

**2<sup>nd</sup> INTERIME REPORT**  
**ON**  
**BULK WASTE GENERATORS**

SUBMITTED BY

**4 SUB- COMMITTEES CONSTITUED PURSUANT THE  
ORDERS OF HON'BLE NGT IN THE MATTER OF  
199/2014 & 281/2016**

**Visit Report of Sub-Committee-1**  
**Construction & Demolition (C & D) Waste Processing Plant**  
**at Shastri Park, East Delhi**

**(Original application No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI  
and application no. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt. of  
NCT of Delhi & Govt. of India)**

A visit to Construction & Demolition (C&D) waste Plant located at Shastri Park was made on 20<sup>th</sup> April, 2017. The Chairman of the Sub-committee-1 along with following members participated in the site visit:

- 1 Dr. Gangal, Central Pollution Control Board
- 2 Mr. Sunil Kumar, Delhi Pollution Control Committee

Other representative:

- 1 Mr. Arun Kumar, Superintending Engineer, EDMC
- 2 Mr. Debashish Tripathy and Mr. Sandeep Malhotra, representative from IL&FS Environmental Infrastructure & Services Ltd.,

Sub-committee visited the plants keeping in view that the C&D waste generated from the NDMC area is transported to the Shastri Park for processing.

**1. Construction & Demolition (C&D) Waste Processing Plant, Shastri Park**

As Delhi grows, housing and infrastructure projects generate about 4,000 to 5,000 MT/Day of Construction & Demolition (C&D) waste. Construction & Demolition (C&D) Waste plant at Shastri Park, Delhi has been set up by M/s. IL&FS Environmental Infrastructure & Services Ltd., (IL&FSEIS) in 2015 on a Public Private Partnership (PPP) framework on Built-Operate-Transfer (BOT) for the East Delhi Municipal Corporation (EDMC). The processing capacity of the plant is 500 MT/day. Concession period of the project is 15 years.



As per plant owner, about 2.5acre land is provided to the processing facility, whereas the minimum required land for operating 500 TPD processing facility is 5 acres. If the adjoining additional land can be made available to the plant operator, plant can run more efficiently. The capacity of C&D plant at Shastri Park is 500 MT per day

and at C & D plant Burari, the capacity is 2,000 MT per day, so in all the capacity is 2,500 MT per day whereas the generation of C&D wastage is around 5,000 MT per day. As such a gap of 2,500 MT per day of C & D waste still exist which remains unutilized at present. At present, about 70-80 MT/D C&D waste is reaching from NDMC area and remaining about 370 MT/D comes from EDMC area. Consent to Operate was given by DPCC on 15/12/2016 and is valid upto 28/10/2020.

The project design, conceptualization, entire investment and execution is by M/s. IL&FS Environmental Infrastructure & Services Ltd. The wet processing technology has been adapted by the Plant to minimize the process residues as well as dust and noise pollution.



As per the plant operator, the cost for establishment of the plant is Rs. 22 Crores and payback period is around 15 years. The product of this plant includes sand, blocks/bricks and aggregates. The selling price of sand is Rs. 500/MT, each block cost is Rs. 29 and aggregates is Rs. 200 to 300 per MT. The manufactured items like Blocks/ tiles attract the

excise duty of 12.5% and VAT of 5%. The blocks made out of C&D waste has got better intrinsic strength of about 125 psi as against the strength 90 psi of "A" Class clay bricks.



The requirement of process water for this plant is about 10,000 liters per day and treated

sewage effluent from the STP located at Yamuna Vihar is being used to fulfill the requirement. The plant operator is paying Rs. 7 per kilo liter as cost of the treated water for meeting their water requirement. The plant has been given Consent to Operate by DPCC. The plant is operational for one shift at present from 9:00 am to 6:00 pm and about 30 persons are engaged in this plant.



The products recovered from recycling of C&D waste are recovery of segregates (-60 to 20mm, -20 to 10 mm, -10 to 3 mm size), RMC made with recovered products like kerb stones, pavement blocks, and concrete bricks etc. Use of

recycled aggregate reduces the consumption of fresh stones and sand, thus conserving our natural resources and helping in reducing sand mining. Besides helping in reducing water and air pollution, the plant reduces the burden on the landfill/dumping sites of the city and saves precious urban land every year.

## **2. Initiative Taken by Govt. of NCT of Delhi**

Department of Urban Development, Govt. of NCT of Delhi issued an advisory on mandatory use of recycled products from construction and demolition waste in Delhi to all Municipal Corporations of Delhi, NDMC, CPWD, Delhi PWD, DDA, DJB, Northern Railways, Delhi Cantonment Board, BSES, NDPL, DMRC, DPCC, Yamuna Power Lighting and other Govt. organizations in Delhi in July, 2016. The above organizations shall take the following measures involved in construction/maintenance of civil works:

- i. A minimum of 2% of C&D recycled products shall be used for building works.
- ii. 10% of C&D products shall be used for road works
- iii. Urban Local Bodies in Delhi shall mandate 5% use of C&D recycled products for non-structural application by all including private individuals
- iv. All above conditions shall be included in all relevant civil works tenders i.e. notice inviting tenders, work orders and contract agreements, etc. for strict compliance.
- v. Compliance of these conditions shall be verified and certified by the concerned Executive Engineer before verifying and certifying the bills for payments in any such contract.

## **3. Initiative Taken by Govt. of India**

- i. Bureau of Indian Standard (BIS) has revised IS: 383:2016 to permit the use of manufactured aggregates namely recycled aggregates (RA) and recycled concrete aggregates (RCA) in lean concrete, PCC and RCC. Recycled aggregates (RA) and recycled concrete aggregates (RCA) shall preferably be used in CPWD works to the extent possible. Central Public Works Department (CPWD) has issued Office Memorandum in February 2016 to all concerned in CPWD on use of manufacture aggregates as per IS: 383:2016 as 100% coarse aggregate in lean concrete (<M15 grade), 20% in reinforced concrete (only up to M25) and 25% in plain concrete and similarly, 100% fine aggregate in lean concrete (<M15 grade), 20% in reinforced concrete (only up to M25) and 25% in plain concrete in PWD works.
- ii. Govt. of India has notified Solid Waste Management Rules, 2016 on 8<sup>th</sup> April, 2016. The Ministry of Environment, Forests and Climate Change shall be responsible for reviewing implementation of these rules as and when



required. As per the Rules, the Local Authority:

- a. shall device appropriate measures in consultation with expert institutions for management of construction and demolition waste generated including processing facility and for using the recycled products in the best possible manner
- b. shall make provision for giving incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads.

#### **4. Recommendations:**

- i. Advisory issued by Govt. of NCT of Delhi for utilization of C&D waste, which is available in the form of aggregates, bricks and blocks from C&D waste processing plant in Shastri Park, Delhi for different civil works may be followed by PWD, CPWD, DDA and other Govt. Deptt. Contractors undertaking Govt. works must utilize C&D waste product to the maximum extent possible as per the directives/guidelines/instructions issued by Central/ Govt. of NCT of Delhi as mentioned in Para 2(i), & (ii) & Para 3(i).
- ii. Aggregates can be well utilized in the widening of ongoing NH24 by NHAI and as such appropriate direction to NHAI in this regard may kindly be given. This will save agricultural soil which will otherwise be used for filling up the low laying areas.
- iii. The processing capacity of C&D waste plant at Shastri Park needs to be upgraded from its present capacity of processing 500 MT/D to 1,000 MT/D by the same existing plant but they need additional space for facilities and storage of raw material and products. This could be done by allocating adjoining land available with EDMC and Delhi Forest Deptt. Forest Deptt. has planted some saplings in this adjoining land recently which are not yet fully grown and as such some land can be carved out of this forest land and given to the C&D plant operator in addition to adjoining EDMC land. This will go a long way in processing of more C&D waste at present location to the extent of 1,000 MT/D.
- iv. Another C&D waste processing plant at Burari, which was also set up by M/s. IL&FS has got capacity of 2,000 MT/D. As such in all about 2,500 MT/D of C&D waste can only be processed in Delhi as of now whereas total such waste generated is around 5,000 MT/D and as such capacity addition to the extent of 2,500 MT/D is urgently required. DDA/ Govt. of NCT of Delhi/ MCDs should allocate additional land for setting up of such C&D facilities.

- v. Tiles, bricks and blocks made out of C&D waste attracts Excise Duty of 12.5% and Vat of 5%.To promote these products,there is a need to exempt such products from the purview of excise and vat duties.

Dr. Ramakant/ Ms. Chaitra Devoor MoUD Representative	Dr. Vinay Gangal CPCB Representative
Dr. (Ms.) S. Srivastava NDMC Representative	Dr. (Ms.) Gowri N. Sengupta M/o H&FW Representative
Dr. (Ms.) Chhavi Pant Joshi M/o H&FW Representative	Mr. K. Kumar DPCC Representative
Mr. VK Sharma DJB Representative	
Dr. GK Pandey Chairman, Sub-committee-I	

**Visit Report of Sub-Committee-1**  
**Solid Waste Sanitary Landfill & Waste to Energy Plant**  
**at Ghazipur**

**(Original application No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI  
and application no. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt. of NCT  
of Delhi & Govt. of India)**

A visit to Sanitary landfill site and Waste to Energy Plant located at Ghazipur was made on 26<sup>th</sup> April, 2017. Chairman along with following sub-committee member participated in the site visit:

- 1 Dr. Ramakant, Ministry of Urban development
- 2 Dr. Gowri Sengupta, Ministry of Health & Family Welfare
- 3 Mr. K. Kumar, Delhi Pollution Control Committee

Representatives from other organization were:

- 1 Mr. Pradeep Khandelwal, Chief Engineer, EDMC
- 2 Mr. P.R. Singh, Ghazipur Landfill site
- 3 Mr. Chandan Singh, Assistant Engineer, EDMC
- 4 Representative of Waste to Energy Plant

Sub-committee visited the plants keeping in view that the silt generated from the drains in NDMC area is transported to the Ghazipur landfill site.

**1. Municipal Solid Waste Landfill Site at Ghazipur, East Delhi**

The representative from management of landfill site at Gazipur has informed the committee that this landfill was started in year 1984 in about 70 Acres of land. With more than 2,100 MT of Municipal Solid Waste (MSW) of city being dumped daily at Ghazipur dumpsite, the site has exceeded its limit long ago, posing serious environmental, health and safety hazards to the neighborhood. It is estimated that 60% of the nearby population may be impacted by the dumpsite posing health risks.



This daily waste being sent to the dumpsite is expected to increase to 3,200 tons by 2021. NDMC is also sending their silt taken out from drains to Ghazipur landfill site, the quantity of which was stated to be about 80 MT during March 2017. With an average height of 45-50 metres and over 5 million tons of accumulated garbage, the overflowing dumpsite is an environmental disaster waiting to happen like recent

collapsing of garbage dump in Sri Lanka drilling about 18 persons living the vicinity. During monsoon around 1.4 million liters per day of toxic leachate and runoff gets generated and flows into the Yamuna and also contaminates the groundwater. Air pollution problem due to continuous burning of methane from the landfill site poses significant health hazard to the adjoining population.



The expected life of the land fill site was up to year 2002. It has outlived its life and still being used for disposal of municipal solid waste. The members of the committee

reached at the top of the landfill to assess the actual scenario at the top of landfill. It was observed that the rag pickers were sorting the materials like quilt, blanket, papers, plastics, etc for recycling and reuse. Some of the trucks were also transporting construction and demolition (C&D) waste to the landfill site which was kept aside at the top of the landfill.



As per the information provided by the Landfill management, C&D waste is used to cover the fire area on the top part of landfill. Green mixed waste was also used to cover the fire at the top of the landfill. Water sprinkling may not be used frequently to reduce the leachate generation. In case of major fire, management call the fire tender

from Fire Department. It was seen that all the garbage trucks transporting garbage at the landfill site were uncovered.

East Delhi Municipal Corporation (EDMC) in collaboration with Gas Authority of India Ltd., (GAIL) took an initiative to implement a pilot project to ascertain the potential of Landfill Gas (LFG) recovery from an active landfill site at Ghazipur. EDMC entered into MoU with GAIL for implementation of LFG recover facility and earmarked 10 Acre of land at landfill site for the pilot project. The scope of the project is to scientifically close the earmarked landfill site, construction of LFG collection well, LFG extraction,



purification to enrich LFG and utilized for power generation.

GAIL has setup a methane recovery plant with power generation in the year 2013. About 15 number of bore wells were installed for collection of methane gas from the earmarked landfill site (10 acre). About 80 m<sup>3</sup>/hr gas is collected from the earmarked landfill site which contains about 30% of methane. At this, about 30KW power was generated out of which 22KW used by the plant and remaining 8KW fed to power grid. At present methane content has gone down to about 18% as such there is no continuous power generation due to small content. Now, methane is being burnt by GAIL as this small quantity cannot be utilized for power generation.

About 2,200 MT/Day waste is received from the landfill site out of which about 750 MT goes to the waste to energy plant. The height of the landfill site has reached to about 45 to 50 meters as against the normal height of 10 meters which may pose problems in case the dump collapses and may result into disaster effecting the nearby habitats. There was no proper system provided for leachate collection, treatment and disposal.



During the visit we could observe the black brownish leachate was coming from the landfill site and was ultimately going to the municipal drains causing water pollution problem. However, it was seen that a small tank provided for storing the leachate is abandoned now with the result the leachate coming from the landfill site is getting bypassed totally to municipal drains which ultimately goes to Yamuna river causing water pollution.

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This landfill site is continuously on fire due to emissions of methane gas by decomposition of organic wastes. This indicates the callous approach of EDMC that no efforts have been made to control the fire being generated due to methane. Sri Pradeep Khandelwal, Chief Engineer, EDMC, who was present during the meeting, was fully aware of this problem.



The committee members expressed their displeasure on the present situation of prevailing of fires at the landfill site and advised the Chief Engineer, EDMC to take appropriate measures for control of fire such as at least sprinkling of water on the affected areas of the landfill site could be taken as an immediate measure. Chief Engineer, EDMC assured the



members to take appropriate measures on such effected areas to control fire at the landfill site. The Committee also suggested to increase the no. of LFG collection bore wells in the other part of the landfill also for gas recovery so as to reduce fire due to methane gas. This gas may also be used by the existing pilot plant of LFG recovery as there is reduction in methane content of recovered gasses from the present earmarked landfill bore wells. This would also reduce the risk of fires at the landfill site.

### **1.1 Initiative taken by East Delhi Municipal Corporation on Ghazipur Landfill:**

A detailed study was carried out by CSIR-Central Road Research Institute (CRRI) for National Highway Authority of India, New Delhi to investigate the possibility of "Utilisation of Municipal Solid Waste in Road Embankment" collected from Ghazipur landfill, East Delhi. The MSW is proposed to be utilized in the widening of NH-24 from 4 to 16 lane. About 200 tons of Municipal Solid Waste was collected from Ghazipur and was segregated into different sizes in the existing compost plant. The different fractions were studied for their suitability for use in road embankment construction. The segregated MSW is then characterized for its Geo-technical characteristics. Settlement analysis was also carried out to investigate its feasibility for embankment construction. A copy of CRRI report is enclosed at **Annexure-I**. The extract of the conclusions drawn from the study are summarized below:

- i. About 65-75% of segregated Municipal Solid wastes can be used for embankment construction.
- ii. Other than soil, plastics and textiles were observed to be major constituents in different segregated MSW. There is no variation in the soil content or other constituents with the age of the MSW.
- iii. Leachate studies indicate that MSW is a non-hazardous material as concentration of heavy metals is within the permissible limit.
- iv. The fraction passing 16 mm sieve shows a minimal amount of plastics. Considering the higher percentage of this material in the MSW (44-48%), and the fact that its Maximum Dry Density (MDD) satisfying the Ministry of Road Transport and Highway (MORTH) specification, this fraction can be directly used for embankment construction. This should be mixed with material retained on 37.5mm and 16mm after air blowing (at plant) to get the final material for use in embankment construction.
- v. The final MSW selected for embankment construction is a non-plastic, non-swelling coarse grained material and classified as GM, i.e a silty gravel material.
- vi. The angle of shearing resistance values of MSW ranged between 280 and 350 indicating its suitability for embankment construction.
- vii. The Permeability of the different types of MSW varies in the range  $1.55 \times 10^{-9}$  to  $1.21 \times 10^{-8}$  m/s. The low value of the permeability observed may



- be because of presence of plastics, and rubber in the MSW mix which obstructs the flow of water through the mix.
- viii. The value of compression index ranged between 0.14 and 0.19 indicating a low to medium compressible soil. The average value of coefficient of consolidation in the stress range of 79-628 kN/m<sup>2</sup> is estimated as  $4.14 \times 10^{-6}$  m<sup>2</sup>/sec which is similar to that of conventional silty soils.
  - ix. Total settlement for 3 m and 5 m MSW embankment including primary and secondary consolidation 244 mm and 304 mm respectively. However, these settlements are much less than the allowable settlement of 300 mm to 600 mm considered for Road embankment. The total settlement shall be uniform and shall occur slowly over a period of time.
  - x. Stability analysis indicated factor of safety values for critical draw down conditions under seismic conditions in the range 1.64 to 1.79 which is more than the minimum value of 1.25 required as per Indian Road Congress (IRC-75) specifications

## **1.2 Initiatives taken by Ministry of Urban Development for Utilization of Garbage of Ghazipur Landfill**

A Memorandum of Agreement had been signed among Ministry of Urban Development, and Ministry of Road Transport and Highways and East Delhi Municipal Corporation and National Highways Authority of India at Nirman Bhawan, New Delhi and agreed that based on CRRI Report, about 60-75% of the material presently lying at the Ghazipur dumpsite (excluding plastic and textile waste) can be utilized for the purposes of construction of embankment in National Highway projects. It was expected that the embankment construction of NH-24 will clear the entire Ghazipur dumpsite.

## **1.3 Initiatives taken by Ministry of Urban Development on Promotion of City Compost**

- i. On the initiative taken by the Ministry of Urban Development, Union Cabinet has approved the policy on city compost including Market Development Assistance in the form of fixed amount of Rs. 1500 per tonne of city compost to the States for scaling up production and consumption of the product. Ministry of Chemicals & Fertilizers has conveyed the approval of Govt. of India on 10<sup>th</sup> Feb. 2016 to the States for implementation of the policy. Initially, marketing and promotion of city compost will be done through the existing fertilizer companies. In due course, compost manufacturers and other marketing entities recognized by the concerned State Government may also be included for the purpose with the approval of Department of Fertilizers. Fertilizer companies and marketing entities will also co-market city compost with chemical fertilizers through their dealers' network. The expenditure towards market

development assistance for scaling up production and consumption of city compost will be met out from the budget provisions for Department of Fertilizers.

- ii. Apart from the Market Development Assistance (MDA) of Rs. 1500 per metric tonne of city compost, Ministry of Urban Development is also providing a viability gap funding/ grant of 35% of the total project cost to States for waste to compost plants under **Swachh Bharat Mission**. The cities can now take advantage of this provision to ensure setting up new compost plants, reviving of closed compost plants and upgrading the existing plants working at sub-optimal capacity to function at full capacity.

Compost from city garbage would not only provide carbon and primary/secondary nutrients to soil but also help in keeping the city clean. Eco-Mark standard for City Compost would ensure that environment friendly quality product reaches the farmers. Composting can reduce the volume of waste to landfill/dumpsite by converting the waste into useful by-products. This also prevents production of harmful greenhouse gases (especially methane) and toxic material that pollutes groundwater apart from polluting the environment.

## **2. Waste to Energy Plant at Ghazipur, East Delhi**

Waste to Energy (WtE) plant at Ghazipur was set up by M/s. IL&FS Environmental Infrastructure & Services Ltd., Gurugram on a Public Private Partnership (PPP) framework in about 5 acres land for the East Delhi Municipal Corporation (EDMC) and provided a scientific solution to address the current dumping of waste at Ghazipur. It has capacity of 2000 metric tons per day. The consent to operate granted by the DPCC to this plant presently has put a cap on its capacity at 1300 metric tons per day (MTPD) of waste generating 12 MW of Power and 127 MT of Refused Derived Fuel (RDF) with calorific value of 3000 Kcal/kg, to address East Delhi's growing waste. But this plant is receiving only 800 MTPD of garbage. The plant has built-in capability to process 1,300 MTPD. The operation of the plant has been started in December 2016.



The plant has an elaborate pre-processing facility which prepares the waste to ensure a high calorific value for the RDF produced which feed into the State of the Art boiler to ensure proper combustion. This plant is capable of manufacturing Refuse Derived Fuels (in short 'RDF') and then use the same for marketing purposes or entirely and partly for generation of energy within the plant. Ghazipur generates 20 metric tons of fly ash and 50 metric tons of bottom ash, total is 70 metric tons.

The management has entered into an agreement for utilization of bottom ash and fly ash for making bricks and blocks. EDMC has allotted about 1.5 acres of land for this purpose.



It was seen that the effluent/ leachate which comes from RDF Plant are properly treated before the same is utilized in-house. The requirement of process water is met out of the treated sewage from Kondli STP located nearby. The plant uses the recycled sewage water in the operations thus fully complying with the 4R (Reduce, Reuse, Recover, Recycle) principle of waste management. It was observed that packaged STP established for the sewage treatment generated by the employee engaged by the plant. However, it was found non-functional and was under maintenance. It was reported by the management that the sludge is taken out

manually and ultimately disposed of in the landfill area. This is not desirable to carry sludge manually and rather in such emergency situations, the STP should have a bypass arrangement connected to the municipal sewerage system. The sludge generated in the leachate treatment plant has to be looked in to in terms of its quality and final disposal in a safe way.



It has been estimated to mitigate 8.2 million tons of Greenhouse Gases (GHG) over the next 25 years of project life, thus combating global warming. To implement highest levels of transparency, IL&FS has installed a Continuous Emission Monitoring Systems (CEMS) which enable online viewing of key emission parameters for flue gas as on a real time basis. The plant has also trained waste picker women to make handicrafts products using wounded flowers and recycled paper.

As per the recent requirement of CPCB for online display of monitoring parameter of flue gases, it was observed that this facility is yet to be provided by the management at the entrance of the plant in the public domain. However, in the central control room, it was observed that online monitoring system for different parameters of flue gases such as NO<sub>x</sub>, HCL, CO<sub>2</sub>, H<sub>2</sub>S, SPM, etc were provided with the data logger display which can be accessed by regulatory authority such as CPCB and DPCC.

## **2.1 Initiatives taken by Govt. of India on Promotion of Waste to Energy Plant**

- Ministry of Urban Development is implementing Swachh Bharat Mission with one of the components as municipal solid waste management. Under the Mission, Central Government provides 35% of the total project cost to the States for setting-up of waste processing unit including waste to energy plant by Urban Local Body.
- Central Electricity Regulatory Commission (CERC) has notified Generic tariff for RDF (Refuse Derived Fuel) based and MSW based Waste-to-Energy plants.
- Ministry of Power has revised the Tariff Policy 2006 under Indian Electricity Act, 2003, making it mandatory for DISCOMS to purchase 100% power from Waste-to-Energy plants.
- All industrial units located within 100 km from a solid waste (based Refuse-Derived Fuel) plant using fuel may replace at least 5% of their fuel requirement by RDF so produced.

## **3. Recommendations**

- i. Existing landfill in Delhi be phased out and no more land should now be allocated for landfill in Delhi and more Waste to Energy (WtE) plants be set up in future.
- ii. Garbage in existing landfills be utilized in WtE plants to the extent possible or should be used for filling low lying areas, especially, in road construction/ widening of roads including Central/ State Highways in consonance with recommendations of CRRI, Delhi.
- iii. New WtE plants be set up including expansion of existing ones to cater to the requirement of entire garbage being generated in NCT of Delhi.
- iv. Fly ash and bottom ash should not be dumped in landfills and rather be utilized for making bricks and blocks within a period of one year.
- v. Present practices of dumping of desilted materials from drains in NDMC area to Ghazipur landfill site should be stopped as early as possible and rather be used in making bricks and blocks. Economic instruments be used to promote usage of such products. Also, administrative orders be issued by Govt. of Delhi/ Central Govt. to use such products by PWD, CPWD, DDA, Govt. Construction Agencies, etc. in developmental activities. Excise duty / VAT may be exempted for such products.
- vi. Transfer of garbage through open trucks be stopped as early as possible but not later than one year. The open transportation of garbage leads to the pollution in the environment and gets spilled on road during transportation.
- vii. Burning of gas (methane) alongwith garbage in Ghazipur landfill is causing air pollution and produces carcinogenic gases and as such sprinkling of treated

- waste water from Kondli STP be used for the purposes to avoid health implications to the adjoining population.
- viii. Reclamation and closure of landfills of Ghazipur and Okhla be initiated and may be completed by next two (2) years.
  - ix. No untreated leachates be allowed to flow in drains and be properly treated before discharge.
  - x. Frequent fire incidences and discharge of untreated leachates into the drains are major environmental concerns and strict action may be taken against the concerned Municipal Corporations of Delhi for their callousness and apathetic attitudes.

Dr. Ramakant/ Ms. Chaitra Devoor MoUD Representative	Dr. Vinay Gangal CPCB Representative
Dr. (Ms.) S. Srivastava NDMC Representative	Dr. (Ms.) Gowri N. Sengupta M/o H&FW Representative
Dr. (Ms.) Chhavi Pant Joshi M/o H&FW Representative	Mr. K. Kumar DPCC Representative
Mr. VK Sharma DJB Representative	
Dr. GK Pandey Chairman, Sub-committee-I	

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**FINAL REPORT**

**UTILIZATION OF MUNICIPAL SOLID WASTE IN ROAD  
EMBANKMENT**

**SPONSORED BY**

**NATIONAL HIGHWAY AUTHORITY OF INDIA  
NEW DELHI**



**SUBMITTED BY**

**GEOTECHNICAL ENGINEERING DIVISION  
CSIR-CENTRAL ROAD RESEARCH INSTITUTE**

**JUNE 2016**



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## **DISCLAIMER**

All the data and technical information furnished in this report are based on the actual laboratory investigations. The responsibility of the CSIR - Central Road Research Institute (CRRI) is limited to the technical and scientific matters contained in this report.

Any use of the findings of the report without consulting CRRI by any other agency or person other than the client will be solely at their own risk and responsibility.

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# UTILISATION OF MUNICIPAL SOLID WASTE IN ROAD EMBANKMENT

## 1.0 INTRODUCTION

Rapid growth of population, industrialization and urbanization during the last few decades has resulted in generation of huge quantity of Municipal Solid Wastes (MSW) in different cities. Delhi generates about 7000 tons/day of MSW and all the three existing dump sites (Ghazipur, Bhalswa and Okhla) have exhausted their capacity. The Ghazipur landfill was started in the year 1984 and is still in use. It spreads over an area of approximately  $3 \times 10^5$  m<sup>2</sup> and is situated near National Highway-24. It is located at the close proximity of the Hindon canal. On an average 2200 tons/day of waste is dumped and the waste fill height varies from 30-35 m. Different constituents of this waste dump include: groceries, food scraps, vegetable remains, packing materials, paper, remains of used coal, ash, wood, metals, plastics, ceramics, cloth, glass, etc. Construction & demolition waste consisting of sand, bricks and concrete block are also part of the dump. Further, waste from the adjacent poultry market, fish market, slaughter house, dairy farm and non-infectious hospital waste are also part of the huge hillock of MSW dump. The MSW is dumped haphazardly without segregation and at present it is in irregular shape. A typical pictorial view of Gazipur land fill site is shown in Fig. 1.



**Fig.1 Typical view of Ghazipur MSW dumping yard**

The huge dump of Ghazipur landfill is affecting the health, hygiene, sanitation and aesthetics of surrounding area. The place has become a home for rats, flies, bacteria, mosquitoes, all having the potential of causing many human diseases. If these wastes are not properly disposed off, they can prove perilous and environmental hazard. It is very important for Engineers and Environmentalists to adopt sustainable waste management programs to minimise the release of these materials into the environment where they can affect public health and eco-system.

Large scale infrastructural development is being carried out in the country considering the huge surge in the industrial and consumer goods production. Several thousands of kilometre of roads are built in the form of National Highway Development (NHDP) program and Pradhan Mantri Gram Sadak Yojana (PMGSY) program. This requires huge quantities of road construction materials both for construction and maintenance of roads. Use of local soil and conventional aggregates for road construction needs to be reduced as it affects our environment and is disastrous for the future. Also, the conventional soil and good quality aggregates are also depleting very fast especially in an urban area, and have to be brought from large distances, increasing tremendously, the cost of the project. The accumulated Municipal Solid Waste (MSW) in the Ghazipur landfill is now seen as a potential source of material for bulk utilisation in embankment construction in the 14 lane widening of NH-24, the construction of which would start in next few months.

In this connection National Highway Authority of India (NHAI) approached CSIR-Central Road Research Institute, New Delhi to carry out a detailed study to investigate the possibility of use of this material as an embankment fill. It was emphasized that the study shall be carried out as a pilot project, the outcome of which could be utilised and applied in different cities at the National level. Accordingly, a proposal was prepared by CSIR-CRRI, to carry out this R&D study in three phases the scope and objectives of which include: development of methodology for segregation, laboratory characterisation, design, construction of experimental test tracks, instrumentation and monitoring. Results need to be analysed and specifications have to be developed for large scale field applications. This report discusses the results of Phase 1 of study; where in a methodology has

been proposed for segregation of MSW. The report also discusses the results of a) Geotechnical characterization of MSW b) Settlement analysis and c) Typical cross sections of MSW embankment of 3m and 5m height embankment for field construction.

## **2.0 SCOPE AND OBJECTIVES**

The objective of this project is to develop the guidelines, technical specifications for the application of MSW in road embankment construction. The scope of work is limited to the following activities.

- Development of a methodology for segregation and identification of material for embankment construction.
- Geotechnical characteristics of identified material to investigate its feasibility for embankment applications.
- Investigation on heavy metal constituents, other harmful products by chemical analysis of identified material.
- Analysis of total settlement of municipal solid waste embankment fill.
- Slope stability analysis for embankment constructed with municipal solid wastes.
- Finalization of typical cross – sections of MSW embankment for field construction.

## **3.0 DEVELOPEMENT OF METHODOLOGY FOR SEGREGATION**

The Municipal Solid Waste (MSW) is a heterogeneous material which cannot be used as such in embankment construction. It has large size plastics, clothes and even boulder size C&D waste. MSW needs to be segregated/separated by adopting a suitable methodology before using it for road embankment construction. The segregated material can then be easily compacted in the field with conventional methods and equipments. Details of R&D study adopted for segregation of MSW is discussed below. Based on the result of the study; a methodology has been proposed for segregation of MSW.

### 3.1 Collection of raw Garbage (MSW)

To develop the segregation methodology, about 200 tons of raw garbage (Municipal Solid Waste) was collected from Ghazipur landfill, East Delhi. This was collected from three pre-identified locations according to its age, based on the height of the dump and as per available data with EDMC. However as the samples were collected from the slope of the MSW, this cannot be authenticated about the exact age of the MSW collected.

The biodegradability of MSW depends on the time of dumping and it would affect its physical, chemical and geotechnical properties. Approximately 70 tons of garbage was collected from each of these three locations of different ages (1) 5 years old (2) 10 years old and (3) 15 years old. The approximate locations on a Google map is shown in Fig 2.



**Fig 2. Collection of MSW of different age- Locations on a google image**

### 3.2 Segregation and composition analysis

Segregation and composition analysis of MSW samples were carried out to know the proportion of different size of heterogeneous materials and its composition. The analysis would help to arrive at suitable material to be used for embankment construction. The R&D study was carried out at IL & FS Compost plant, Okhla, New Delhi.



### 3.2.1 Segregation

The study on the segregation of raw garbage was carried out at an already existing compost plant at Okhla, New Delhi. The trommel/sieve sizes used in the composting process were also adopted for segregation of raw garbage (MSW). The garbage collected from different locations was first dried in the compost plant (Fig.3) before the process of segregation. The compost plant has different trommels/sieves which has the option to segregate the garbage in different sizes as, Retained on 80mm, Passing 80mm , Passing and Retained on 35mm, Passing and Retained on 16mm, Passing and Retained on 4mm. To develop the segregation methodology, raw garbage was segregated in different trommel/sieve sizes starting from 80 mm to passing 4mm. The samples segregated in different sieves would give an insight regarding the possible selection of material for embankment construction. The method of segregation adopted in the compost plant has been discussed below.

- a) The dried MSW is first fed into 80 mm trommel through a conveyor belt. The papers, plastics, cloths and other constituents remained on the 80mm sieve were removed by an air blower provided in the plant set-up. The high pressure blower removes all the large size papers, plastics, clothes as shown in (Fig.4). The heavier larger size C&D aggregates including large size brick bats are retained on 80mm sieve. However, these materials can also be removed manually as shown in Fig. 5.



**Fig.3 Drying of garbage in compost plant**





**Fig.4 Loading and Separation of plastics from 80mm Trommel/Sieve**



**Fig.5:- Removal of Brick bats, C&D waste from the conveyor**

- b) The material passing 80 mm sieve (Fig.6) was then fed into 35mm size trommel/seive, where the MSW will get further segregated into materials retained on 35 mm and material passing 35 mm (Fig.7). In this process, there would be more removal of plastics, paper, clothes, etc.
- c) The MSW passing 35 mm trommel/sieve size, further passes through a conveyor into a 16mm trommel/sieve, which further segregates the materials into two parts viz. Retained on 16 mm and Passing 16mm (Fig.8).
- d) The MSW passing 16 mm is then allowed to pass through a 4 mm trommel/sieve, which further segregates the MSW into retained on 4 mm and passing 4 mm ( Fig.9).



**Fig.6 Fraction passing 80 mm sieve.**



**Fig.7 Fraction passing 35 mm sieve.**



**Fig.8 Fraction passing 16 mm sieve.**



**Fig.9 Fraction passing 4 mm sieve.**

During the segregation study, the percent weight retained and passing different trommel/sieve sizes was calculated separately. These values were estimated by collecting different fractions using mini trucks and weighing them appropriately in the plant. (Fig.10 and Fig. 11(a,b)).

The percentage of different fractions after segregation is summarized in Table1.





**Fig. 10 Collection of MSW passing 80mm**



**(a)**

**(b)**

**Fig.11:- Collection of MSW passing 16mm**

**Table 1:- Percentage of different fractions after segregation of raw garbage**

<b>Age of MSW</b>	<b>% Passing 80mm sieve</b>	<b>% Retained on 35mm + % Retained 16mm sieve</b>	<b>% Passing 16mm sieve</b>	<b>% Retained on 4mm sieve</b>	<b>% Passing 4mm sieve</b>
<b>5 yrs</b>	79	32	47	18	29
<b>10 yrs</b>	65	21	44	17	27
<b>15 yrs</b>	68	20	48	14	34

It is observed that, in all the three types of MSW of different ages, that

- (a) About 65-79% of the material passes through 80 mm sieve with substantial amount of plastics, paper & cloths and
- (b) About 44-48% of the MSW passes through 16mm sieve with minimum plastics.
- (c) Substantial amount of useful aggregates were observed to be retained on 35mm and 16mm Trommel/Sieves.

### 3.2.2 Composition analysis

Composition analysis of different fraction was carried out to know the amount of different constituents viz. soil, plastics, metals, textiles, papers etc in the heterogeneous mix. This would help to identify a particular fraction for use in the embankment construction.

About 30-40kg of MSW passing through 80mm, 35mm, 16mm, 4mm sieves were collected randomly during segregation process and were dried before composition analysis. Different constituents were separated manually and weighed (Fig 12).



