



**State Level Environment Impact Assessment Authority
Madhya Pradesh
Government of India
Ministry of Environment & Forests**

Madhya Pradesh Pollution Control Board

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No:48/EPCO-SEIAA/11
Date: 13-04-2011

To,

**Commissioner Municipal Corporation
Jabalpur M.P.**

Sub: Prior Environmental Clearance for the project on construction of proposed MSW sanitary landfill facility site at Kathonda, Jabalpur - case No. 108/2008

1. This has reference to your letter Dt. 12-10-.2007 and subsequent letter Dt 18-01-08, 14-07-08 and 12-09-08 seeking Environmental Clearance for the project on construction of proposed MSW landfill site at Kathonda, Jabalpur in the name of **Commissioner, Jabalpur Municipal Corporation, Jabalpur.**
2. The proposal has been examined and processed in accordance with EIA Notification issued by MoEF, GOI dt 14th September, 2006. It is noted that the project for construction of proposed MSW secured engineered landfill site at Kathonda, Jabalpur. It is noted that the details of the project, for which Environmental clearance has been considered are as follows:
 1. The proposed landfill site at **Kathonda** is situated in between agricultural land on *khasra* nos. 357, 358, 359, 360, 366, 367, 368, 369, 370, 375, 376, 377, 378 and 379. The total area of site is about 24.60 Ha (60.95 acres). This site is approachable from Dindayal Chowk and is around 2.5 kms away from Kantagi main Road. This existing approach road is kacha road and surrounded by hutments. This road is not advisable for transporting of solid waste to this site. Possible approach road may be from MadhoTal

which is situated 1.5 km from Dindayal Chowk from proposed site. The entire site has homogeneous clay soil.

II. Important feature of the project

- Waste generation per capita per day for year 2010 : 500 gm/c/day
- Waste generation for year 2030 with an increase of 5% per annum : 1326.65 gm/c/day
- Area of land required for landfill only (taking inerts & rejects from composting plant):30.77Ha.
- Total area available at present: 24.65 Ha
- Area under acquisition (Notification under Section 4 & Section 6 done under LA act):25.65 Ha.
- Total area : 50.30 Ha
- Area for processing plant (300 TPD): 4 Ha
- Remaining area available for plantation and other Infrastructural facilities : 15.53 Ha.

Hence sufficient area is available for construction of landfill for 20 years of period

III. Landfill design specification in detail

- o Active Period : 20 Years (2010-2029)
- o Total Height of landfill: 15.75 m (BG – 7.65 m, AG – 8.10 m)
- o Bund height of landfill :1m
- o Side slope BGL: 1:2
- o Side slope AGL : 1:4
- o Liner system of 1.5 mm HDPE Liner : 90cm clay
- o Proper disposal of leachate through Leachate collection pipes, Leachate collection sump, Geosynthetic liner
- o Waste inspection and sampling facility
- o Equipment shelters and workshop
- o Signs, directions and instructions board
- o Water supply and waste water disposal system
- o Lighting, Security arrangement
- o Green belt
- o Electronic Weigh Bridge of minimum 30 MT with room.

IV. Sanitary landfill facility design as per MSW rules 2000 & CPHEEO manual 2000 :

Waste Characteristics:

(Collection & Removal Efficiency of MSW: 70-75%)

Compostable Material : 40 – 45 %

Paper & Card board : 5 – 15 %

Plastic : 2 – 8 %

Inert Material : 5 – 15 %

Metal: 1 -2 %

Calorific value LCV(Kcal/kg)

Residential areas : 1500-1600

Fruit & Vegetables market : 1800-1900

C/N Ratio :- 20 : 36

Moisture content : 20 to 58%

V. Processing & Waste Treatment Facility at proposed site:

- ❖ The MSW shall be sent to the treatment facility after collection. Secondary collection point (SCPs) shall be constructed. Adequate storage facilities and hygienic conditions are to be provided in SCPs.
- ❖ The Segregated organic waste shall be sent to the compost plant in covered manner as proposed.
 - Windrow composting shall be conducted for stabilizing the organic portion of the waste.
 - The composting plants at treatment facilities located at with in the landfill site at Kathonda.
- ❖ The composting plants facility shall have Waste receiving platform, Windrow platform, Monsoon shed, Preparatory section, curing area, refinement section, Quality Check Area, godown. Each section should be constructed with the 'general requirement' proposed in EIA report.
 - Receiving platform of concrete slab covered with shed will be provided for further segregation and maintaining waste before sending to windrow area. Gutters to collect leachate will be provided on the platform and leachate will be drained into and stored in the leachate pit(s). Leachate will be finally pump to STP for treatment and disposal.
 - Fence and Buffer zone will be provided surrounding the T/S (Treatment site) & CP (Composting plant) site. Water taps will be provided for daily cleaning.
 - Adequate roof shed and concrete platform/ roof should be provided to all sections.
 - Access to loaders should be ensured.

