waste disposed by landfilling : ……..

(a) No. of landfill site used : ……

(b) Area used : …….

(c) Whether Weigh-bridge facilities available : Yes No

(d) whether area is fenced : Yes No

(e) lighting facility on site : Yes No

(f) Whether equipment like Bulldozer,
Compactors etc available.(Please specify): ……..

(g) Total Manpower available on site : …….

(h) Whether covering is done on daily basis : Yes No

(i) Whether covering material is used and whether it is adequately available : …….

(j) Provisions for gas venting provided : Available (Yes/No) Not available

(k) Provision for leachate collection : Provisions made Provisions not made

2. Storage facilities

(i) Area covered for collection of waste : ….…….…….

(ii) No. of houses covered : ……

(iii) Whether house-to-house collection is practised (if yes, whether done by Municipality or though Private agency or Non- Governmental Organization) : ……...……...
……...……
…….……
…….……
…….……

(iv) Bins :

	Specifications (Shape & Size)	Existing Numbers	Proposed for future
(a) RCC Bins (Capacity) :			
(b) Trolleys (Capacity) :			
(c) Containers (Capacity) : :			
(d) Dumper Placers :			
(e) Others, please specify :			

(v) Whether all bins/collection spots are attended for daily lifting of garbage : Yes No

(vi) Whether lifting of garbage from dustbins is manual or mechanical i.e. for example by using of front-end loaders (Please tick mark specify) : Manual Loader Others, please

3. Transportation

	Existing number	Actually Required / Proposed
(i) Truck :		
(ii) Truck-Tipper :		
(iii) Tractor-Trailer :		
(iv) Refuse-collector :		
(v) Dumper-placers :		
(vi) Animal Cart :		
(vii) Tricycle :		
(viii) Others (please specify) :		

4. **Whether any proposal has been made to improve solid wastes management practices**

   ……..……..

   ……..……..

   ……..……..

5. **Are any efforts made to call for positive firm's etc. to attempt for processing of waste utilizing technology like:**

	Waste Utilisation Technology	Proposals	Steps taken (Quantity to be processed)
(i) Composting	:		
(ii) Vermiculture	:		
(iii) Pelletisation	:		
(iv) Others if any pleased specify	:		

6. **What provisions are avail able and how these are implemented to checked unhygienic operations of :**

   (i) Dairy related activities :
   (ii) Slaughter houses and unauthorized slaughtering :
   (iii) Malba (construction debris) lifting :
   (iv) Encroachment in Parks, Footpath etc. :

7. **How many slums are identified and whether these are provided with sanitation facilities:**

8. **Are municipal magistrates appointed for taking penal action : Yes No**
   [If yes, how many cases registered and settled during last three years (give year-wise details)]

9. **Hospital waste management**
   (i) How many Hospitals/Clinics under the Control of the Corporation :

   (ii) What methods are followed for disposal of bio-medical wastes :

   (iii) Do you have any proposal for setting up of common treatment facility for disposal of bio-medical wastes :

   (iv) How many private Nursing Homes, Clinics. etc are operating in the city /town and what steps have been taken to check disposal of their wastes :

Date: **Signature of Municipal Commissioner**

FORM III

[*See* rules 6(2)]

Format for issue of Authorisation

File No. ……
Date :……

To

…….
…….
…….

Ref : Your application number ……dated …….

The …… State Pollution Control Board/Pollution Control Committee after examining the proposal hereby authorizes …… having their administrative office at …… to set up and operate waste processing/waste disposal facility at ……. on the terms and conditions (including the standards to comply) attached to this authorization letter.

1. The validity of this authorization is till **……** After the validity, renewal of authorization is to be sought.
2. The …… State Pollution Control Board/Pollution Control Committee may, at any time, revoke any of the conditions applicable under the authorization and shall communicate the same in writing.
3. Any violation of the provision of the Municipal Solid wastes (Management and Handling) Rules, 2000 will attract the penal provision of the Environment (Protection) Act, 1986.

(Member-Secretary)
State Pollution Control Board/
Pollution Control Committee

Date …….
Place…….

FORM IV

[*See* rules 8(1)]

Format of Annual Review Report to be submitted by the State Pollution Control Board/Committee to the Central Pollution Control Board

To

The Chairman,
Central Pollution Control Board,
(Ministry of Environment and Forests)
Government of India,
'Parivesh Bhawan', East Arjun Nagar,
Delhi – 110 032.

1.	Name of the State/Union territory	:	
2.	Name & address of the State Pollution Control Board/ Pollution Control Committee	:	
3.	Number of Municipal authorities responsible for management of municipal solid wastes in the State/Union territory under these rules.	:	
4.	A Summary Statement on progress made by municipal authorities in respect of implementation of Schedule I [rule 4(3)]	:	Please attach as Annexure-I.
5.	A Summary Statement on progress made by municipal authorities in respect of implementation of Schedule II [rules 6(1) and (3), 7(1)]	:	Please attach as Annexure-II.
6.	A Summary Statement on progress made by municipal authorities in respect of implementation of Schedule III [rules 6(1) and (3), 7(2)]	:	Please attach as Annexure-III.
7.	A Summary Statement on progress made by municipal authorities in respect of implementation of Schedule IV [rules 6(1) and (3), 7(2)]	:	Please attach as Annexure-IV.

Chairman or the Member-Secretary
State Pollution Control Board/
Pollution Control Committee

Date …….
Place…….

FORM V

[*See* rule 9]

Accident reporting

1.	Date and time of accident	:
2.	Sequence of events leading to accident	:
3.	The waste involved in accident	:
4.	Assessment of the effects of the accidents on human health and the environment	:
5.	Emergency measures taken	:
6.	Steps taken to alleviate the effects of accidents	:
7.	Steps taken to prevent the recurrence of such an accident	:

Date ……. Signature …….. …….

Place……. Designation …….

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