**Fig.12 Manual Separation of MSW passing 80mm**

This process was repeated for MSW of different ages. The results of the composition analysis for different fractions are shown in Fig 13 – Fig 17. Some of the conclusions drawn from composition analysis are given below;

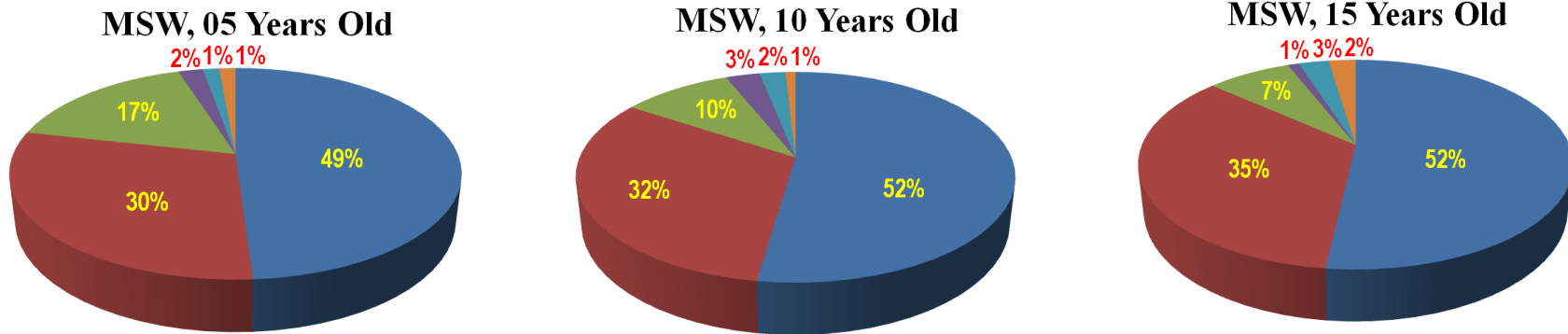


Fig 13:- Results of composition analysis of MSW retained on 80mm

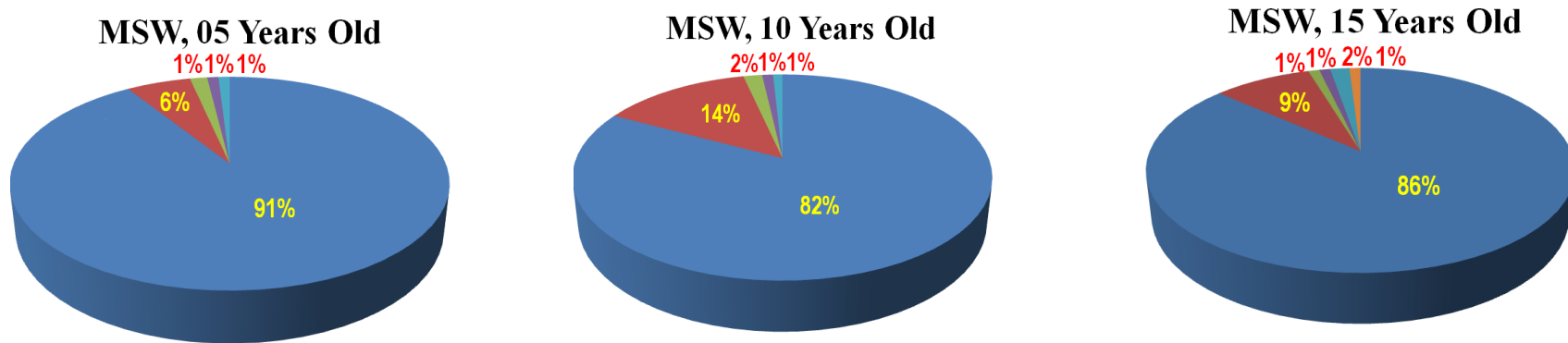


Fig 14:- Results of composition analysis of MSW passing 80mm

■ Soil   
 ■ Plastic   
 ■ Textiles   
 ■ Metals   
 ■ Wood   
 ■ Paper   
 ■ Rubber   
 ■ Glass & Others

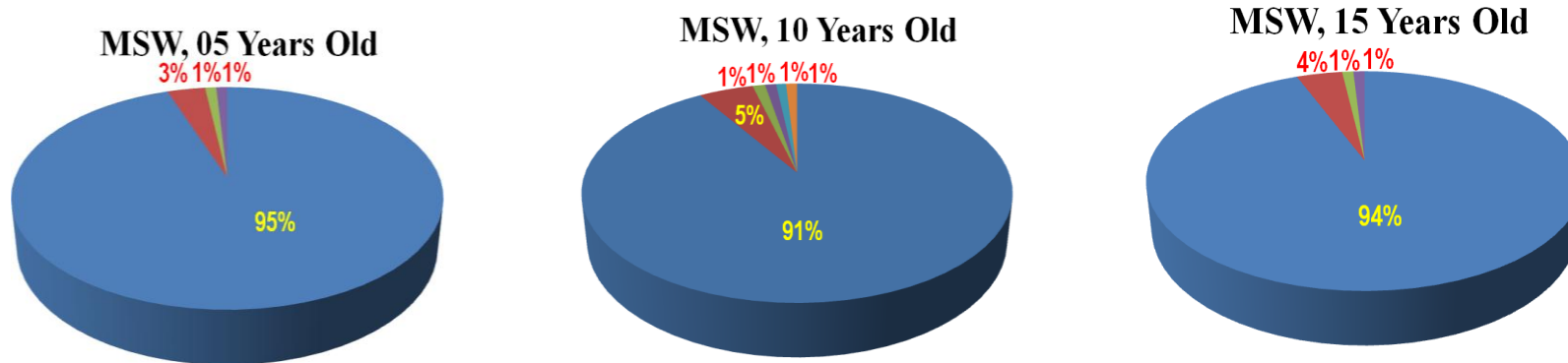


Fig.15 Results of composition analysis of MSW passing 35 mm sieve

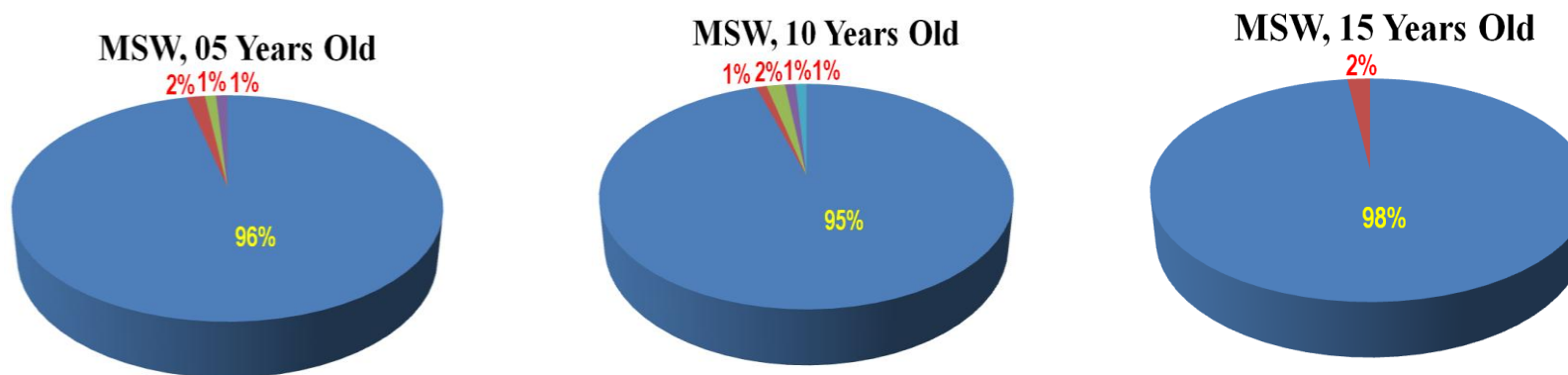
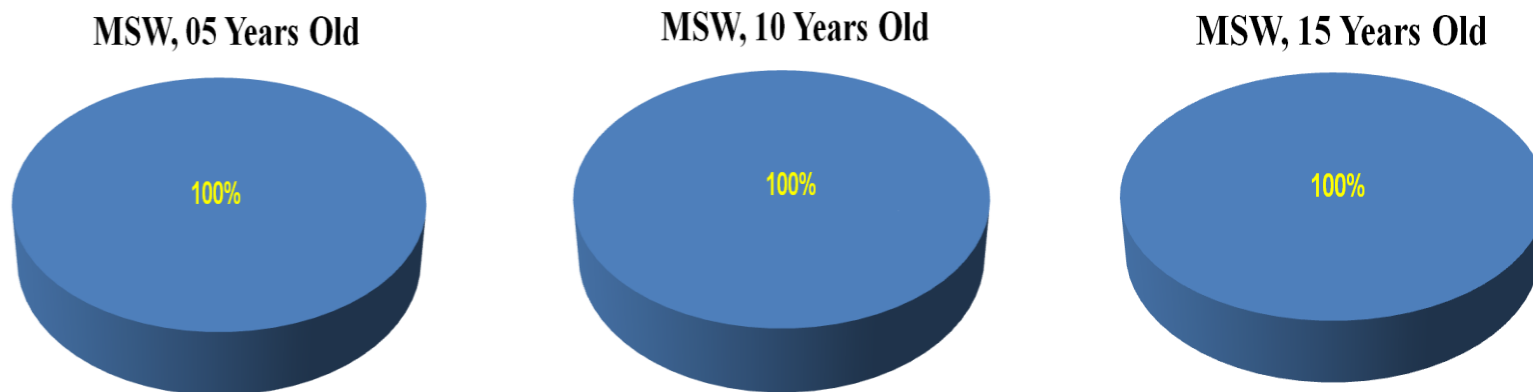


Fig.16 Results of composition analysis of MSW passing 16 mm sieve

■ Soil   
 ■ Plastic   
 ■ Textiles   
 ■ Metals   
 ■ Wood   
 ■ Paper   
 ■ Rubber   
 ■ Glass & Others



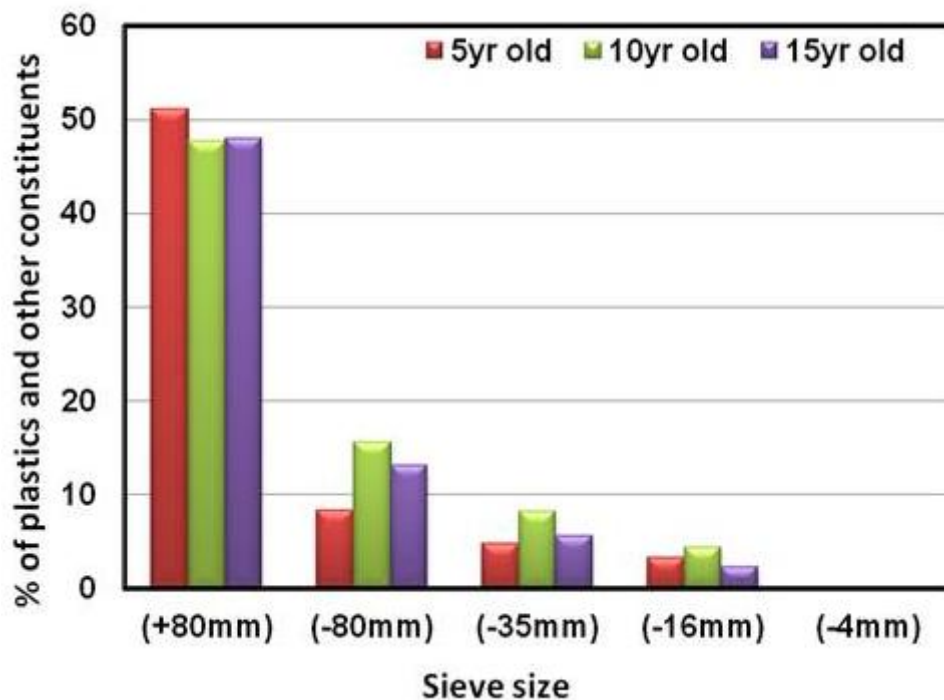
**Fig 17:- Results of composition analysis of MSW passing 4mm**

■ Soil ■ Plastic ■ Textiles ■ Metals ■ Wood ■ Paper ■ Rubber ■ Glass & Others

Some of the conclusions drawn from composition analysis are given below:

- a) The percentage of soil content increases as the raw MSW is successively segregated through 80 mm, 35mm, 16mm, and 4mm. The soil content which was about 50% retained on 80mm sieve increases to 100% when it was passed through 4mm sieve.
- b) Other than soil, plastics and textiles were observed to be major constituents in different segregated MSW
- c) The percentage content of metals, wood, paper, rubber, glass is observed to be less than 1% in different segregated MSW.
- d) It is concluded that there is no variation in soil content or other constituents with the age of the MSW.

The variation of plastics and other constituents in MSW of different ages with sieve size is shown in Fig-18. It is observed that the amount of plastics and other constituents sharply reduces when it is passed through 80mm sieve (50% to 15%). With the successive sieving, this amount reduces and becomes negligible when it is passed through 4mm sieve.



**Fig 18:- Variation of plastics and other constituents with Trommel size**



### 3.3 SUITABILITY OF SEGREGATED MSW FOR EMBANKMENT CONSTRUCTION

The fraction passing 80mm, 35mm, 16mm & 4mm sieve were visually observed for a typical MSW with 10 years age. These fractions were geotechnically characterized before arriving at conclusions regarding their feasibility for embankment construction. Fractions retained on 35mm,16mm were also studied. Details of the study is given in subsequent sections.

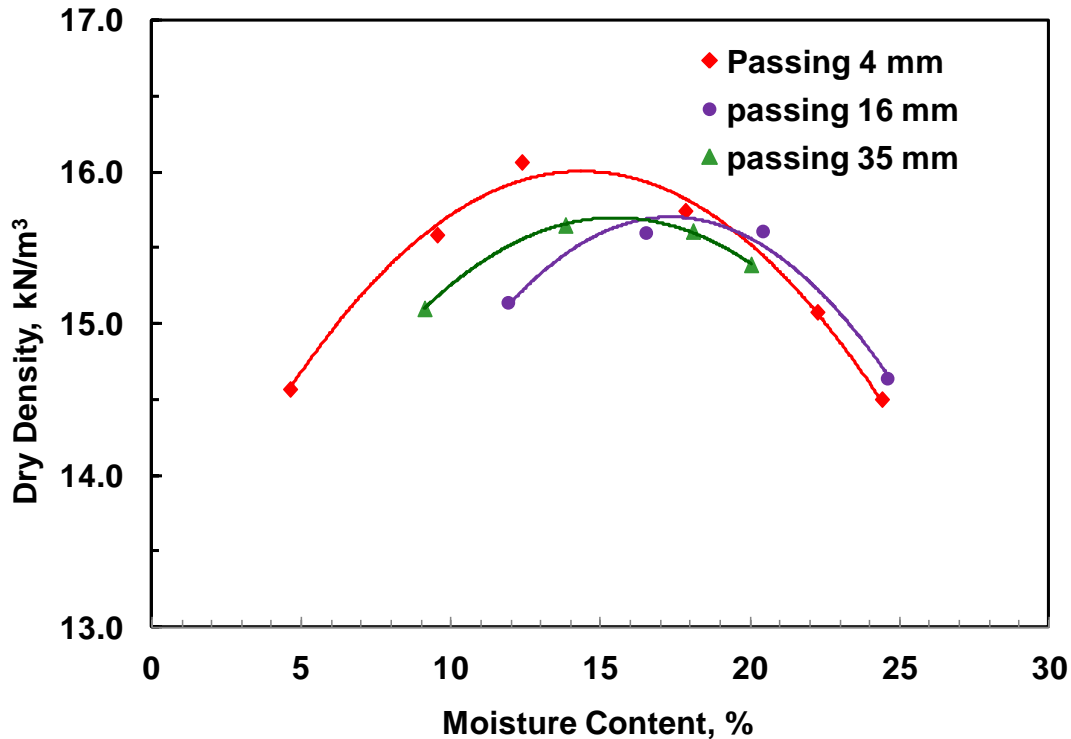
#### 3.3.1 Fractions passing 80mm, 35mm, 16mm and 4mm

The fraction passing/retained on 80mm sieve are found to have different ingredient:-

- (a) C&D wastes which is considered to be a good material for embankment construction. However in these fractions, substantial amount of plastics, textiles, papers are also present, which may create compaction problems during construction in the field. Hence this fraction cannot be used directly without segregation in embankment construction.
- (b) To identify/select a particular fraction among the remaining fraction (passing 35mm, passing 16mm, passing 4mm sieve), their preliminary geotechnical characteristics were studied by carrying out specific gravity tests, plasticity and Modified Proctor compaction tests. The results are summarised in Table 2. The compaction characteristics of different fractions are shown in the Fig19.

**Table 2 : Preliminary geotechnical characteristics of segregated MSW.**

Property	Passing 35mm	Passing 16mm	Passing 4mm
Specific gravity	1.84	1.80	1.93
Plasticity characteristics	NP	NP	NP
Maximum Dry Density (MDD), KN/m <sup>3</sup>	15.7	15.7	16.0



**Fig 19:- Compaction curves for segregated MSW (5 Years)**

Important conclusions drawn are given below:-

- a) There is no substantial difference in the Maximum Dry Density (MDD) of materials of different fractions (15.7 to 16 KN/m<sup>3</sup>). Also, as the sieve size reduces, there is a reduction in the amount of plastics and coarse aggregates as discussed earlier in Fig.18.. The balancing proportion between them may be the reason for insignificant change in the MDD. The optimum moisture content varied in the range 14 to 17%.
- b) In general, as the sieve size reduces, the specific gravity of the fraction increases.
- c) The fraction passing 35mm sieve also has substantial amount of plastics, textiles and papers and was considered unsuitable for embankment construction.
- d) The fraction passing 16mm sieve shows a minimal amount of plastics. Considering its higher quantity in MSW (44-48%) and its MDD satisfying the

MORTH specification, this fraction can be directly used for embankment construction.

### **3.3.2 Fractions retained on 35mm & 16mm**

As per MORTH specifications, the soil less than 75mm can be used for embankment construction. It is observed from Table 1 that about 65-79% of MSW is passing through 80 mm sieve which needs to be effectively used for embankment construction. But the presence of considerable amount of plastics and textiles make it impractical for embankment construction. If these unsuitable materials are removed during segregation, the fraction passing 80 mm fraction can also be used directly in embankment. This would help in the bulk utilization of MSW in road construction.

In the segregation plant, the fraction passing 80mm passes through 35mm and 16mm sieves during the process of segregation. As discussed in Section 3, it has already been concluded that MSW passing 16mm sieve can be directly used for embankment construction. But It is observed that MSW retained on 35mm and 16mm sieve has good amount of C&D wastes/aggregates (20-32%) which needs to be effectively utilised for embankment construction. However, it has substantial amount of plastics, textiles and papers. If these unwanted removed by adopting some methodology in the plant, it can be effectively used in embankment construction.

To investigate the possibility of using MSW retained on 35mm and 16mm, a laboratory experiment was carried out. Two bags of MSW passing 80mm was dried in the open air (Fig.20). The dried material was then passed through 37.5mm sieve. The material retained on 37.5mm is collected in a tray. It was observed that this segregated material has aggregates with substantial amount of plastics. To remove the plastics, papers, textiles and other light material, an experimental setup simulating the fall of the material from the conveyor in the actual plant, was developed in the laboratory (Fig 21).

For simulating the high pressure blower, a table fan was placed. As the material is slowly allowed to fall, with the table fan in the running position, all the plastics, papers and other light weight material fell far away, while the heavier aggregates and other materials get collected right below .



**Fig.20:- Fraction passing 80 mm**



**Fig.21:- Experimental setup for segregation of fractions retained on 37.5mm and 16mm**

The material passing 37.5mm is then further passed through 16mm sieve. The MSW retained on 16mm is again separated from plastics, papers, textiles etc by air blowing as discussed above. Like earlier, The aggregates and other heavier material falls right below. The view of materials retained on 37.5mm and 16mm sieve before and after air blowing is shown in Fig. 22 (a,b) and Fig. 23 (a,b) respectively.

Material passing 16mm sieve is then mixed with material retained on 37.5mm and 16mm after airblowing which forms the final material for use in embankment construction (Fig 24).This is nothing but the material passing 80 mm sieve with removal of plastics, papers, textiles etc. The proposed methodology for segregation of the raw MSW before its use in embankment construction is shown in Fig.25.



**Fig.22 (a) Fraction retained on 37.5mm sieve before air blowing**



**Fig.22 (b) Fraction retained on 37.5mm sieve after air blowing**



**Fig.23 (a) Fraction retained on 16mm sieve before air blowing**



**Fig.23 (b) Fraction retained on 16mm sieve after air blowing**



**Fig 24:-view of final material selected for embankment construction.**

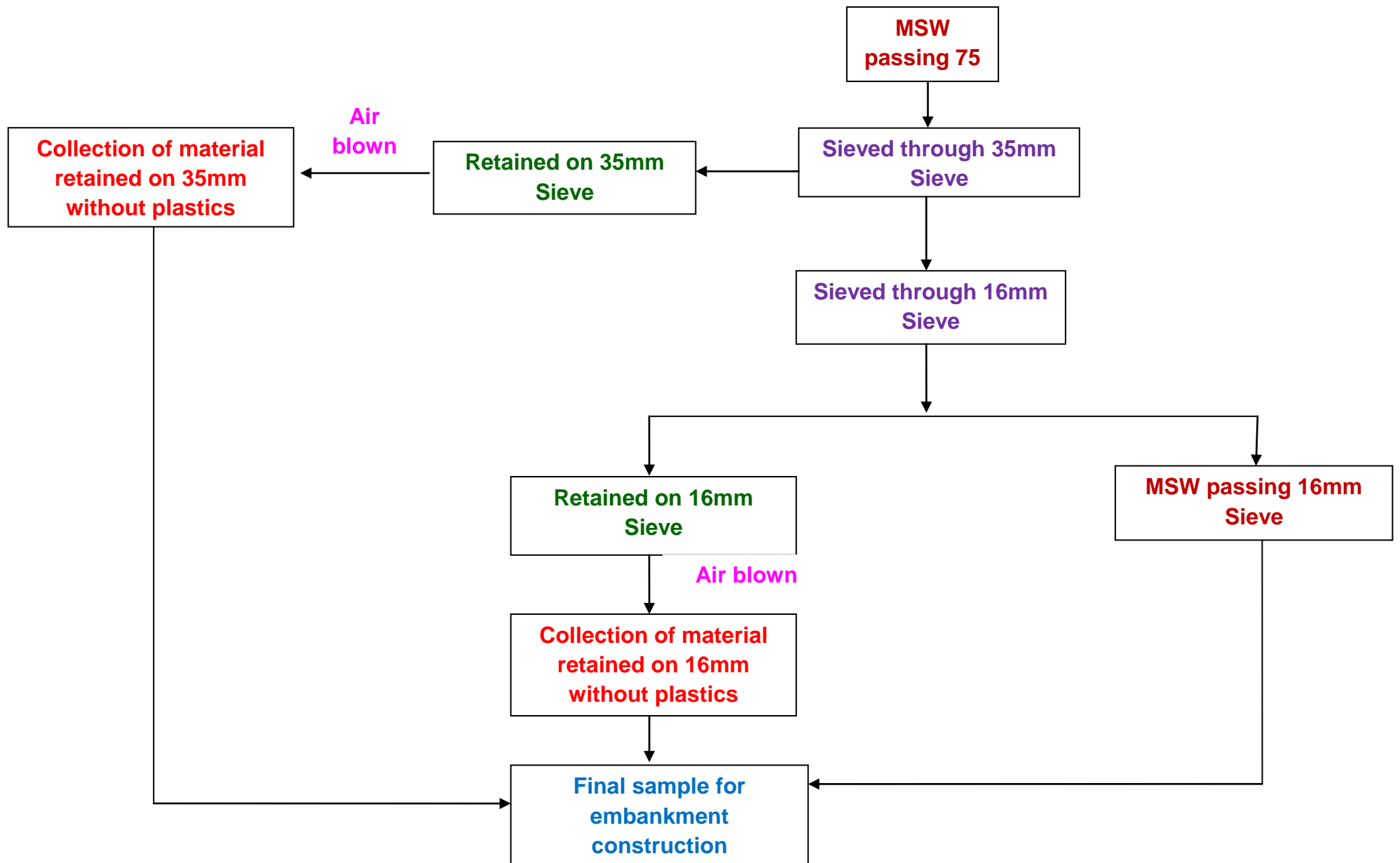


Fig .25:- Proposed methodology for segregation

#### 4.0 PHYSICAL AND CHEMICAL CHARACTERISATION OF MSW

Physical and chemical characteristics of municipal solid waste are very important to know that the presence of different toxic metals and their possibility of polluting the underground water resources. About 500 gm of dry MSW passing 425 micron was dried and investigated for both physical and chemical characteristics by standard procedure in an NBA accredited laboratory. The results have been summarized in Tables 3, 4, 5.

**Table 3. Physical and chemical characteristics of Municipal Solid Waste**

Parameters	Units	A	B	C	Test Methods
pH	-	7.4	7.6	7.6	IS : 2720 (Part-26)
Moisture content	%	1.3	0.8	1.1	IS:2720(pt-2) 1973
Total nitrogen ( N)	mg/kg	92.4	60.74	59.89	IS:14684 : 1999
Phosphorous ( P)	mg/kg	36.96	28	20.7	IS: 10158- 1982
Nitrate ( NO <sub>3</sub> )	mg/kg	10	<5.0	10.3	ICARDA
Nitrogen	mg/kg	92.4	60.74	59.89	IS : 14684 -1999
Electrical Conductivity	µs/cm	3017	1720	1935	APHA 22nd. Ed. 2012, 2510
Sulphur	mg/kg	5143	3001.2	3495.3	IARI manual for soil
Nitrite ( NO <sub>2</sub> -N)	mg/kg	<5.0	9	<5.0	APHA 4500 NO <sub>2</sub> - B
C:N ratio	mg/kg	13.584	279:01:00	317:01:00	By conversion method
Total Inorganic Content	%	87	90.1	92.1	APHA 22nd EDN 2012.5910B
Chloride (Cl)	mg/kg	2563	1590	1843	Lab Sop No- 24(Section- 18)
Sulphate (SO <sub>4</sub> )	mg/kg	15430	9003.7	10485	IARI Manual for Soil
Calcium (Ca)	mg/kg	2718	1172.4	1225.5	APHA 22nd Edn.2012(3120. B)
Magnesium (Mg)	mg/kg	1020	890	868	USEPA 3050B/3051/3052
Organic Matter	%	5.17	2.93	3.3	IS : 2720 (Part - 22)
Cation Exchange Capacity	meq/100gm	40.41	31.5	44.59	IS:2720(pt-24) - 1976



**Table 4: Heavy metals content in the leachate of MSW**

Heavy Metals	A (mg/l)	B (mg/l)	C (mg/l)	* Regulatory Limit (mg/l)	Test Methods
Antimony & antimony compounds	<0.03	<0.03	<0.03	15	USEPA:1311/30 50/3052
Arsenic & arsenic compounds	<0.03	<0.03	<0.03	5	USEPA:1311/30 50/3052
Cadmium & cadmium compounds	<0.1	<0.1	<0.1	1	USEPA:1311/30 50/3052
Mercury & mercury compounds	<0.1	<0.01	<0.01	0.2	USEPA:1311/30 50/3052
Selenium & selenium compounds	<0.03	<0.03	<0.03	1	USEPA:1311/30 50/3052
Total chromium compounds	<0.1	<0.014	0.032	5	USEPA:1311/30 50/3052
Cobalt compounds	<0.1	<0.1	<0.1	80	USEPA:1311/30 50/3052
Copper compounds	0.58	0.59	1.02	25	USEPA:1311/30 50/3052
Lead & lead compounds	<0.1	<<0.1	<0.1	5	USEPA:1311/30 50/3052
Molybdenum compounds	<0.1	<0.1	<<0.1	350	USEPA:1311/30 50/3052
Nickel compounds	0.13	0.23	0.33	20	USEPA:1311/30 50/3052

Regulatory limits as per HSW Rules 2016

Source: G.S.R 395 (E)[04-04-2016] : Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016



**Table 5 Heavy metal content in the solid mass of MSW**

<b>Heavy Metals</b>	<b>A (mg/kg)</b>	<b>B (mg/kg)</b>	<b>C (mg/kg)</b>	<b>Regulatory Limit (mg/kg)</b>	<b>Test Methods</b>
Antimony & antimony compounds	<1.0	<1.0	<1.0	50	USEPA:1311/3050/3052
Arsenic & arsenic compounds	<1.0	<1.0	<1.0	50	USEPA:1311/3050/3052
Cadmium & cadmium compounds	<2.0	<2.0	<2.0	50	USEPA:1311/3050/3052
Mercury & mercury compounds	<1.0	<1.0	<1.0	50	USEPA:1311/3050/3052
Selenium & selenium compounds	<1.0	<1.0	<1.0	50	USEPA:1311/3050/3052
Total chromium compounds	<2.0	<2.0	<2.0	5000	USEPA:1311/3050/3052
Cobalt compounds	<2.0	<2.0	<2.0	5000	USEPA:1311/3050/3052
Copper compounds	11.6	11.6	20	5000	USEPA:1311/3050/3052
Lead & lead compounds	<2.0	<2.0	<2.0	5000	USEPA:1311/3050/3052
Molybdenum compounds	<2.0	<2.0	<2.0	5000	USEPA:1311/3050/3052
Nickel compounds	2	4	6	5000	USEPA:1311/3050/3052

Regulatory limits as per HSW Rules 2016

Source: G.S.R 395 (E)[04-04-**2016**] : Hazardous and Other Wastes (Management and Transboundary Movement) **Rules, 2016**

It was observed that the value of pH is in the range of 7.4 to 7.6 for three different age samples. This indicates that MSW sample is slightly acidic in nature. Based on the leachate result, it can be concluded that MSW is non hazardous material as concentration of heavy metals is within the permissible limit.

## 5.0 GEOTECHNICAL CHARACTERISATION

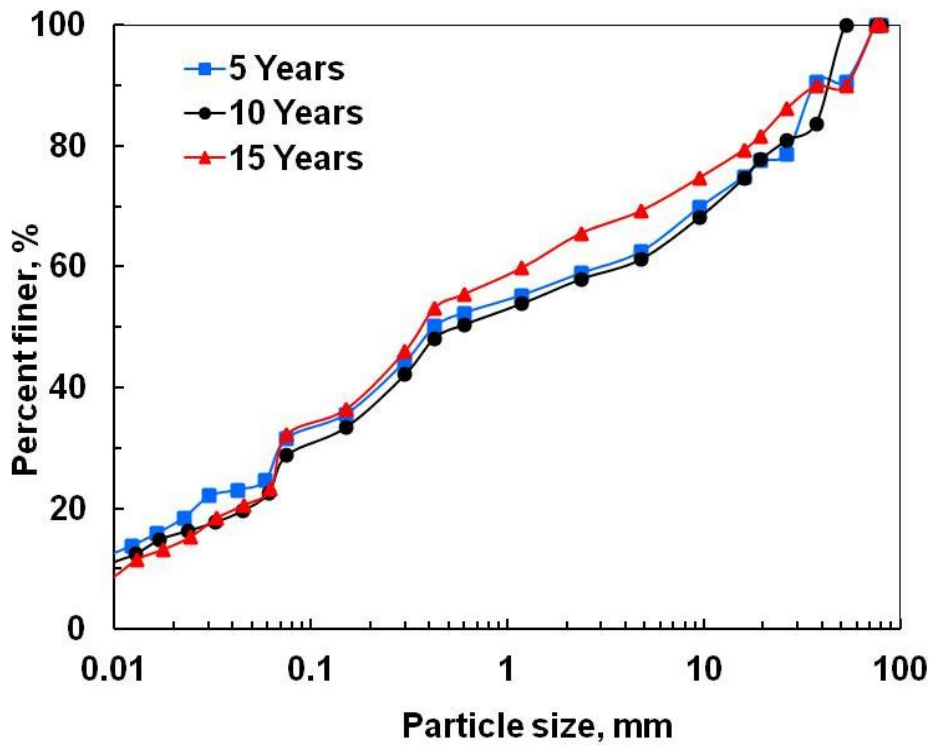
Based on the segregation methodology proposed, three samples of MSW passing 80 mm of different ages are prepared in the laboratory. These materials were investigated for their geotechnical characteristics viz. grain size analysis, plasticity characteristics, compaction characteristics, shear strength, consolidation and permeability characteristics. The results of different geotechnical characteristics are discussed below;

**5.1 Grain size analysis:** Dry sieve analysis and hydrometer analysis were carried out as per IS: 2720 (Part 4) – 1985 to determine the variation in grain size characteristics. Different grain sizes present in MSW of different ages are given in Table 6.

**Table 6. Results of grain size analysis**

<b>Grain Size</b>	<b>5 Years</b>	<b>10 Years</b>	<b>15 Years</b>
Gravel (%)	39	38	31
Sand (%)	32.5	30	37
Silt (%)	24	27	27
Clay (%)	4.5	5	5

It is observed that the mix consists of about 70% of gravel and sand mix size with clay constituents of about 5%. The grain size distribution curves for MSW of different ages are shown in the Fig 26. The shape of different curves follows the same pattern as it is artificially prepared mix as per methodology shown in Fig.25. The MSW is concluded to be a coarse grained material with about 70% of its particles retained on 75 micron IS sieve. The MSW can be classified as GM, i.e. silty gravel which indicates its suitability for embankment construction.



**Fig. 26:- Grain size distribution curves of MSW samples**

**5.2 Atterberg limit test:** The plasticity characteristics of different samples of MSW were determined as per IS: 2720 (Part 5) – 1985. The results indicated that it is non-plastic in nature. However, the liquid limit of different samples ranged between 32-34% indicating its medium plasticity characteristics, may be because of absorption of water by organic humus content present in the MSW.

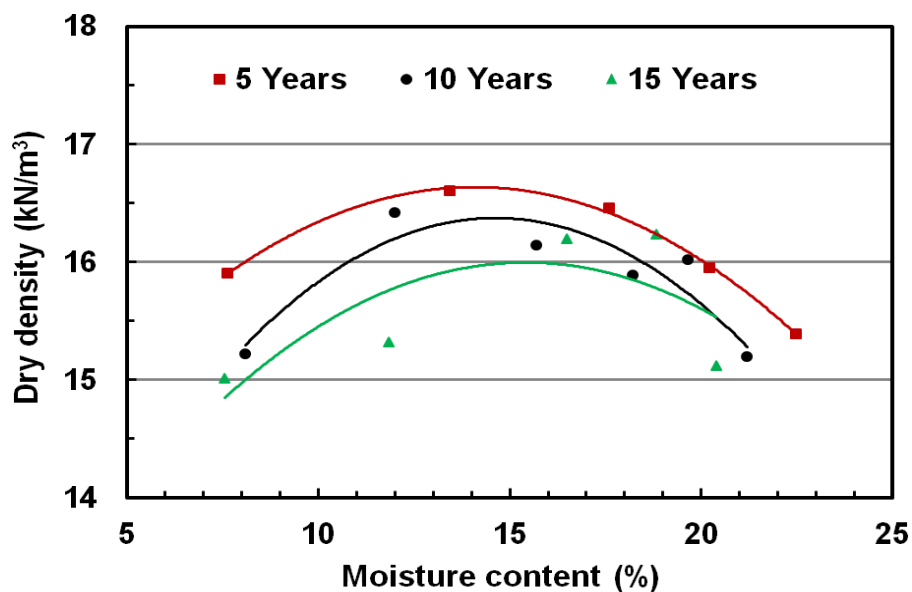
**5.3 Free Swell Index Test:** Free swell index test was carried out as per IS:2720-Part 40. The swelling Index values ranged between 12-24% (Table 7). The values indicate that the MSW in general, is a low swelling material.

**Table 7. Results of Free Swelling index test**

Sl.No.	5 Years	10 Years	15 Years
1	24	14	12

**5.4 Proctor Modified compaction test:** Compaction characteristics of different samples were studied by carrying out Modified Proctor compaction tests as per IS: 2720 (Part 8) -1983. The variation of Maximum Dry Density (MDD) with Moisture content is shown in the Fig. 27.

The compaction curves are found to be flat indicating that dry density does not vary much with the variation in moisture content. The MDD varied in the range 16 – 16.7 kN/m<sup>3</sup> and OMC in the range between 14 to 17%.The material could be used for more than 3m height embankment as per MORTH specifications, however stability analysis considering prevailing site conditions needs to be carried out before construction.



**Fig. 27:-Compaction curves for different MSW samples**

**5.5 Direct shear test .** Shear strength characteristics of different samples of MSW were studied as per as per IS: 2720 (Part 13)-1986. The test was carried out on compacted sample of size 6 cm x 6 cm x 2.5 cm at different normal stresses. The sample was compacted at its Optimum Moisture Content (OMC) to Maximum Dry Density (MDD). The sample was tested under the saturated condition. The normal stress varied in the range of 50 to 150 kN/m<sup>2</sup>. The sample was then sheared at the rate of 0.625 mm/min. The variation of shear stress with shear displacement and

shear parameters evaluated for MSW sample (10 years old) is shown in Fig. 28 and 29 respectively. The volumetric behaviour as shown in Figure 30 which shows compression and dilation behaviour similar to conventional soil. The results of Direct Shear Test of MSW have been summarised in the Table 8.

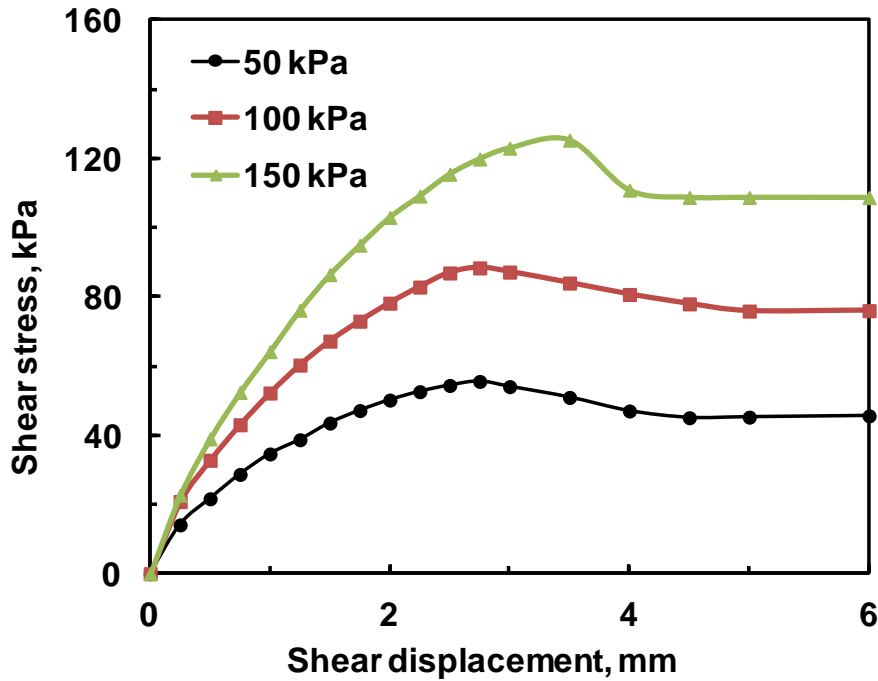


Fig. 28:- Shear stress-displacement curves for Municipal Solid Waste

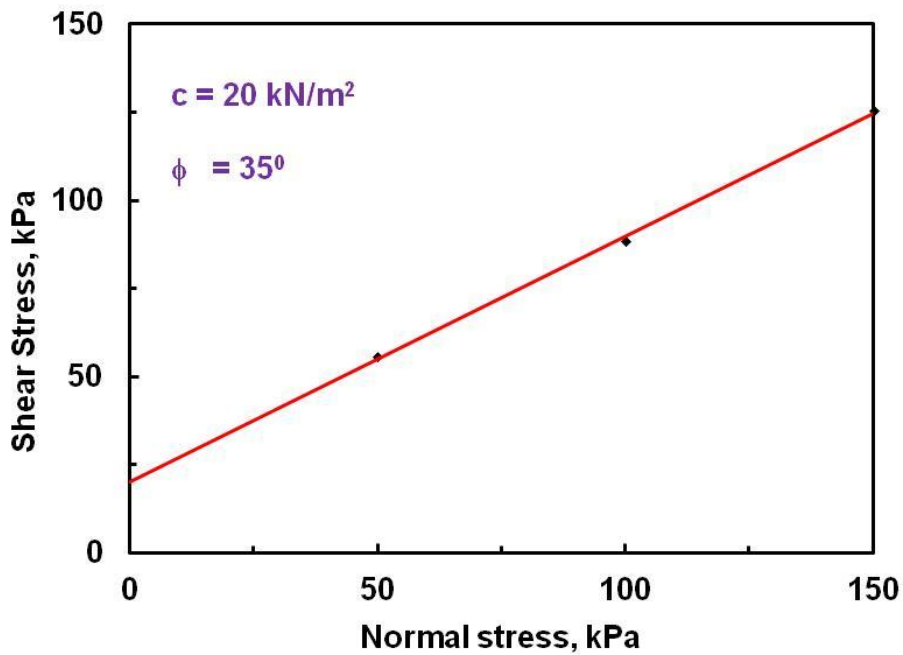


Fig.29:- Shear parameters of Municipal Solid Waste

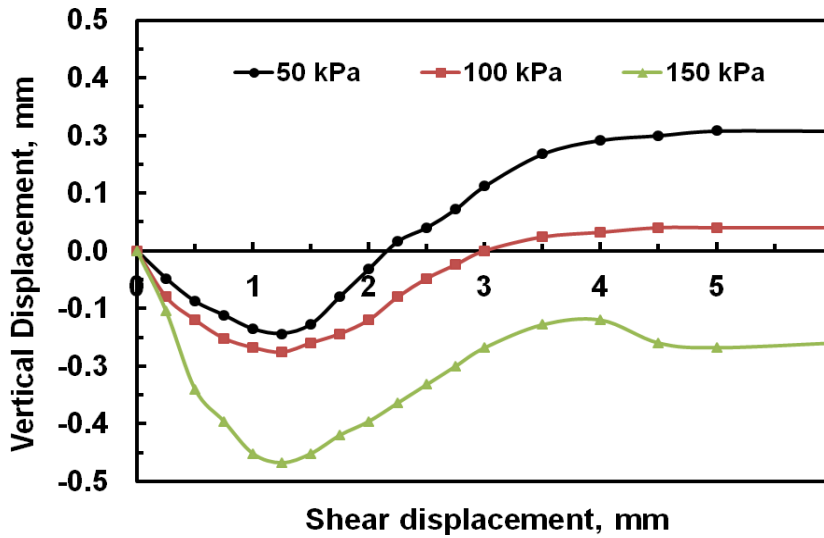


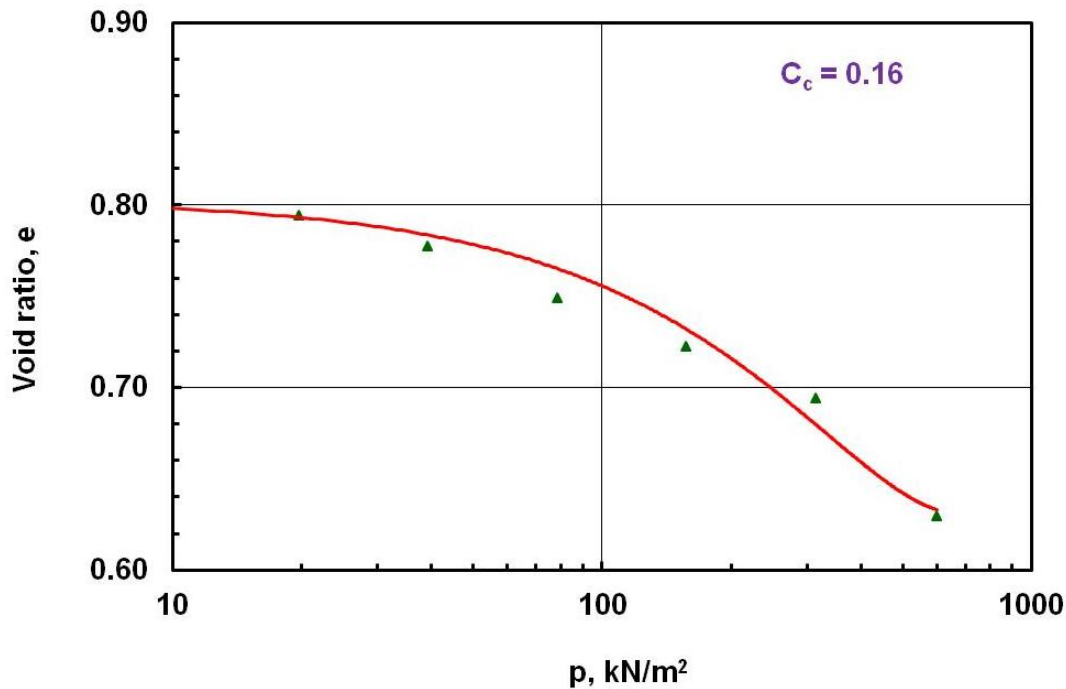
Fig. 30:- Volumetric behaviour of Municipal Solid Waste

Table 8:- Results of Direct shear test for different samples of MSW

Sl.No.	5 Years		10 Years		15 Years	
	c kN/m <sup>2</sup>	$\Phi^0$	c kN/m <sup>2</sup>	$\Phi^0$	c kN/m <sup>2</sup>	$\Phi^0$
1	20	35	25	28	10	38
2	Shear displacement @failure= 2.5mm-3.5mm					

**5.6 Consolidation Test:** Consolidation test was carried out as per IS:2720-Part 15. in an Oedometer for a specimen of 60 mm diameter and 20 mm thickness under double drainage conditions. Remoulded samples of MSW (passing 4.75 mm sieve) was prepared at Maximum Dry Density and OMC. Samples were saturated for 24 hours at an initial seating stress of 0.025 kN/m<sup>2</sup>. Seating load was maintained for 24 hours. The specimen was then consolidated under initial stress of 5 kN/m<sup>2</sup> and settlement dial gauge reading was recorded at 0, 0.25, 1, 2.25, 4, 6.25, 9, 16, 25, 36,

49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 500, 600, and 1440 minutes or until equilibrium is reached. The procedure was repeated for different normal stress viz. 9.8, 19.6, 39.2, 79, 157, 314, and 628 kN/m<sup>2</sup> and for each normal stress time settlement reading was recorded up to 24 hours. Fig 31 indicates e-log p curve as determined for MSW (10 Years).



**Fig. 31 e –log p curve for Municipal Solid Waste**

The value of coefficient of compression index is estimated as 0.16. The value indicates that MSW material is a low to medium compressible soil. Fig.32 shows compression of MSW with time at different normal stresses. The average value of coefficient of consolidation in the stress range 79-628 kN/m<sup>2</sup> is estimated as  $4.14 \times 10^{-6}$  m<sup>2</sup>/sec which is similar to that of conventional silty soils.