Waste material and rejects are to be transported to proposed landfill site by JMC. The transported garbage from containers shall be further processed for segregation of metal particles, glass, rubber and plastics would be disposed of to scrap vendors etc.

VI. Segregation of the waste at site:

Proper segregation of waste would lead to better options and opportunities for its treatment and scientific disposal.

Following methods are proposed for segregation of mixed waste at the site:

1. Big stones, plastic bags, coconut shells are separated manually.
2. Magnetic segregation for metals
3. Glass and other recyclable materials should be segregated automatically by means of Eddy Current Separation, **Ballistic Separation, Trammel Screening, Wet Separation, or Air Classification** etc.

Recycling materials shall be sold to recycling vendors for further processing. After segregation biodegradable material should be send for further treatment through composting/ biomethanation etc.

The different technologies suggested for segregation of waste is given as below:

MSW Treatment - Centralized Separation Technologies

S. No	Technologies Employed	Materials Targeted
1.	Screening	Large: film plastics, large paper, cardboard, misc. Medium sized: recyclables, organics, misc. Fine: organics, metal fragments, misc.
2.	Hand picking	Recyclables, inert, chemical contaminants
3.	Magnetic separation	Ferrous, contaminants associated with ferrous metal
4.	Eddy current separation	Non-ferrous metals
5.	Air classification	Light:: paper, plastics Heavier: metals, glass, organics
6.	Wet separation	Floats: organics, misc. Sinks: metals, glass, gravels, misc.
7.	Ballistic separation	Light: plastics, un-decomposed papers Medium: compost Heavy: metals, glass, gravels, misc.

VII. Pre-processing area

- The size and design of the pre-processing area should be adequate for proper storage of incoming MSW.
- Pre-processing area should consist of permanent roof shed over platform, partition wall for protection against wind and noise, concrete platform Weighbridge facility, Waste loading, Waste segregation, and Waste shredding facilities, conveyor dual-trammel etc. Access to loaders should be ensured.

VIII. Processing area

- The processing area comprises of mass composting and curing activity.
- Adequate residence time should be provided for compostable waste in mass windrow. The platform should be constructed with adequate strength, structural stability, and drainage provisions.
- Proper space is required for easy movement of loader or operation of vehicle.
- The mass composting pad surface and curing area is paved to avoid erosion from runoff. Grading the surface of the pad to meet the optimal slope will also help to prevent erosion by allowing smooth drainage.
- This facility will be equipped with hopper, feeding conveyor, dual trammel 35/16, reject conveyor and transfer conveyor. The under sizes digested material including manure will be conveyed by transfer conveyor to curing area and rejects shall be conveyed by trolley to transfer station.
- Digested material will be stacked in the curing area to remove moisture from digested material for effective screening and to protect the digested material from rain. Moisture shall be measured with moisture probe.
- Adequate drainage at composting facilities should be provided in order to prevent water logging,

IX. Post processing area

- The post processing area at composting facilities shall be used for screening, size reduction, and blending operations for compost, conducting tests to ensure quality of compost; preparing compost for market; and also for storing the compost.
- Vibro-screen (6mm) rejects material above 6mm and density separator segregates metals (ferrous and non-ferrous), probbles, sand and all undigested but same sized contaminants by weight.
- Adequate storage capacities should be incorporated into site designs for composting facilities. Backup storage and disposal capacity should also be ready to accommodate demand of seasonal markets.
- Buffer zone should be provided to minimize the odour and transport of bio aerosols along downwind of the facility.
- Sprinklers should be installed in order to reduce the dust generation at site during the construction work.
- On site road leading to the tipping and storage areas should be paved or graveled roads to accommodate movement of large vehicles even during adverse weather conditions.