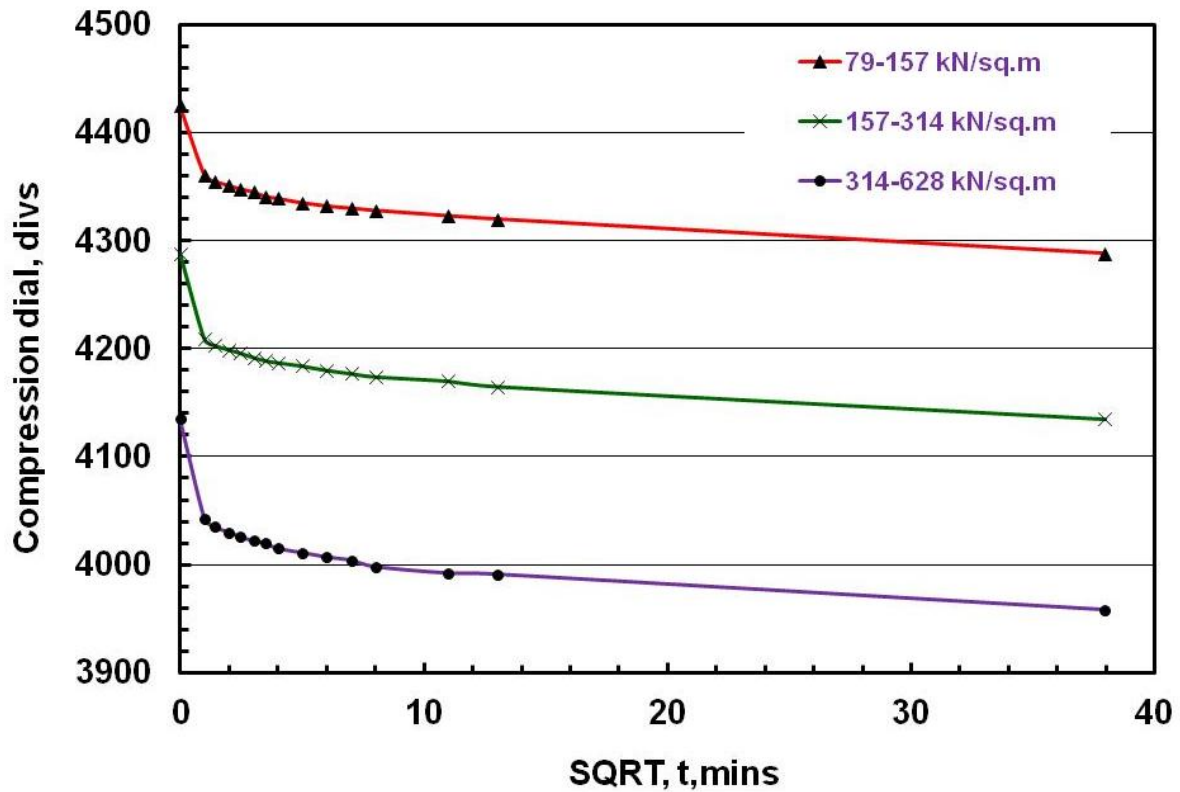


Fig 32. Compression-time curves for MSW

Table.9 Results of consolidation test for different samples of MSW

Sl.No.	5 Years		10 Years		15 Years	
	$C_c$ m <sup>2</sup> /kN	$C_v$ m <sup>2</sup> /sec	$C_c$ m <sup>2</sup> /kN	$C_v$ m <sup>2</sup> /sec	$C_c$ m <sup>2</sup> /kN	$C_v$ m <sup>2</sup> /sec
1	0.141	$2.43 \times 10^{-6}$	0.160	$4.14 \times 10^{-6}$	0.190	$5.56 \times 10^{-6}$

### 5.7 Permeability Test

Permeability test was carried out as per Indian standard procedure (IS 2710 Part 17). Remoulded samples of size 100 mm diameter and 127.3 mm height in cylindrical mould were prepared at 95 % of MDD and OMC. Samples were first



saturated and water was allowed to flow through the samples. Time in second was measured for flow of water from height  $h_1$  to  $h_2$ . Permeability was determined using equation. 1.

$$k = 2.3 \frac{aL}{At} \log_{10} \left[ \frac{h_1}{h_2} \right] \quad (1)$$

Where,

L - Length of specimen, cm

A - Cross sectional area of specimen,  $\text{cm}^2$

t - Time interval, sec.

$h_1$  - Initial head, cm

$h_2$  - Final head, cm

a - Cross sectional area of stand pipe,  $\text{cm}^2$

The results of Permeability test of different types of MSW have been summarised in Table 10.

**Table 10:- Results of permeability test**

Sl.No.	Permeability, cm/s		
	5 Years	10 Years	15 Years
1	$1.21 \times 10^{-6}$	$1.55 \times 10^{-7}$	$2.13 \times 10^{-7}$

The Permeability of different types of the MSW varies in the range  $1.55 \times 10^{-7}$  to  $1.21 \times 10^{-6}$  cm/s. The low value of the Permeability observed is due to presence of plastics, rubber etc in the MSW mix which obstructed the flow of water through the mix. So it is required to provide a intermediate suitable layer for the proper drainage of MSW embankment. Summary of geotechnical characteristics of different samples of Municipal Solid Wastes has been summerized in Table 11.

**Table :- 11 Summary of Geotechnical characteristics of Municipal Solid Wastes (MSW)**

<b>Property</b>	<b>5 Years Old</b>	<b>10 Years Old</b>	<b>15 Years Old</b>
<b><i>Grain size analysis</i></b>			
Gravel (%)	39	38	31
Sand (%)	32.50	30	37
Silt (%)	24	27	27
Clay (%)	4.5	5	5
<b><i>Atterberg limit test</i></b>			
Liquid limit (%)	34	33	32
Plastic limit (%)	NA	NA	NA
Plasticity index	NP	NP	NP
<b><i>Free Swell Index test</i></b>			
FSI (%)	24	14	12
<b><i>Modified Proctor test</i></b>			
MDD (kN/m <sup>2</sup> )	16.7	16	15.5
OMC (%)	19	15	17
<b><i>Direct shear test ( saturated )</i></b>			
c (kN/m <sup>2</sup> )	20	25	10
φ (degree)	35	28	38
<b><i>Permeability test</i></b>			
Coefficient of permeability (cm/sec)	1.21 x 10 <sup>-6</sup>	1.55 x 10 <sup>-7</sup>	2.13 x 10 <sup>-7</sup>
<b><i>Consolidation test</i></b>			
C <sub>c</sub> (m <sup>2</sup> /kN)	0.141	0.160	0.190
C <sub>v</sub> (m <sup>2</sup> /sec)	2.43X10 <sup>-6</sup>	4.14X10 <sup>-6</sup>	5.56X10 <sup>-6</sup>

## **6.0 DESIGN OF MUNICIPAL SOLID WASTE EMBANKMENT**

The design of embankment with MSW is similar to earthen embankments. It has been proposed by NHAI, that the Municipal Solid Waste needs to be tried in the widening of NH-24 in East Delhi. The existing 6 lane is proposed to be widened to 14 lanes. Based on the cross section details provided by NHAI, the material could be effectively used in Package 1 of the project (Hazarat Nijamuddin to UP Gate) . The height of embankment varied in the range 2m – 4m. Typical designs have been suggested for 3m and 5m high MSW embankment.

The Municipal Solid Waste embankment is designed as a composite structure with MSW in the core and a cover of good earth cover on either side. It is proposed to provide 2 m thick soil cover (Measured horizontally) of local non plastic Delhi silt, to prevent the possible erosion of MSW due to heterogeneity in the mix and to protect the local inhabitants from bad odour. This would also add stability to the MSW embankment. Two intermediate soil layers of 200 mm each compacted thickness are proposed to be provided for MSW embankment more than 3m height. Apart from practical feasibility this would provide good drainage in the MSW embankment. A 500 mm thick local Delhi soil is also proposed on top of the MSW embankment, which will not only acts as a top cover but will also form the sub-grade for pavement construction.

As the MSW embankment is to be used in the widened portion (4 lanes on either side of an existing 6 lane road), large amount of surface water is expected to flow over the embankment slope and may result in its erosion. Considering this phenomenon, a 0.3m thick stone pitching over a 0.2m designed filter media is proposed on the slope of the MSW embankment. Considering the critical condition of flood in the river Yamuna, it is also proposed to provide a toe retaining wall for both 3m height and 5m height MSW embankment. This will also prevent under cutting of the toe of the MSW embankment during possible flood. However towards the built up area, no toe retaining wall is required.

## 6.1 Stability analysis

The MSW embankment of height 3 m and 5 m with side slope of 2 horizontal to 1 vertical, was analyzed for its slope failure. The shear strength parameters ( $c$  and  $\phi$ ), bulk density ( $\gamma_{\text{bulk}}$ ), of different fill materials viz. MSW, cover soil and sub soil, as determined from the laboratory/field tests were used for stability analysis. The MSW embankment was analyzed under partially saturation, saturation up to H.F.L and under sudden draw down conditions. The traffic and other live loads on the top of embankment are considered as  $24 \text{ kN/m}^2$ .

Analysis was carried out considering with and without the seismic forces separately for 3m and 5m height MSW embankment and also with and without Toe retaining wall. The basic seismic coefficients considered in the analysis are  $\alpha_h = 0.05$  (horizontal) and  $\alpha_v = 0.025$  (vertical) as per BIS code. Analysis was carried out using a computer software. Typical stability analysis for 3m & 5m MSW embankments is shown in Figures 33 to 36 respectively. Final cross sections for field construction is shown in Figures are shown in Figures 41 to 44 respectively.

Factor of safety values determined for different heights of MSW embankments are shown in Table 12 and 13. It is observed that Factor of safety values for critical draw down conditions under seismic conditions varied in the range 1.64 to 1.79 which is more than the minimum value of 1.25 required as per IRC-75 specifications.

**Table:- 12 Factor of safety values for MSW embankment without Toe Retaining Wall (Built up area)**

Compacted condition of embankment	Embankment height			
	3m		5m	
	Without seismic	With seismic	Without seismic	With seismic
Partially saturated	2.78	2.41	2.39	2.11
Fully saturated	2.66	2.11	2.49	1.98
Draw Down Condition	2.33	1.98	2.09	1.79

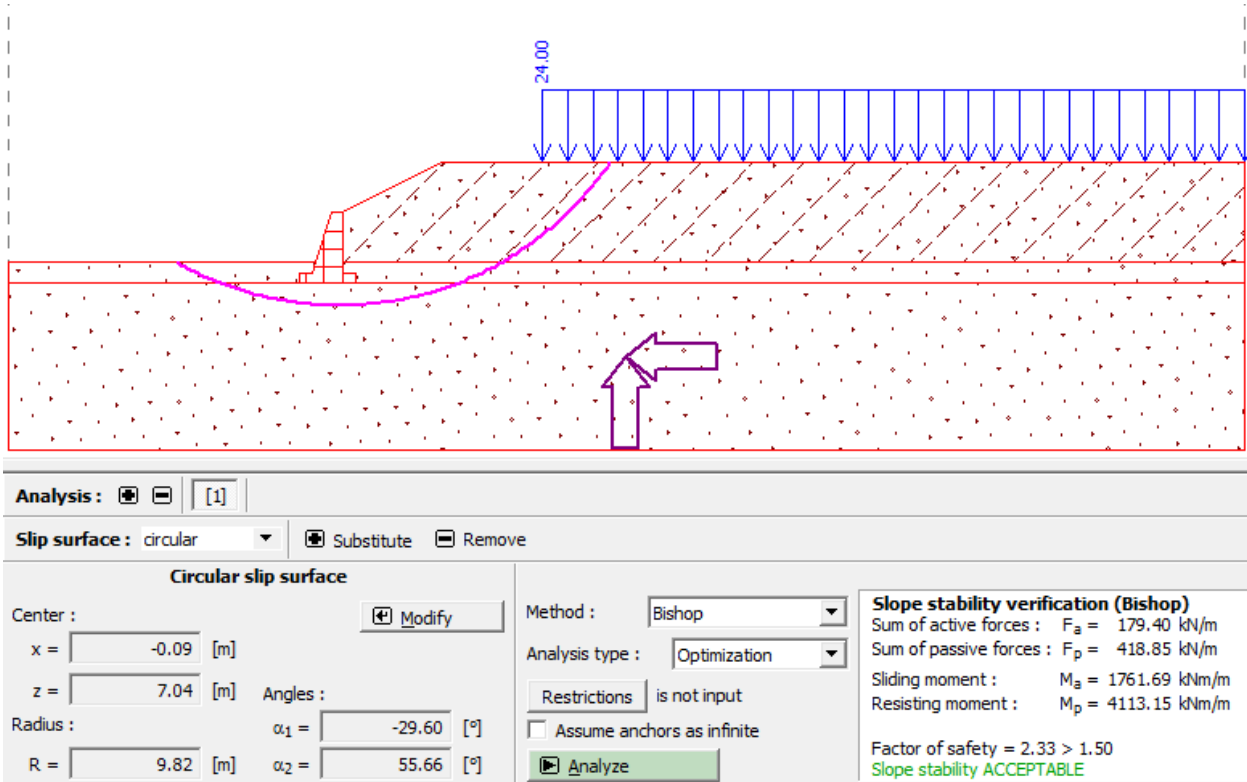


Fig.33 Typical result of stability analysis for a 3m Height MSW embankment (River side)

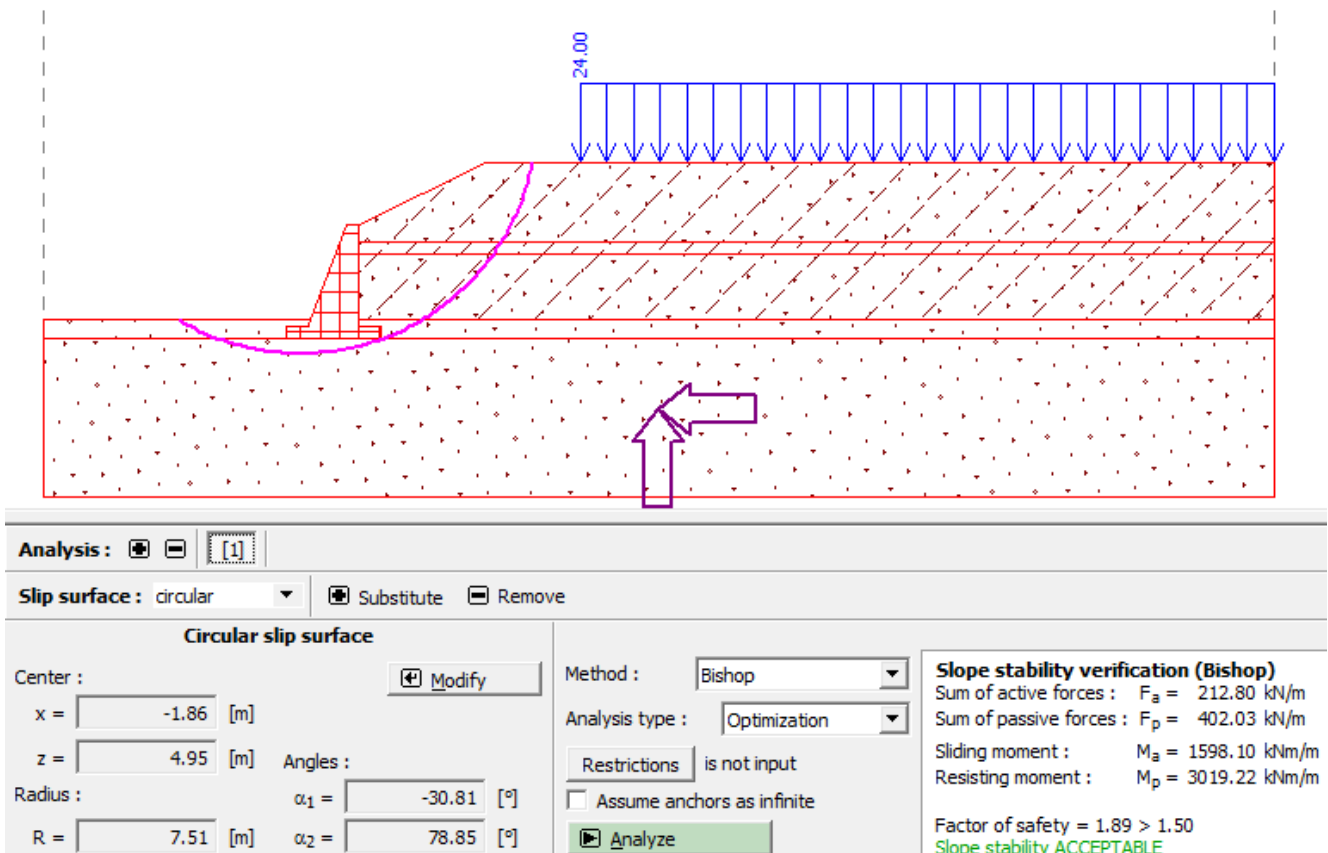


Fig.34 Typical result of stability analysis for a 5m Height MSW embankment (River side)

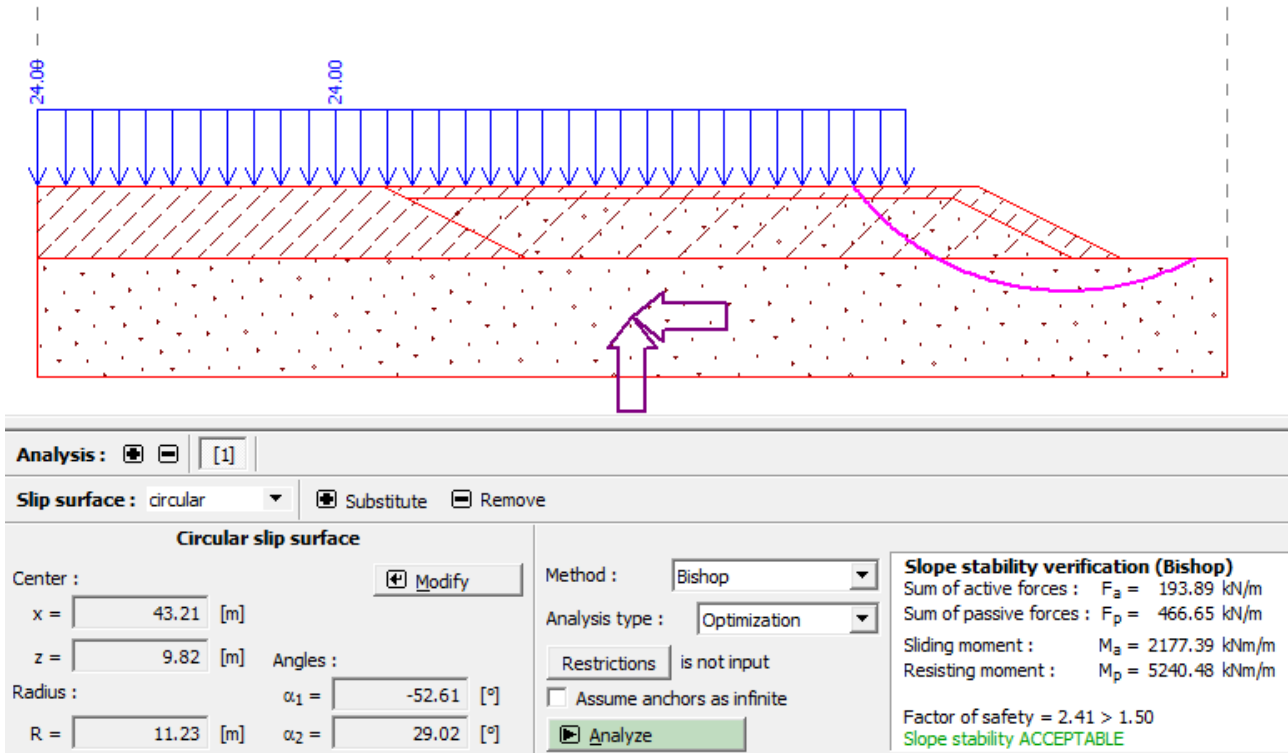


Fig.35 Typical result of stability analysis for a 3m Height MSW embankment (Built up area)

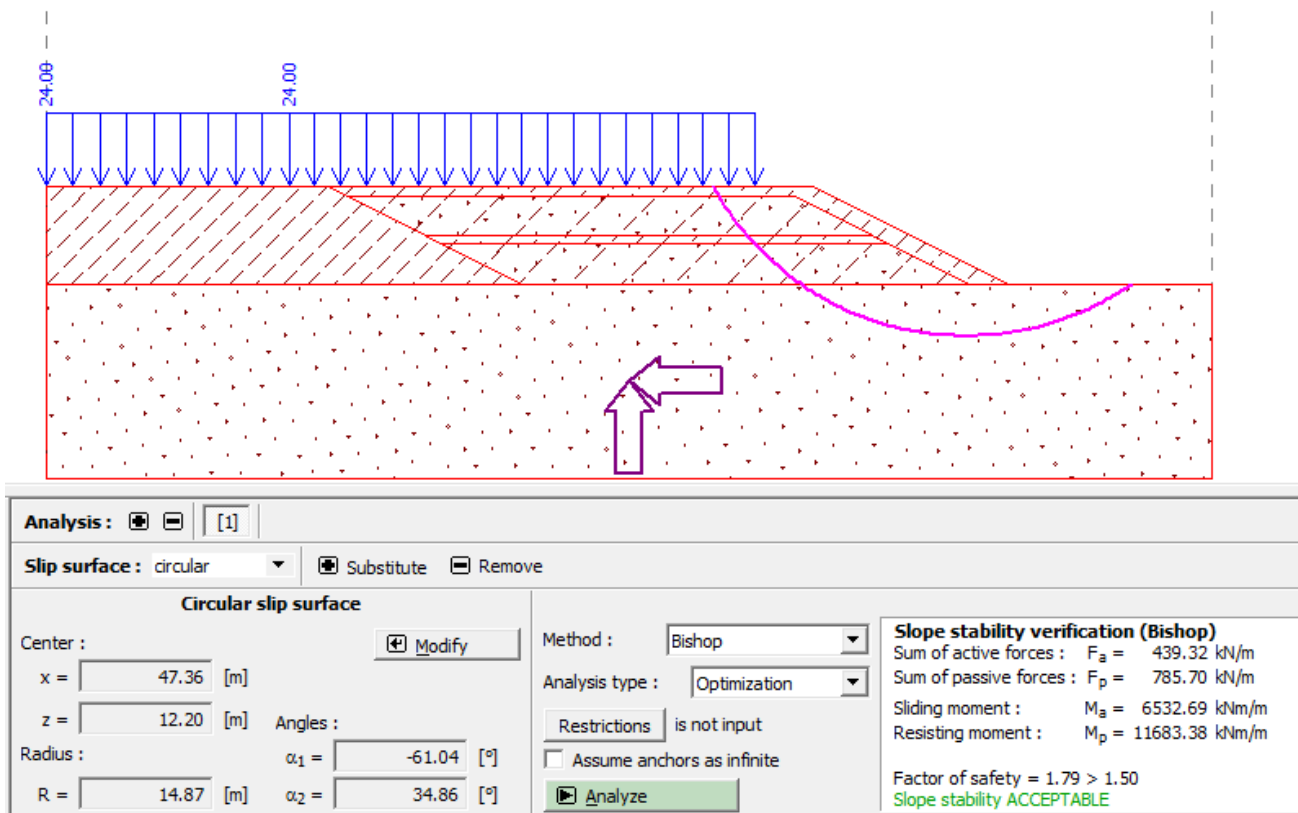


Fig.36 Typical result of stability analysis for a 5m Height MSW embankment (Built up area)

**Table:-13 Factor of safety values for MSW embankment with Toe Retaining Wall (River Side)**

Compacted condition of embankment	Embankment height			
	3m		5m	
	Without seismic	With seismic	Without seismic	With seismic
Partially saturated	2.66	2.33	2.05	1.89
Fully saturated	2.28	1.95	1.98	1.70
Draw Down Condition	2.26	1.93	1.83	1.64

## 7.0 SETTLEMENT ANALYSIS

Prediction of total settlement is very important in the case of MSW embankment fill. Total settlement is estimated as sum of (1) Settlement of MSW embankment fill itself (2) Settlement of sub soil. In both the cases, both Primary and secondary consolidation settlement was considered in the analysis. In the case of determination of secondary settlement of MSW embankment the long term compression associated with creep and biodegradation was also considered. Details of calculations are given below.

### 7.1 Primary Consolidation settlement

The Primary consolidation settlement of MSW was calculated using using equation 1 as given below.

$$S = \frac{H}{1+e_0} C_c \log \frac{\sigma_0 + \Delta\sigma}{\sigma_0} \quad (2)$$

$S$  = Primary compression occurring in the layer under consideration, m

$H$  = Initial thickness of the MSW/subsoil layer under consideration, 3 m and 5m

$e_0$  = Initial void ratio of the layer, 0.85 (MSW), 0.55 (Sub soil)

$C_c$  = Primary compression index from consolidation test ( $C_c=0.16$  (MSW),  $C_c=0.1$  (Sub soil))

$\sigma_0$  = Existing overburden pressure acting at the middle level of the embankment/ sub soil layer

$\Delta\sigma$  = increment of overburden pressure at the middle level of the layer, 24 kN/m<sup>2</sup> (MSW), 116 kN/m<sup>2</sup> (Sub soil)

## 7.2 Secondary Settlement

Generally, it is observed that land fill settlement varies significantly depending on specific waste types and placement methods. The long-term compression associated with creep and biodegradation phenomena is expressed in terms of the secondary settlement/ compression index  $C_\alpha$  in which a decrease in the void ratio during the secondary compression is related to the time elapsed between the initial time  $t_1$  and the final time  $t_2$ . The MSW may decompose due to moist condition and may increase with time (Sowers, 1973). Secondary settlement was calculated by using Sowers (1973) equation 3 as given below.

$$S_s = \frac{H}{1+e_0} C_\alpha \log \frac{t_2}{t_1} \quad (3)$$

$S_s$  = Secondary compression occurring in layer under consideration

$C_\alpha$  = Secondary compression index = 0.04 $C_c$  for inorganic silt, 0.06  $C_c$  for organic silt

$t_1$  = starting time for the long-term time period under consideration = 1 month



$t_2$  = ending time for the long-term time period under consideration =  $20 \times 12 = 240$  months.

H = 3m & 5m,

$e_0 = 0.85$  (MSW),  $0.55$  (Sub soil)

The results of settlement analysis have been summarised in Table 14. It is observed that the total settlement estimated theoretically for both 3m and 5m MSW embankment ranges between 244 mm to 304 mm. The analysis was also carried out using computer software as shown in Figures 37 to 40. The total settlement was estimated as 303 mm and 461 mm for 3m and 5m respectively.

However these settlements are much less than the allowable settlement of 300 mm to 600 mm considered for Road embankment. The total settlement shall be uniform and shall occur slowly over a period of time.

**Table:-14 Results of Settlement analysis**

Sl. No	Height of Embankment	Municipal Solid Waste		Sub-soil	Total Settlement mm
		Primary Consolidation Settlement mm	Secondary Consolidation Settlement mm	Primary Consolidation Settlement mm	
1	3m	71	37	136	244
2	5m	79	52	173	304

Final Cross sections for field construction for 3m & 5m high embankment for both River side and Built up area are shown in Figures 41 to 44.

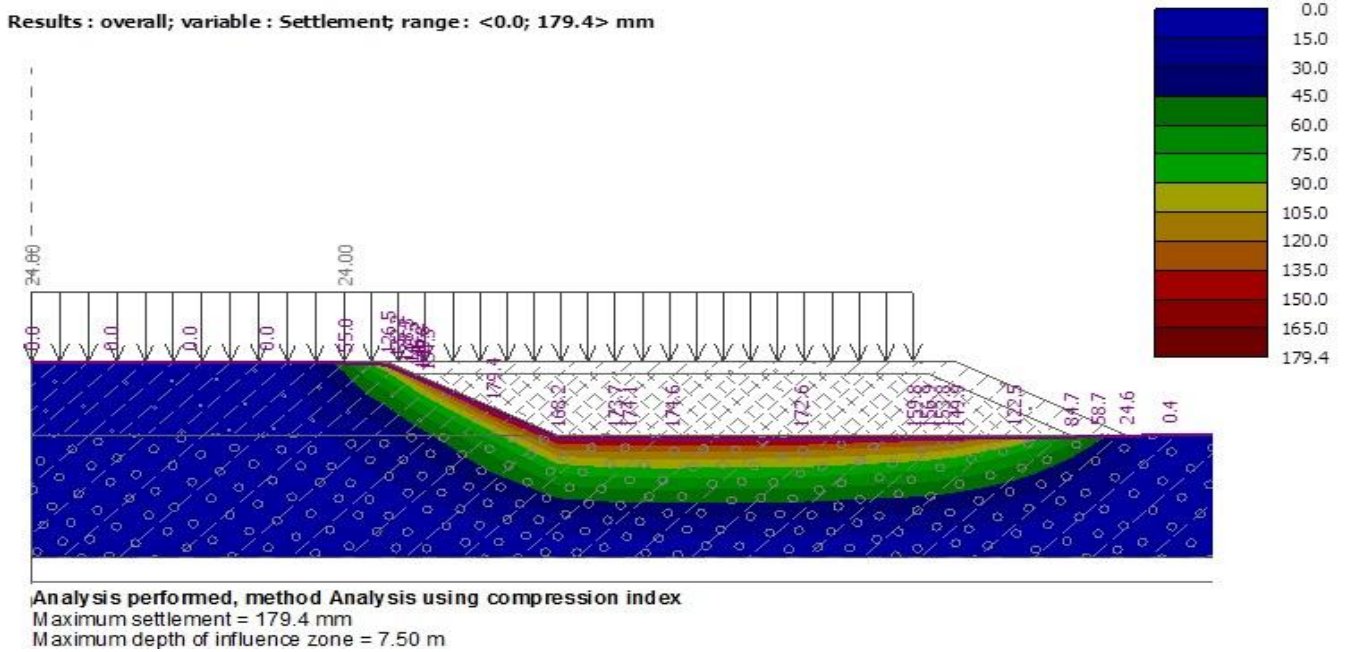


Figure 37: Settlement profile of sub soil for 3m MSW embankment

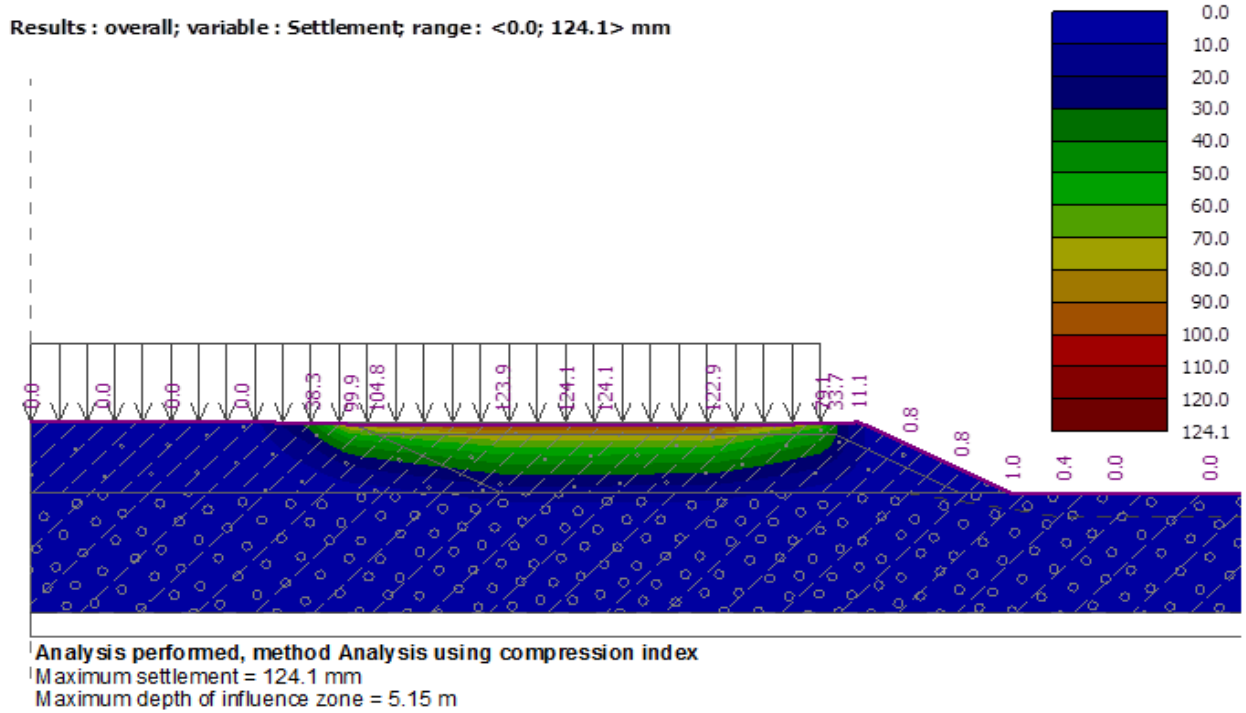
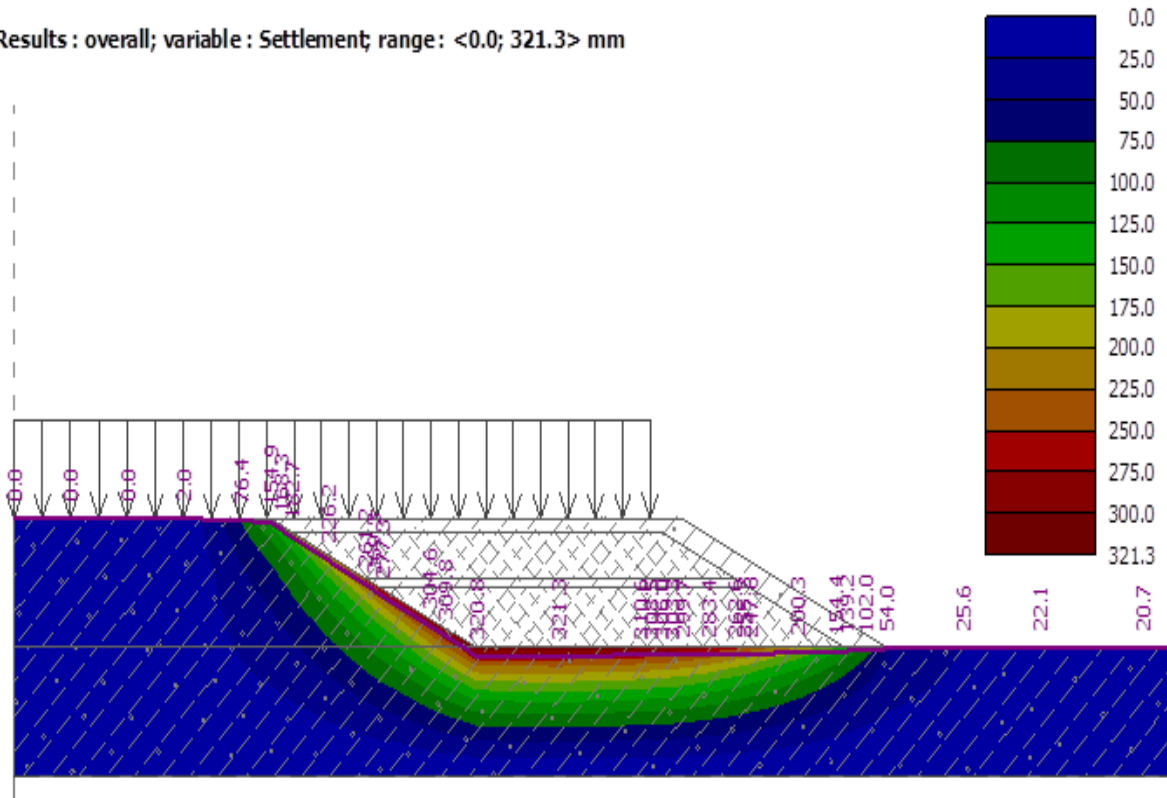


Fig.38 Settlement profile of 3m MSW embankment compression fill

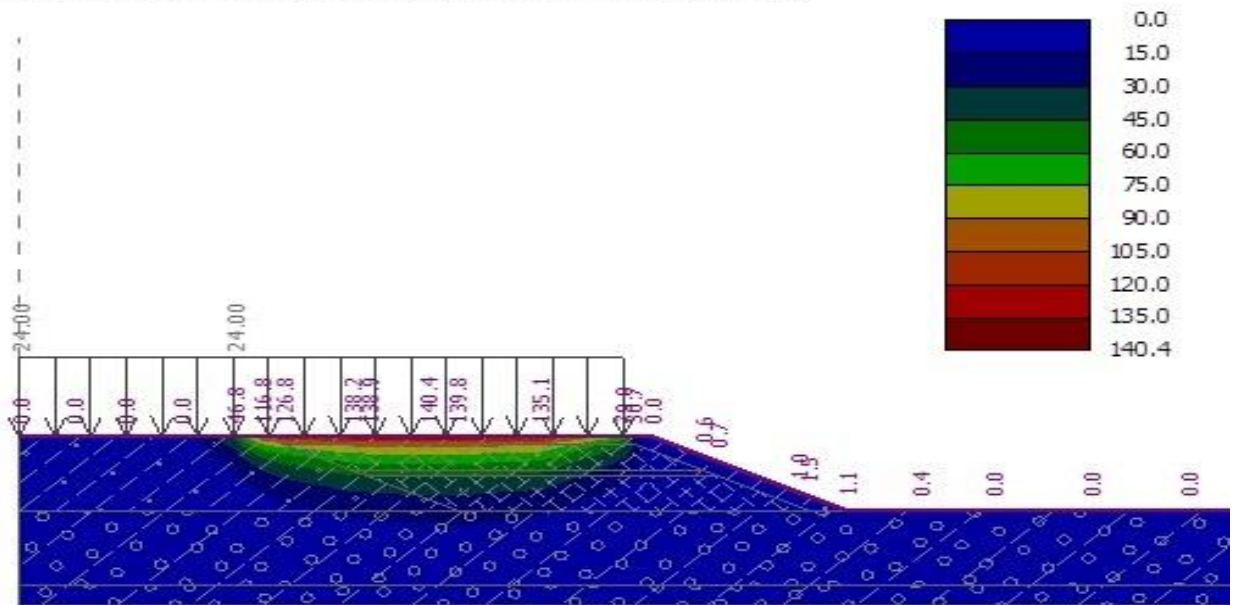
Results : overall; variable : Settlement; range : <0.0; 321.3> mm



Analysis performed, method Analysis using compression index  
 Maximum settlement = 321.3 mm  
 Maximum depth of influence zone = 9.56 m

**Fig.39: Settlement profile of sub soil for 5m MSW embankment**

Results : overall; variable : Settlement; range : <0.0; 140.4> mm



Analysis performed, method Analysis using compression index  
 Maximum settlement = 140.4 mm  
 Maximum depth of influence zone = 10.39 m

**Fig.40: Settlement profile for 5m MSW embankment compression fill**

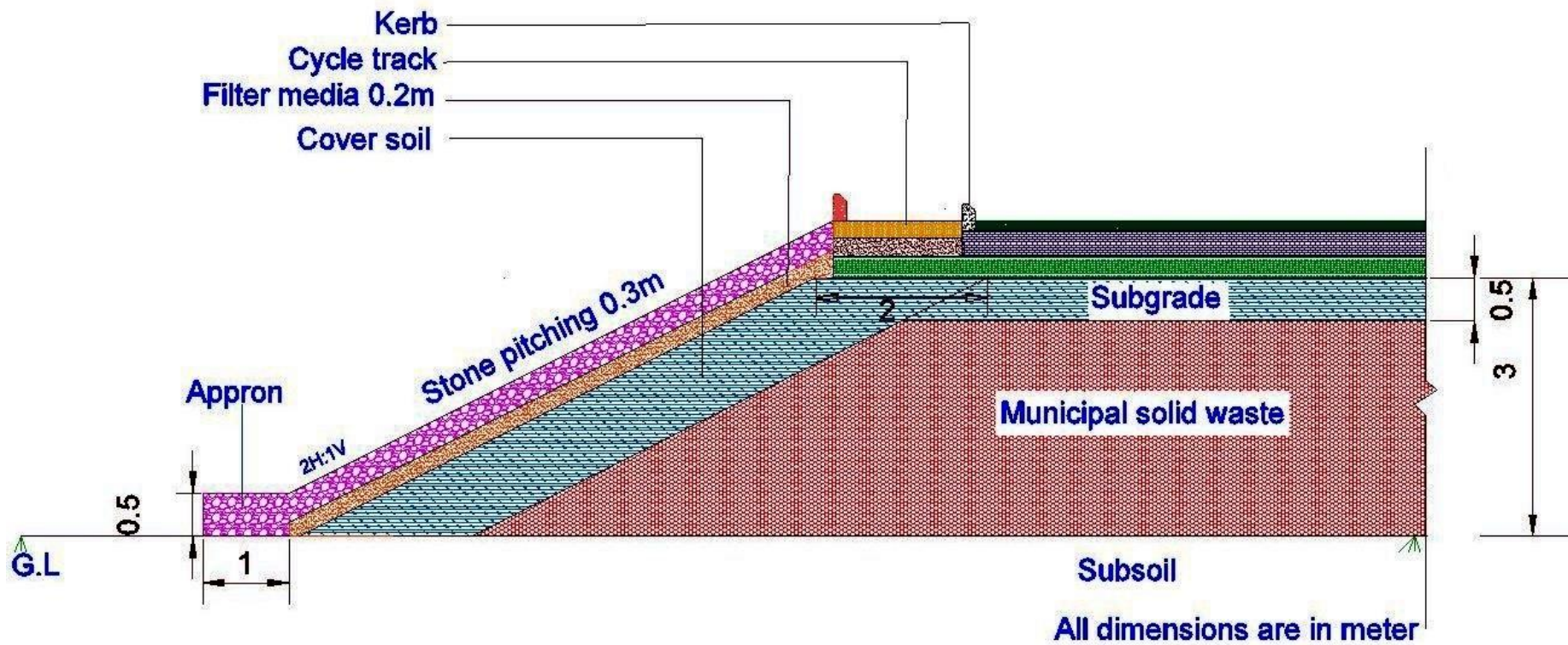


Fig. 41 Cross –section for construction of 3m Height MSW embankment (Built up Area)



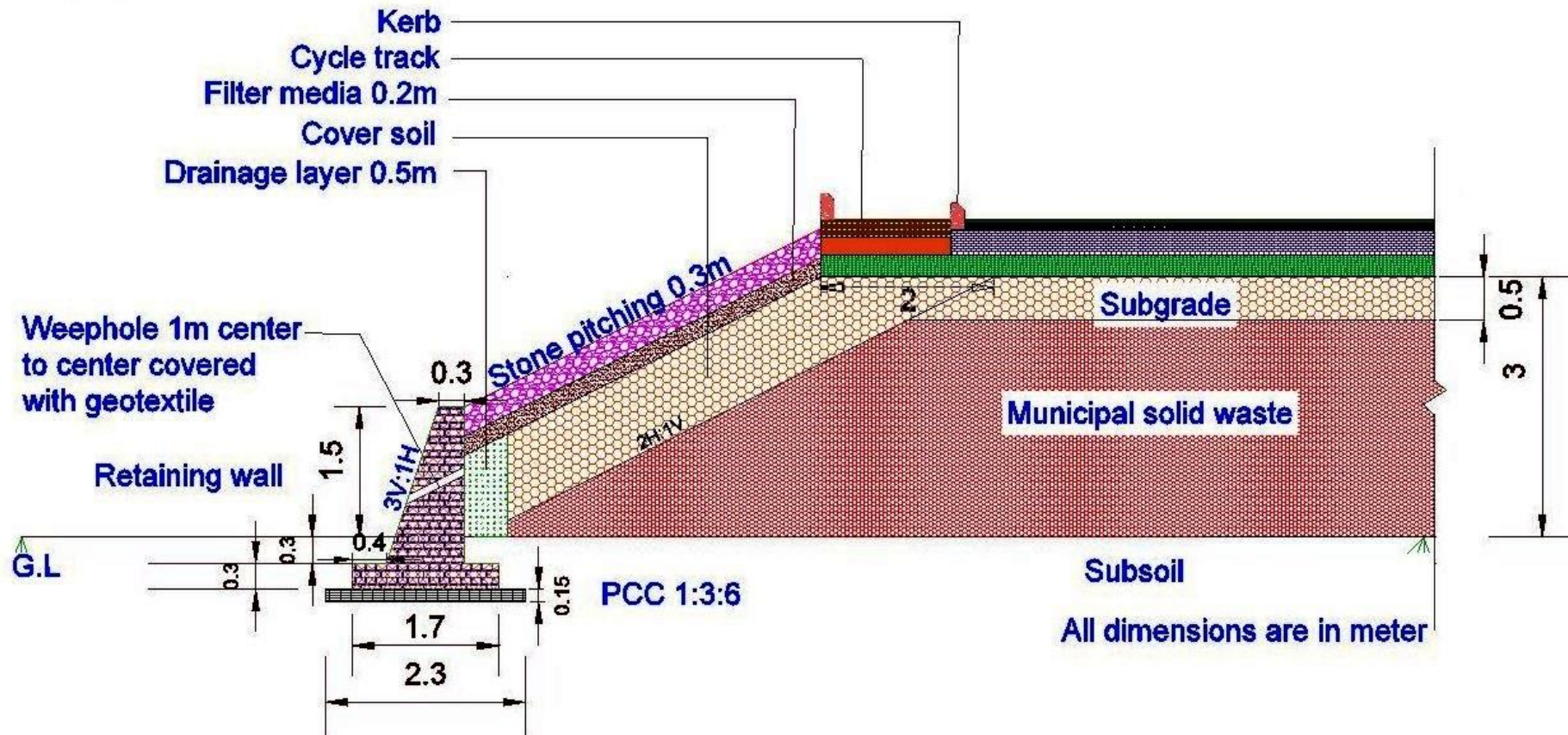


Fig. 42 Cross –section for construction of 3m Height MSW embankment (River side)

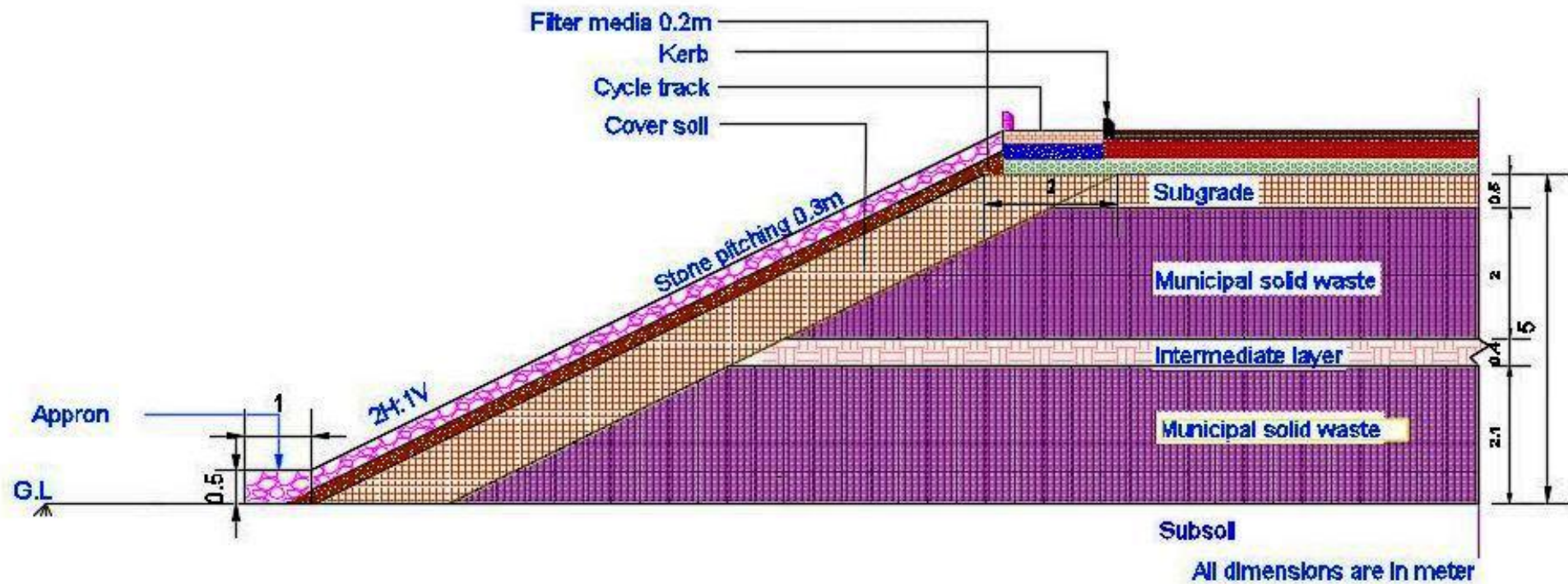


Fig. 43 Cross –section for construction of 5m Height MSW embankment (Built up area)



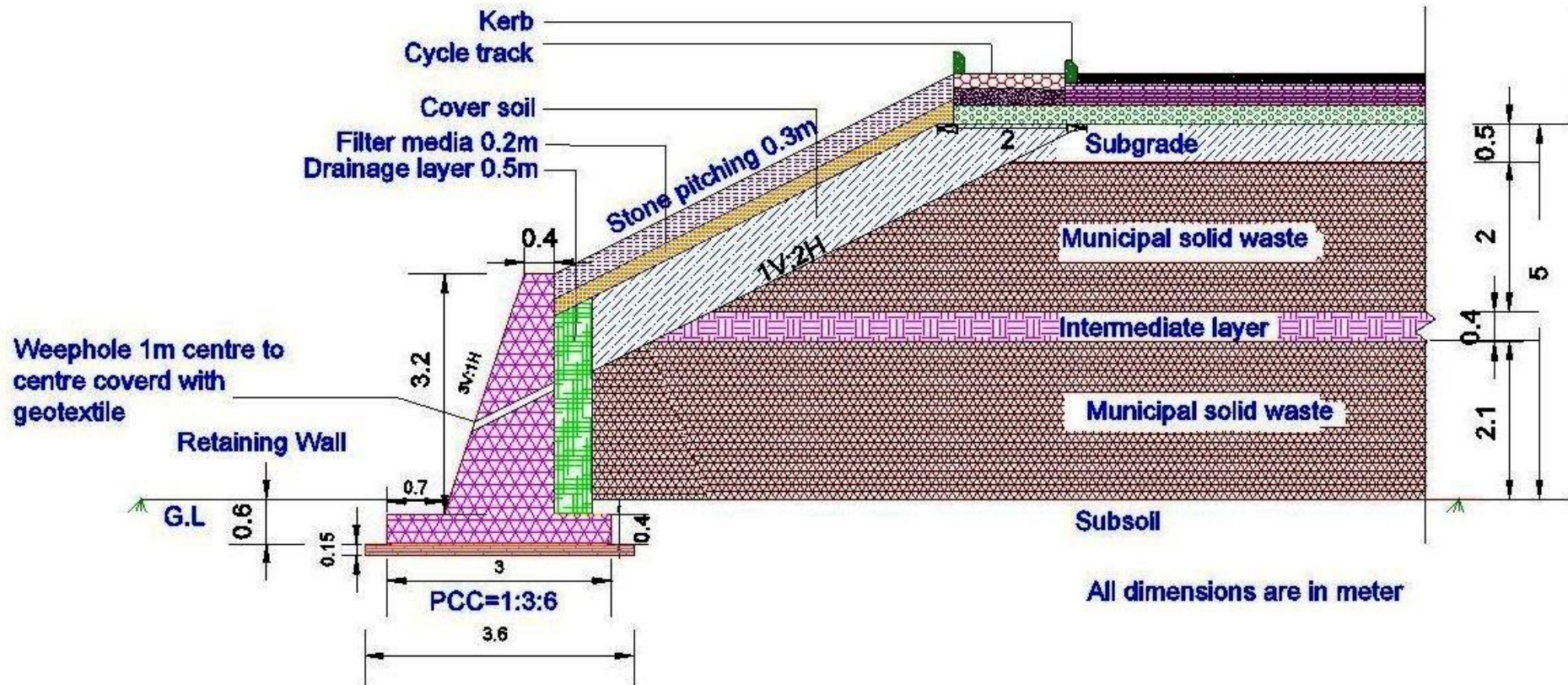


Fig. 44 Cross –section for construction of 5m Height MSW embankment (River side)

## **8 .CONCLUSIONS**

A detailed study was carried out to investigate the possibility of utilizing the Municipal Solid Waste (MSW) collected from Ghazipur, East Delhi as an embankment fill material. The MSW is proposed to be utilized in the widening of NH-24 from 4 lane to 16 lane. About 200 tons of Municipal Solid Waste was collected from Ghazipur and was segregated into different sizes in the existing compost plant. The different fractions were studied for their suitability for use in embankment construction. A segregation methodology is proposed in the study. The segregated MSW is then characterised for its Geotechnical characteristics. Design cross-sections were arrived at for 3m and 5m height MSW embankments based on detailed stability analysis. Settlement analysis was also carried out to investigate its feasibility for embankment construction. Conclusions drawn from the study are summarized below;

1. About 65-75% of segregated Municipal Solid wastes can be used for embankment construction.
2. Other than soil, plastics and textiles were observed to be major constituents in different segregated MSW (The percentage content of metals, wood, paper, rubber, glass is observed to be less than 1% in different segregated MSW ). There is no variation in the soil content or other constituents with the age of the MSW.
3. Leachate studies indicate that MSW is a non hazardous material as concentration of heavy metals is within the permissible limit.
4. The fraction passing 16mm sieve shows a minimal amount of plastics. Considering the higher percentage of this material in the MSW (44-48%), and the fact that its MDD satisfying the MORTH specification, this fraction can be directly used for embankment construction. This should be mixed with material retained on 37.5mm and 16mm after air blowing (at plant) to get the final material for use in embankment construction.



5. The final MSW selected for embankment construction is a non plastic, non swelling coarse grained material and classified as GM,i.e a silty gravel material.
6. The angle of shearing resistance values of MSW ranged between  $28^{\circ}$  and  $35^{\circ}$  indicating its suitability for embankment construction.
7. The Permeability of the different types of MSW varies in the range  $1.55 \times 10^{-9}$  to  $1.21 \times 10^{-8}$  m/s. The low value of the permeability observed may be because of presence of plastics, and rubber in the MSW mix which obstructs the flow of water through the mix.
8. The value of compression index ranged between 0.14 and 0.19 indicating a low to medium compressible soil. The average value of coefficient of consolidation in the stress range of 79-628 kN/m<sup>2</sup> is estimated as  $4.14 \times 10^{-6}$  m<sup>2</sup>/sec which is similar to that of conventional silty soils.
9. Total settlement for 3m and 5 m MSW embankment including primary and secondary consolidation 244 mm and 304 mm respectively. However these settlements are much less than the allowable settlement of 300 mm to 600 mm considered for Road embankment. The total settlement shall be uniform and shall occur slowly over a period of time.
10. Stability analysis indicated factor of safety values for critical draw down conditions under seismic conditions in the range 1.64 to 1.79 which is more than the minimum value of 1.25 required as per IRC-75 specifications

## **9. RECOMMENDATION**

1. Though the study indicated feasibility of segregated MSW wastes for embankment construction, construction of an experimental test track, instrumentation and performance monitoring for a minimum period of 2 years is needed to arrive at conclusions, before recommending the same for large scale field applications.
2. During construction in the field, it is suggested that necessary safety measures shall be adopted for the staff engaged in construction as per IRC and other relevant standards.

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4. Sowers, G. F. (1973). Settlement of waste disposal fills. Proceedings of 8<sup>th</sup> international conference on soil mechanics and foundation engineering.

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## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt. of NCT & Ors]

**Date of Inspection: 08.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** Tivoli Garden Resort (A unit of T.G. Leisure & Resort Pvt. Ltd.)  
(Bulk Waste Generator) Kh No. 646-653, Main Chattarpur Temple Road
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Sh. Rohit Gupta (Dir.) 9810323286
- (c) **Month & Year of Establishment** 2002
- (d) **Name and Designation of the Person(s) Contacted at the site** Sh. Mukesh Chaudhary 9212556232
- (e) **Size of Premises (in Square Meter)** (i) Plot Area 26726.98 M<sup>2</sup> (ii) Built up Area 3327.67 M<sup>2</sup>

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)
- Motel  
No. of rooms -36  
Restaurant (01) -58 seats  
Banquet Hall (02) - 900 Person  
Lawn (02) - 400 Persons

### 3. Status of Licenses

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts **Yes** [Valid upto **28.01.2019**]
- (c) Municipal Corporation License **Yes** [Valid upto **31.03.2017**]
- (d) Certificate from Fire Department **Yes** [Valid upto- **25.09.2019**]  
Regarding Fire Safety

### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) Delhi Jal Board – No information provided  
(ii) **Bore well** [No(s) **01**, Permission from DJB/CGWA. **Yes**]  
(iii) Tankers – No information provided

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement* (in Liters /day)	Peak Water Consumption/ Requirement at full capacity** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	8000 ltr.	Rooms= 36x2x180= 12960	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	1500 ltr.	Restaurant= 58x70= 4060	
(iii)	Kitchen	4500 ltr.	Banquet= (900+400)x70= 91000	80% of 108020
(iv)	Laundry	NA		
(v)	Swimming Pool	NA		
(vi)	Horticulture / Gardening	5000		
(vii)	Others			
	<b>Total Quantity</b>	19000	108020	86416

\*As per information furnished by the unit

\*\*Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	--
Sewage Treatment Plant (STP)	From Motels	50	Biological Process	O/G trap, Eq. tank, Aeration Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening Etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : **No**
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **Not maintained properly.**
- (j) ETP / STP Sludge generation : 5 Kg /day (As furnished)  
Mode of Disposal : Used as Compost in Horticulture  
sludge record not maintained
- (j) Reuse of Treated Waste Water: **(i) Gardening / Horticulture** 15000 ltr/day (As furnished)
- (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day
- (iii) Boiler ..... Liters /day
- (iv) Flushing (Toilets) ..... Liters /day
- (v) Any other ..... Liters /day

**Total Quantity.....Liters /day**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken	Remarks (If any)
1.	<b>Kitchen</b>	02	LPG	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace	
2.	<b>Boiler</b>	02	HSD	Adequate stack ht	
3.	<b>Diesel Generator(s)</b>	1X125 1X250 1X750 1X380 1X250	HSD	DG sets are kept in Acoustically treated Canopy and having Adequate stack height Except 1 DG set (250 KVA) found inadequate	Stack Height with 1 DG set(250 KVA) Found inadequate.
4.	<b>Others</b>				

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	<b>Municipal Solid Waste</b>	100 kg/day (As Informed verbally During inspection) 171.8 kg Per day (Estimated peak generation)*	No	No	No		Anwar Khan S/o Nalwa Khan, 583, Hazira Colony, Near Bari Masjid, Chattarpur, New Delhi
(ii)	<b>Construction &amp; Demolition Waste</b>	No records made Available			No	Not Provided/ As per Contract Agreement	
(iii)	<b>Domestic Hazardous Waste</b>	No records made Available			No	Not Provided	
(iv)	<b>Hazardous Waste (Used /Waste Oil )</b>	No records made Available			No	Not Provided	
(v)	<b>E-Waste</b>	No records made Available			No	Not Provided	
(vi)	<b>Lead Acid Battery Waste</b>	No records made Available			No	Not Provided	
(vi)	<b>Garden Waste</b>	15 kg/day	No	No	No	Composting	
(vii)	<b>Recyclable Waste</b>	No records made Available			No	Not Provided	

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy + floating population figure adopted from MSW Manual 2000.

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits- 12 (Partially Functional)

## Observations/Comments of the inspection on 08.02.2017

- As informed by the unit, the unit was established in year 2002, Plot Area of the Motel is 26726.98 sq.mtr and Built up Area 3327.67sq.mtr. Environment Clearance is not available with the unit as established in year 2002.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till **28.01.2019**.
- Water is procured through one Borewell and having registration from CGWA for the same.
- STP of capacity 50 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).
- Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.

6. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height.
11. Unit having five DG sets, 4-DG sets are having acoustic enclosure and adequate stack height however one DG set (250 KVA) is having acoustic enclosure but inadequate stack height.

### Issues:-

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP of capacity 50 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants). Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
- Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
- No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
- Unit having five DG sets, however one DG set (250 KVA) is having inadequate stack height.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 08.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** M/s Lilywhite Hotel  
(Bulk Waste Generator) Kh. No. 772, 773, 774 Village Chattarpur, Main Road
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mrs. Harbans Kaur (Partner)  
Mr. Amir Khan (Sales G.M), 9899740776
- (c) **Month & Year of Establishment** July - 2010
- (d) **Name and Designation of the Person(s) Contacted at the site** Mr. Surender Singh Bhandari  
8882222686
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 13488M<sup>2</sup> (ii) Built up Area- 3669 M<sup>2</sup>

### 2. Type of Establishment

(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.))

Motel

No of Room – 19, Restaurant = 01 (35 Persons)  
Banquet Hall+Lawn = 02 (650 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance  
(b) Consent under the Air & Water Acts  
(c) Municipal Corporation License  
(d) Certificate from Fire Department  
Regarding Fire Safety

**Not Applicable**

**Yes** [Valid upto- **12.06.2019**]

**Yes** [Valid upto- **31.03.2017**]

**Yes** [Valid upto- **17.03.2019**]

### 4. Water and Waste Water

#### (a) Source of Water Supply

- : (i) Delhi Jal Board – No bill provided  
(ii) **Bore well** [No(s) **01**, Permission from DJB/CGWA. No]  
(iii) Tankers – No information provided

#### (b) Water Consumption / Requirement and Waste Water Generation

S. No.	Purpose /Use	Average Water Consumption/ Requirement* (in Liters /day)	Peak Water Consumption/Requirement at full capacity** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	6675	Rooms= 19x2x180= 6840	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	--	Restaurant= 35x70= 2450	
(iii)	Kitchen	1950	Banquet= 650x70= 45500	80% of 54790
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	2500		
(vii)	Others	--		
	<b>Total Quantity</b>	11125	54790	43832

\*As per information furnished by the unit

\*\*Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)	Remarks (If any)
Effluent Treatment Plant (ETP)	--	--	--	--	--	--
Sewage Treatment Plant (STP)	From Motel	20	Biological process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational	Condition of STP revealed that it was not operated on regular basis

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : No (from DPCC Lab Dated 14.02.2017)
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : **No**
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of STP is being maintained : Logbook available however not maintained properly
- (j) ETP / STP Sludge generation : 2 Kg/day (As furnished) however No Wet / Dry Sludge observed during inspection  
 Mode of Disposal : Used as Compost in Horticulture (as informed) Sludge record not maintained
- (j) Reuse of Treated Waste Water:
  - (i) Gardening / Horticulture No record provided
  - (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) ..... Liters /day
  - (v) Any other ..... Liters /day

**Total Quantity.....Liters /day**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace
2.	<b>Boiler</b>	--	--	--
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>1X250 KVA</b> <b>1X125 KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			



## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	70 kg/day (As Provided letter by the Concerned Unit) 87.50 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRAE Waste Pvt. Ltd. Agreement not Provided
(ii)	Construction & Demolition Waste	No records made Available					
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil)	No records made Available					
(v)	E-Waste	100gm(as informed)					
(vi)	Lead Acid Battery Waste	No records made Available					
(vi)	Garden Waste	No records made Available	No	No	No		
(vii)	Recyclable Waste	6kg (as informed)					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy + floating population figure adopted from MSW Manual 2000.

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits - 03 Nos (Non – Functional)

## Observations /Comments of the inspection on 08.02.2017

- As informed by the Motel, the Motel was established in year 2010, Plot Area of the Motel is 13488 Sq.mtr & Built up Area- 3669 Sq.mtr.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till **12.06.2019**.
- Water is procured through one Borewell and not having Permission from DJB/CGWA for the same.
- STP of capacity 20 KLD has been installed. STP is biological type and was found operational however Condition of STP revealed that it was not operated on regular basis, as no wet/dry sludge available at site, filter press found defunct and non-operational condition, no sludge drying bed found, only two plastics tanks for sludge holding (as informed) filled up with waste water.
- As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).
- Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
- Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day with flow meter reading and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
- The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.

9. As informed sludge generation is 2 kg/day and used for horticulture however no wet/dry sludge available at site during inspection.
10. Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 08.02.2017 and Effluent analysis report of DPCC dated 14.02.2017 shows that STP is not meeting the prescribed standards.
11. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- STP of capacity 20 KLD has been installed. STP is biological type and was found operational however Condition of STP revealed that it was not operated on regular basis, as no wet/dry sludge available at site, filter press found defunct and non operational condition, no sludge drying bed found, only two plastics tanks for sludge holding (as informed) filled up with waste water.
- As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).
- Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
- Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day with flow meter reading and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
- The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
- As informed sludge generation is 2 kg/day and used for horticulture however no wet/dry sludge available at site during inspection.
- Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 08.02.2017 and Effluent analysis report of DPCC dated 14.02.2017 shows that STP is not meeting the prescribed standards.
- Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

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**Date of Inspection: 08.02.2017**

### 1. General Information

- |  |  |
|--|--|
| (a) <b>Name and Address of the Establishment</b><br>(Bulk Waste Generator) | M/s G. K. Motel Pvt. Ltd. (Oodles Hotel)<br>Kh. No. 759 – 762 Main Road Chattarpur, New Delhi-74 |
| (b) Owner /Partner / Managing Director's Name and Telephone No.            | Mr. Satish Kapoor<br>011-26549700  |
| (c) Month & Year of Establishment  | Nov- 2013  |
| (d) Name and Designation of the Person(s) Contacted at the site            | Mr. Pallav Vishwas<br>9910001248   |
| (e) Size of Premises (in Square Meter)                                     | (i) Plot Area- <b>17746.6 M<sup>2</sup></b> (ii) Built up Area- <b>2600 M<sup>2</sup></b>        |

### 2. Type of Establishment

(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)	<b>Motel</b> <b>Room- 40, Banquet Hall- 02 (650 Persons)</b> Party Lawn – 01 (300 Persons), Restaurant – 01 (50 Persons)
--	--

### 3. Status of Licenses

- |  |   |
|--|---|
| (a) Environmental Clearance                                | <b>Not Applicable</b>   |
| (b) Consent under the Air & Water Acts                     | Not Applied for Consent to Operate<br>Unit has obtained Consent to Establish only in the name of M/s G.K. Motel Pvt. Ltd. As per lease deed M/s Raghav Buildcon Pvt. Ltd. "Oodles Hotels" lease out to M/s G.K. Motel Pvt. Ltd. However Motel has not obtained/applied for Consent to Operate under Water and Air Acts from DPCC. |
| (c) Municipal Corporation License                          | Yes [Valid upto- <b>31.03.2017</b> ]  |
| (d) Certificate from Fire Department regarding Fire Safety | Yes [Valid upto- <b>08.06.2019</b> ]  |

### 4. Water and Waste Water

- |                                   |   |
|-----------------------------------|---|
| (a) <b>Source of Water Supply</b> | : (i) Delhi Jal Board – No information provided<br><b>(ii) Bore well [No(s)- 01, Permission from DJB/CGWA.. No]</b><br>(iii) Tankers- No information provided |
|-----------------------------------|---|

### (b) Water Consumption / Requirement and Waste Water Generation

S. No.	Purpose /Use	Average Water Consumption/ Requirement* (in Liters /day)	Peak Water Consumption/Requirement at full capacity** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	17565	Rooms= 40x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		14400	
(iii)	Kitchen	4680	Restaurant= 50x70=	80% of 84400
(iv)	Laundry		3500	
(v)	Swimming Pool		Party Lawn= 300x70=	
(vi)	Horticulture / Gardening	5000	21000,	
(vii)	Others		Banquet=650x70=	
			45500	
	<b>Total Quantity</b>	<b>27245</b>	<b>84400</b>	<b>67520</b>

\*As per information furnished by the unit

\*\*Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	--
Sewage Treatment Plant (STP)	From Motel	<b>45</b>	<b>Biological Process</b>	O/G trap, Eq. tank, Aeration tank, Settling tank etc	<b>Partially Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : No
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : No (from DPCC lab Dated 14.02.2017)
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : **No**
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (a) ETP / STP Sludge generation : 2.5 Kg/day (As furnished) however No Wet / Dry Sludge observed during inspection
- Mode of Disposal : Used as Compost in Horticulture (as informed) Sludge record not maintained

- (j) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** 5000 ltr/day (As furnished)  
(No record provided)
  - (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day
  - (iii) Boiler 500 Liters /day
  - (iv) Flushing (Toilets) 17565 Liters /day
  - (v) Any other ..... Liters /day

**Total Quantity.....Liters /day**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>02</b>	<b>L.P.G</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace.
2.	<b>Boiler</b>	<b>02</b>	<b>H.S.D</b>	Adequate stack ht provided.
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>1X320 KVA</b> <b>1X500 KVA</b>	<b>H.S.D</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	<b>Municipal Solid Waste</b>	60 kg./day (As Provided letter by the Concerned Unit) 140 kg Per day (Estimated peak generation)*	No	No	No		HRE Waste Pvt. Ltd. Agreement not Provided
(ii)	<b>Construction &amp; Demolition Waste</b>	No records made available					
(iii)	<b>Domestic Hazardous Waste</b>	No records made available					
(iv)	<b>Hazardous Waste (Used /Waste Oil )</b>	No records made available					
(v)	<b>E-Waste</b>	No records made available					
(vi)	<b>Lead Acid Battery Waste</b>	No records made Available					
(vi)	<b>Garden Waste</b>	5	No	No	No		Compost
(vii)	<b>Recyclable Waste</b>	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy + floating population figure adopted from MSW Manual 2000.

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits- 01 (Not Functional)

## Observations/Comments of the inspection on 08.02.2017

- As informed by the Motel, the Motel was established in year 2013, Plot Area of the Motel is 17746.6 Sq.mtr and built up area is 2600 Sq.mtr. Environment Clearance is not available with the Motel.
- Motel has obtained Consent to Establish on 26.07.2016 only in the name of M/s G.K. Motel Pvt. Ltd. As per lease deed M/s Raghav Buildcon Pvt. Ltd. "Oodles Hotels" lease out to M/s

G.K. Motel Pvt. Ltd. However Motel has not obtained/applied for Consent to Operate under Water and Air Acts from DPCC.

3. Water is procured through one Borewell and is not having Permission from DJB/CGWA for the same.
4. STP of capacity 45 KLD has been installed. STP is biological type and was found partially operational. Only MBBR-I and MBBR-II were in operation. Sludge thickener/holding tank found dry and filled up with garbage. Clear water tank was also filled up with dry garbage.
5. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).
6. Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
7. Log book of STP not maintained and could not be shown during inspection.
8. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
9. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
10. Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 08.02.2017 and Effluent analysis report of DPCC dated 14.02.2017 shows that STP is not meeting the prescribed standards.
11. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
12. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
13. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP needs to be standardized, so that the uniformity can be maintained.

#### Issues:-

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Motel has obtained Consent to Establish on 26.07.2016 only in the name of M/s G.K. Motel Pvt. Ltd. As per lease deed M/s Raghav Buildcon Pvt. Ltd. "Oodles Hotels" lease out to M/s G.K. Motel Pvt. Ltd. However Motel has not obtained/applied for Consent to Operate under Water and Air Acts from DPCC.
- Water is procured through one Borewell and is not having Permission from DJB/CGWA for the same.
- STP of capacity 45 KLD has been installed. STP is biological type and was found partially operational. Only MBBR-I and MBBR-II were in operation. Sludge thickener/holding tank found dry and filled up with garbage. Clear water tank was also filled up with dry garbage.
- As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).

- Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
- Log book of STP not maintained and could not be shown during inspection.
- The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
- No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
- Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 08.02.2017 and Effluent analysis report of DPCC dated 14.02.2017 shows that STP is not meeting the prescribed standards.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI&Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 09.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** TRILLION MOTELS PVT. LTD.  
(Bulk Waste Generator) Kh. No. 218/3/2, 22/3/2, 219/1220, M.G. Road Sultan Pur New Delhi-110074
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mr. Ashwani Kumar Mehra (Director) 9891011252
- (c) **Month & Year of Establishment** Jan-2011
- (d) **Name and Designation of the Person(s) Contacted at the site** Jagdish Aneja (Manager) Naveen Jha - 9560666002
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 11719 M<sup>2</sup> (ii) Built up Area- 2890.69 M<sup>2</sup>

**2. Type of Establishment**

Motels with Banquets

(Bulk Waste Generator) (Main Activities/ Units / Facilities (No of Rooms / Beds etc.) Room- 14 nos. Party Lawn+Banquets = 2 No. (400 Persons) Restaurant = 01 (90 Persons)

**3. Status of Licenses**

(a) **Environmental Clearance** : Yes [Issued on 30.11.2015] Present built up area is 2890.69 m<sup>2</sup> and EC obtained for redevelopment of Trillion Motel vide letter dated 30.11.2015 form SEIAA. As informed, proposed built-up area will be 35913.909 m<sup>2</sup> for redevelopment of Trillion Motel. Construction and Demolition work is proposed in Mar-2017 & they are in process to submit application for Consent to Establish for proposed building of redevelopment of Trillion Motel.

- (b) **Consent under the Air & Water Acts** Yes [Valid upto 4.10.17]
- (c) **Municipal Corporation License** Yes [Valid upto 31.3.17]
- (d) **Certificate from Fire Department** Yes [Valid upto 16.10.19]

**4. Water and Waste Water**

(a) **Source of Water Supply** (i) Bore well [01 No(s) Permission from DJB/CGWA No]

**(b) Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (Lit /day)	**Peak Water Consumption/Requirement at full capacity(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	1575.00	Hotel Rooms 14x2x180=5040 Banquet = 400x70=28000 Restaurant- 90x70=6300	80% of 39340
(ii)	Air Conditioning /Cooling Plant or Boiler Feed			
(iii)	Kitchen	4670.00		
(iv)	Laundry			
(v)	Swimming Pool			
(vi)	Horticulture / Gardening	2500.00		
(vii)	Others			
<b>Total Quantity</b>		8745.00	39340	32000

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.



### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	--	--	---
Sewage Treatment Plant (STP)	From Motel	28	Biological Treatment	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : No.
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : 2kg/day ( as furnished) No Wet/Dry sludge observed.  
Mode of Disposal Used as Compost in Horticulture (As informed). No record provided)
- (k) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** No record provided
  - (ii) Cooling Tower ..... Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) ..... Liters /day
  - (v) Any other ..... Liters /day

**Total Quantity** ..... Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	01	LPG	Hood and suction arrangement provided to channelize the kitchen emissions however stack is below terrace
2.	<b>Boiler</b>	-	-	-
3.	<b>Diesel Generator(s)</b>	01 1X320 KVA	HSD	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	100 kg/day (As Provided letter by the Concerned Unit) 63 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRA EWASTE PVT. LTD.
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	2 Kg				M/s HRA E-waste	
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	4.5 Kg.					
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

**8. Rain Water Harvesting System (RWHS)****No of RWHS Pits- 01 (Not Functional)****Observations/Comments of the inspection on 09.02.2017**

- As informed by the unit, the unit was established in year 2011, Plot Area of the motel is 11719 sqm and Built up Area is 2890.69 M<sup>2</sup>. EC obtained for redevelopment of Trillion Motel vide letter dated 30.11.2015 from SEIAA. As informed, proposed built-up area will be 35913.909 m<sup>2</sup> for redevelopment of Trillion Motel. Construction and Demolition work is proposed in Mar-2017.
- Motel is having valid Consent to Operate under Air and Water Act which is valid till 04.10.2017.
- Water is procured from 1 Bore well. Permission from DJB/CGWA for the same could not be provided.

4. STP of capacity 28 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).
5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 2 kg/day and same is used for horticulture purposes. However no wet/dry sludge was observed during inspection.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.
10. Unit has provided channelization system for kitchen emissions however stack is below terrace. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 09.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s UNIQUE INNOVATIONS PVT. LTD.  
(Bulk Waste Generator) (The Lutyens) 220 Min 221, 220/1, 223/2 225 Mehrauli Gurgaon Road Delhi.
- (b) **Owner /Partner / Managing Director's Name and Telephone No. :** Mr. Lalit Kumar, 9599595328
- (c) **Month & Year of Establishment :** July 2007
- (d) **Name and Designation of the Person(s) Contacted at the site :** Sudhir Kumar 8527067867
- (e) **Size of Premises (in Square Meter) :** (i) Plot Area- 14851.96 sq.m (ii) Built up Area-1733.36 Sq.m

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel  
No. of Room = 08, Banquet (01) + Lawn (01) =500 Person  
Restaurant (01) = 70 Person

**3. Status of Licenses**

- (a) Environmental Clearance : **Not Applicable**
- (b) Consent under the Air & Water Acts : **Yes** [Valid upto- **02.03.2019**]
- (c) Municipal Corporation License : **Yes** [Valid upto- **31.03.2017**]
- (d) Certificate from Fire Department : **Not Provided**

**4. Water and Waste Water**

- (a) **Source of Water Supply** (i) Bore well [ 01 No(s)...., Permission from DJB/CGWA. - **No**]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	1000	Rooms= 8x2x180= 2880 Restaurant= 70x70= 4900 Banquet= 500x70= 35000	80% of 42780
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	200		
(iii)	Kitchen	600		
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	500		
(vii)	Others			
	<b>Total Quantity</b>	2300	42780	34224

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Sewage Treatment Plant (STP)	From Motels	30	Biological Process	O/G trap, Eq.tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : **No**
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : No record provided  
Mode of Disposal : Used as Compost in Horticulture  
sludge record not maintained
- (j) Reuse of Treated Waste Water: (i) **Gardening / Horticulture** No record provided

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	02	LPG	Hood and suction arrangement provided to channelize the kitchen emissions but with inadequate height.
2.	Boiler (Hot water generator)	02	HSD	Only 3 m stack height above the ground level provided with both hot water Generator. Adequate stack Height not Provided For discharge of Emissions.
3.	Diesel Generator(s)	02 500 KVA 250KVA	HSD	Acoustic Enclosure and adequate stack height
4.	Others			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	40 kg/day(As Provided letter by the Concerned Unit) 65 kg Per day (Estimated peak generation)*	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No records made Available	No	No	No		
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made Available					
(v)	E-Waste	No records made Available					
(vi)	Lead Acid Battery Waste	No records made Available					
(vi)	Garden Waste	5 kg	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

## 8. Rain Water Harvesting System (RWHS)

No of RWHS Pits- 03 (Not Shown)

### Observations/Comments of the inspection on 09.02.2017

- As informed by the unit, the unit was established in year 2007, Plot Area of the motel is 14851.96 m<sup>2</sup> and Built up Area is 1733 sq m<sup>2</sup>. No Environmental Clearance was available with the unit.
- Motel is having valid Consent to Operate under Air and Water Act which is valid till 02.03.2019.
- Water is procured from a borewell for which CGWA/DJB approval was not shown.
- STP of capacity 30 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water

requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).

5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions but with inadequate stack height. DG sets are having acoustic enclosure and adequate stack height. Only 3 m stack height above the ground level provided with both hot water generators. Adequate stack height not provided for discharge of Emission.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

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**Date of Inspection: 09.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s PENGUIN FARM PVT. LTD.  
(Bulk Waste Generator) (Formerly Fortune Park / D J Avenue)  
Kh. No.423, 424/Min, 421/Min, 422, 417/1/Min,  
Village Ghitorni, MG Road, Delhi -
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. Praveen Aggarwal (Director)  
0114099617
- (c) **Month & Year of Establishment** : 05.08.2011
- (d) **Name and Designation of the Person(s) Contacted at the site** : Mr. Praveen Aggarwal  
8527295755
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- 10661 M<sup>2</sup> (ii) Built up Area- 1371 M<sup>2</sup>

**2. Type of Establishment**

- : Motel
- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) : Room – 21 Nos., Lawn – 01 Nos. (400 Persons)  
Restaurant – 01 (46 Persons), Banquet Hall – 01 (60 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : **Yes** [Valid upto **21.05.2019**]
- (c) Municipal Corporation License : **Yes** [Valid upto- **31.03.2017**]
- (d) Certificate from Fire Department : **Yes** [Valid upto- **09.02.2017**]

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Tankers [No of Tankers /day- **01 Document not provided**]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	75000	Rooms= 21x2x180= 7560 Restaurant= 46x70= 3220 Banquet & Lawn= 460x70= 32200	80% of 42980
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	N.A.		
(iii)	Kitchen	3000		
(iv)	Laundry	N.A.		
(v)	Swimming Pool	N.A.		
(vi)	Horticulture / Gardening	10500		
(vii)	Others	500		
<b>Total Quantity</b>		21500	42980	34384

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.



### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)					
Sewage Treatment Plant (STP)	From Motel	50	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	<b>Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening, Horticulture, etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes (Only at outlet of STP)
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : No
- (j) ETP / STP Sludge generation : 4 to 5 kg per day as informed  
Mode of Disposal : Used as Compost in Horticulture  
sludge record not maintained
- (j) Reuse of Treated Waste Water: (i) **Gardening / Horticulture** No record provided

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>LPG</b>	Channelization system consisting of hood ,ducting with Adequate stack ht.
2.	<b>Boiler</b>	-	-	
3.	<b>Diesel Generator(s)</b>	<b>02x320 KVA</b>	<b>HSD</b>	DG sets are kept in Acoustically treated Canopy and having Adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	15 Kg/day(As Informed verbally During inspection) 71.60 kg Per day (Estimated peak generation)*	No	No	No		Sanjay Garbage Cleaning Service
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	3 Kg/day	No	No	No	Partial Compo	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

**8. Rain Water Harvesting System (RWHS)**

**: No of RWHS Pits- 5 Nos.**

**Observations/Comments of the inspection on 09.02.2017**

- As informed by the unit, the unit was established in year August 2011, Plot Area of the motel is 10661 m<sup>2</sup> and Built up Area is 1371 sq m<sup>2</sup>. No Environmental Clearance was available with the unit.
- Motel is having valid Consent to Operate under Air and Water Act which is valid till 21.05.2019.
- Water is procured through tankers without details of sourcing.
- STP of capacity 50 KLD has been installed. STP is based on biological treatment and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
- No Flow meters installed at inlet of STP. No Separate energy meter for STP found installed.
- No Logbook of STP was found maintained.