Roads shall be designed to provide adequate space for turning. The roads at dumping areas should be designed to accommodate delivery by all types of vehicles

- Inert materials and rejects of compost shall be transported to Sanitary landfill Facility site at Kathonda.
- Ventilation arrangement should be ensured in case of close siding.

X. Sanitary Landfill Facility

Secured engineered landfill system shall be constructed, as per MSW rules 2000

The Sanitary landfill site shall include following features:

S.No	Description	Size
A.	Watchman Cabin	3.0 M x 3.0 M
B.	Weigh bridge platform	5.0 M x 3.0 M
C.	Weigh fridge record room	3.0 M x 3.0 M
D.	Presorting area	1.1 Acre
E.	Worker rest room	10.3 M x 4.30 M
F.	Two wheeler parking shed	9.0 M x 3.0 M
G.	Leachate collection chamber	2.0 M 2.0 M
H.	Leachate collection sump	2.0 M Dia
I.	Office & Lab	2.0 M x 2.0 M
J.	O.H. Water tank	10.3 M x 8.3 M
K.	Borewell	3.0 M Dia
L.	Septic Tank	3.5 M x 2.0 M
M	Emergency parking	
N.	Generator & Electrical panel rook	10.0 M x 5.0 M 7.0 M x 3.0 M
	1-2 Phase – I Cells 3-20 Phase – II Cells	

- Landfill layout should be designed to cater landfill requirement for 20 years as per the MSW rules 2000.
- The landfill should be developed in two phases.
- The landfill should be of the capacity to handle 80373 TPY to 299314 TPY of waste in phased manner from 2011 - 2030.

- Adequate bottom liner system and top liner system shall be provided. Appropriate thickness of the HDPE liner for the bottom liner as well as top liner for capping should be provided to prevent any damaging impact in surrounding area and to prevent water infiltration.
- The coefficient of permeability, as proposed in the rules should be used as guiding factor.
- In order to collect and convey the leachate generated to the collection sump, a leachate collection system has been designed. It comprises of the following:
 - Drainage layer
 - A perforated pipe collection system
 - Sump collection Area
 - Treatment and disposal of the leachate
- The generated leachate will be collected to leachate collection sump and pump to STP for treatment & disposal.
- The drainage should be designed with special care to avoid any overflow to the surrounding area.
- Leachate Collection, treatment & Removal System should be developed for effective collection of leachate and reducing the risk of contamination of ground water.
- Daily cell cover of 15 cm soil is to be provided as per the norms.
- During the heavy rainfall the compactor can not be used for daily cover of soil & debris, which hampered the compaction activity at cell. Secondly, during the rains wet condition at site the possibility of odour problem and the generation of larva to generate air born diseases. Since the site is very near to Green city colony. Therefore, alternative arrangement should be consider by JMC to avoid such problem.
- The environmental management plan given in the EIA report shall be strictly follow by JMC for all pollution control measures.

XI. Storm water Collection and drainage system

- Storm water drainage system should be designed to minimize the leachate generation and to prevent contamination of surface water through runoff from dumpsite. The storm water should not be allowed to enter the active cell of the landfill. Stagnation must be avoided. Storm water from the site will be collected in a detention pond prior disposal.
- The Project site should be suitable leveled and embankments should be constructed in such a manner that under no circumstances the stormwater from out side area can enter the project site or the project site runoff inundates surrounding road, rail track or agricultural area.