7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes.
8. It was informed that the quantum of sludge generated is approx. 4-5 kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. The results of the sample taken depicts that the motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI&Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 09.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Vista Hospitality Pvt. Ltd.  
(Bulk Waste Generator) 162, M.G. Road Sultanpur, Delhi – 30
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mr. Gurpartap Singh (CMD)
- (c) **Month & Year of Establishment** July - 2008
- (d) **Name and Designation of the Person(s) Contacted at the site** Mr. Joy, 9811449349  
Mr. Manish, 9718345467
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 3.25 Acre (ii) Built up Area.....

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) Motel  
Rooms – 16, Banquets – 02 (300 Persons)  
Lawn – 01 (400 Persons), Restaurant – 02 (72 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance **Not Applicable**
- (b) Consent under the Air & Water Acts **Yes [Valid upto- 03.09.2019]**
- (c) Municipal Corporation License **Yes [Valid upto- 31.03.2017]**
- (d) Certificate from Fire Department **Yes [Valid upto- 10.02.2018]**

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Bore well [No(s) 01, Permission from DJB/CGWA.. No]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	3800 ltr/day	Rooms= 16x2x180= 5760	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	1000.00	Restaurant= 72x70= 5040	80% of 59800
(iii)	Kitchen	4000.00	(300+400)x70= 49000	
(iv)	Laundry			
(v)	Swimming Pool			
(vi)	Horticulture / Gardening	2800.00		
(vii)	Others			
	<b>Total Quantity</b>	11600.00	59800	47840

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	---	---	---
Sewage Treatment Plant (STP)	From Motels	25	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : No
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : No
- (j) ETP / STP Sludge generation : 1.5 Kg/day. No record provided  
Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** No record provided
  - (ii) Cooling Tower ..... Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) ..... Liters /day
  - (v) Any other ..... Liters /day
  - Total Quantity** ..... Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>01</b>	<b>HSD</b>	Adequate Stack ht.
3.	<b>Diesel Generator(s)</b>	<b>01</b> <b>1x320 KVA</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	20 kg/day (As Provided letter by the Concerned Unit) 93.20 kg Per day (Estimated peak generation)*	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	5 kg	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

## 8. Rain Water Harvesting System (RWHS) : No of RWHS Pits- 02 Nos (Not Functional)

### Observations/Comments of the inspection on 09.02.2017

- As informed by the unit, the unit was established in year 2008, Plot Area of the motel is 3.25 Acre. No Environmental Clearance was available with the unit.
- Motel is having valid Consent to Operate under Air and Water Act which is valid till 03.09.2019.
- Water is procured from 1 Bore well. Permission from DJB/ CGWA for the same could not be provided.
- STP of capacity 25 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).

5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 1.5kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.
- Water is procured from 1 Ground Bore well. Permission from DJB/ CGWA for the same could not be provided.
- STP of capacity 25 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).
- No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
- Logbook of STP was not found maintained.
- The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
- One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 09.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** M/s Zorba Entertainment Pvt. Ltd.  
(Bulk Waste Generator) 166, M.G. Road, Sultanpur, New Delhi
- (b) Owner /Partner / Managing Director's Name and Telephone No. : Mr. Ranjan Chopra, 9810008000  
Mr. Deepak Rai
- (c) Month & Year of Establishment : Feb 2011
- (d) Name and Designation of the Person(s) Contacted at the site : Mr. Ranjan Chopra (MD)  
Mr. Sachin, Mr. Hari Prakash - 9999329364
- (e) Size of Premises (in Square Meter) : (i) Plot Area-**12141 M<sup>2</sup>** (ii) Built up Area- **473 Sqmtr.**

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Party Lawn/Event Management  
Maximum Gathering- 225 (Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : Not Applied for Consent
- (c) Municipal Corporation License : **Yes** [Valid upto- 19.12.2017 for holding social Function]
- (d) Certificate from Fire Department : **Yes** [Valid upto- **08.04.2018**]

### 4. Water and Waste Water

- (a) **Source of Water Supply** (i) Through Tankers - One in ten days (No documentary proof attached)
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	N. A.		
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	N. A.	225x70= 15,750	80 % of 15,750= 12400
(iii)	Kitchen	300 ltr		
(iv)	Laundry	N. A.		
(v)	Swimming Pool	N. A.		
(vi)	Horticulture / Gardening	200 ltr		
(vii)	Others	N. A.		
	<b>Total Quantity</b>	500	15,750	12400

\*As per information furnished by the unit

\*\*Estimated as per Standards of CPHEEO, 1999 manual



### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)	Remarks (If any)
Effluent Treatment Plant (ETP)	No ETP / STP installed					
Sewage Treatment Plant (STP)	No ETP / STP installed					

- (b) Mode of Disposal of Untreated Effluent Waste Water : Stored in a underground sump and is disposed through tanker to unknown place)
- (c) Whether All Sections connected to ETP/STP : No ETP / STP installed
- (d) Whether Adequacy Report of STP submitted : No ETP / STP installed
- (e) Whether Effluent sample taken by DPCC laboratory : No
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : N. A. Since no sample was taken during inspection.
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : N. A., Since no ETP / STP installed
- (h) Whether Separate Energy Meter provided for STP : N. A., Since no ETP / STP installed
- (i) Whether Log Book of ETP / STP is being maintained : N. A., Since no ETP / STP installed.
- (j) ETP / STP Sludge generation : N. A., Since no ETP / STP installed
- (k) Mode of Disposal : Stored in a underground sump and is disposed through tanker to Unknown place)

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>LPG</b>	No proper Hood and Suction arrangement provided to Channelize the kitchen emissions and prescribed stack height.
2.	<b>Boiler</b>	-		--
3.	<b>Diesel Generator(s)</b>	<b>1x20 KVA 1x50 KVA 1x 125 KVA</b>	<b>HSD</b>	DG sets (50 KVA & 125 KVA) with acoustic enclosure however D.G. set of 50 KVA with inadequate stack height. D.G. set (20 KVA) is without acoustic enclosure as well as adequate stack height.
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	<b>Municipal Solid Waste</b>	(22.5 kg Per day (Estimated peak generation)**	No	No	No		They have hired a person who dump the waste in to MCD Dhalao
(ii)	<b>Construction &amp; Demolition Waste</b>	No records made available					
(iii)	<b>Domestic Hazardous Waste</b>	No records made available					
(iv)	<b>Hazardous Waste (Used /Waste Oil )</b>	No records made available					
(v)	<b>E-Waste</b>	No records made available					
(vi)	<b>Lead Acid Battery Waste</b>	No records made Available					
(vi)	<b>Garden Waste</b>	<b>3 kg/day</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Not provided</b>	
(vii)	<b>Recyclable Waste</b>	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy + floating population figure adopted from MSW Manual 2000.

## 8. Rain Water Harvesting System (RWHS)

: Nil

### Observations/ Issues of the inspection on 09.02.2017

1. As informed by the unit, the unit was established in year 2011, Plot Area of the establishment is 12141 sq.mtr and Built up Area 473 sq.mtr. Environment Clearance is not available with the establishment.
2. The establishment is operating without Consent to Establish as well as Consent to Operate under Air and Water Act.
3. Water is procured through Private tankers and record / bills could not be provided.
4. The establishment is not having any ETP/ STP to treat the waste water generated from the premises. The waste water generated from the premises is stored in underground sump. The quantity of average requirement of water is reported very minimum however

as per calculations of DJB is estimated requirement of water quantity 15,750 Ltr during peak (No information is available in the CPHEEO Manual regarding water requirement by party lawn however DJB has considered party lawn as per the Restaurants).

5. As informed untreated waste water generated from the premises is disposed through tankers to unknown place. No record made available.
6. The establishment has not provided proper hood and suction arrangement to channelize the kitchen emissions and prescribed stack height.
7. The establishment having Three DG sets, of 1x 20 KVA, 1x 50 KVA & 1x 125 KVA. Out of which two DG sets of 50 KVA & 125 KVA having acoustic enclosure however 50 KVA DG set with inadequate stack height and 20 KVA DG set is not provided acoustic enclosure as well as adequate stack height.
8. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
9. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc is need to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 13.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Ocean Pearl Motels Pvt. Ltd.  
(Bulk Waste Generator) Kh. No. 83,84,85,90,90/1-2,100/1-2,101 &102  
Village Satbari New Delhi
- (b) **Owner /Partner / Managing Director's Name and Telephone No. :** Mr. Roshan Banan
- (c) **Month & Year of Establishment :** March-2013
- (d) **Name and Designation of the Person(s) Contacted at the site :** Mr. Ramesh Parida (Chief Engineer)  
Mr. Ajay Malhotra, 9810695695
- (e) **Size of Premises (in Square Meter) :** (i) Plot Area-29000 Sqmt (ii) Built up Area- 4000 Sqmt

**2. Type of Establishment**

: Motel

(Bulk Waste Generator) (Main Activities / No of Rooms- 49, Banquet Hall – 05 + Lawn – 02 (1500 Person) Units / Facilities (No of Rooms / Beds etc.) Restaurant – 01 (70 Person)

**3. Status of Licenses**

- (a) **Environmental Clearance :** Not Applicable
- (b) **Consent under the Air & Water Acts :** Yes [Valid upto **07.07.2020**]
- (c) **Municipal Corporation License :** Yes [Valid upto- **31.03.2017**]
- (d) **Certificate from Fire Department :** Yes [Valid upto- **15.01.2017**]/

**4. Water and Waste Water**

- (a) **Source of Water Supply :** (i) Borewell -01 No permission from CGWA/DJB
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	1000	Rooms= 49x2x180= 17640	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	N.A.	Restaurant= 70x70= 4900	
(iii)	Kitchen	10000	Banquet= 1500x70= 105700	80% of 127540
(iv)	Laundry	N.A.		
(v)	Swimming Pool	N.A.		
(vi)	Horticulture / Gardening	10000		
(vii)	Others			
	<b>Total Quantity</b>		127540	102032

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	---	---	---
Sewage Treatment Plant (STP)	Motel	35	Biological	O/G trap, Eq. tank, Aeration tank, Settling tank etc	<b>Operational</b>

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : No
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : No
- (h) Whether Separate Energy Meter provided for ETP/STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity 5 Kg /day  
 Mode of Disposal : (i) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water :
  - (i) Gardening / Horticulture 10000 Liters /day
  - (ii) Air Conditioning Plant / Cooling Tower Nil Liters /day
  - (iii) Boiler 5000 Liters /day
  - (iv) Flushing (Toilets) 1000 Liters /day
  - (v) Any other 1000 Liters /day

**Total Quantity: 17000 Liters /day**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>02</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>02</b>	<b>HSD</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>02-500 &amp; 750 KVA</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	230kg/day (As Informed verbally During inspection) 206 kg Per day (Estimated peak generation)*	No	No	No	---	Choudhary Cont. (Agreement not provided)
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	10kg/day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS)****: No of RWHS Pits- 2 (Not functional)****Observations/Comments of the inspection on 13.02.2017**

M/s Ocean Pearl Motels Pvt. Ltd. is operating their Motel at Vill. Satbari Chattarpur New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 49 rooms, 5 Banquets, 1 Restaurant hall and 2 Party lawns. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2016, Plot Area of the motel is 29000 m<sup>2</sup> and Built up Area is 4000sq m. No Environmental Clearance was available with the unit.
2. Motel is having valid Consent to Operate under Air and Water Act which is valid till 07.07.2020.
3. Water is procured from 1 Bore well for which approval of CGWA/DJB is not available.
4. STP of capacity 35 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding

water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).

5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes, flushing etc.
8. It was informed that the quantum of sludge generated is approx. 5kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is not meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 13.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** Mapple Exotica ( A Unit of Nine Dimension Hotels and Resorts Pvt. Ltd.) Kh. No. 5, 6, 7, 8, 9, 10, 11, and 14, Village Shahoorpur Chattarpur, New Delhi  
(Bulk Waste Generator)
- (b) Name and Telephone No. Sh. Balram Thakur, 9313113157
- (c) Month & Year of Establishment :
- (d) Name and Designation of the Person(s) : Sh. Rohit Sapra  
Contacted at the site
- (e) Size of Premises (in Square Meter) : (i) Plot Area- 25000 sqm (Appx.)

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel  
No. of Room – 43, Restaurant – 01 (90 Persons)  
Banquet – 01 + Lawn – 01 (600 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : **Yes** [Valid upto- **01.06.2019**]
- (c) Municipal Corporation License : Yes [Valid upto- 31.03.2013]
- (d) Certificate from Fire Department : Yes  
regarding Fire Safety

### 4. Water and Waste Water

- (a) **Source of Water Supply** (i) Tankers [Krishna Water Works]-No record submitted

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	8000-10000	Rooms=43x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		15480	
(iii)	Kitchen		Restaurant= 90x70=	80% of 63780
(iv)	Laundry		Banquet= 600x70=	
(v)	Swimming Pool		42000	
(vi)	Horticulture / Gardening			
(vii)	Others			
	<b>Total Quantity</b>		63780	51024

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual



**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	--	---	---
Sewage Treatment Plant (STP)		180 KLD	FAB	Collection Tank, O&G trap, Tube Settler etc	<b>Operational</b>

- (b) Mode of Disposal of Treated/untreated Waste Water : **Gardening etc**
- (c) Whether All Sections connected to ETP/STP : **Yes**
- (d) Whether Adequacy Report of ETP/STP submitted : **Yes**
- (e) Whether Effluent sample collected during inspection : **Yes**
- (f) Whether ETP/STP is meeting the prescribed standards : **No**
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : **No**
- (h) Whether Separate Energy Meter provided for ETP/STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : Quantity **Not Known** ..... Kg /day  
Mode of Disposal : **(i) Used as Compost in Horticulture**
- (k) Reuse of Treated Waste Water : **(i) Gardening**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>Gas</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>01</b>	<b>H.S.D</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>02-650 &amp; 180 KVA</b>	<b>H.S.D</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	10 kg/day(As Provided letter by the Concerned Unit) 112 kg Per day (Estimated peak generation)*	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No record available					
(iii)	Domestic Hazardous Waste	No record available					
(iv)	Hazardous Waste (Used /Waste Oil)	3 ltr/day	Yes	Yes	No	Not Provided	
(v)	E-Waste	No record available					
(vi)	Lead Acid Battery Waste	No record available					
(vi)	Garden Waste	10 kg/day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No record available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS): No of RWHS Pits- 01 (Not Shown, No records Provided)**

**Observations/Comments of the inspection on 13.02.2017**

M/s Mapple Exotica is operating their Motel at Vill. Shahoorpur, Chattarpur, New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 43 rooms, 1 Banquet hall, 1 Restaurant and 1 Party lawn. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2016, Plot Area of the motel is 25000 m<sup>2</sup>. No Environmental Clearance was available with the unit.
2. Motel is having valid Consent to Operate under Air and Water Act which is valid till 01.06.2019.

3. Water is procured from tankers and it was informed that the name of company providing water was Krishna Water Works. No more details about the company were provided.
4. STP of capacity 180 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes etc.
8. It was informed that the quantum of sludge was not assessed however the generated sludge is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is not meeting the effluent standards. Operation and maintenance of STP was not satisfactory.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP was not operating satisfactorily and is not meeting the design standards.
- Water requirement is met through tankers however no records were produced and it is not known if the water is drawn from a authorized source or not.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes, option of supply free of cost to the adjoining green area needs to be explored.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 13.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** OPULENT (A unit of Bhupindra farms Pvt. Ltd.)  
(Bulk Waste Generator) Kh. No. – 98 Chhatarpur, New Delhi
- (b) **Owner /Partner / Managing Director's Name and Telephone No. :** DEEPAK MALHOTRA  
9810008722
- (c) **Month & Year of Establishment :** August- 2013
- (d) **Name and Designation of the Person(s) Contacted at the site :** Bhupendra
- (e) **Size of Premises (in Square Meter) :** (i) Plot Area-2.9 Acre. (ii) Built up Area- 3013.78 M<sup>2</sup>

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) :** Motel  
Rooms – 23, Restaurant- 01 (48 Persons)  
Banquet Hall- 01, Lawn- 01, (450 Persons)

**3. Status of Licenses**

- (a) **Environmental Clearance :** Not Applicable
- (b) **Consent under the Air & Water Acts :** Yes [Valid upto 23.11.2021 ]
- (c) **Municipal Corporation License :** Yes [Valid upto- 31.03.2017 / Applied for / Not Applied /
- (d) **Certificate from Fire Department :** Yes [Valid upto- 18.06.2018 /Applied for / Not Applied /

**4. Water and Waste Water**

- (a) **Source of Water Supply (i)Bore well [No(s)- 1 Permission from DJB/CGWA.. No]**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	25000 ltr./day	Rooms= 23x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	-	8280	
(iii)	Kitchen	9800 ltr/day	Restaurants= 48x70=	80% of 40340
(iv)	Laundry	nil	Banquet= 450x70=	
(v)	Swimming Pool	nil	31500	
(vi)	Horticulture / Gardening	2000 ltr		
(vii)	Others			
	<b>Total Quantity</b>	11800	40340	32272

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

## 5. Waste Water Management

### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Effluent Treatment Plant (ETP)	—	—	—	—	—
Sewage Treatment Plant (STP)	Yes	50	Biological system	O/G trap, Eq. tank, Aeration tank, Settling tank etc.	<b>Operational</b>

- (b) Mode of Disposal of Treated Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : **Yes**
- (e) Whether Effluent sample collected by DPCC Lab during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : **No**
- (h) Whether Separate Energy Meter provided for ETP/STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : Quantity 1.0 Kg /day  
 Mode of Disposal : **(i) Used as Compost in Horticulture**
- (k) Reuse of Treated Waste Water : **NO INFORMATION PROVIDED**

## 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	--	--	--
3.	<b>Diesel Generator(s)</b>	<b>2 (125 and 200)</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	118 Kg/day(As Provided letter by the Concerned Unit) 72.8 kg Per day (Estimate peak generation)*	No	No	Yes		Not provided
(ii)	Construction & Demolition Waste	No records made Available					
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made Available					
(v)	E-Waste	No records made Available					
(vi)	Lead Acid Battery Waste	No records made Available					
(vi)	Garden Waste	5 Kg/day	No	No	No	No	Not provided
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS) : No of RWHS Pits 2 (not working)****Observations/Comments of the inspection on 13.02.2017**

M/s Opulent is operating their Motel at Chatterpur New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 23 rooms, 1 Banquet halls, 1Party lawn and 1 Restaurant. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2013, Plot Area of the motel is 2.9 Acre and Built up Area is 3013.78 m<sup>2</sup>. No Environmental Clearance was available with the unit.

2. Motel is having valid Consent to Operate under Air and Water Act which is valid till 23.11.2021.
3. Water is procured from a Bore well however no CGWA/DJB approval available.
4. STP of capacity 50 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 1kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP. Results of the sample taken depicts that the motel is meeting the effluent standards. The Operation and maintenance of STP is not satisfactory as evident from the observation of no flow meters at inlet/outlet and no wet sludge observed.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP was not operating satisfactorily and requires proper housekeeping.
- Water requirement is met through a borewell for which no approval of CGWA/DJB is available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes, option of supply free of cost to the adjoining green area needs to be explored.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 13.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** GOLDEN TULIP CHATTARPUR  
(Bulk Waste Generator) 242-245, FATEHPUR BERI ASOLA
- (b) Owner /Partner / Managing Director's : Mr. Mehar Chand Tanwar  
Name and Telephone No. 011-7155100
- (c) Month & Year of Establishment : 2011-2012
- (d) Name and Designation of the Person(s) : Mr. Chander Mohan (Manager)  
Contacted at the site 8447652214/9582219248
- (e) Size of Premises (in Square Meter) : (i) Plot Area 11845.55 sqm Built up Area 1745.27 SQM

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / : Motel  
Units / Facilities (No of Rooms / Beds etc.) No of rooms- 34, Banquet Hall – 03/ (562 Persons)  
Restaurant – 01 (64 persons), Lawn- 03 (1800 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : Unit is operating without valid Consent to Operate
- (c) Municipal Corporation License : Yes [Valid upto **March – 2017, Document not provided**]
- (d) Certificate from Fire Department : Yes [Valid upto- **Applied for renewal/ Document not provided**]

### 4. Water and Waste Water

- (a) **Source of Water Supply** (i) Bore well [No(s)- 02, Permission from DJB/CGWA.. No]  
**No Document attached**

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity ***(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic		Rooms= 34x2x180= 12240	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		64x70= 4480	
(iii)	Kitchen	10000	Banquet = (562+1800)x70= 165340	80% of 182060
(iv)	Laundry	N.A.		
(v)	Swimming Pool			
(vi)	Horticulture / Gardening	No		
(vii)	Others	20000		
	<b>Total Quantity</b>	30000	182060	145648

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual



(a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	---	----	----	--	--
Sewage Treatment Plant (STP)	Motel Premises	40 KLD	Biological	Collection Tank, Aeration Tank, Settling Tank Etc.	<b>Operational</b>

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc.  
 (c) Whether All Sections connected to ETP/STP : Yes  
 (d) Whether Adequacy Report of ETP/STP submitted : No  
 (e) Whether Effluent sample collected by DPCC Lab during inspection : Yes  
 (f) Whether ETP/STP is meeting the prescribed standards : Yes  
 (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : No  
 (h) Whether Separate Energy Meter provided for ETP/STP : No  
 (i) Whether Log Book of ETP / STP is being maintained : No  
 (j) ETP / STP Sludge generation : No records provided  
 Mode of Disposal : (i) Used as Compost in Horticulture  
 (k) Reuse of Treated Waste Water : No information provided  
     (i) Gardening / Horticulture  
     (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day  
     (iii) Boiler ..... Liters /day  
     (iv) Flushing (Toilets) ..... Liters /day  
     (v) Any other ..... Liters /day  
**Total Quantity:** Liters /day

6. Air Pollution Aspects

S.No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	3	LPG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Boiler	2	Diesel	Adequate stack height
3.	Diesel Generator(s)	2(380 and 250 KVA)	Diesel	Acoustic Enclosure and adequate stack height
4.	Others			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	150 Kg/Day (As Provided letter by the Concerned Unit) 276.6 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRA E-Waste Pvt. Ltd.
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	5 kg/day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS) : No of RWHS Pits- 01 Nos Not functional**

**Observations/Comments of the inspection on 13.02.2017**

GOLDEN TULIP CHATTARPUR is operating their Motel at 242-245, FATEHPUR BERI ASOLA New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 34 rooms, 3 Banquet halls, 3 Party lawns and 1 Restaurant. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2011-2012, Plot Area of the motel is 11845.55 sq m and Built up Area is 1745.27 SQM. No Environmental Clearance was available with the unit.
2. Motel is not having valid Consent to Operate under Air and Water Act.
3. Water is procured from 2 Borewells for which no approval of CGWA/DJB is available.
4. STP of capacity 40 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during

- peak (No information is available in the CPHEEO Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).
5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
  6. Logbook of STP was not found maintained.
  7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
  8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture purposes.
  9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.
  10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

#### Issues:-

- Motel is operating without Consent under Air and Water Act
- Water is procured through Borewells but is not having Permission from DJB/CGWA for the same.
- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP of capacity 40 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants). Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose only.
- No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP is need to be standardized, so that the uniformity can be maintained.

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**Date of Inspection: 13.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** Fortune Park Boulevard  
(Bulk Waste Generator) Dera More, Chattarpur New Delhi - 110074
- (b) **Owner /Partner / Managing Director's Name and Telephone No. :** Mr. Nipun Sakhuja  
9810522236
- (c) **Month & Year of Establishment :** May -2011
- (d) **Name and Designation of the Person(s) Contacted at the site :** Mr. Roop Pandita (GM)  
8826884444
- (e) **Size of Premises (in Square Meter) :** (i) Plot Area- 15220 Sqmtr.(ii) Built up Area- 2276 Sqmtr.

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel  
Room- 34 No., Banquet hall- 01 (80 Persons)  
Restaurant- 01 (34 Persons), Lawn – 01 (500 Persons)

### 3. Status of Licenses

- (a) **Environmental Clearance :** Not Applicable
- (b) **Consent under the Air & Water Acts :** Yes [Valid upto- 19.03.2017]
- (c) **Municipal Corporation License :** Yes [Valid upto-31.03.2017]
- (d) **Certificate from Fire Department regarding Fire Safety :** Yes [Valid upto 17.7.2019]/

### 4. Water and Waste Water

- (a) **Source of Water Supply :** (i) Bore well [No(s)-01, Permission from DJB/CGWA - NO]

### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	14000	Rooms= 34x70= 2380	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	NA	Banquet= (80+500)x70= 40600	80% of 55220
(iii)	Kitchen	2000		
(iv)	Laundry	NA		
(v)	Swimming Pool	NA		
(vi)	Horticulture / Gardening			
(vii)	Others			
	<b>Total Quantity</b>	16000	55220	44176

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

(a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	---	---	---	--	--
Sewage Treatment Plant (STP)	Motel	35	Biological	O/G trap, Eq. tank, Aeration tank, Settling tank etc.	<b>Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.  
 (c) Whether All Sections connected to ETP/STP : Yes  
 (d) Whether Adequacy Report of ETP/STP submitted : Yes  
 (e) Whether Effluent sample collected during inspection : Yes  
 (f) Whether ETP/STP is meeting the prescribed standards : Yes  
 (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : No  
 (h) Whether Separate Energy Meter provided for ETP/STP : No  
 (i) Whether Log Book of ETP / STP is being maintained : Yes  
 (j) ETP / STP Sludge generation : Quantity 2 Kg /day  
 Mode of Disposal : (i) Used as Compost in Horticulture

- (j) Reuse of Treated Waste Water :  
 (i) Gardening / Horticulture **15000 to 30000** Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) ..... Liters /day  
 (v) Any other ..... Liters /day  
**Total Quantity: 15-30000** Liters /day

6. Air Pollution Aspects

S.No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
3.	<b>Diesel Generator(s)</b>	<b>2-125 &amp; 500 KVA</b>	<b>DIESEL</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>	<b>-</b>		

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	30 kg/day(As Provided letter by the Concerned Unit) 95.40 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRA E-Waste
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	8 kg/day	No	No	No	Partial Composting	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits- 04

## Observations/Comments of the inspection on 13.02.2017

M/s Fortune Park Boulevard is operating their Motel at Dera More, Chattarpur New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 34 rooms, 1 Banquets, 1 Restaurant hall and 1 Party lawns. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2011, Plot Area of the motel is 15220 m<sup>2</sup> and Built up Area is 2276sq m. No Environmental Clearance was available with the unit.
2. Motel is having valid Consent to Operate under Air and Water Act which is valid till 19.03.2017.
3. Water is procured from 1 Ground Bore well for which CGWA/DJB approval is not available.
4. STP of capacity 35 KLD has been installed. STP is biological type based on MBBR technology and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO

Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).

5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 2 kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through a borewell for which CGWA/DJB approval is not available.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area needs to be explored.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 13.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** COUNTRY INN & SUITES BY CARLSON  
(Bulk Waste Generator) Satbari Unit of Fairlie Hotels & Resorts Pvt. Ltd. Chattarpur
- (b) Owner /Partner / Managing Director's Name and Telephone No. : Mr. Vipul Chadha  
011-66066100
- (c) Month & Year of Establishment : April- 2011
- (d) Name and Designation of the Person(s) Contacted at the site : Sh. Sachin Dhingra (GM)  
8527894949
- (e) Size of Premises (in Square Meter) : (i) Plot Area-**19399 Sqmtr.**(ii) Built up Area- **2921.87 Sqmtr.**

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel  
Rooms – 37 No., Banquet hall – 02 (550 Persons)  
Restaurant- 01 (50 Persons), Lawn – 01 (600 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : Yes [Valid upto...13./06/2017]
- (c) Municipal Corporation License : **Yes** [Valid upto- **31.03.2018**]
- (d) Certificate from Fire Department : **Yes** [Valid upto- **10.07.2019**]

### 4. Water and Waste Water

- (a) **Source of Water Supply** :  
(i) **Bore well [No(s)-01,** Permission from DJB/CGWA..No]  
**Water cess paid**

### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	20925	Rooms= 37x2x180= 13320	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	6000	Restaurant= 50x70= 3500	
(iii)	Kitchen	13975	Banquet= (550+600)x70= 80500	80% of 97320
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	2000		
(vii)	Others			
	<b>Total Quantity</b>	42900	97320	77856

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual



**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	-	-	-	-	-
Sewage Treatment Plant (STP)	Motel Premises	100	MBBR, Biological	Collection Tank, Primary and Secondary Tank, Media Filter, Filter press	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
- (h) Whether Separate Energy Meter provided for ETP/STP : Yes
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity ...2... Kg /day
- Mode of Disposal :  
(i) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water :  
 (i) Gardening / Horticulture **2000** Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower **6000** Liters /day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) ..... Liters /day  
 (v) Any other ..... Liters /day  
**Total Quantity: 8000** Liters /day

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	3	LPG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Boiler	--	---	---
3.	Diesel Generator(s)	3 x 320 KVA	Diesel	Acoustic Enclosure and adequate stack height
4.	Others			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste **Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	40 kg/day (As Informed verbally During inspection) 157 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRA –E Waste Pvt. Ltd.(Agreement not provided)
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	5 Kg/day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits- 02, No Document Attached

## Observations/Comments of the inspection on 13.02.2017

COUNTRY INN & SUITES BY CARLSON is operating their Motel at Vill. Satbari Chatterpur New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 37 rooms, 2 Banquet halls, 1 Party lawn and 1 Restaurant. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2011, Plot Area of the motel is 19399 m<sup>2</sup> and Built up Area is 2921.87sq m<sup>2</sup>. No Environmental Clearance was available with the unit.
2. Motel is having valid Consent to Operate under Air and Water Act which is valid till 13.06.2017.
3. Water is procured from 1 Ground Bore well for which CGWA/DJB approval was not available; however, water cess is being paid.

4. STP of capacity 100 KLD has been installed. STP is based on MBBR Technology and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet and outlet of STP. Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 2kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through a borewell for which CGWA/DJB approval is not available.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area needs to be explored.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 13.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s Radiance Motel, 268/2, 267, 270, 271/2 Satbari, Chattarpur, New Delhi-74  
(Bulk Waste Generator)
- (b) Owner /Partner / Managing Director's Name and Telephone No. : Aslish Mohan Kalra (Partner)
- (c) Month & Year of Establishment : 20/01/2016
- (d) Name and Designation of the Person(s) Contacted at the site : Sh. Vikas Bhasin 9711621901
- (e) Size of Premises (in Square Meter) : (i) Plot Area- 13826 M<sup>2</sup>.(ii) Built up Area- 2737 Sqmtr

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel Banquets = 01 (250 Per)  
No of Room : - 07, Lawn = 01 (500 Per)

**3. Status of Licenses**

- (a) Environmental Clearance : **Not Applicable**
- (b) Consent under the Air & Water Acts : No -Applied for Consent to Establish on 12.03.2017
- (c) Municipal Corporation License : **Yes** [Valid upto- 31.03.2017]
- (d) Certificate from Fire Department : **Yes** [Valid upto- 08.06.2018]

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i)Bore well [No(s).01 Permission from DJB/CGWA.. No]
- (b)**Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	500	Rooms= 7x2x180= 2520 Banquet= (250+500)x70= 52500	80% of 55020
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	--		
(iii)	Kitchen	100		
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	--		
(vii)	Others	100		
	<b>Total Quantity</b>	<b>700</b>	<b>55020</b>	<b>44016</b>

\*- Based on data furnished by Unit

\*\* - Based on full occupancy + floating population figure furnished by the unit

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)					
Sewage Treatment Plant (STP)	Motel	25	Biological	Collection Tank, O&G trap, Tube Settler etc	<b>Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP : **Yes**
- (d) Whether Adequacy Report of ETP submitted : **No**
- (e) Whether Effluent sample collected during inspection : **Yes**
- (f) Whether ETP/STP is meeting the prescribed standards : **No**
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP : **Yes**
- (h) Whether Separate Energy Meter provided for ETP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : Quantity 1-3 Kg /day  
 Mode of Disposal : **(i) Used as Compost in Horticulture**
- (k) Reuse of Treated Waste Water : **(i) Gardening / Horticulture** 6000 Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) ..... Liters /day  
 (v) Any other ..... Liters /day  
**Total Quantity:** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	-	-	-
3.	<b>Diesel Generator(s)</b>	<b>1</b>	-	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	3 kg/day (As Provided letter by the Concerned Unit) 82 kg Per day (Estimated peak generation)*	No	No	No		M/s HRA E Waste Pvt. Ltd.(Agreement not provided)
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	No records made available					
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS) : 02 –Not functional**

**Observations/Comments of the inspection on 13.02.2017**

M/s Radiance Motel is operating their Motel at Vill. Satbari Chattarpur New Delhi. The Motel was inspected by Sub Committee-II on 13.02.2017. It was informed that Motel is having 07 rooms, 1 Banquet hall and 1 Party lawn. Following are the observations of the team after discussion with officials of the Motel who were present during inspection:

1. As informed by the unit, the unit was established in year 2016, Plot Area of the motel is 13826 m<sup>2</sup> and Built up Area is 2737sq m. No Environmental Clearance was available with the unit.
2. Motel has not applied for Consent to Operate under Air and Water Act.
3. Water is procured from 1 Bore well for which CGWA/DJB approval is not available.

4. ETP was found installed based on physic-chemical treatment but the same was found non-operational. The unit has claimed that it is having an STP of capacity 25 KLD. As per calculations of DJB, the STP design capacity (as claimed) is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).
5. No Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes etc.
8. It was informed that the quantum of sludge generated is approx. 1-3 kg/day and same is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of ETP and outlet of ETP by DPCC Lab. Results of the sample taken depicts that the Motel is not meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 14.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** AIIMS & Tauma Cener, Ansari Nagar, Delhi  
(Bulk Waste Generator)
- (b) Owner /Partner / Managing Director's : Director AIIMS  
Name and Telephone No. : 011-26594800
- (c) Month & Year of Establishment : 02.02.1956
- (d) Name and Designation of the Person(s) :  
Contacted at the site
- (e) Size of Premises (in Square Meter) : (i) Plot Area-**60000 Sqmtr.** (ii) Built up Area- 176600 Sqmtr.

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Hospital  
No of Beds – 2362 No, No of Visitor – 2362 No.  
OPD-7632 Persons/day, Footfall (includes OPD and visitors)-50000 Per day  
Hostel-20 Nos. (2000 persons)

**3. Status of Licenses**

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : Applied for Consent
- (c) Municipal Corporation License : No information provided
- (d) Certificate from Fire Department : Yes [Valid upto2019] –Dates vary according to Departments

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Delhi Jal Board [ Bill Available.... Yes ]  
(ii) Bore well [No(s) 28, Permission from DJB/CGWA..Yes/No]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic		Beds= 2362x450=1062900 Visitors= (2362+7632+50000)x15 = 899910	80% of 1962810
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	5.33 lakh		
(iii)	Kitchen			
(iv)	Laundry	1.00 lakh		
(v)	Swimming Pool			
(vi)	Horticulture / Gardening	75000		
(vii)	Others			
<b>Total Quantity</b>			1962810	1570248

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual



### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	---	---	---	---	---
Sewage Treatment Plant (STP)	Hospital	1 MLD		Screen Chamber, Equalization Tank, MBBR Tank, Settling Tank, DMF, etc	<b>Operational</b>

- (b) Mode of Disposal of Treated/untreated Waste Water : Land etc.
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
- (h) Whether Separate Energy Meter provided for ETP/STP : Yes
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity ...10... Kg /day  
 Mode of Disposal : (i) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water :
  - (i) Gardening / Horticulture 250000 Liters /day
  - (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) ..... Liters /day
  - (v) Any other ..... Liters /day

**Total Quantity: 250000 Liters /day**

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen			
2.	Boiler	2-1000 Kg/hr	HSD	Adequate stack height
3.	Diesel Generator(s)	23 Nos	HSD	Acoustic Enclosure and adequate stack height
4.	Others			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/* *Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	7000 kg/day. As Provided letter by the Concerned Unit) 7181 kg Per day (Estimated peak generati	No	No	No		M/s Biotic Waste Management ltd.
(ii)	Construction & Demolition Waste	20000 to 25000 kg/ Day	Separate Yard		No	Through Online Tender	
(iii)	Domestic Hazardous Waste	No details made available					
(iv)	Hazardous Waste (Used /Waste Oil)	No details made available					
(v)	E-Waste	No details made available				HRA E-waste	
(vi)	Lead Acid Battery Waste	No details made available					Buy back arran
(vi)	Garden Waste		No	No	No	Not Provided	
(vii)	Recyclable Waste	No details made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**In case of Hospitals for Bio Medical Waste Management**

(a) Whether having proper Bio Medical Waste Segregation in:

- (i) Pathological and other Laboratories : Partly
- (ii) General and Private Wards : Yes
- (iii) Operation Theatres : Yes
- (iv) ICUs : Could not be visited

(b) Pretreatment of Laboratory Waste / Blood Bank : Partly

(c) On site segregation : Yes

(d) Common collection point (Temporary collection site) : Yes

(e) Provision for collection and treatment of floor washing and container trolley : Yes

**8. Rain Water Harvesting System (RWHS) : Yes No. of RWHS Pits 15**

**Observations of All India Institute of Medical Sciences(AIIMS), Ansari Nagar, New Delhi**

All India Institute of Medical Sciences (AIIMS) is a multi-specialty hospital located at Ansari nagar, New Delhi and has operational bed strength of 2362 beds. Hospital was inspected by Sub Committee-II on 14.02.2017. Following are the observations of the team after discussion with officials who were present during inspection:

1. Average OPD is 7632/day and average footfall is 50,000/day (includes OPD and visitors).
2. One STP of capacity 1 MLD (Based on MBBR Technology) has been installed for this hospital STP was found operational.
3. Source of Water is from DJB and 28 borewells.
4. Hospital is having valid Authorization under BMW Rules that is valid till 18.3.2017. Hospital has applied for Consent under Air and Water Act.
5. As per calculations of DJB, STP design capacity is less than the waste water generation during peak.
6. No sludge storage facility provided and sludge found stored in open.
7. One sample of effluent was taken at the inlet and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hospital is meeting the effluent standards.
8. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose.
9. The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
10. The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd., however some of the provisions of BMWM Rules, 2016, e.g. Bar Code System for Bags or Containers containing bio medical waste and Phasing out of Chlorinated Plastic Bags, Gloves and Blood Bags are yet to be complied.
11. It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
12. It was informed that the Hospital was having a separate infection control team which ensured that Hospital Acquired Infections (HAI) are kept to minimum.
13. As informed, Sludge generated from the STP is used as Compost in Horticulture however as per the provisions of the Bio-Medical Waste Management Rules, 2016, sludge generated from the Effluent Treatment Plant should be given to Common Bio Medical Waste Treatment facility for incineration since there is no operational TSDF in Delhi.
14. It was observed that sewage from Hostel and residential area goes to DJB sewer lines. Similarly, for MSW collection and disposal comprehensive planning is needed.
15. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required. Separate energy meter not provided.
16. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening, cooling towers.
17. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hospital is meeting the effluent standards.