XII. Operation at Sanitary Landfill

- The landfill facility operator must ensure that only the residual inert material and rejects of compost plant, sewer silt are disposed.
- Disposal of construction debris at Sanitary landfill is not permitted.
- The waste transported at landfill facility shall be reported with date, time, waste quantity etc.
- The landfill shall be compacted during active operations on daily basis and covered as per requirement.
- Suitable design slope shall be maintained in the sanitary landfill.
- The actual stability shall be tested at regular interval.
- An intermediate liner should be provided before onset of monsoon.
- The final cover shall be laid as per construction requirements and MSW regulations to enhance surface drainage, minimize infiltration, vegetation and control the release of the landfill gases. To ensure the rapid removal of rainfall from the completed landfill and to avoid the formation of puddles, the final cover should have a requisite slope.
- Sufficient distance is to maintain to avoid circular collapses. The Geotechnical Investigation on reports should be consulted for ensuring adequate safety factor.
- Construction of Piezo-metrics holes one in shallow depth and another is deep depth for both side of cell as per the drawing.
- Ambient noise level should not exceed the permissible limit. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dB(A) Leq (daytime) and 70 dB(A) Leq (nighttime) and its subsequent amendments.
- Green belt shall be developed within and around the plant developed along the periphery of all the facilities in order to reduce the dust generation, noise and odour generated from the MSW. At least 33% of the land area for the proposed expansion project to be covered by plantation.
- All internal roads should be concreted/pitched. Proper lighting and proper pathway inside the premises should be constructed to ensure safe vehicular movement. Provision of separate pathway for entry and exit of vehicles should be considered. Vehicles should conform to pollution under control (PUC) norms. Proper house keeping shall be maintained within the premises. Solar lighting should be used as far as practicable.
- Health and safety of workers should be ensured. Workers should be provided with adequate personnel protective equipment (PPE) as per proposal and sanitation facilities. Occupational

Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

- The implementation and monitoring of Environmental Management Plan should be carried out, as per REIA report.
- Corporate Social Responsibility programmes should be carried out.

XIII. Monitoring at MSW and land-fill facilities:

- Monitoring of the ambient air quality, surface water quality shall be conducted as specified in MSW Rules. In addition the monitoring shall also be carried in different zones as per the proposal.
- Monitoring wells should be set up to monitor leakage leachate into ground water. Atleast four monitoring wells should be set up at each side to monitor groundwater flow in all possible directions.
- The monitoring wells can be located in consultation with M P Pollution Control Board.
- The Surface Water, Ground Water, Air quality, Landfill Gas, Leachate, Incoming Waste etc. should be monitored as per the proposed Environmental Monitoring Plan.
- The monitoring network is to be expanded / modified, as and when situation required.

XIV. Closure of the site & post closure care

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

- Maintaining the integrity and effectiveness of final cover, making repairs, and preventing run-on and off from eroding or otherwise damaging the final cover.
- Monitoring leachate collection system to ensure no overflow of leachate.
- Monitoring the influent and effluent quality at the Septic tank and sludge and leachate treatment plant.
- Monitoring of ground water in accordance with requirements and maintaining ground water quality
- Maintaining and operating the landfill gas collection system to meet the standards

XV. Landfill closure

As each phase is completed and as the final level is reached in successive phases, the following interconnectivities are established:

- (a) The leachate collection system of phase is sequentially connected
- (b) The surface water drainage system for the cover of each phase is sequentially connected

(c) The temporary surface water drainage system constructed at the base of each completed phase is dismantled.

(d) The gas collection system of each phase is sequentially connected.

Upon completion of all phases a final check is made of the proper functioning of all inter connected systems. An access road is provided on the landfill cover to enable easy approach for routine inspection & maintenance of landfill cover.

XVI. Closure and post closure maintenance plan

Determination of the end-use of landfill site is essential to decide the measures of closure and post – closure maintenance. Some of the uses of closed landfill sites near urban centers include park, recreational area, golf courses, vehicle parking area and sometimes even commercial development.

A closure and post closure plan for landfill involves following components.

- Plan for vegetative stabilization of the final cover
- Plan for management of surface water runoff with an effective drainage system.
- Plan for periodical inspection and maintenance of landfill cover and facilities.

XVII. Closure of the site & post closure care

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- Monitoring leachate collection system to ensure no overflow of leachate.
- Monitoring the influent and effluent quality at the Septic tank and sludge and leachate treatment plant.
- Monitoring of ground water in accordance with requirements and maintaining ground water quality
- Maintaining and operating the landfill gas collection system to meet the standards
- The gas collected in the gas vent layer shall be collected and vented through vent pipes of 150 mm diameter HDPE pipe

XVIII. Transport and others conditions

- Adequate Buffer zone should be provided to minimize the transport of odour and bio aerosols downwind of the facility.
- Adequate transport management plan should be in place for uninterrupted traffic flow. Roads shall be designed to provide adequate turning and dumping areas to accommodate delivery by all types of vehicles.

- On site roads should be paved or graveled roads leading to the tipping area and storage areas to accommodate movement of large vehicles during adverse weather conditions.
- Adequate lighting should be provided in streets and working areas for ensuring operation and security.