18. Unit has provided proper channelization system for kitchen emissions and stack height found adequate. DG sets are having acoustic enclosure and adequate stack height.
19. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
20. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
21. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
22. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 15.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s Safdarjang Hospital & VMMC  
(Bulk Waste Generator)
- (b) **Owner /Partner / Managing Director's** : Govt. of India  
Name and Telephone No.
- (c) **Month & Year of Establishment** : 1954
- (d) **Name and Designation of the Person(s)** : Dr. Malini R. Capoor  
Contacted at the site 9891459717
- (e) **Size of Premises (in Square Meter):** (i) Plot Area- **190874.03 Sqm.**(ii) Built up Area- **303085.31 Sqm**

**2. Type of Establishment**

: Hospital & Medical College  
(Bulk Waste Generator) (Main Activities / No of Beds – 1531, Visitor – 1531, OPD- 9538  
Units / Facilities (No of Rooms / Beds etc.) Student-1135, Staff (residence)- 1000,  
Floating population -950 & Staff (Non-residence) - 1540

**3. Status of Licenses**

- (a) **Environmental Clearance** : Yes(Issued on 04/02/2014 for redevelopment of Super Specialty block cum paid ward and emergency block
- (b) **Consent under the Air & Water Acts** : Applied for Consent to Operate
- (c) **Municipal Corporation License** : No information provided
- (d) **Certificate from Fire Department** : No information provided

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Delhi Jal Board
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity ** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic		Beds= 1531x450= 688950 Visitors= (1531+9538+950)x15= 180285 Office= 1540x45= 69300 Students= 1135x45= 51075 Residents= 1000x135= 135000	80% of 1124610
(ii)	Air Conditioning /Cooling Plant or Boiler Feed			
(iii)	Kitchen			
(iv)	Laundry			
(v)	Swimming Pool			
(vi)	Horticulture / Gardening			
(vii)	Others			
	<b>Total Quantity</b>		1124610	899688

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)	Remarks (If any)
Effluent Treatment Plant (ETP)	--	--	--	--	--	<b>No ETP /STP installed</b>
Sewage Treatment Plant (STP)	--	--	--	--	--	

- (b) Mode of Disposal of Treated/untreated Waste Water : DJB/City Sewerage System
  - (c) Whether All Sections connected to ETP/STP : No ETP/STP installed
  - (d) Whether Adequacy Report of ETP/STP submitted : No
  - (e) Whether Effluent sample collected during inspection : Yes from 4 Bypass outlets
  - (f) Whether effluent is meeting the prescribed standards : No
  - (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : NA
  - (h) Whether Separate Energy Meter provided for ETP/STP : NA
  - (i) Whether Log Book of ETP / STP is being maintained : NA
  - (j) ETP / STP Sludge generation : NA
  - Mode of Disposal : NA
  - (k) Reuse of Treated Waste Water :
    - (i) Gardening / Horticulture ..... Liters /day
    - (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day
    - (iii) Boiler ..... Liters /day
    - (iv) Flushing (Toilets) ..... Liters /day
    - (v) Any other ..... Liters /day
- Total Quantity:** Liters /day

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken	Remarks (If any)
1.	Kitchen				
2.	Boiler	2-1000 kg/hr	LDO	Adequate Stack Height	
3.	Diesel Generator(s)	6			
4.	Others				

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	4067.50 kg/day (As Provided by the Concerned Unit) 3188.90 kg Per day (Estimated peak generation)*	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No details available					M/s Jagdish Associates
(iii)	Domestic Hazardous Waste	No details available					
(iv)	Hazardous Waste (Used /Waste Oil )	No details available					
(v)	E-Waste	No details available					
(vi)	Lead Acid Battery Waste	No details available					
(vi)	Garden Waste	No details available					
(vii)	Recyclable Waste	No details available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**In case of Hospitals for Bio Medical Waste Management**

(a) Whether having proper Bio Medical Waste Segregation in:

- (i) Pathological and other Laboratories : No
- (ii) General and Private Wards : Partly
- (iii) Operation Theatres : Yes
- (iv) ICUs : Yes

(b) Pretreatment of Laboratory Waste / Blood Bank : No

(c) On site segregation : Yes

(d) Common collection point (Temporary collection site) : Yes

(e) Provision for collection and treatment of floor washing and container trolley : No

**8. Rain Water Harvesting System (RWHS)**

: No statement

No of RWHS Pits.....

### **Observations of inspection of Safdarjung Hospital and VMMC**

Safdarjung Hospital is a multi specialty hospital and has operational bed strength of 1531 beds. It was informed that Safdarjung Hospital was founded in 1942 during the Second World War as a Base Hospital for the allied forces. Hospital was inspected by Sub Committee-II on 15.02.2017. Following are the observations of the team after discussion with officials of the Hospital who were present during inspection:

1. Average OPD is 9500/day and average occupancy is usually more than 100%.
2. It was observed that traffic management at the hospital was not proper.
3. No STP/ETP has been installed to treat effluent generated from the hospital. It was conveyed that approx 3000 KL/day of effluent is generated and installation of STP was under process.
4. Hospital has applied for Consent under Air and Water Act on 24.9.15.
5. Samples of effluent were taken at 4 bye-pass points. Results of the sample taken depicts that the Hospital is not meeting the effluent standards.
6. The information/record with regarding to mass water balance could not be shown during inspection.
7. Proper co-ordination among different sections of the hospital and Engineering officials needs to be made as the format for information provided to the hospital was not properly filled even after reminder.
8. The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
9. Quantum of Bio medical waste generated and handed over to CBWTF is Yellow bags - approx 20000 Kg/month, Blue Bags- Approx 25000 Kg/month, Sharps-Approx. 1750 Kg/month.
10. The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Watergrace BMW (P) Ltd.
11. Annual Report of BMW for year 2015 was submitted and it was informed that Annual Report for year was under process.
12. It was observed that BMW was mixed with municipal solid waste in few of the bags at the storage site of municipal solid waste.
13. The staff OF Hospital needs comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
14. Unit has provided proper channelization system for kitchen emissions and stack height found adequate. DG sets are having acoustic enclosure and adequate stack height.
15. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
16. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
17. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
18. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.



**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon’ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 15.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Hyatt Regency Delhi, Asian Hotel, (North) Limited, (Bulk Waste Generator) Bhikaji Cama Place, Ring Road, New Delhi-110016.
- (b) **Owner /Partner / Managing Director’s Name and Telephone No.** : Asian Hotels (North) Limited, 011-26791234
- (c) **Month & Year of Establishment** : 1982
- (d) **Name and Designation of the Person(s) Contacted at the site** : Sh. Ashish Tripathi (Manager) 9871386777
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- 20000 sqmt (ii) Built up Area- 63000 sqmt

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Five Star Hotel No of Rooms – 512, Banquets hall- 03, (1650 Persons) No. of Restaurants- 06, (600 Persons)

**3. Status of Licenses**

- (a) **Environmental Clearance** : Yes [Issued on 30.4.2010]
- (b) **Consent under the Air & Water Acts** : Yes [Valid upto 15.8.2021]
- (c) **Municipal Corporation License** : Yes [Valid upto- **Document not provided**
- (d) **Certificate from Fire Department regarding Fire Safety** : **Yes** [Valid upto- **13.03.2020**]/

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) **Delhi Jal Board [ Bill Available.... Yes]**  
(ii) **Bore well [No(s).03, Permission from DJB/CGWA - Yes]**

**(b)Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	190000	Rooms= 512x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	130000	184320	
(iii)	Kitchen	45000	Restaurant= 600x70=	80% of 341820
(iv)	Laundry	100000	42000	
(v)	Swimming Pool	8000	Banquet= 1650x70=	
(vi)	Horticulture / Gardening	25000	115500	
(vii)	Others			
	<b>Total Quantity</b>	398000	341820	273456

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

(a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	---
Sewage Treatment Plant (STP)	Hotel	450 KLD	Biological	O/G trap, Eq. tank, Aeration tank, Settling tank etc.	Operational

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc.  
(c) Whether All Sections connected to ETP/STP : Yes  
(d) Whether Adequacy Report of ETP/STP submitted : Yes  
(e) Whether Effluent sample collected by DPCC Lab during inspection : Yes  
(f) Whether ETP/STP is meeting the prescribed standards : Yes  
(g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : No flow meter at inlet of STP  
(h) Whether Separate Energy Meter provided for ETP/STP : No  
(i) Whether Log Book of ETP / STP is being maintained : No  
(j) ETP / STP Sludge generation : Quantity Not known  
Mode of Disposal : (i) Disposed along with Solid Waste  
(k) Reuse of Treated Waste Water : (i) Gardening / Horticulture 25000 Liters /day  
(ii) Air Conditioning Plant / Cooling Tower 15000 Liters /day  
(iii) Boiler 130000 Liters /day  
(iv) Flushing (Toilets) ..... Liters /day  
(v) Any other ..... Liters /day  
**Total Quantity:** Liters /day

6. Air Pollution Aspects

S.No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	05	PNG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Boiler	05	PNG	Adequate stack height
3.	Diesel Generator(s)	03(2-1500 KVA & 1-1250 2225 KVA)	Diesel	Acoustic Enclosure and adequate stack height
4.	Others			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	780Kg/day (As Provided letter by the Concerned Unit) 737 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRA E-Waste Pvt. Ltd.
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil)	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	15 kg/day	No	No	No	Partial Composting	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits- 3

## Observations/Comments of the inspection on 15.02.2017

Hyatt Regency Delhi, Asian Hotel, (North) Limited is operating their Hotel at Bhikaji Cama Place, New Delhi. The Hotel was inspected by Sub Committee-II on 15.02.2017. It was informed that hotel is having 512 rooms, 3 Banquet halls, and 6 Restaurant. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 1982, Plot Area of the Hotel is 20000 m<sup>2</sup> and Built up Area is 63,000 sq m<sup>2</sup>. Hotel is having Environmental Clearance issued on 30.4.2010.
2. Hotel is having valid Consent to Operate under Air and Water Act which is valid till 15.08.2021.
3. Water is procured from 3 Borewells and from DJB.

4. STP of capacity 450 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. No Flow meters were found installed at inlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was not found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. No information regarding quantum of sludge provided however it was informed that sludge is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area needs to be explored.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

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**Date of Inspection: 16.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** (Bulk Waste Generator) HOTEL J.W. MARRIOTT  
Aria Hotels And Consultancy Services Pvt. Ltd.  
Asset No. 4  
Aero City IGI Airport.
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. Sushil Gupta (MD)  
011-46101208
- (c) **Month & Year of Establishment** : October- 2013
- (d) **Name and Designation of the Person(s) Contacted at the site** : Mr. Padma Charan, 8527298224  
Mr. S. N. Raghu, 9871386781
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- 23865.8 M<sup>2</sup> (ii) Built up Area- 90967.3 M<sup>2</sup>

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Five Star Hotel  
No. of Rooms – 523, Restaurants -02 (370 Per) Banquet hall-1 No. (1200 Per)

### 3. Status of Licenses

- (a) **Environmental Clearance** : Yes [Issued on 20.7.2010]
- (b) **Consent under the Air & Water Acts** : Yes [Valid upto- 2.4.2018]
- (c) **Municipal Corporation License** : Yes [Valid upto-31.3.17 ]
- (d) **Certificate from Fire Department** : Yes [Valid upto-3.3.19]

### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) Delhi International Pvt. Ltd. Customer No. 1000000762  
Meter No. JW 04/11/-1W-1004.

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in KLiters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	103.6	Rooms= 523x2x180= 188280	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	116.9	Restaurant= 370x70= 25900	
(iii)	Kitchen	22.2	Banquet= 1200x70= 84000	80% of 298180
(iv)	Laundry	22.9		
(v)	Swimming Pool	9.00		
(vi)	Horticulture / Gardening	24.10		
(vii)	Others	7.30		
	<b>Total Quantity</b>	306.00	298180	238544

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	---	---	--
Sewage Treatment Plant (STP)	Hotel	500 KLD	SBR Treatment	Equalization Tank, Aeration Tank etc.	<b>STP Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected by DPCC lab during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : No
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : **Yes**
- (h) Whether Separate Energy Meter provided for ETP/STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **Yes**
- (j) ETP / STP Sludge generation : Quantity Not known..... Kg /day  
 Mode of Disposal : (i) **Used as Compost in Horticulture**
- (k) Reuse of Treated Waste Water : (i) Gardening / Horticulture 24.1 K Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower - 98 K Liters /day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) 33 K Liters /day  
 (v) Any other ..... Liters /day  
**Total Quantity: Liters /day**

**6. Air Pollution Aspects**

S.No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>02</b>	<b>PNG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>03 (3x850 Kg/hr.</b>	<b>PNG</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>4/1500 KVA</b>	<b>H.S.D</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	600 kg/day (As Provided letter by the Concerned Unit) 680 kg Per day (Estimated peak generation)*	NO	NO	NO		M/s Yadav Contractor B-Block H. NO. 275 kutub Vihar
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	2880 KL /Annum	Yes		No	Bharat Oil & Grease co	
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	4 kg	No		No	Not provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

### 8. Rain Water Harvesting System (RWHS)

: Yes 03 No.

#### Observations/Comments of the inspection on 16.02.2017

HOTEL J.W. MARRIOTT is operating their Hotel at Asset No. 4 Aero City IGI Airport. The Hotel was inspected by Sub Committee-II on 16.02.2017. It was informed that hotel is having 523 rooms, 1 Banquet halls, and 2 Restaurant. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 2013, Plot Area of the Hotel is 23865 m<sup>2</sup> and Built up Area is 90967.3 sq m<sup>2</sup>. Hotel is having Environmental Clearance issued on 20.7.2010.
2. Hotel is having valid Consent to Operate under Air and Water Act which is valid till 02.04.2018.
3. Water is procured from DIAL.

4. STP of capacity 500 KLD has been installed. STP is biological type with SBR Technology and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. No information regarding quantum of sludge provided however it was informed that sludge is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the Hotel is not meeting the effluent standards. The hotel needs to standardized the operation of their STP to meet the prescribed standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP was not functioning to the desired level and requires proper maintenance.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.



**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 16.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Pride Hotels Limited  
(Bulk Waste Generator) Asset No. 5A, Aerocity, IG, Airport, New Delhi
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. S.P. Jain  
011-66007700
- (c) **Month & Year of Establishment** : November- 2015
- (d) **Name and Designation of the Person(s) Contacted at the site** : Mr. Vishnu Chauhan, 9899343789  
Mr. Pankaj Mathur (G.M)
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- 6373.76 Sqmtr (ii) Built up Area- 33927.53 Sqmtr

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) : Hotel (4 Star)  
No. of rooms – 385, Banquet hall – 02 (400 Person)  
Restaurants – 03 (240 Person)

**3. Status of Licenses**

- (a) Environmental Clearance : Yes [Issued on 06.06.2011]
- (b) Consent under the Air & Water Acts : Applied for Consent to Operate
- (c) Municipal Corporation License : **Yes [Valid upto-31.03.2017]**
- (d) Certificate from Fire Department : **Yes [Valid upto- 27.11.2017]**

**4. Water and Waste Water**

- (a) **Source of Water Supply** Supply by Delhi International Airport Pvt. Ltd.
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	169000	Rooms= 385x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	10000	138600	
(iii)	Kitchen	43000	Restaurant=	80% of 158200
(iv)	Laundry	51000	240x70=16800	
(v)	Swimming Pool	12000	Banquet= 400x70=	
(vi)	Horticulture / Gardening	12000	2800	
(vii)	Others			
	<b>Total Quantity</b>	297000	158200	126560

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Effluent Treatment Plant (ETP)	---	----	-----	-----	-----
Sewage Treatment Plant (STP)	Hotel	350	Biological	O/G trap, Eq. tank, Aeration tank, Settling tank etc.	Operational

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected by DPCC Lab during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
- (h) Whether Separate Energy Meter provided for ETP/STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity 10 kg /day  
 Mode of Disposal : (i) Disposed along with Solid Waste  
 (ii) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water : (i) Gardening / Horticulture **12000** Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower **10000** Liters /day  
 (iii) Boiler **10000** Liters /day  
 (iv) Flushing (Toilets) **159000** Liters /day  
 (v) Any other **91000** Liters /day  
**Total Quantity: 282000** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>3</b>	<b>PNG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>2</b>	<b>PNG</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>2-1500 &amp; 1250 KVA</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	180kg/day (As Provided letter by the Concerned Unit) 449 kg Per day (Estimated peak generation)*	No	No	Not Provided		M/s Chaudhary (Agreement not given)
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	2 kg/day	No	No	No	No Provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS)**

: Yes

No of RWHS Pits- 02

**Observations/Comments of the inspection on 16.02.2017**

Pride Hotels Limited is operating their Hotel at Asset No. 5A, Aerocity, IG, Airport, New Delhi. The Hotel was inspected by Sub Committee-II on 16.02.2017. It was informed that hotel is having 385 rooms, 2 Banquet halls, and 3 Restaurant. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 2015, Plot Area of the Hotel is 6373 m<sup>2</sup> and Built up Area is 33927 sq m<sup>2</sup>. Hotel is having Environmental Clearance issued on 06.06.2011.
2. Hotel has applied for Consent to Operate under Air and Water Act.
3. Water is procured from DIAL.
4. STP of capacity 350 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. As informed approx 10 kg/day of sludge is generated and it was informed that sludge is used for horticulture purposes or disposed along with municipal solid waste.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 16.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** CADDIE HOTELS PVT. LTD. (PULLMAN & NOVOTEL)  
(Bulk Waste Generator) Asset No. 2, GMR, Aerocity, Delhi
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. Tristan Beau De Lomeine (GM)  
011-46080808
- (c) **Month & Year of Establishment** : 17.08.2015
- (d) **Name and Designation of the Person(s) Contacted at the site** : Sh. Gopal Paranthaman  
9811353276
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- 18969 Sqmt (ii) Built up Area- 58063 Sqmt

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Hotel  
No. of Room - 670  
No. of Restaurant – 05 (325 Person), Lawn – 01 (200 Person)

**3. Status of Licenses**

- (a) Environmental Clearance : Yes [Issued on 22.7.2010]
- (b) Consent under the Air & Water Acts : Yes [Valid upto 20.7.2020]
- (c) Municipal Corporation License : Yes [Valid upto- **Not provided**]
- (d) Certificate from Fire Department : Yes [Valid upto 17.1.2017]

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) **Supply by Delhi International Airport Pvt. Ltd.**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity ** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	172000	Rooms= 670x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	31000	241200 Restaurant= 325x70=	
(iii)	Kitchen	15000	22750	80% of 270950
(iv)	Laundry	50000	Lawn= 200x70=	
(v)	Swimming Pool	7000	14000	
(vi)	Horticulture / Gardening	5000		
(vii)	Others	42000		
	<b>Total Quantity</b>	322000	277950	222360

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	Laundry	75	Physico chemical	Collection tank Chemical Dosing Tank etc	<b>Operational</b>
Sewage Treatment Plant (STP)	2 Hotels	650	Biological	O/G trap, Eq. tank, Aeration tank, Settling tank etc	<b>Operational</b>

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected by DPCC Lab during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : No
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : No
- (h) Whether Separate Energy Meter provided for ETP/STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity 5.0Kg /day  
Mode of Disposal : (i) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water : (i) Gardening / Horticulture **20000** Liters /day  
(ii) Air Conditioning Plant / Cooling Tower **100000** Liters /day  
(iii) Boiler **0** Liters /day  
(iv) Flushing (Toilets) **25000** Liters /day  
(v) Any other **25000** Liters /day  
**Total Quantity: 170000** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	04(01-Novotel +03-Pullman)	PNG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Boiler	2 (2.8 KG/HR)	PNG	Adequate stack height
3.	Diesel Generator(s)	2X2000 KVA		Acoustic Enclosure and adequate stack height
4.	Others			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	1050 kg/Day (As Provided letter by the Concerned Unit) 722.50 kg Per day (Estimated peak generation)*	No	No	No	Not Provided	Agreement Not provided
(ii)	Construction & Demolition Waste	No record available	No	No	No	Not Provided As per contract Agreement	
(iii)	Domestic Hazardous Waste	No record available					
(iv)	Hazardous Waste (Used /Waste Oil )	No record available					
(v)	E-Waste	No record available					
(vi)	Lead Acid Battery Waste	No record available					
(vi)	Garden Waste	2 kg	Yes	Yes	No	Partial Composting	
(vii)	Recyclable Waste	No record available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS)**

: Yes

No of RWHS Pits- 4 Nos.

**Observations/Comments of the inspection on 16.02.2017**

CADDIE HOTEL PVT. LTD. is operating their 2 Hotels namely Pullman and Novotel at Asset No. 2, Aerocity, Delhi, New Delhi. The Hotel was inspected by Sub Committee-II on 16.02.2017. It was informed that hotels are having 670 rooms, Lawn-01 and 05 Restaurants. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 2015, Plot Area of the Hotels is 18963 m<sup>2</sup> and Built up Area is 58063 sq m<sup>2</sup>. Hotel is having Environmental Clearance issued on 22.07.2010.

2. Hotel is having valid Consent to Operate under Air and Water Act which is valid till 20.07.2020.
3. Water is procured from DIAL.
4. STP of capacity 650 KLD and ETP of 75 KLD capacity has been installed for both hotels. STP is biological type, ETP of physico-chemical type and were found operational. As per calculations of DJB, ETP and STP design capacity is more than the waste water generation during peak.
5. No Flow meters were found installed at inlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. As informed approx 05kg/day of sludge is generated and it was informed that sludge is used for horticulture purposes or disposed along with municipal solid waste.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the Hotel is not meeting the effluent standards. The hotel needs to standardize the operation of their STP to meet the prescribed standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- STP is not meeting the prescribed standards and requires proper housekeeping.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.



## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

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**Date of Inspection: 16.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** ANDAZ DELHI  
(Bulk Waste Generator) A unit of Juniper Hotels Pvt. Ltd.
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. Amit Sarat  
01149031213
- (c) **Month & Year of Establishment** : December- 2016
- (d) **Name and Designation of the Person(s) Contacted at the site** : Rakesh Kumar (Director of Engineering)  
7838089097
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- **26828 Sqmtr** (ii) Built up Area- **10977 Sq mtr.**

### 2. Type of Establishment

- : Hotel
- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) No of room – 530 (725 Beds), Restaurant- 01 (270 Persons)  
Banquet Hall 01 (800 Persons)

### 3. Status of Licenses

- (a) **Environmental Clearance** : Yes [Issued on 15.2.2017]
- (b) **Consent under the Air & Water Acts** : Yes [Valid upto 22.06.2021]
- (c) **Municipal Corporation License** : **Yes [Valid upto-31.03.2018]**
- (d) **Certificate from Fire Department regarding Fire Safety** : **Yes [Valid upto- 18.04.2019] /**

### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) water supply by Delhi International Airport Pvt. Ltd. (DIAL) around 214200 l/day

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity ** (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	69000	Rooms= 725x180= 130500 Restaurant= 270x70=18900 Banquet= 800x70=56000	80% of 205400
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	1200		
(iii)	Kitchen	89000		
(iv)	Laundry	15000		
(v)	Swimming Pool	2000		
(vi)	Horticulture / Gardening	38000		
(vii)	Others			
	<b>Total Quantity</b>	214200	205400	164320

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	---	---	----	---	---
Sewage Treatment Plant (STP)	Hotel	550 KLD	Biological	Bar Screen, O & G Trap, Aeration Tank, Settling Tank etc	<b>Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
  - (c) Whether All Sections connected to ETP/STP : Yes
  - (d) Whether Adequacy Report of ETP/STP submitted : Yes
  - (e) Whether Effluent sample collected during inspection : Yes
  - (f) Whether ETP/STP is meeting the prescribed standards : Yes
  - (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
  - (h) Whether Separate Energy Meter provided for ETP/STP : Yes
  - (i) Whether Log Book of ETP / STP is being maintained : Yes
  - (j) ETP / STP Sludge generation : Quantity Not known..... Kg /day  
 Mode of Disposal : (i) Used as Compost in Horticulture
  - (k) Reuse of Treated Waste Water :
    - (i) Gardening / Horticulture 38000 Liters /day
    - (ii) Air Conditioning Plant / Cooling Tower 65000 Liters /day
    - (iii) Boiler ..... Liters /day
    - (iv) Flushing (Toilets) 28000 Liters /day
    - (v) Any other ..... Liters /day
- Total Quantity: 131000 Liters /day**

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>3</b>	<b>PNG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>1</b>	<b>HSD</b>	Adequate Stack Height
3.	<b>Diesel Generator(s)</b>	<b>2-1500 KVA</b> <b>1-750 KVA</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	235 kg/day (As Provided letter by the Concerned Unit) 469.50 kg Per day (Estimated peak generation)*	No	No	Not Provided		M/s Delhi ARM
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	5 kg	No	No	No	Composting	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

## 8. Rain Water Harvesting System (RWHS)

: Yes

No of RWHS Pits 04

## Observations/Comments of the inspection on 16.02.2017

ANDAZ DELHI is operating their Hotel at Asset No. 1, Aerocity, New Delhi. The Hotel was inspected by Sub Committee-II on 16.02.2017. It was informed that Hotel is having 530 Rooms/725 Beds, 1 Banquet and 1 Restaurant. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 2016, Plot Area of the Hotel is 26828 m<sup>2</sup> and Built up Area is 10977sq m.
2. Hotel is having valid Consent to Operate under Air and Water Act which is valid till 22.06.2021.
3. Water is procured from DIAL.

4. STP of capacity 550 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet and outlet of STP. No Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused in gardening purposes, air conditioning, etc.
8. The quantum of sludge generated could not be provided but it was informed that it is used for horticulture purposes. Unit should maintain the quantum of sludge in order to substantiate that STP is operated on regular basis.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the Hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. Boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

## Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 16.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** M/s Hyacinth Hotels Pvt. Ltd. ( Lemontree & Red Fox Hotel), Asset No. 6, Hospitality District, Dial IGI Airport Delhi -110029.  
(Bulk Waste Generator)
- (b) Owner /Partner / Managing Director's Name and Telephone No. : Mr. Sumant Jaidka (9811814779)
- (c) Month & Year of Establishment : October'24-2013
- (d) Name and Designation of the Person(s) Contacted at the site : Mr. N.C. Malhotra (9810297251)
- (e) Size of Premises (in Square Meter) : (i) Plot Area- **9579.07** sqm (ii) Built up Area- **35863.392**sqm

### 2. Type of Establishment

- : Hotel  
(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) Room - 487 Restaurant- 03 (320 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Yes [Issued on 30.7.2013]  
(b) Consent under the Air & Water Acts : **Yes** [Valid upto- **09.02.2019**  
(c) Municipal Corporation License : **Yes** [Valid upto- **31.03.2017**  
(d) Certificate from Fire Department : **Yes** [Valid upto- **09.03.2018**

### 4. Water and Waste Water

- (a) **Source of Water Supply** : **Water Supplied by DIAL (GMR) (Bill Attached)**

#### (b) Water Consumption / Requirement and Waste Water Generation

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	155000	Rooms= 487x2x180= 175320	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		Restaurant= 320x70= 22400	80% of 197720
(iii)	Kitchen	30000		
(iv)	Laundry			
(v)	Swimming Pool	15000		
(vi)	Horticulture / Gardening			
(vii)	Others	10000		
	<b>Total Quantity</b>		197720	158176

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	-	--	--	--	--
Sewage Treatment Plant (STP)	Hotels	250	MBBR	O/G trap, Eq. tank, Aeration tank, Settling tank etc	<b>Operational</b>

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to ETP/STP : **Yes**
- (d) Whether Adequacy Report of ETP/STP submitted : **Yes**
- (e) Whether Effluent sample collected during inspection : **Yes**
- (f) Whether ETP/STP is meeting the prescribed standards : **Yes**
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : **Yes**
- (h) Whether Separate Energy Meter provided for ETP/STP : **Yes**
- (i) Whether Log Book of ETP / STP is being maintained : **Yes**
- (j) ETP / STP Sludge generation : **Quantity 25 Kg /day**  
 Mode of Disposal : (i) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water :
  - (i) **Gardening** / Horticulture **30000** Liters /day
  - (ii) Air Conditioning Plant / Cooling Tower **40000** Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) **30000** Liters /day
  - (v) Any other **30000** Liters /day

**Total Quantity: 130000** Liters /day

**6. Air Pollution Aspects**

S.No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>2</b>	<b>PNG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>04</b>	<b>PNG</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>3</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	230 Kg/Day (As Informed verbally During inspection) 519 kg Per day (Estimated peak generation)*	No	No	No	Not Provided	
(ii)	Construction & Demolition Waste	No records made available	No	No	No		
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil)	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	2-3 kg/day	No	No	No	Partial Composting	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS)**

: Yes

No of RWHS Pits- 2 Nos.

**Observations/Comments of the inspection on 16.02.2017**

Hyacinth Hotels Pvt. Ltd. (Lemontree & Red Fox Hotel) are operating their Hotels at Asset No. 6, Aerocity, IG, Airport, New Delhi by the commercial name of Lemontree & Red Fox Hotel. The Hotels were inspected by Sub Committee-II on 16.02.2017. It was informed that hotels are having 487 rooms and 3 Restaurants. Following are the observations of the team after discussion with officials of the Hotels who were present during inspection:

1. As informed by the unit, the units were established in year 2013, Plot Area of the Hotels is 9579.07 m<sup>2</sup> and Built up Area is 35863.392 sqm. Hotel is having Environmental Clearance issued on 30.7.2013.
2. Hotel is having valid Consent to Operate under Air and Water Act which is valid till 09.02.2019.
3. Water is procured from DIAL.

4. One common STP of capacity 250 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet and outlet of STP. Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. The quantum of sludge generated could not be provided but it was informed that it is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.



**Format of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 16.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Bird Airport Hotel Pvt. Ltd. Roseate House, GMR Hospitality  
(Bulk Waste Generator) Asset No. 10, Aero City
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Ankur Bhatia
- (c) **Month & Year of Establishment** : September- 2016
- (d) **Name and Designation of the Person(s) Contacted at the site** : Mr. Alok Bansal  
8800895096
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area-**7225.90 M<sup>2</sup>**(ii) Built up Area- **30161.38 M<sup>2</sup>**

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Hotel  
Rooms- 216 No., Restaurant – 03 No. (34+28+122) Persons  
Banquet – 01 (250 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance : Yes [Issued on 06/06/2011]
- (b) Consent under the Air & Water Acts : Applied for Consent
- (c) Municipal Corporation License : **Yes** [Valid upto- **31.03.2017**]
- (d) Certificate from Fire Department regarding Fire Safety : Yes [Valid upto.....]/

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Water supply by Delhi International Airport Pvt. Ltd.
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	Average Water Consumption/ Requirement *(in Liters /day)	Peak Water Consumption/Requirement at full capacity **(in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	60000	Rooms= 216x2x180= 77760	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	10000	Restaurant= (34+28+122)x70= 12880	
(iii)	Kitchen	15000	Banquet= 250x70= 17500	80% of 108140
(iv)	Laundry	18000		
(v)	Swimming Pool	3000		
(vi)	Horticulture / Gardening	10000		
(vii)	Others			
	<b>Total Quantity</b>	116000	108140	86512

\*- Based on data furnished by Unit

\*\* - Estimated as per Standards of CPHEEO, 1999 manual

(a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	Laundry	25	Physicochemical	Bar Screen, Equalization Tank, Tube Settler Etc.	Operational
Sewage Treatment Plant (STP)	Hotel	200	Biological	Bar Screen, Equalization Tank, Aeration Tank Tube Settler Etc.	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample collected during inspection : Yes
- (f) Whether ETP/STP is meeting the prescribed standards : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
- (h) Whether Separate Energy Meter provided for ETP/STP : Yes
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity 10-12 Kg /day  
 Mode of Disposal : (i) Disposed along with Solid Waste  
 (ii) Used as Compost in Horticulture
- (k) Reuse of Treated Waste Water : (i) Gardening / Horticulture ..... Liters /day  
 (ii) Air Conditioning Plant / Cooling Tower ..... Liters /day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) ..... Liters /day  
 (v) Any other ..... Liters /day  
**Total Quantity: 110000 Liters /day**

6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	3	PNG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Boiler	4	PNG	Adequate stack height
3.	Diesel Generator(s)	2	HSD	Acoustic Enclosure and adequate stack height
4.	Others			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism		Remarks
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)	
(i)	Municipal Solid Waste	72 Kg./day (As Provided letter by the Concerned Unit) 259.40 kg Per day (Estimated peak generation)*	No	No	Yes		M/s Chaudhary Contractor	
(ii)	Construction & Demolition Waste	No details made available						
(iii)	Domestic Hazardous Waste	No details made available						
(iv)	Hazardous Waste (Used /Waste Oil )	No details made available						
(v)	E-Waste	No details made available						
(vi)	Lead Acid Battery Waste	No details made available						
(vi)	Garden Waste	3 kg/day	No	No	No	Not Provided		
(vii)	Recyclable Waste	No details made available						

\* Based on data furnished

\*\* Based on full occupancy + floating population figure adopted from SWM Manual 2000

**8. Rain Water Harvesting System (RWHS) : Yes**  
**No of RWHS Pits 02 Nos.**

**Observations/Comments of the inspection on 16.02.2017**

Bird Airport Hotel Pvt. Ltd. Is operating their Hotel at Asset No. 10, Aerocity, IG, Airport, New Delhi by the commercial name of Roseate. The Hotel was inspected by Sub Committee-II on 16.02.2017. It was informed that hotel is having 216 rooms, 1 Banquet and 3 Restaurants. Following are the observations of the team after discussion with officials of the Hotel who were present during inspection:

1. As informed by the unit, the unit was established in year 2016, Plot Area of the Hotel is 7225.9 m<sup>2</sup> and Built up Area is 30161.38 sqm. Hotel is having Environmental Clearance issued on 06.06.2011.
2. Hotel has applied for obtaining Consent to Operate under Air and Water Act.
3. Water is procured from DIAL.
4. One ETP (Physico-Chemical) of capacity 25 KLD and one STP of capacity 200 KLD (Biological) have been installed. ETP and STP were found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet and outlet of STP. Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes etc.
8. As informed, the quantum of sludge generated is 10-12 Kg/day and it is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. PNG fired boilers are existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- Water is procured through DIAL who in turn gets water supply from DJB.
- The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc. & operation of STP needs to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 20.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment** (Bulk Waste Generator) Fortis FLT. LT. Rajan Dhall Hospital  
B-I, Aruna Asaf Ali Marg, Vasant Kunj,  
New Delhi- 110070.
- (b) **Owner /Partner / Managing Director's** Name and Telephone No. Mr. Sandeep Guduru,  
011-42776222
- (c) **Month & Year of Establishment** April - 2006
- (d) **Name and Designation of the Person(s)** Subhash Chandra Jha  
Contacted at the site
- (e) **Size of Premises (in Square Meter)** (i) Plot Area-**7449.37 Sq.m** (ii) Built up Area-**11934.78 Sq.m**

**2. Type of Establishment**

(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / **Beds** etc.) No. of Beds – 160, Rooms Single- 34, Double – 13, Triple Rooms– 4. OPD- 350, No of visitor- 232

**3. Status of Licenses**

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts Yes [Valid upto- 07.07.2018]
- (c) Municipal Corporation License Not Provided
- (d) Certificate from Fire Department Yes [Valid upto- 19.09.2019]

**4. Water and Waste Water**

- (a) **Source of Water Supply** :**(i) Delhi Jal Board [ Bill Available- Yes]**  
**(ii) Tankers [No record provided]**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	35000	Beds= 160x450= 72000 Visitors= (350+232)x15= 8730	80% of 80730
(ii)	Air Conditioning /Cooling Plant or Boiler Feed			
(iii)	Kitchen	10000		
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	10000		
(vii)	Others	25000		
	<b>Total Quantity</b>	105000	80730	64584

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

## 5. Waste Water Management

### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	-	-	-	-	-
Sewage Treatment Plant (STP)	Hospital & Domestic & Kitchen	80	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : DJB Sewerage system, Gardening, etc.
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes (from DPCC lab Dt. 07.03.2017)
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes
- (h) Whether Separate Energy Meter provided for STP : Yes (Energy meter reading-8863.7 KW)
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity not maintained in logbook  
 Mode of Disposal : Used as Compost in Horticulture (As informed)
- (j) Reuse of Treated Waste Water:
- (i) Gardening / Horticulture ..... Liters /day
  - (ii) Cooling Tower ..... Liters /day
  - (iii) Boiler ..... Liters /day
  - (iv) Flushing (Toilets) ..... Liters /day
  - (v) Any other ..... Liters /day
  - Total Quantity** ..... Liters /day

## 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace
2.	<b>Boiler</b>	<b>02</b>	<b>HSD</b>	Adequate stack ht provided.
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>2x800 KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated /**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	180kg/day (Average) (As Provided letter by the Concerned Unit) 139.20 kg Per day (Estimated peak generation)	No	No	Yes		M/s Kalicharan (JBG Enterprises Agreement Not Provided)
(ii)	Construction & Demolition Waste	200 Kg/ Day	No	No	No	Not Provided	
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil )	434 lt/ Year	Yes	Yes	Yes	Yes	--
(v)	E-Waste	No records made Available					
(vi)	Lead Acid Battery Waste	No records made Available	Nil	Nil	Nil	Nil	Nil
(vi)	Garden Waste	05 Kg / Day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made Available	--	--	--	--	--

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

### In case of Hospitals for Bio Medical Waste Management

(a) Whether having proper Bio Medical Waste Segregation in:

(i) Pathological and other Laboratories

: Partly

(ii) General and Private Wards

: Yes

<b>(iii) Operation Theatres</b>	<b>: Could not be visited</b>
<b>(iv) ICUs</b>	<b>: Yes</b>
<b>(b) Pretreatment of Laboratory Waste / Blood Bank</b>	<b>: Partly</b>
<b>(c) On site segregation</b>	<b>: Yes</b>
<b>(d) Common collection point (Temporary collection site)</b>	<b>: Yes</b>
<b>(e) Provision for collection and treatment of floor washing and container trolley</b>	<b>: Yes</b>
<b>(f) Total quantum of Bio-Medical Waste generation</b>	<b>273.81 Kg/day [as per average quantity of records of January, 2017]</b>
	<b>Yellow – 57.98Kg/day,</b>
	<b>Red -- 165.57Kg/day,</b>
	<b>Blue – 29.23 Kg/day,</b>
	<b>White (Sharp)- 21.03 Kg/day,</b>
<b>(g) Records for Bio-Medical Waste found maintained.</b>	<b>Yes</b>
<b>(h) Annual Report for Bio-Medical Waste</b>	<b>No annual report Provided.</b>
<b>8. Rain Water Harvesting System (RWHS)</b>	<b>: No of RWHS Pits 02 Nos</b>

**Observations/Comments of the inspection on 20.02.2017**

1. As informed by the Hospital, the Hospital was established in year 2006, Plot Area of the Hospital is 7449.37 **Sqmtr** and Built up Area is 11934.78 **Sqmtr**. No Environment Clearance was provided by the Hospital.
2. The Hospital is having valid Consent to Operate under Air and Water Act valid upto 07.07.2018 but as per Copy provided, Authorization under BMW rules expired on 14.07.2016.
3. The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
4. Bio-Medical Waste generated from the hospital is given to CBMWTF (M/s Biotic Waste Solutions Pvt. Ltd, an authorized CBMWTF by DPCC) for its treatment and disposal, however some of the provisions of BMW Rules, 2016, e.g. Bar Code System for Bags or Containers containing bio medical waste and Phasing out of Chlorinated Plastic Bags, Gloves and Blood Bags are yet to be complied.
5. Closed Trolleys are available for transferring BMW from various wards OT etc.
6. Bio-Medical Waste Management is looked after by the infection Control Cell of the hospital and immunization practices (for Hepatitis B and Tetanus) has been adopted for health care worker and other staff and training regarding Bio Medical Waste handling /Management is also given to the health care workers and concerned staff at the time of induction and from time to time.
7. As informed, Sludge generated from the STP is used as Compost in Horticulture however as per the provisions of the Bio-Medical Waste Management Rules, 2016, sludge generated from the Effluent Treatment Plant should be given to Common Bio Medical Waste Treatment facility for incineration since there is no operational TSDF in Delhi.
8. Water is sourced from DJB and through water Tankers however details of Tankers / Tanker bills not provided.



9. STP of capacity 80 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
10. Flow meter installed at inlet of STP & outlet flow meter found and working condition.
11. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required. Separate energy water not provided.
12. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening, cooling towers.
13. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hospital is meeting the effluent standards.
14. Unit has provided proper channelization system for kitchen emissions and stack height found adequate. DG sets are having acoustic enclosure and adequate stack height.
15. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
16. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
17. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
18. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI&Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 20.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** JAYPEE VASANT CONTINENTAL  
(Bulk Waste Generator) Vasant Lok, Vasant Vihar, New Delhi- 57
- (b) **Owner /Partner / Managing Director's Name and Telephone No.**
- (c) **Month & Year of Establishment** 1982
- (d) **Name and Designation of the Person(s) Contacted at the site** Mr. R. L. Mann, 9810334913
- (e) **Size of Premises (in Square Meter)** (i) Plot Area 1250 sqm (ii) Built up Area 19075 sqm

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) Five Star Hotel  
No. of Rooms – 119, Restaurant – 04, (450 Persons)  
Banquet hall – 01 (300 Persons), Lawn – 01 (500 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts **Yes [Valid upto 18.11.2018]**
- (c) Municipal Corporation License **Not provided**
- (d) Certificate from Fire Department **Yes [Valid upto 17.06.2019]**

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Tankers [06 No of Tankers /day-, Yes Provided,
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	130 KLD	Rooms= 119x2x180= 42840	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	30 KLD	Restaurant= 450x70= 31500	
(iii)	Kitchen	10 KLD	Banquet= (300+500)x70= 56000	80% of 103880
(iv)	Laundry	30 KLD		
(v)	Swimming Pool	16 KLD		
(vi)	Horticulture / Gardening	25 KLD		
(vii)	Others	27 KLD		
	<b>Total Quantity</b>	268 KLD	130340	104272

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	From laundry	55	Physicochemical process	Collection Tank, Dosing tank, Settling tank etc	Operational
Sewage Treatment Plant (STP)	From Hotel	195	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Land Gardening
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Effluent sample taken by DPCC laboratory : Yes
- (e) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (f) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes
- (g) Whether Separate Energy Meter provided for STP : **Yes**
- (h) Whether Log Book of ETP / STP is being maintained : **Yes**
- (i) ETP / STP Sludge generation : No record provided  
Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** 10 KLD (As informed)
  - (ii) **Cooling Tower** 15 KLD (As informed)
  - (iii) **Boiler** NIL
  - (iv) **Flushing (Toilets)** NIL
  - (v) **DDA&MCD** 80-120 KLD (As informed)
  - Total Quantity** ..... Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>05</b>	<b>LPG</b>	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	<b>Boiler</b>	<b>03</b>	<b>HSD/PNG</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>03</b> <b>3X910 KVA</b>	<b>HSD</b>	Acoustic Enclosure and adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Container is provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	260 kg/day (As Provided letter by the Concerned Unit) 244 kg Per day (Estimated peak generation)*	No	No	Yes		M/s HRAE Waste Pvt. Ltd. (Agreement not Provided)
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	10.3 Kg/day	Yes	Yes			SKM Petro Chemical India Pvt. Ltd.
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available	Yes	Yes			IFP Petro Product Ltd
(v)	E-Waste	No records made available	Yes	Yes		M/s HRA E Waste Pvt. Ltd.	
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	5 Kg	Yes		No	Composting	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

**8. Rain Water Harvesting System (RWHS)**

**: No of RWHS Pits- 02 Nos.**

**Observations/Comments of the inspection on 20.02.2017**

- As informed by the unit, the unit was established in year 1982, Plot Area of the Hotel is 1250 m<sup>2</sup> and Built up Area is 19075 sq m<sup>2</sup>. No Environmental Clearance was available with the unit.
- Hotel is having valid Consent to Operate under Air and Water Act which is valid till 18.11.18.
- Water is procured from outside tankers. No information provided regarding original source of procurement of water by the water supplier.

4. STP of capacity 195 KLD and ETP of 55KLD have been installed. STP is biological type, ETP is of physicochemical type and both were found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed at inlet of STP. Separate energy meter for STP found installed.
6. Logbook of STP was found maintained.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for air conditioning plant, in gardening purposes and also sent to SDMC/DDA for horticulture purposes etc.
8. No information regarding quantum of sludge provided however it was informed that sludge is used for horticulture purposes.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Though Results of the sample taken depicts that the motel is meeting the effluent standards but the operation and maintenance of STP was not satisfactory.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. Boilers existing with adequate stack height.

**Issues:-**

- Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
- Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
- All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
- Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 20.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** Institute of Liver Bilary Sciences,  
(Bulk Waste Generator) D-1 , Vasant Kunj New Delhi
- (b) **Owner /Partner / Managing Director's** : Dr. Girish Chandra – HO(M)  
**Name and Telephone No.** Dr. Vimal Sharma - DHO (M)
- (c) **Month & Year of Establishment** : January- 2010
- (d) **Name and Designation of the Person(s)** : Dr. Girish Chandra –HO(M)  
**Contacted at the site** 9810769199
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area-**50,160 Sqmtr.** (ii) Built up Area-**79665 Sqmtr.**

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / : Hospital  
Units / Facilities (No of Rooms / Beds etc.) No of Beds – 350, (185 Operational)  
OPD- 400, Residentially rooms – 128 No. Visitor – 350 Nos.

**3. Status of Licenses**

- (a) Environmental Clearance : Yes [Issued on 20.07.2010]
- (b) Consent under the Air & Water Acts : Yes [Valid upto 25.04.2018]
- (c) Municipal Corporation License : [Not Provided]
- (d) Certificate from Fire Department : **Yes** [Valid upto-**18.06.2018**]

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Bore well [04 No(s) Permission from DJB/CGWA..No]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	253000	Beds= 350x450= 157500 Rooms= 128x2x180= 46080 Visitors= (400+350)x15= 11250	80% of 214830
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	150000		
(iii)	Kitchen	20000		
(iv)	Laundry	35000		
(v)	Swimming Pool	-		
(vi)	Horticulture / Gardening	7000		
(vii)	Others	60000		
	<b>Total Quantity</b>	525000	214830	171864

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

## 5. Waste Water Management

### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	For Laundry	50 KLD	Physicochemical Process	Mixing tank, Settling tank Etc.	Operational
Sewage Treatment Plant (STP)	For Hospital	280 KLD & 150 KLD	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated/untreated Waste Water : Gardening etc.
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : No (from DPCC lab Dated 07.03.2017)
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes
- (h) Whether Separate Energy Meter provided for ETP/STP : Yes (If Yes, Meter Reading 5739 Kwh)
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : Quantity 8-10 Kg /day  
 Mode of Disposal : (i) Disposed along with solid waste  
 (ii) **Used as Compost in Horticulture**  
 (iii) Any other mode of disposal.
- (k) Reuse of Treated Waste Water (as informed) :
- |   |                           |
|---|---------------------------|
| (i) Gardening / Horticulture                | 60000 Liters /day         |
| (ii) Air Conditioning Plant / Cooling Tower | 80000 Liters /day         |
| (iii) Boiler                                | 30000 Liters /day         |
| (iv) Flushing (Toilets)                     | 40000 Liters /day         |
| (v) Any other                               | 10000 Liters /day         |
| <b>Total Quantity:</b>                      | <b>220000 Liters /day</b> |

## 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>PNG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace.
2.	<b>Boiler</b>	<b>3</b>	<b>Gas/ HSD</b>	Adequate stack ht provided.
3.	<b>Diesel Generator(s)</b>	<b>5 (3x 1010, 2x2000 KVA)</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	200 kg/day (As Provided letter by the Concerned Unit) 314 kg Per day (Estimated peak generation)*	No	No	Not Provided		M/s JBG Enterprises
(ii)	Construction & Demolition Waste	No records made Available					
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil )	400 ltrs/ year	Yes	Yes	Yes		J. B. G
(v)	E-Waste	No records made Available					
(vi)	Lead Acid Battery Waste	By Back system					
(vi)	Garden Waste	50 kg/day	No	No	No	Partial Composting	
(vii)	Recyclable Waste	No records made Available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

**In case of Hospitals for Bio Medical Waste Management**

- (a) Whether having proper Bio Medical Waste Segregation in:
  - (i) Pathological and other Laboratories : Partly
  - (ii) General and Private Wards : Yes
  - (iii) Operation Theatres : Could not be visited
  - (iv) ICUs : Yes
- (b) Pretreatment of Laboratory Waste / Blood Bank : Partly
- (c) On site segregation : Yes



- (d) Common collection point (Temporary collection site) : Yes  
 (e) Provision for collection and treatment of floor washing and container trolley : Yes  
 (f) Total quantum of Bio-Medical Waste generation 377.13 Kg/day [as per average quantity of records of January, 2017]  
     Yellow – 144.07Kg/day,  
     Red -- 226Kg/day,  
     Blue – Quantity not provided,  
     White (Sharp)- 7.07 Kg/day,  
 (g) Records for Bio-Medical Waste found maintained. Yes  
 (h) Annual Report for Bio-Medical Waste No annual report Provided.  
 8. Rain Water Harvesting System (RWHS) : No of RWHS Pits 11 Nos

**Observations/Comments of the inspection on 20.02.2017**

1. As informed by the Hospital, the Hospital was established in year 2010, Plot Area of the Hospital is 50,160 **Sqmtr** and Built up Area is 79665 **Sqmtr**. Environment Clearance was obtained by the Hospital on 20.07.2010
2. The Hospital is having valid Consent to Operate under Air and Water Act valid upto 25.04.2018 and having Authorization under BMW rules Valid upto 21.12.2018..
3. The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
4. Bio-Medical Waste generated from the hospital is given to CBMWTF (M/s Biotic Waste Solutions Pvt. Ltd, an authorized CBMWTF by DPCC) for its treatment and disposal, however some of the provisions of BMWM Rules, 2016, e.g. Bar Code System for Bags or Containers containing bio medical waste and Phasing out of Chlorinated Plastic Bags, Gloves and Blood Bags are yet to be complied.
5. Closed Trolleys are available for transferring BMW from various wards OT etc.
6. Bio-Medical Waste Management is looked after by the infection Control Cell of the hospital and immunization practices (for Hepatitis B and Tetanus) has been adopted for health care worker and other staff and training regarding Bio Medical Waste handling /Management is also given to the health care workers and concerned staff at the time of induction and from time to time.
7. As informed, Sludge generated from the STP is used as Compost in Horticulture however as per the provisions of the Bio-Medical Waste Management Rules, 2016, sludge generated from the Effluent Treatment Plant should be given to Common BioMedical Waste Treatment facility for incineration since there is no operational TSDF in Delhi.
8. Water is sourced from DJB and through 4 Borewells and not having permission from DJB and CGWA for the same.
9. STP of capacity 280 KLD & 150 KLD have been installed and also installed ETP of capacity 50 KLD and all were found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
10. Flow meter installed at inlet of STP & outlet flow meter found and working condition.

11. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required. Separate energy meter not provided.
12. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening, cooling towers.
13. Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 20.02.2017 and Effluent analysis report of DPCC dated 07.03.2017 shows that STP is not meeting the prescribed standards.
14. Unit has provided proper channelization system for kitchen emissions and stack height found adequate. DG sets are having acoustic enclosure and adequate stack height.
15. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
16. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
17. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
18. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

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**Date of Inspection: 21.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment** (Bulk Waste Generator) M/s Wave Hospitality Pvt. Ltd (HOLIDAY INN, Asset No. 12, Aero City, IGI, New Delhi)
- (b) **Owner /Partner / Managing Director's** Name and Telephone No. Mr. Rakesh Kumar (Director)
- (c) **Month & Year of Establishment** March- 2014
- (d) **Name and Designation of the Person(s)** Contacted at the site Sh. Sandeep Mishra (chief engg.) 8826996448
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 6474.97 Sqmt (ii) Built up Area- 32589 Sqmt

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) Hotel (4 Star)  
No of Rooms – 265, Banquet Hall – 01, (350 Person)  
No of Restaurant- 04 (348 Person)

### 3. Status of Licenses

- (a) Environmental Clearance Yes [Issued on 09.02.2010]
- (b) Consent under the Air & Water Acts Yes [Valid upto- 13.03.2019]
- (c) Municipal Corporation License Yes [Valid upto- 31.03.2017]
- (d) Certificate from Fire Department Yes [Valid upto- 08.08.2017]

### 4. Water and Waste Water

- (a) **Source of Water Supply** : Supply by Delhi International Airport Pvt. Ltd.
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	210000	Rooms= 265x2x180= 95400	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	70000	Restaurant= 348x70= 24360	
(iii)	Kitchen	70000	Banquet= 350x70= 24500	80% of 144260
(iv)	Laundry	28000		
(v)	Swimming Pool	9000		
(vi)	Horticulture / Gardening	40000		
(vii)	Others	140000		
	<b>Total Quantity</b>		144260	115408

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	---	---
Sewage Treatment Plant (STP)	From Hotels & laundry	225	Biological process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes  
is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Yes (but not with flow meter reading)
- (j) ETP / STP Sludge generation : No record provided  
Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** 40000 Liters /day
  - (ii) **Cooling Tower** 60000 Liters /day
  - (iii) **Boiler** 15000 Liters /day
  - (iv) **Flushing (Toilets)** 70000 Liters /day
  - (v) **Any other** ..... Liters /day
  - Total Quantity** **185000** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>04</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace
2.	<b>Boiler</b>	<b>02</b>	<b>HSD+PNG</b>	Adequate stack ht
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>2X1250 KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	450 Kg/Day (As Informed verbally During inspection) 334.8 kg Per day (Estimated peak generation)*	No	No	Yes		M/s Yadav Contracto Agreement Not Provided
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	02 Kg/Day	No	No	No	Not provided	
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

**8. Rain Water Harvesting System (RWHS)**

: No of RWHS Pits 03

**Observations/Comments of the inspection on 21.02.2017**

- As informed by the unit, the unit was established in year 2014, Plot Area of the Motel is **6474.97 Sqmtr** and Built up Area is **32589 Sqmtr**. Environment Clearance is available with the unit and Issued on 09.02.2010.
- The Hotel is having valid Consent to Operate under Air and Water Act which is valid till **13.03.2019**.
- Water Supply by Delhi International Airport Pvt. Ltd.
- STP of capacity 225 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water

generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls however DJB has considered Banquet Halls at par with the Restaurants).

5. Flow meters were found installed at Inlet & outlet of STP. No separate energy meter provided for STP.
6. Logbook of STP maintained but Water flow meter reading & sludge quantity not maintained.
7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose, cooling tower, flushing.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 21.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s Inter Globe Hotels Pvt. Ltd. (IBIS Hotel),  
(Bulk Waste Generator) Asset. No. 09, Hospitality District, Aero city, IGI New Delhi -110037.
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** **Mr.Gaurav Dhingra**
- (c) **Month & Year of Establishment** Dec 2012
- (d) **Name and Designation of the Person(s) Contacted at the site** Sh. Shailesh Khandelwal  
9899171950
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 7845.08 Sqmt (ii) Built up Area- 26666.21 Sqmt

**2. Type of Establishment**

(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) Hotel  
No. of Rooms – 445, Restaurant- 01 (201 Person)  
Banquet Hall – 03, (110 Person)

**3. Status of Licenses**

- (a) Environmental Clearance Yes [Issued on 04.08.2010]
- (b) Consent under the Air & Water Acts Yes [Valid upto- 24.02.2018]
- (c) Municipal Corporation License Yes [Valid upto- 31.03.2017]
- (d) Certificate from Fire Department Yes [Valid upto- 18.04.2019]

**4. Water and Waste Water**

- (a) **Source of Water Supply** : **Supply by Delhi International Airport Pvt. Ltd.**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	90000	Rooms= 445x2x180= 160200 Restaurant= 201x70= 14070 Banquet= 110x70= 7700	80% of 181970
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	4000		
(iii)	Kitchen	1500		
(iv)	Laundry	1000		
(v)	Swimming Pool	4000		
(vi)	Horticulture / Gardening	35000		
(vii)	Others	15000		
	<b>Total Quantity</b>	150500	181970	145576

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	--
Sewage Treatment Plant (STP)	Hotel Premises	275	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Only at outlet of STP
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Yes
- (j) ETP / STP Sludge generation : 2.5 kg/day (As informed. No record provided)  
 Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
  - (i) **Gardening / Horticulture** 35000 liters/day (as informed)
  - (ii) **Cooling Tower** 4000 Liters /day
  - (iii) **Boiler** Nil Liters /day
  - (iv) **Flushing (Toilets)** 30000 Liters /day
  - (v) **Any other** Nil Liters /day
  - Total Quantity** **69000** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>PNG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace
2.	<b>Boiler</b>	<b>03</b>	<b>PNG+HSD</b>	Adequate stack ht
3.	<b>Diesel Generator(s)</b>	<b>03</b> <b>3X750KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			



**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	180 Kg/Day (As Provided letter by the Concerned Unit) 476.10 kg Per day (Estimated peak generation)*	No	No	No		M/s DWM Ltd.
(ii)	Construction & Demolition Waste	No records made Available					
(iii)	Domestic Hazardous Waste	No records made Available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made Available					
(v)	E-Waste	No records made Available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	2-3 kg/day	No	No	No	Partial Compo	
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

**8. Rain Water Harvesting System (RWHS) : No of RWHS Pits-02****Observations/Comments of the inspection on 21.02.2017**

- As informed by the Hotel, It was established in year 2012, Plot Area of the Hotel is 7845.08 Sq mtr and Built up Area is 26666.21 Sq mtr. Environment Clearance is available and Issued on 04.08.2010.
- The Hotel is having valid Consent to Operate under Air and Water Act which is valid till 24.02.2018.
- Water Supply by Delhi International Airport Pvt. Ltd.
- STP of capacity 275 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.

5. Flow meters were found installed only at outlet of STP. No separate energy meter provided for STP.
6. Logbook of STP maintained.
7. The information/record with regarding to mass water balance is sketchy and considering huge waste water generation and limited requirement for gardening purposes and cooling tower requirement, option of supply free of cost to the adjoining green area of DIAL needs to be explored to meet the commitment of ZLD as stipulated in the EC.
8. As per information provided for quantum of sludge generated from STP is only 2.5 kg/day which is used for horticulture.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 21.02.2012**

- (a) **Name and Address of the Establishment:** M/s A.B. HOTELS LTD (RADISSON BLUE PLAZA)  
(Bulk Waste Generator) NH- 8, Mahipalpur, Delhi-37.
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** M/s Ramesh Kapur (M.D)  
011-26779191
- (c) **Month & Year of Establishment** March- 1993
- (d) **Name and Designation of the Person(s) Contacted at the site** Anil Sawhney  
9811989989
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- 21530 M<sup>2</sup> (ii) Built up Area- 32138.94 M<sup>2</sup>

**2. Type of Establishment**

(Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) Five Star Hotel  
No. of Room- 267, Restaurant-5, (350 Person)  
No. of Banquet Hall- 03 (600 Person)

**3. Status of Licenses**

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts Yes [Valid upto- 26.11.2018]
- (c) Municipal Corporation License Yes [Valid upto- 31.03.2017]
- (d) Certificate from Fire Department Yes [Valid upto- 30.03.2018]

**4. Water and Waste Water**

- (a) **Source of Water Supply** (i) **Bore well -02 Nos [01 Permission from DJB/CGWA-Yes] 01- Without Permission**  
(ii) Tankers [No of Tankers /day- 05] Record attached

**(b)Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	236000	Rooms= 267x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	18000	96120	
(iii)	Kitchen	3300	Restaurant= 350x70=	
(iv)	Laundry	44000	24500	80% of 162620
(v)	Swimming Pool	18000	Banquet= 600x70=	
(vi)	Horticulture / Gardening	Nil	42000	
(vii)	Others	Nil		
	<b>Total Quantity</b>	349000	162620	130096

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	--
Sewage Treatment Plant (STP)	From hotel and laundry	450	Biological treatment	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
  - (c) Whether All Sections connected to STP : Yes
  - (d) Whether Adequacy Report of STP submitted : Yes
  - (e) Whether Effluent sample taken by DPCC laboratory : Yes
  - (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes
  - (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes
  - (h) Whether Separate Energy Meter provided for STP : No
  - (i) Whether Log Book of ETP / STP is being maintained : Yes (But not with flow meter reading)
  - (j) ETP / STP Sludge generation : Quantity 10 kg(as informed No record provided)
- Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
    - (i) **Gardening / Horticulture** 75000 Liters /day
    - (ii) **Cooling Tower** 78000 Liters /day
    - (iii) **Boiler** Nil Liters /day
    - (iv) **Flushing (Toilets)** 60000 Liters /day
    - (v) **Any other** 12000 Liters /day
    - Total Quantity** **225000** Liters /day

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>06</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace
2.	<b>Boiler</b>	<b>03</b>	<b>HSD</b>	Stack attached to wet scrubber
3.	<b>Diesel Generator(s)</b>	<b>03</b> <b>2X1750KVA</b> <b>1X1050KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Hot water generator</b>	<b>03</b>	<b>HSD</b>	Adequate stack ht

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	305 kg/day (As Provided letter by the Concerned Unit) 362 kg Per day (Estimated peak generation)	Yes (Two Color Coded is not Provided)	Yes	Yes		M/s Chaudhary Contractor
(ii)	Construction & Demolition Waste	48.66 kg/Day	Yes	Yes	Yes		M/s S.R. Engg.
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	3.06kg/day(as informed)	Yes	Yes	No	M/s Bharat Oil Co	
(v)	E-Waste	0.13/day(as informed)	Yes	Yes	No	No	
(vi)	Lead Acid Battery Waste	As informed battery given back to the supplier under buy back agreement					
(vi)	Garden Waste	3 kg/day	Yes	Yes	Yes		Composting
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

## 8. Rain Water Harvesting System (RWHS): No of RWHS Pits- 04 Nos.

### **Observations/Comments of the inspection on 21.02.2017**

1. As informed by the unit, the unit was established in year 1993, Plot Area of the Hotel is 21530 Sqmtr and Built up Area is 32138.94 Sqmtr. No Environment Clearance was available with the unit.
2. The Hotel is having valid Consent to Operate under Air and Water Act which is valid till 26.11.2018.
3. Water is Sourced from 2 bore well. Permission obtained for only one borewell from CGWA/DJB.
4. STP of capacity 450 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls however DJB has considered Banquet Halls at par with the Restaurants).
5. Flow meters were installed at Inlet & outlet of STP same found in working condition. No separate energy meter provided for STP.
6. Logbook of STP maintained but not with flow meter reading & sludge quantity.
7. The information/record with regarding to water mass balance provided however as informed treated effluent re used for gardening purpose, cooling tower, Flushing etc.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Hotel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI&Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 22.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** THE UMRAO HOTELS AND RESORTS PVT. LTD.  
(Bulk Waste Generator) NH-08, SAMALIKA, NEW DELHI-37.
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mr. Virender Teotia  
011-47707070
- (c) **Month & Year of Establishment** August- 2012
- (d) **Name and Designation of the Person(s) Contacted at the site** Mr. Sanjay Chopra- Chief Engineer 8285107303  
Mr. Manish Bhardwaj- Finance Controller
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- **39570 Sqmtr.** (ii) Built up Area- **3688.59 Sqmtr.**

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities) Motels  
Units / Facilities (No of Rooms / Beds etc.) No. of Rooms – 55, Lawn- 04, (3000 Persons)  
Restaurant- 01 (46 Persons), Banquet Hall – 02 (128 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts Yes [Valid upto 29.01.2018]
- (c) Municipal Corporation License Yes [Valid upto- 31.03.2017] Document not provided
- (d) Certificate from Fire Department Yes [Valid upto- 23.11.2019]

**4. Water and Waste Water**

- (a) **Source of Water Supply** (i) Bore well - 01 No [Permission from DJB- Yes]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	40000	Rooms=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	--	55x2x180=19800	
(iii)	Kitchen	15000	Restaurant=	80% of 241980 ltr.
(iv)	Laundry	1000	Banquet=	
(v)	Swimming Pool	2000	(3000+128)x70=	
(vi)	Horticulture / Gardening	--	218960	
(vii)	Others	--		
	<b>Total Quantity</b>	58000	241980	193584

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999.

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	---	----	---	----
Sewage Treatment Plant (STP)	From Motel premises	80	Biological Treatment	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
  - (c) Whether All Sections connected to ETP/STP : Yes
  - (d) Whether Adequacy Report of STP submitted : Yes
  - (e) Whether Effluent sample taken by DPCC laboratory : Yes
  - (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes
  - (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Flow meter Only at outlet of STP
  - (h) Whether Separate Energy Meter provided for STP : No
  - (i) Whether Log Book of ETP / STP is being maintained : Yes
  - (j) ETP / STP Sludge generation : Quantity 2 kg (As informed. No record provided)  
Mode of Disposal : Used as Compost in Horticulture
  - (j) Reuse of Treated Waste Water:
    - (i) Gardening / Horticulture 50,000 Litres/Day
    - (ii) Air Conditioning Plant / Cooling Tower 5000 Liters /day
    - (iii) Boiler ..... Liters /day
    - (iv) Flushing (Toilets) ..... Liters /day
    - (v) Any other ..... Liters /day
- Total Quantity - 55000 Liters /day**

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	03	LPG	Hood and suction arrangement provided to channelize the kitchen emissions over terrace
2.	Hot water Generator	02	HSD	Adequate stack height
3.	Diesel Generator(s)	02 1X500 KVA 1X380 KVA	HSD	Acoustic Enclosure and adequate stack height
4.	Others			



**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	205 kg/ Day (As Provided letter by the Concerned Unit) 372.4 kg Per day (Estimated peak generation)	No	No	No		M/s Chaudhary Contractor
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	200gm/day	No	No	No	Not provided	
(vii)	Recyclable Waste	No records made available					

\* Based on data furnished by the unit.

\*\* Based on full occupancy and floating population figure (per capita MSW generated, adopted from Solid Waste Management Manual, 2000).

**8. Rain Water Harvesting System (RWHS) : No****Observations/Comments of the inspection on 22.02.2017**

- As informed by the unit, the unit was established in year 2012, Plot Area of the motel is 39570 m<sup>2</sup> and Built up Area is 3688 sq m<sup>2</sup>. No Environmental Clearance was available with the unit.
- Motel is having valid Consent to Operate under Air and Water Act which is valid till 29.01.2018.
- Water is procured from 1 Ground Bore well.
- STP of capacity 80 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding

- water requirement by Banquet Halls however DJB has considered Banquet Halls at par with Restaurant).
5. Flow meters were found installed at outlet of STP only. No Separate energy meter for STP found installed.
  6. Logbook of STP was found maintained.
  7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is reused for gardening purposes etc.
  8. It was informed that the quantum of sludge generated is approx. 2 kg/day and same is used for horticulture purposes.
  9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC lab. Results of the sample taken depicts that the motel is meeting the effluent standards.
  10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height. Hot Water generator are with adequate stack height.
  11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
  12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
  13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental Compliance is performed by outsource agency, which does not have adequate knowledge of the requirement.
  14. Log book/Formats for record keeping of all types of waste i.e. Municipal Solid waste, C&D waste, E-waste, etc. & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 22.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s SHANTI HOSPITALITY PVT .LTD  
(Bulk Waste Generator) (FOUR POINTS BY SHERATON) Kh No-32/7  
Plot No. 9, Samalka, NH-8, New Delhi – 110037
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mr. Gurmeet Uberai
- (c) **Month & Year of Establishment** September- 2012
- (d) **Name and Designation of the Person(s) Contacted at the site** Sh. Manoj Kumar  
9999585311
- (e) **Size of Premises (in Square Meter)** (i) Plot Area-**38445 Sqmtr** (ii) Built up Area-**8361 Sqmtr**

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) Motel  
Rooms – 70, Restaurant- 01, (60 Persons)  
Lawn – 03, (900 Persons),

**3. Status of Licenses**

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts Yes [Valid upto-26.04.2017]
- (c) Municipal Corporation License **Yes** [Valid upto-**31.03.2017**]
- (d) Certificate from Fire Department **Yes** [Valid upto-**15.06.2017**]

**4. Water and Waste Water**

- (a) **Source of Water Supply** (i) **Bore well – 03** Nos. [Permission from DJB/CGWA- No]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	30888	Rooms= 70x2x180=	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	15000 for AC 4000 for boiler	25200 Restaurant= 60x70=	
(iii)	Kitchen	6400	4200	80% of 92400
(iv)	Laundry	10800	Lawn= 900x70=	
(v)	Swimming Pool	1800	63000	
(vi)	Horticulture / Gardening	--		
(vii)	Others	11500		
	<b>Total Quantity</b>	80388	92400	73920

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)					
Sewage Treatment Plant (STP)	From Motel	100	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Only at outlet but not working
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : No
- (j) ETP / STP Sludge generation : No record provided  
 Mode of Disposal : **Used as Compost in Horticulture**
- (j) Reuse of Treated Waste Water:
  - (i) Gardening / Horticulture 46898 Liters/Day
  - (ii) Cooling Tower 12000 Liters /day
  - (iii) Boiler Nil Liters /day
  - (iv) Flushing (Toilets) 2500 Liters /day
  - (v) Any other ..... Liters /day

**Total Quantity 61398 Liters /day**

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	Kitchen	02	LPG	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace
2.	Boiler	02	HSD	Adequate stack ht
3.	Diesel Generator(s)	02 2X500 KVA	HSD	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	Others			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ *Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes/No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes/No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	75 kg/day(As Provided letter by the Concerned Unit) 166 kg Per day (Estimated peak generation)	No	No	Yes		M/s Chaudhary Contractor
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	140 litre/year. No records made available					
(vi)	Garden Waste	20 kg/day	No	No	No	Partially Composting	
(vii)	Recyclable Waste	6 kg No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

## 8. Rain Water Harvesting System (RWHS) : No of RWHS Pit-08 (Partially functional)

### Observations/Comments of the inspection on 22.02.2017

- As informed by the unit, the unit was established in year 2012, Plot Area of the Motel is **38445 Sqmtr** and Built up Area is **8361 Sqmtr**. No Environment Clearance was available with the unit.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till 26.04.2017.

3. Water is Sourced from 3 bore well. No permission obtained for any borewell from CGWA/DJB.
4. STP of capacity 100 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak.
5. Flow meters were found installed only at outlet of STP and same found not working. No separate energy meter provided for STP.
6. Logbook of STP not maintained.
7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 22.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** Bird Hospitality Services Pvt. Ltd., (The Roseate)  
(Bulk Waste Generator) Nh-8, Opposite 21<sup>st</sup> Milestone, Samalkha, New Delhi
- (b) **Owner /Partner / Managing Director's** : Ankur Bhatia  
Name and Telephone No. 9717208882
- (c) **Month & Year of Establishment** : September- 2013
- (d) **Name and Designation of the Person(s)** : Mr. Alok Bansal  
Contacted at the site 8800895056
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area-**15175.71 Sq. m** (ii) Built up Area- **6265.88 Sq.m**

### 2. Type of Establishment

- : Hotel  
(Bulk Waste Generator) (Main Activities / Rooms- 50 No., Restaurant – 03 No. (274) Persons  
Units / Facilities (No of Rooms / Beds etc.) Banquet – 01 (100 Persons)

### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable  
(b) Consent under the Air & Water Acts : Yes [Valid upto 11.02.2019]  
(c) Municipal Corporation License : Yes [Valid upto- 31.03.2017]  
(d) Certificate from Fire Department : Yes [Valid upto 15-08-2019]

### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) Bore well- 2 Nos [Permission from DJB/CGWA- yes]  
(b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	56500	Rooms= 50x2x180= 18000	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	9400	Banquet= 100x70=7000	
(iii)	Kitchen	14300	Restaurant= 274x70= 19180	80% of 44180
(iv)	Laundry	1900		
(v)	Swimming Pool	4900		
(vi)	Horticulture / Gardening	40000		
(vii)	Others	1000		
	<b>Total Quantity</b>	128000	44180	35344

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	-		-		-
Sewage Treatment Plant (STP)	Motel premises	50 KLD	Biological Process	D/G trap, eq. tank, aeration tank, settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.
  - (c) Whether All Sections connected to STP : Yes
  - (d) Whether Adequacy Report of STP submitted : Yes
  - (e) Whether Effluent sample taken by DPCC laboratory : Yes
  - (f) Whether Effluent analysis report from DPCC lab : Yes
- is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Yes (only outlet)
  - (h) Whether Separate Energy Meter provided for STP : Yes (If Yes, Meter Reading 186656 Kwh)
  - (i) Whether Log Book of STP is being maintained : Yes
  - (j) STP Sludge generation : Quantity 01 Kg /day  
 Mode of Disposal : Used as Compost in Horticulture
  - (k) Reuse of Treated Waste Water :
    - (i) Gardening / Horticulture 42000 Liters /day
    - (ii) Air Conditioning Plant / Cooling Tower NIL Liters /day
    - (iii) Boiler NIL Liters /day
    - (iv) Flushing (Toilets) NIL Liters /day
    - (v) Any other NIL Liters /day
- Total Quantity: 42000 Liters /day**

### 6. Air Pollution Aspects

S. No.	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken	Remarks (If any)
(a)	<b>Kitchen</b>	<b>02</b>	<b>LPG</b>	hood and Suction are provided to Channelize the kitchen over terrace.	
<b>2.</b>	<b>Boiler</b>	<b>02</b>	<b>HSD</b>	Adequate stack height	
<b>3.</b>	<b>Diesel Generator(s)</b>	<b>02 (625, 320 KVA)</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height	
<b>4.</b>	<b>Others</b>				



**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated /**Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Container is provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	66 Kg./day (As Provided letter by the Concerned Unit) 87.4 kg Per day (Estimated peak generation)	No	No	Yes		M/s Chaudhary Contractor
(ii)	Construction & Demolition Waste	No Record made available					
(iii)	Domestic Hazardous Waste	No Record made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No Record made available					
(v)	E-Waste	No Record made available					
(vi)	Lead Acid Battery Waste	No Record made available					
(vi)	Garden Waste	3 kg/day	No	No	No	Not Provided	
(vii)	Recyclable Waste	No Record made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

**8. Rain Water Harvesting System (RWHS) : No of RWHS Pits - 05 Nos. (Partially functional)**

**Observations/Comments of the inspection on 22.02.2017**

- As informed by the unit, the unit was established in year 2013, Plot Area of the Motel is 15175.71 Sqmtr and Built up Area is 6265.88 Sqmtr. No Environment Clearance was available with the unit.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till 11.02.2019.
- Water is procured from 2 Bore wells. Obtained registration from CGWA for the same.
- STP of capacity 50 KLD have been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak (No information is available in the CPHEEO Manual regarding

- water requirement by banquet halls however DJB has considered Banquet Halls at par with the Restaurants).
5. Flow meters was found installed only at outlet of STP and same found not working. Separate energy meter provided for STP.
  6. Logbook of STP maintained.
  7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose.
  8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
  9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Motel is meeting the effluent standards.
  10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
  11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
  12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
  13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
  14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area**

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT &Ors]

**Date of Inspection: 22.02.2017**

**1. General Information**

- (a) **Name and Address of the Establishment:** M/s ORANA HOTEL & MOTEL (A UNIT OF FRIENDSHIPTIME.COM PVT LTD) Samalka, NH-8, New Delhi-110037  
(Bulk Waste Generator)
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** Mr. Amit Gupta  
8588883826
- (c) **Month & Year of Establishment** 2015
- (d) **Name and Designation of the Person(s) Contacted at the site** TARUN THAREJA  
8588883826
- (e) **Size of Premises (in Square Meter)** (i) Plot Area- **25896 Sqm** (ii) Built up Area **13950 Sqm.**

**2. Type of Establishment**

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) Motel with 49 Rooms, Restaurant- 01, (44 Persons)  
Party Pandal. – 02 (500+1000 Persons)

**3. Status of Licenses**

- (a) Environmental Clearance **Not Applicable**
- (b) Consent under the Air & Water Acts **Yes [Valid upto- 7.09.2020]**
- (c) Municipal Corporation License **Yes [Valid upto-31.03.2017]**
- (d) Certificate from Fire Department **Yes [Valid upto- 15.05.2018]**

**4. Water and Waste Water**

- (a) **Source of Water Supply** : (i) Through Tankers (Document not provided)
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	14.88 KLD	Rooms= 49x2x180= 17640	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		Restaurant= 44x70= 3080	
(iii)	Kitchen	3.84 KLD	Party lawn= (500+1000)x70= 105000	80% of 125720
(iv)	Laundry	10.00 KLD		
(v)	Swimming Pool			
(vi)	Horticulture / Gardening			
(vii)	Others			
	<b>Total Quantity</b>	28.72 KLD	125720	100576

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Effluent Treatment Plant (ETP)	Laundry	15	Physicochemical Process	Mixing tank, Settling tank etc	Operational
Sewage Treatment Plant (STP)	Motel, ETP	50	Biological Process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab : Yes
- is Meeting the Prescribed Standard:
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : Outlet only & same found not working.
- (h) Whether Separate Energy Meter provided for STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Not maintained properly
- (j) ETP / STP Sludge generation : 1 kg/day (As informed)
- Mode of Disposal : Disposed along with solid waste & Gardening/ Horticulture
- (j) Reuse of Treated Waste Water:
 

(i) Gardening / Horticulture	All Treated Water	
(ii) Cooling Tower	.....	Liters /day
(iii) Boiler	.....	Liters /day
(iv) Flushing (Toilets)	.....	Liters /day
<b>Total Quantity</b>		<b>Liters /day</b>

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>01</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace.
2.	<b>Boiler</b>	<b>02</b>	<b>HSD</b>	Adequate stack height
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>1X500KVA</b> <b>1X180KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided –Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	35 kg/day(As Provided letter by the Concerned Unit) 203 kg Per day (Estimated peak generation)	No	No	No		Vishnu Kumar, Burari (Agreement not provided )
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available	Yes	Yes	No		ACE Engineer & Consultants
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	2 kg	No	No	No	Not Provided	
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

## 8. Rain Water Harvesting System (RWHS) : Nil

### Observations/Comments of the inspection on 22.02.2017

- As informed by the unit, the unit was established in year 2015, Plot Area of the Motel is **25876 Sqmtr** and Built up Area is **13950 Sqmtr**. No Environment Clearance was available with the unit.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till 07.09.2020.
- Water is procured from Tankers without information on sourcing.
- STP of capacity 50 KLD & ETP of capacity 15 KLD have been installed. STP is biological type & ETP is physiochemical process and both were found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during

peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls/party lawn however DJB has considered Banquet Halls/party lawn at par with the Restaurants).

5. Flow meters were found installed only at outlet of STP and same found not working. No separate energy meter provided for STP.
6. Logbook of STP not maintained properly (without flow meter readings).
7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture and disposed through municipal solid waste.
9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Motel is meeting the effluent standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

### Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 22.02.2017**

#### 1. General Information

- (a) **Name and Address of the Establishment:** J.J.V Marketing Hotel Pvt. Ltd., (Hotel Nikunj)  
(Bulk Waste Generator) 22<sup>nd</sup> Mile Stone, Near IGI Airport, NH-8, New Delhi
- (b) Owner /Partner / Managing Director's : Sh. Hitesh Bhardwaj  
Name and Telephone No. 9810506000
- (c) Month & Year of Establishment : 2010
- (d) Name and Designation of the Person(s) : Sh. Swetap Mishra  
Contacted at the site 9650394474
- (e) Size of Premises (in Square Meter) : (i) Plot Area-**15681.27 M<sup>2</sup>**.(ii) Built up Area- **2350.02 M<sup>2</sup>**

#### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.) : Motel  
No of Rooms – 30, No of Restaurant- 01 (42 Persons)  
No of Banquet Hall -02(250Persons)

#### 3. Status of Licenses

- (a) Environmental Clearance : Not Applicable
- (b) Consent under the Air & Water Acts : Yes [Valid upto 22.02.2020]
- (c) Municipal Corporation License : Yes [**Copy Not provided**]
- (d) Certificate from Fire Department : Not Provided

#### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) **Bore well- 01 No [Permission from DJB/CGWA- No]**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	<b>No Information provided</b>	Rooms= 30x2x180= 10800	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed		Restaurant= 42x70= 2940	
(iii)	Kitchen		Banquet= 250x70=17500	80% of 31240
(iv)	Laundry			
(v)	Swimming Pool			
(vi)	Horticulture / Gardening			
(vii)	Others			
<b>Total Quantity</b>			31240	24992

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

**5. Waste Water Management**

**(a) Waste Water Treatment System**

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational / Not Operational)
Effluent Treatment Plant (ETP)					
Sewage Treatment Plant (STP)	From Motel	30	Biological process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : No
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP : Yes (Only at Inlet of STP)
- (h) Whether Separate Energy Meter provided for ETP/STP : Yes (If Yes, Meter Reading 12687.3 Kwh)
- (i) Whether Log Book of ETP / STP is being maintained : Yes ( Not proper)
- (j) ETP / STP Sludge generation : No record provided.  
 Mode of Disposal (i) Disposed along with Solid Waste  
 (ii) **Used as Compost in Horticulture (as informed)**
- (k) Reuse of Treated Waste Water: No Information provided

**6. Air Pollution Aspects**

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>1</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace.
2.	<b>Boiler</b>	<b>1</b>	<b>HSD</b>	Adequate stack ht provided.
3	<b>Diesel Generator(s)</b>	<b>2 (380 &amp; 500 KVA)</b>	<b>HSD</b>	DG sets are kept in acoustically treated Enclosure and having adequate stack height
4.	<b>Others</b>			



**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Container provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	59.2 kg Per day (Estimated peak generation)**	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	No records made available	No	No	No	Not provided	
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

**8. Rain Water Harvesting System (RWHS) : NIL**

**Observations/Comments of the inspection on 22.02.2017**

1. As informed by the Motel, the Motel was established in year 2010, Plot Area of the Motel is 15681.27Sq. m and Built up Area is 2350.02 Sq. m. No Environment Clearance was available with the unit.
2. The Motel is having valid Consent to Operate under Air and Water Act which is valid till 22.02.2020.
3. Water is procured through one Borewell and not having Permission from DJB/CGWA for the same.
4. STP of capacity 30 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is more than the waste water generation during peak

5. Flow meter found installed at inlet and no installed at outlet of STP. Separate energy meter provided for STP.
6. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
7. The information/record with regard to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. Effluent samples were collected by DPCC laboratory from the Inlet and Outlet of STP during inspection on 22.02.2017 and Effluent analysis report of DPCC dated 07.03.2017 shows that STP is not meeting the prescribed standards.
10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste , C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 22.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment** M/s MAPPLE EMERALD  
(Bulk Waste Generator) Kh. 41/2/2, 1, 3, 41/3, 41/9, Min 37/23/12, 37/24/2, 34/24/2 Samalkha Village, Rajokri, NH- 8, Delhi – 110038.
- (b) Owner /Partner / Managing Director's Name and Telephone No. Mr. Rohit Sapra ( 9810337338)
- (c) Month & Year of Establishment 2010
- (d) Name and Designation of the Person(s) Contacted at the site Mr. Balram Thakur (9313113157)
- (e) Size of Premises (in Square Meter) (i) Plot Area- 25781.42 (ii) Built up Area-6600.72

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) Motel  
Rooms – 49 No, Banquet Hall – 03(1000 persons)  
Restaurant – 01(60 persons), lawn- 03(700 persons)

### 3. Status of Licenses

- (a) Environmental Clearance Not Applicable
- (b) Consent under the Air & Water Acts Yes [Valid upto-24.08.2019]
- (c) Municipal Corporation License Yes [Valid upto- 31.03.2017]
- (d) Certificate from Fire Department Yes [Valid upto- 16.06.2019]

### 4. Water and Waste Water

- (a) **Source of Water Supply** (iii) Through **Tankers (No detail provided)**
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	<b>25 KLD</b>	Rooms= 49x2x180= 17640	
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	--	Restaurant= 60x70= 4200	
(iii)	Kitchen	15 KLD	Banquet= (1000+700)x70= 119000	80% of 140840
(iv)	Laundry	--		
(v)	Swimming Pool	--		
(vi)	Horticulture / Gardening	--		
(vii)	Others	--		
	<b>Total Quantity</b>		140840	112672

\* As per information furnished by the unit.