3. SPECIAL CONDITION:

- JMC should comply the MoEF Expert Committee New Delhi suggestion and comments during 58th, 63rd and 64th meeting.

Minutes of 58th meeting of the expert committee held on 25th and 26th October, 2007

- An integrated project of composting and solid waste should be provided.
- Land use plan of the area.
- The plan for showing segregation process of waste in to for biodegradable and non biodegradable or inert waste.

Minutes of 63rd meeting of the expert committee held on 26th, 27th and 28th March, 2008

1. Ranital Lake to be developed as a water body.
2. The existing dumping should be stopped.
3. A detailed plan for rehabilitation of the Ranital.
4. The proposed MSW site shall be operational for 20 years.
5. While setting up the above activities by JMC the local surrounding people shall be taken in to consideration.

Minutes of 63rd meeting of the expert committee held on 26th, 27th and 23rd, 24th and 25th April, 2009.

1. The PIL to Hon'ble High Court at Jabalpur for RR and environmental issues.
2. Status of PIL.
 - The comments and recommendation given by State Expert Appraisal Committee 63rd Meeting held on 30th August 2010 should be strictly complied.
 - The liaising officer resolved redressal of the complaint. The committee which comprises of R.O. PCB, Ward Parshad, member of RWA of green house colony, one JMC officer & one officer of Collectrate to monitor and look into the matter as and when needed.
 - The Public hearing recommendation & conditions including R&R process should be comply by the JMC.

4. GENERAL CONDITIONS:

- i. The project proponent shall comply with all the environmental protection measures and safeguards recommended. MSW Rules 2000 should be followed strictly. Further, the unit must undertake socioeconomic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.
- ii. All the conditions, liabilities, and legal provisions contained in the Environmental Clearances shall be equally applicable to the successor management of the project in the event of the project proponent transferring the ownership, maintenance of management of the project to any other entity.
- iii. The vehicles and MSW handling/processing equipments shall be arranged as per DPRs / R-EIA and as per requirement from time to time.
- iv. The project proponent should make financial provision in the total budget of the project for implementation of the environmental safeguards. The project authorities will provide requisite funds both recurring and non-recurring to implement the conditions stipulated by the SEIAA along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purpose.
- v. No further expansion or modifications in the plant should be carried out without prior approval of the State Environmental Impact Assessment Authority.
- vi. The Madhya Pradesh Pollution Control Board, who would be monitoring the implementation of environmental safeguards, should be given full cooperation, facilities and documents / data by the project proponents during their inspection.
- vii. In case of any violation of the conditions laid down in this Environmental Clearance, Section 16 of The Environment (Protection) Act, 1986, will be applicable.
- viii. In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEIAA.
- ix. The State Environmental Impact Assessment Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act. 1986, to ensure effective implementation of the suggested safeguard measures in a time-bound and satisfactory manner.
- x. The Project Proponent should inform the public that the project has been accorded environmental clearance by the SEIAA and copies of the clearance letter are available with the State Pollution Control Board/Committee (www.mppcb.nic.in), and may also be seen at website of the SEIAA www.mpseiaa.nic.in.

- xi. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.
- xii. The Project Authorities should inform the State Pollution Control Board as well as the SEIAA, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work/project implementation.
- xiii. Prior Consent-to-Establish (NOC) for the proposed expansion project must be obtained from MPPCB before commencement of construction. All other statutory clearances should be obtained by project proponent from the competent authorities.
- xiv. The above stipulations would be enforced along with those under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, the Public Liability Insurance Act, 1991, the Environment Impact Assessment Notification 2006 and their amendments.

Sd/-

(Praveen Garg)
Member Secretary, SEIAA

Endt No.49/SEIAA/EPCO/11

Dated:-13-04-2011

Copy to:-

1. The Principal Secretary, Department of Housing & Environment, Government of Madhya Pradesh, Bhopal
2. The Member Secretary, Madhya Pradesh State Pollution Control Board, Paryavarn Parisar, E-5, Arera Colony, Bhopal-462016
3. Division, Monitoring Cell, MoEF, New Delhi- 110 003
4. The Regional Officer, MOEF, Bhopal
5. The Collector, Distt-Jabalpur-(M.P.)
6. Guard file.

Sd/-

Member Secretary, SEIAA