\*\* Estimated as per standards of CPHEEO Manual, 1999

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	--	--	--	--	--
Sewage Treatment Plant (STP)	From Motel	80	Biological process	O/G trap, Eq. tank, Aeration tank, Settling tank etc	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc
- (c) Whether All Sections connected to STP : Yes
- (d) Whether Adequacy Report of STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : Yes
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard: : Yes
- (g) Whether Flow Meter Installed at Inlet and Outlet of STP : **No**
- (h) Whether Separate Energy Meter provided for STP : **No**
- (i) Whether Log Book of ETP / STP is being maintained : **No**
- (j) ETP / STP Sludge generation : 2-3 kg/day (as informed)No record provided  
 Mode of Disposal : Used as Compost in Horticulture & disposed along with solid waste
- (j) Reuse of Treated Waste Water: **(i) Gardening / Horticulture** All Treated Water

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken
1.	<b>Kitchen</b>	<b>02</b>	<b>LPG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission Over terrace.
2.	<b>Boiler</b>	<b>02</b>	<b>HSD</b>	Adequate stack ht provided.
3.	<b>Diesel Generator(s)</b>	<b>02</b> <b>1X380KVA</b> <b>1X600KVA</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height
4.	<b>Others</b>			

## 7. Waste Management

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Proper Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	10 kg/day(As Provided letter by the Concerned Unit) 225 kg Per day (Estimated peak generation)	No	No	No		Not Provided
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	(2-3 litre/month) No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	12 kg	Yes	--		Not Provided	
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy and floating population figure (per capita MSW generated, adopted from solid waste management manual 2000).

## 8. Rain Water Harvesting System (RWHS) : No of RWHS Pits- 02 (Non- Functional)

### Observations/Comments of the inspection on 22.02.2017

- As informed by the unit, the unit was established in year 2010, Plot Area of the Motel is 25781.42 Sqmtr and Built up Area is 6600.72 Sqmtr. No Environment Clearance was available with the unit.
- The Motel is having valid Consent to Operate under Air and Water Act which is valid till 24.08.2019.
- Water is procured from Tankers with no information on sourcing of water.
- STP of capacity 80 KLD has been installed. STP is biological type and was found operational. As per calculations of DJB, STP design capacity is less than the waste water generation during peak (No information is available in the CPHEEO Manual regarding

- water requirement by banquet halls however DJB has considered Banquet Halls at par with the Restaurants).
5. Flow meters not installed at Inlet & outlet of STP. No separate energy meter provided for STP.
  6. Logbook of STP not maintained.
  7. The information/record with regarding to mass water balance could not be shown during inspection however as informed treated effluent is re used for gardening purpose.
  8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
  9. One sample of effluent was taken at the inlet of STP and outlet of STP by DPCC Lab. Results of the sample taken depicts that the Motel is meeting the effluent standards.
  10. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
  11. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
  12. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
  13. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
  14. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

## Inspection Report of Sub Committee II in respect of Bulk Waste Generators in South Delhi Municipal Corporation Area

[W.R.T Orders of Hon'ble National Green Tribunal Dated 10.01.2017 in OA No. 199 of 2014 in the matter of Almitra H. Patel Vs UOI & Ors and OA No. 281 of 2016 in the matter of Kudrat Sandhu Vs Govt of NCT & Ors]

**Date of Inspection: 07.02.2017**

### 1. General Information

- (a) **Name and Address of the Establishment:** Unison Hotels Ltd.( The Grand),  
Vasantkunj, Phase-II, Nelson Mandela Road, New Delhi- 70  
(Bulk Waste Generator) Vasant Kunj
- (b) **Owner /Partner / Managing Director's Name and Telephone No.** : Mr. Umesh Saraf
- (c) **Month & Year of Establishment** : 1999
- (d) **Name and Designation of the Person(s) Contacted at the site** : Mr. Om Prakesh (Director of Engineer)
- (e) **Size of Premises (in Square Meter)** : (i) Plot Area- **40000 Sqmtr.** (ii) Built up Area- **12000 Sqmtr**

### 2. Type of Establishment

- (Bulk Waste Generator) (Main Activities / Units / Facilities (No of Rooms / Beds etc.)) : Hotel  
No. of Rooms = 390, Banquet hall – 04 (550 Persons)  
Restaurant = 07 (681 Persons), Party Lawn = 2 (450 Persons)  
Terrace = 700 Persons

### 3. Status of Licenses

- (a) **Environmental Clearance** : Information not provided
- (b) **Consent under the Air & Water Acts** : Yes [Valid upto 28.01.2020]
- (c) **Municipal Corporation License** : Yes [Valid upto- **31.03.2018**]
- (d) **Certificate from Fire Department** : No Information provided

### 4. Water and Waste Water

- (a) **Source of Water Supply** : (i) Bore well - 06 Nos [Registration from CGWA-Yes]
- (b) **Water Consumption / Requirement and Waste Water Generation**

S.No.	Purpose /Use	*Average Water Consumption/ Requirement (in Liters /day)	**Peak Water Consumption/Requirement at full capacity (in Liters /day)	Waste Water Generation at full capacity (in Liters /day)
(i)	Domestic	100 KLD		
(ii)	Air Conditioning /Cooling Plant or Boiler Feed	100KLD	390x2x180= 140400	
(iii)	Kitchen	100 KLD	450+550+700+681= 2381x70=166670	307070x0.8=245656
(iv)	Laundry	1.5 KLD		
(v)	Swimming Pool	4.5 KLD		
(vi)	Horticulture / Gardening	250 KLD		
(vii)	Others			
	<b>Total Quantity</b>	<b>556 KLD</b>	<b>307.070 KLD</b>	<b>245.656 KLD</b>

\*As per information furnished by the unit

\*\*Estimated as per Standards of CPHEEO, 1999 manual

### 5. Waste Water Management

#### (a) Waste Water Treatment System

Waste Water Treatment System Provided	Provided for Treatment of Waste Water Generated from	Capacity (in KLD)	Type of Treatment & Technology used (Biological / Physicochemical Process)	Main Constituent Units	Status of ETP/STP (Operational/ Not Operational)
Effluent Treatment Plant (ETP)	Laundry				<b>Non operational</b>
Sewage Treatment Plant (STP)	Hotel Premises	750 KLD (as per Adequacy Report)	Biological Process	O/G trap, Eq. tank, Aeration Settling tank etc.	Operational

- (b) Mode of Disposal of Treated Waste Water : Gardening etc.
- (c) Whether All Sections connected to ETP/STP : Yes
- (d) Whether Adequacy Report of ETP/STP submitted : Yes
- (e) Whether Effluent sample taken by DPCC laboratory : No
- (f) Whether Effluent analysis report from DPCC lab is Meeting the Prescribed Standard : N. A. , Since no sample taken during inspection
- (g) Whether Flow Meter Installed at Inlet and Outlet of ETP/STP: Yes (Only at Outlet but faulty)
- (h) Whether Separate Energy Meter provided for ETP/STP : No
- (i) Whether Log Book of ETP / STP is being maintained : Not properly maintained
- (j) ETP / STP Sludge generation : Quantity 4 Kg /day  
 Mode of Disposal : (i) Disposed along with Solid Waste  
 (ii) **Used as Compost in Horticulture**
- (k) Reuse of Treated Waste Water : (i) Gardening / Horticulture 200 KL/Day  
 (ii) Air Conditioning Plant / Cooling Tower 50 KL/Day  
 (iii) Boiler ..... Liters /day  
 (iv) Flushing (Toilets) 50 KL/Day  
 (v) Any other 50 KL/Day  
**Total Quantity: 350 KL/day**

### 6. Air Pollution Aspects

S.No	Source of Air Pollution	No and Capacity	Fuel Used	Pollution Control Measures Taken	Remarks (If any)
1.	<b>Kitchen</b>	<b>07</b>	<b>PNG</b>	Hood and Suction arrangement provided to Channelize the kitchen emission over terrace	
2.	<b>Boiler</b>	<b>02</b>	<b>PNG+HSD</b>	Stack attached to wet scrubber	
3.	<b>Diesel Generator(s)</b>	<b>03x1250 KVA)</b>	<b>HSD</b>	DG sets are kept in acoustically treated enclosure and having adequate stack height	
4.	<b>Others</b>	<b>-</b>			



**7. Waste Management**

S. No.	Type of Waste	Quantity of Waste *Generated/ **Estimated (Kg/day)	Waste Management System at the premises site			Disposal Mechanism	
			Whether Proper Segregation is being done	Whether Containers are provided for storing the Waste	Whether Log Book for Waste generation and disposal is being maintained	Through Authorized Vendor (Copy of Authorization provided – Yes /No)(Name & Address of the Vendor)	Through Private Vendor (Copy of Bill Provided – Yes /No ) (Name & Address of the Vendor)
(i)	Municipal Solid Waste	(628.10 kg Per day (Estimated peak generation)**)*	No	No	No		No records made available
(ii)	Construction & Demolition Waste	No records made available					
(iii)	Domestic Hazardous Waste	No records made available					
(iv)	Hazardous Waste (Used /Waste Oil )	No records made available					
(v)	E-Waste	No records made available					
(vi)	Lead Acid Battery Waste	No records made available					
(vi)	Garden Waste	No records made available					
(vii)	Recyclable Waste	No records made available					

\*Based on the data furnished by the unit.

\*\*Based on the full occupancy + floating population figure adopted from MSW Manual 2000.

**8. Rain Water Harvesting System (RWHS) : No of RWHS Pits - 02**

**Observations/Issues of the inspection on 07.02.2017**

1. As informed by the Hotel, the Hotel was established in year 1999, Plot Area of the Hotel is 40,000 Sqmtr and Built up Area is 12,000 Sq mtr. Information not provided w.r.t. Environment Clearance.
2. The Hotel is having valid Consent to Operate under Air and Water Act which is valid till 28.01.2020.
3. Source of water from 06 bore wells. Registration obtained for all borewells from CGWA.
4. ETP & STP installed. The capacity of STP is 750 KLD (As per STP Adequacy Report). STP is biological type and same found operational however ETP found non-operational. Laundry wastewater is being sent to STP for treatment As per calculations of DJB, STP design capacity is more than the waste water generation during peak (No information is available in the CPHEEO Manual regarding water requirement by banquet halls however DJB has considered Banquet Halls at par with the Restaurants).

5. Flow meters were installed only at outlet of STP but same found non-operational. No separate energy meter provided for STP.
6. Though Log Book for operation of the STP has been maintained however lacks important information particularly w.r.t Quantity of waste water treated each day and sludge generated. Proper maintenance of the Logbook for operation of STP is required.
7. The information/record with regarding to water mass balance could not be provided during inspection however as informed treated effluent re used for gardening purpose, cooling tower, Flushing etc.
8. No information could be provided for quantum of sludge but it was informed that sludge is used for horticulture.
9. Unit has provided channelization system for kitchen emissions with adequate stack height. DG sets are having acoustic enclosure and adequate stack height.
10. Separate dustbin for bio-degradable or non-biodegradable MSW not provided within the premises. The MSW generated is given to private vendor (no copy of authorization from concerned Municipal Corporation was made available) who claims to dispose the same at Sanitary Landfill / Dhalao, but no such record made available.
11. Operation of STP including periodical O & M needs to be ensured for which (a) inflow / outflow meters reading, (b) Separate energy meter and (c) Quantum of sludge need to be recorded at frequent interval.
12. All the Environmental aspects like O&M of the STP, routine maintenance of Environmental compliances is performed by outsource agency, which does not have adequate knowledge of requirement.
13. Logbook /Formats for record keeping of all type of waste i.e. Municipal solid waste, C&D waste, E-waste etc & operation of STP is need to be standardized, so that the uniformity can be maintained.

**2<sup>nd</sup> INTERIM REPORT OF SUB-COMMITTEE –III (NORTH  
MCD) ON INSPECTION OF BULK WASTE  
GENERATORS... HOSPITALS**

**Original Application No. 199 of 2014 & Original Application  
No. 281 of 2016 (M.A. No. 1007/2016) filed by Almitra H.  
Patel & Anr. Vs. Union of India & Ors. & Kudrat Sandhu Vs.  
Govt. of NCT & Ors.**

**April, 2017**

**Co-convener  
Ex. Engg., DPCC**

**Member Convener  
Addl. Dir., CPCB**

**Chairperson  
Former Adviser MoEF  
& CC**

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**Introduction:**

Pursuant to the orders dated 10.01.2017 and 11.01.2017 of Hon'ble National Green Tribunal in Original Application No. 199 of 2014 in the matter Almitra H. Patel versus Union of India and Application No. 281 of 2016 in matter of Kudrat Sandhu vs. Government of NCT of Delhi, the Government of India, Ministry of Environment, Forest and Climate Change constituted a Committee with the following composition:-

(i)	Special Secretary, Ministry of Env., Forest and Climate Change- <b>Chairman</b>
	<b>Expert Members</b>
	Mr. G.K. Pandey, Former Member of NGT.
	D.K. Agarwal, Former Member of NGT.
	Dr. R. Dalwani, Former Advisor, Ministry of Env., Forest and Climate Change
	Dr. Rashid Hasan, Former Advisor, Ministry of Env., Forest and Climate Change
	<b>Official Members</b>
(ii)	Representative from Ministry of Urban Development
(iii)	Representative Officer of Indian Railway
(iv)	Representative from Ministry of Environment, Forest and Climate Change
(v)	Representative from Director General of Health Services
(vi)	Representative of NCT, Delhi- Principal Secretary (Urban Development
(vii)	Representative from Central Pollution Control Board
(viii)	Representative from Medical Council of India
(ix)	Representative of Delhi Pollution Control Committee
(x)	Representative of Delhi Development Authority
(xi)	Representative of each Municipal Corporations
	<b>Co-opted Members</b>
(xii)	Representative of Delhi Jal Board
(xiii)	Representative of Delhi Cantonment Board
(xiv)	Representative of Central Public Works Department
(xv)	Registrar, Co-operative Group Housing Society
(xvi)	Joint Secretary (HSM Division), Ministry of Environment, Forest and Climate Change – <b>Convener</b>

The **Terms of Reference of the Committee** are as under:

- (i) The Committee is entitled to form different sub-committees from amongst above which will visit the various locations of Delhi where the mass generator of waste are located and submit their report to the Tribunal.
- (ii) These sub-Committees would be entitled to direct assistance or participation of any of the Public Authorities, Corporations, Local Authority, DDA or any other Government and Semi-Government whenever they require participation of any officer of Governments or Authorities. They shall, without demur and delay provide due assistance to these sub-Committees with a view to comply with the directions contained in this order.
- (iii) This Committee/Sub- Committee so constituted shall inspect
  - a. all four and five star hotels,
  - b. all hospitals which are more than 200 bedded whether private or Government,
  - c. the Co-operative Group Housing Societies (more than 300 flats), markets,
  - d. shopping malls having built up area of more than 50000 Sq.Mtrs.,
  - e. Colleges having hostel and accommodating more than 500 students, and
  - f. Such other places in entire NCT, Delhi in the first instance.
- ii. The Committee, upon physical inspection, shall submit its report as to the quantum of different kind of waste generated by such hospitals, hotels, schools, group housing societies, market/shopping malls etc. The waste would include municipal solid waste, inert waste, biomedical waste, hazardous waste, dust and such other allied waste like ash etc.
- iii. The Committee shall also report as to how waste, so generated, is being processed and treated by the above mentioned waste generators. If waste is being transported, the manner and method thereof, and destination of such transportation of waste will be reported.
- iv. The Committee shall also report on the markets, hospitals, hotels, schools, group housing societies, shopping malls etc. that have their own STPs or are connected to sewerage network. If they have STPs of their own, their capacity in comparison to the sewage generated and the manner in which treated sewage water is being recycled at the point of discharge will be indicated.
- v. In relation to hospitals, the Committee shall inspect/ examine the manner in which bio-medical waste is being handled, and other factors prevailing in the hospital adverse to human health and environment will be examined.
- vi. The Committee shall submit a Report, in regard to hospitals, for the following:-
  - a. Generation of bio-medical wastes

- b. Generation of Municipal Solid Wastes
- c. Generation of Hospital hazardous wastes.
- d. Waste generated from pathological laboratories and sewage system and
- e. causes for hospitals infection and remedies for prevention.
- vii. The Committee shall submit a Report, in regard to other institutions afore-indicated for the following:
  - a. Generation of Municipal Solid Wastes,
  - b. Sewerage system and
  - c. Other kind of wastes.
- viii. The Committee shall specifically record, whether the aforementioned places/ institutions are compliant to the law in force i.e. treatment of Sewage Rules of 2016, provision of Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986 or any other environmental law in force.
- ix. If found lacking or non-compliant, the committee shall issue show cause notice as to why the defaulting institution/ body not be directed to pay Environmental Compensation and also remedy and rectify deficiency and defects within a stipulated period. The show cause notice should be issued by the Committee itself requiring them to remedy, rectify all deficiencies, defects and shortcomings and if needed, require them to install anti-pollution devices including STP's etc. Notice to such persons would also mention as to why they be not called upon to pay environmental compensation determined by the Tribunal in accordance with law.
- x. The Committee shall submit a report to the Tribunal **within six weeks from 10.01.2017.**

## **1.2 MEETINGS OF THE COMMITTEE:**

The Committee held 3 meetings on 10.01.2017, 23.02.2017 & 23.03.2017. During the first meeting the representatives of the Government of NCT of Delhi Department of Urban Development, Delhi Development Authority (DDA), Municipal Corporations, New Delhi Municipal Council (NDMC) were requested to provide the lists of Bulk waste generators under different municipal areas of NCT Delhi along with the details of the contact persons. It was also decided for MoEF&CC to develop formats listing the data expected from the inspections.

## **1.3 CONSTITUTION OF SUB-COMMITTEES:**

As provided for in the NGT Orders, the Committee under Special Secy. (MoEF&CC) constituted four sub-committees viz. Sub Committee-I to inspect the identified locations in New Delhi

(NDMC) Municipal Council, the Sub-Committee-II, to inspect identified locations in South Delhi Municipal Council, Sub-Committee-III, to inspect identified locations in North Delhi Municipal Corporation and the Sub –Committee-IV to inspect identified locations in East Delhi Municipal Corporation. The local bodies concerned were asked to facilitate and make all logistic arrangements for inspection by these sub-committee and the representatives of Central Pollution Control Board (CPCB) and DPCC in each sub-committee to work as member convener and co-convenor respectively for facilitating work of report preparation by these Sub-Committees.

**Constitution of Sub-Committee – III (North MCD)**

Sr. No.	Name	Status
(i)	Dr. R. Dalwani, Former Advisor, Ministry of Environment, Forest and Climate Change	Chairman
(ii)	Representative of North Delhi Municipal Corporation- 1. Sh. Nitin Pramod (City Zone) 2. Sh. Devesh Singh (S.P. Zone) 3. Sh. Ajay Kr. Gupta (K.B. Zone) 4. Sh. Deepak Prohit (C. L. Zone) 5. Sh. Jagdeep Chhillar (Rohini Zone) 6. Sh.U.C. Bhardwaj (Narela Zone)	Nodal Officers
(iii)	Sh. R.K. Singhal Supd. Engineer((North), Delhi Jal Board	Members
(iv)	Representative of Medical Council of India – to be nominated by MCI	Members
(v)	Sh Sathish Kumar, Tech Officer Ministry of Urban Development	Member
(vi)	Representative of India Railways- to be nominated the Railways	Members
(vii)	Sh. R. O. Siddiqi SE/Civil Circle-12) (Sh. K.K. Garg SE/HQ, Delhi Development Authority	Members
(viii)	Representative of Delhi Pollution Control Committee - Environmental Engineer (EE)	Co-Convener
(ix)	Representative of Central Pollution Control Board – Scientist-E	Member Convener



Other officers who assisted the sub-committee during inspections & report writing:

- Dr. M. K. Chaudhary, Addl. Dir., CPCB.
- Sh. Sharandeep Singh, EE, CPCB.
- Sh. Amit Chaudhari, EE, DPCC.
- Sh. Vishal Gandhi, EE, CPCB.
- Sh. Sanjay Vats, EE, DPCC.
- Sh. Surinder Singh, EE, DPCC.
- Sh. V. K. Jain, EE, DPCC.
- Sh. D. K. Srivastava, EE, DPCC.
- Sh. Sunil Goel, EE, DPCC.

#### **1.4 SUB-COMMITTEE-III & SELECTION OF BULK WASTE GENERATORS:**

The Sub-Committee-III under the Chairpersonship of Dr. (Ms.) R. Dalwani was assigned to carry out inspections of bulk generators under the jurisdiction of the North Delhi Municipal Corporation. The North MCD comprises of 6 Zones viz. Civil Lines, City, Sadar Paharganj, Karol Bagh, Rohini & Narela. The inspections & reporting has been restricted to 5 zones as Sadar Paharganj reportedly does not have any bulk waste generators.

#### **2. DETAILS OF INSPECTIONS BY SUB-COMMITTEE-III:**

On receipt of the lists of bulk waste generators by the concerned agencies and nominations of representatives for different sub-committees, the first meeting of the sub-Committee-III of the Committee constituted by the Hon'ble NGT in the matter of Almitra H. Patel Vs Union of India &ors (199/2014) and 281/2016, was held in the Conference Hall of Civic Centre, North Delhi Municipal Corporation on 06.02.2017 (11.30 AM). Dr. (Mrs) R. Dalwani, Chairperson of the Sub-Committee-III and former Adviser (MoEF&CC) chaired the meeting and briefed the objectives of the meeting i.e. compliance to the Hon'ble NGT order dated 10.01.2017

The North Delhi Municipal Corporation (North MCD) agreed to provide logistic support for conducting the inspections for bulk waste generator establishments and informed that the Deputy Commissioners of each zone (Nodal Officers) shall co-ordinate the inspection team. Accordingly, North MCD identified and provided a list of 114 Bulk waste generators for conducting inspections. Out of the list only 81 fulfilled the criteria of Bulk waste generators as per the ToR of the Committee. The first Interim Report of the Sub-Committee-III covered inspection report of 22 bulk waste generators. The present & 2<sup>nd</sup> Interim Report covers the inspections and status of all the hospitals (24nos.) of North MCD zones.

## **2.1 SCOPE OF INSPECTIONS:**

The Committee constituted by MoEF&CC as a follow-up of NGT orders, in its 1<sup>st</sup> meeting held on 17<sup>th</sup> Jan, 2017 decided that the visits by the inspecting teams may cover the following bulk waste generators in NCT, Delhi:

- (i) All five star and four star hotels;
- (ii) All hospitals which are more than 200 bedded whether private or Government;
- (iii) Co-operative Group Housing Societies (more than 300 flats);
- (iv) markets, shopping malls having built up area of more than 50000 sq. mtrs.;
- (v) colleges having hostel and accommodating more than 500 students; and
- (vi) Such other places in entire NCT, Delhi. including the Railways Stations, Bus Terminals, and Airports. DDA & the Municipal corporations were also requested to provide lists of DDA parks to inspect the disposal of waste including dry leaves.

## **2.2 LIST OF BULK WASTE GENERATORS:**

A list of 114 Bulk Waste Generators was provided by the north MCD to the Ministry. However, the north MCD later revised the list of bulk generators after deleting the names of MCD Dhalaos inadvertently included in the list and some other institutions (hospitals/colleges) not meeting the criteria of bulk generators, bringing the number of bulk generators of waste in north MCD area to 81. The Sub-Committee-III for North MCD area has inspected the identified bulk generator. However, this Interim Report (2<sup>nd</sup>) is confined to only the Hospitals of different Zones of North MCD.

## **2.3 TYPE OF DATA COLLECTED AND COMPILED:**

The Ministry developed and provided two formats for the bulk generators to provide uniform data. These formats covered the data requirements for Bio-medical waste in format 1 and that on general solid waste and wastewater generation in the other along with their quantum, collection and disposal/treatment methods.

### 3. DETAILS OF INSPECTIONS OF HOSPITALS

#### 3.1 LNJP –HOSPITAL

##### Background:

- Date of Inspection: 06.02.2017
- Contact Person: Dr. J.C. Passey (Medical Director)
- Established in the year :1935, Delhi Govt. Hospital
- Total number of beds :1890
- Average number of patient in OPD:5000 outdoor patients visit every day (Emergency 1000 approx)
- Consent under Air & Water Act: Hospital has applied for consent under air/water Acts
- Authorization under Bio medical waste (M&H) Rules, 1998: The Health Care Facilities(HCF) does not have valid authorization

##### Observations

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Watergrace Pvt. Ltd..
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- The quantity of waste generation is estimated as : Yellow- 276 kg/day, Red-326 kg/day, Blue & White- - 55-60 kg/day.
- The blue categories of wastes like needles, sharps, etc. are destroyed in a special room with sharp bluster and wastes sent for disposal. Out of two autoclaves, only one is in operational condition.
- A temporary storage room is available within the premises, from where the CBWTF transports the waste to the common treatment /disposal facility.
- Closed trolleys are available for transferring wastes from various wards/OT etc.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- The quantity of general solid waste collected separately is not assessed and is dumped in a dhalao common for LNJP & GB Pant hospitals, which is later lifted directly by the municipality.
- T The solid waste generation is 1000kg/day and he hospital is carrying out onsite processing of wet/food waste (700-800 kg per day) for composting & segregating and recycling 300-350 kg/day of plastic /glass/paper waste.
- There are two STPs for treatment of liquid waste with capacity of 1200 KLD and 600 KLD respectively based on Activated sludge process followed by activated carbon & sand filters. The STP of 600 KLD was found under shut down.
- Liquid waste generated from laundry unit, kitchen, pathological lab, etc also sent to STP.
- As per the lab test report for treated effluent quality, the outlet BOD was 30 mg/l against the inlet BOD of 48mg/L, which was questionable.
- There is no provision to recycle the treated water, which at present is let out in common sewer along with the untreated sewage from non-functional STP

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

**3.2 Hindu Rao Hospital – Govt Hospital**

**Background:**

- Date of Inspection: 07.02.2017
- Contact Person: Medical Superintendent
- Year of Establishment: 1958, North MCD Hospital
- Total number of beds :980;
- Average occupancy 97%,
- Average number of patient in OPD : – 2000/ day
- Consent under Air & Water Act : Valid up to 12.05.2009-Not applied for renewal
- Authorisation under Bio medical waste (M&H) Rules, 1998: Applied on 10.06.2016.

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace Pvt Ltd. And Yashraj Bio Technology.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Facility provided for colour coded bins, source segregation, removal and disposal of BMW within 48 hrs,.
- The quantity of waste generation is estimated as : Red: 110 kg/day, Yellow- 150 kg/day, Blue & White- 10kg/d.
- Sharp materials broken and disposed off in tamper proof plastic containers.
- BMW transferred by closed trolleys and stored in temporary storage room away from patients wards.
- No segregation of general waste observed. The General solid waste of about 1100 kg/day is collected without segregation and disposed off in dhalao, carried away later by MCD.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- On-site treatment facility for sewage and other liquid waste is under construction with 40% progress. Though the treatment technology was not informed, no post treatment for disinfection proposed. Presently, the liquid waste including blood samples are discharged into common sewer after pre-treatment with hypochlorite.
- Water supply to the hospital is by DJB and borewells.
- Though as per information, training imparted to staff on BMW rules, protocol for regular training required to be developed and followed.

- Though it was claimed that Personal Protection Equipments(PPE) are provided to the house keeping staff but it was observed that the staff was not having proper PPE while carrying out duties.
- Records related to Hospital Acquired Infection (HAI) were obtained and it was informed that the institute was having a separate infection control team which ensured that HAI are kept to minimum.

**Recommendation:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated

**3.3 Tirath Ram Shah Hospital, Rajpura Road, Delhi 54**

**Background**

- Date of Inspection: 07.02.2017
- Contact Person: Hira Adhikari (Administrator), Vipin Rastogi (MS)
- Established in the year : May, 1955, Private Hospital
- Total number of beds: 200 beds with 70% occupancy
- Average number of patient in OPD: 300-400 patients
- Consent under Air & Water Act: Hospital has valid consent under air/water Acts
- Authorization under Bio medical waste (M&H) Rules, 1998: The Health Care Facilities(HCF) have valid authorization

**Observations**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Watergrace Pvt. Ltd..
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016
- It has separate bio medical waste management cell.
- The quantity of BMW generation assessed is Yellow- 6kg/day, Red- 5 kg/day, Blue 3kg/day.
- Cytotoxins waste is stored safely and returned to manufacturer or disposed in CBMWTF.
- Facility provided for colour coded bins, source segregation, removal and disposal of BMW within 48 hrs, maintaining records of waste, training to staffs, etc.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- ETP exists and also given pre-treatment to wastes of microbial waste, lab waste, etc. with chemical disinfectants.
- Wastewater generation estimated as 70KLD.
- The treated wastewater is partially used for horticulture and the remaining discharged to city sewer.
- ETP sludge disposed in CBMWTF.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance.

**3.4 Satyavadi Raja Harishchand Hospital, Narela**

**Background:**

- Date of Inspection: 07.02.2017
- Contact Person: Dr. Sanjay Kumar Jain (Medical Suprintendent)
- Year of establishment : 2003, Category : Delhi Govt Hospital
- Total number of beds : 200
- Average occupancy 50%
- Average number of patient in OPD: 2000 -3000/day,
- Consent under Air Act & Water Act : Valid consent
- Authorisation under Bio medical waste (M&H) Rules, 1998: Valid Authorisation

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Separate waste collection bins in wards (black, red & yellow). Sharps/needles are destroyed and stored in white containers.
- Waste storage facility available outside the wards; from where, an authorized agent (Biotech) collect the wastes for treatment and disposal and disposal at CBMWTF.
- The quantity of BMW generation is assessed as: Yellow- 20-50 kg/day, Red- 15-30 kg/day, Blue -5-10 kg/day, White- upto 500 gm/day.
- The waste is removed from wards in every shift.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste is being handed over to a private waste collector. However, Hospital Management is not aware of the disposal procedures of the same.
- Proper documentation of the quantity of sewage/solid waste generated is not being maintained by the hospital management.
- There are residential staff quarters (95 flats) within 6500 sq. m. which encompasses DG sets, Kitchen, Boilers with 30 m stack height.
- ETP (MBR technology) of 300 KLD capacity is operational for treatment of 120 KLD wastewater. The treated water is re-used for gardening/horticulture (80%) and 20% discharged through open drains.
- No pre- treatment of infectious materials and wastewater done.
- No secondary sedimentation tank was in place.
- No provision for treatment of sludge.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance.

### 3.5 Rajiv Gandhi Cancer Institute and Research Centre, SECTOR-5, ROHINI, DELHI 85

#### Background:

- Date of Inspection: 09.02.2017
- Contact Person: Dr. Sunil K Khetrapal, MS
- Year of establishment : 1996, Category : Private
- Total number of beds : 302
- Average occupancy 95%
- Average number of patient in OPD: 500-600/day( per shift)
- Consent under Air Act & Water Act : Valid consent
- Authorisation under Bio medical waste (M&H) Rules, 1998: Valid Authorisation

#### Observations:

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- The quantity of BMW generation assessed; Yellow- 90kg/d, Red- 70kg/d, Blue 12kg/d & white- 29kg/d. Wastes removed from wards through covered trolleys and stored at temporary storage away from patients. Wastes disposed through CBMWTF through authorized agents.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- The Microbial and Path Lab waste are pretreated before handing over to CBWTF
- Solid waste is being collected separately and given to the private contractor (Shakti Enterprises) and no proper knowledge with staff members was there about the final disposal of the same.
- STP of capacity 150KLD found installed. Wastewater generation of approx 140 KLD treated using SBR Technology for the mixed sewage. However, the quality of the sewage before and after treatment was not documented properly.
- STP is not likely to absorb the shock load of effluent as capacity of STP is nearly equal to waste water generation and no storage capacity is there to absorb the shock load.
- Treated Waste water is reused for cooling and in gardening purposes and the rest is discharged into sewer.
- No provision for treatment of sludge is made.

#### Recommendations:

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.



- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

### 3.6 Fortis Hospital, Shalimar Bagh

#### Background:

- Date of Inspection: 10.02.2017
- Contact Person:- Dr. Monika Gupta
- Year of establishment : 1996, Category : Private
- Total number of beds : 262
- Average occupancy 67%
- Average number of patient in OPD: 280/day,
- Consent under Air Act & Water Act : Valid consent
- Authorisation under Bio medical waste (M&H) Rules, 1998: Valid Authorisation

#### Observations:

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- The quantity of MW generation assessed as: Yellow- 74 kg/day, Red- 139 kg/day, Blue- 37 kg/day, White- 14.3 kg/day.
- BMW collected is transferred with closed trolleys and kept in a temporary storage away from the patient wards.
- Facilities available in the hospital is BMW are stored in colour coded bins/bags with proper segregation. waste removed within 48 hrs through authorized vendor for its disposal.
- Pre-treatment of infectious material done & records maintained. Spore test conducted regularly after autoclaving.
- Training to staffs given at regular intervals.
- Solid waste is being collected and given to the private contractor for disposal. However, there is no proper record regarding the quantity of waste generated and its disposal is being maintained by the hospital management.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- STP of 300 KLD with SAFF reactor technology along with MGF, ACF and softening is being employed to treat the wastewater generated. Present wastewater generation is approx 153 KLD. It appeared that STP was made operational just prior to the visit.
- Pre-treatment of the infectious wastewater is being done by chemical disinfection.
- No test report is available to determine the quality of inlet/outlet wastewater.
- No sludge treatment is being employed, as of now even, though filter press is installed for dewatering the sludge.
- Sharp smell was felt during the site visit which may have the impact on the health of the operators.



### Recommendations:-

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

### 3.7 B.L. Kapoor Hospital

#### Background:

- Date of Inspection: 13.02.2017
- Contact Person: Dr. Sanjay Mehta
- Category:-Private Hospital
- Total number of beds: 465 beds
- Average occupancy:- 300-325.
- Average number of patient in OPD: 900-1000
- Consent under Air & Water Act: Valid Consent
- Authorization under Bio medical waste (M&H) Rules, 1998: Valid Authorization

#### Observations

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace Pvt Ltd. And Yashraj Bio Technology.
- Though it was claimed that Personal Protection Equipments (PPE) are provided to the staff but most of the staff was not using the same while handling the BMW.
- The quantity of BMW generation is Yellow- 150kg/day, Red- 200 kg/day, Blue 40kg/day, White:25 kg/d , Cytotoxic : 4 Kg/d ,The total BMW generation per day is 350-425 kg.
- Blood bank wastes treated with autoclave and hypochloric acid. Blood/ fluids are treated with 10% hypochloric acid for 20 minutes retention.
- Register maintained for discarded blood bags.
- Waste collected from OT in black box, yellow and red.
- Sharp/needles collected in puncture proof containers, glass in blue covered containers.
- Containers removed within 48 hrs and when 3/4<sup>th</sup> is full.
- Solid waste of 500kg/d are stored within premises, which are taken by the authorised agent for disposal.
- Gloves and needle caps were observed in the bags of non-infectious waste.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- There were no records maintained on the quantity of solid waste generated.
- Treated wastewater is used in cooling towers and for horticulture purposes.

- STP of 550 KLD found installed and operational.
- Liquid waste from OT and laundry directly drained to STP.
- The sludge generated is given to the BMW contractor for treatment and disposal.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance.

**3.8 Sanjay Gandhi Hospital, Mangolpuri**

**Background:**

- Date of Inspection: 09.03.2017
- Contact Person: Dr. Avneendra Prasad, M.S.
- Year of establishment : April ,1986 Category : Delhi Govt.
- Total number of beds : 350
- Average occupancy 100%
- Average number of patient in OPD: 2000 -2500/day,
- Consent under Air Act & Water Act : Valid consent
- Authorisation under Bio medical waste (M&H) Rules, 1998: applied

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Infected materials including microbiology lab waste autoclaved before discarding. Waste blood from path lab drained after treatment with 2% hypochlorite for half hour.
- A BMW Committee in the hospital monitors regularly. Bio-medical waste as per colour coding disposed off daily through the authorized CBWTF.
- No records related to Hospital Acquired Infection(HAI) were maintained.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste handling persons did not have proper PPEs.
- Solid waste is being handed over to a private waste collector on lump sum basis. However, the hospital management does not aware of its disposal procedures.
- As informed nearly 200kg/day general waste is generated of which cardboards weighing ~15kg/day, are segregated and disposed through a different vendor. However, Hospital does not maintain any record of the same.
- No separate storage area designated for the general solid waste and the staff were not aware of the treatment/disposal procedures of the same. The storage area cleaned with water only. No disinfectant used.
- A STP of capacity 350 KLD on MBBR technology is installed for treatment of sewage as well as lab effluent.

- During visit STP was operational. However, neither any dried sludge nor wet sludge seen at site. At outlet of STP a flow metre is installed, the reading shows that STP is not operating regularly. No record of Sludge is maintained.
- Filter press in the ETP was not functional at the time of committee's visit and there was no record maintained by the hospital on the quantity of sludge generated. Further, no provision for sludge treatment could be seen.
- Fresh water is used in cooling towers instead of treated water.

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC

**3.9 Jaipur Golden Hospital**

**Background:**

- Date of Inspection: 09.03.2017
- Contact Person: Dr. Shilpa Pandita
- Year of establishment : 1991, Category : Private
- Total number of beds : 242 beds;
- Average occupancy :60% occupancy
- Average number of patient in OPD : 315, Casualty: 36
- Consent under Air Act & Water Act : Valid consent
- Authorisation under Bio medical waste (M& H) Rules, 1998: Valid Authorization

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff were not conversant & needed comprehensive training on implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Quantum of BMW: Yellow: 49 Kg/day, Red : 95 Kg/day, Blue : 26 Kg/day, White- 7kg./day.
- Pretreatment is given to lab waste, micro biological waste before handing over to CBWTF.
- It was informed, entire hospital staff has been vaccinated for Rabies, Hepatitis B and Tetanus.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste is being handed over to a private waste collector on lump sum basis for collection and disposal. However no records of MSW found maintained.
- STP of capacity 250 KLD found installed and operational.
- There was no record maintained by the hospital on the quantity of sludge generated from the STP.
- Flow meter found installed at outlet of STP.
- It was reported that treated water is reused for cooling, flushing & gardening.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 & SWM Rules, 2016 & their strict compliance.

**3.10 Saroj Super Specialty Hospital, Rohni**

**Background**

- Date of Inspection: 09.03.2017
- Contact Person: Mr. Mohan Singh, Designation
- Year of Establishment: 1997, Category : Private
- Total number of beds : 154 beds
- Average occupancy : 80%
- Average number of patient in OPD : 700-800/d
- Consent under Air & Water Act : Having valid consent
- Authorisation under Bio medical waste ( M& H) Rules ,1998: Having valid Authorization

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Quantum of BMW:Yellow: 30 Kg/day,Red :65 Kg/day, Blue : 10 Kg/day, White-8 kg./day.
- No records related to Hospital Acquired Infection(HAI) were maintained.
- Nearly 200 kg/day of general waste is collected through black bags. The storage area for general waste was however found to mismatch with the quantum generated.
- Solid waste is being handed over to a private waste collector on lump sum basis. However, the hospital management does not have any record on the generation of the same and is not aware of the disposal procedures.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste handling persons did not have proper PPEs.
- STP of capacity 35 KLD is installed for treatment of sewage as well as lab effluent and seems to be under capacity.
- Though the STP was operational during the visit, However, neither any dried sludge nor wet sludge was not seen at site. Sludge drying system not in working condition.
- No flow meter installed at Inlet and Outlet of STP. Treated water of STP is discharge into public sewer.
- There was no record maintained by the hospital on the quantity of sludge generated from the STP. Further, there was no provision for sludge treatment.
- Training of hospital staff and immunization deficient.

- The hospital is not having separate ETP to treat its effluent from LABs etc. It was informed that the entire liquid waste is treated in the installed STP.
- No record of the daily sludge generation available. Sludge is used for gardening requirements without proper treatment

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.

**3.11 Baba Sahib Ambedkar Hospital**

**Background**

- Date of Inspection: 10.03.2017
- Contact person: Dr Puneeta Mahajan, Medical Superintendent
- Year of Establishment:1999. Category: Delhi Govt
- Total number of beds : 500 beds
- Average number of patient in OPD :: 5069
- Consent under Air & Water Act 1974: valid upto 24/10/2018
- Authorisation under Bio medical waste (M& H) Rules ,1998: valid upto 22/10/2016

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd. for further treatment and disposal.
- Training to the staff members on BMW (Handling & Management) Rules, 2016 is not given on regular basis.
- Quantum of BMW:Yellow: 75 Kg/day,Red : 100 Kg/day, Blue : 15 Kg/day, White-4kg./day.
- Solid waste generation – 500- 550kg/day
- Twin bin system is not followed in the hospital.
- Solid waste is being handed over to a private waste collector (M/s Raju Enterprises ) on lump sum basis. However, Hospital does not have any record on the generation of the same and the management is not aware of the treatment/disposal procedures of the same.
- STP Capacity of 600 KLD based on SBR technology was working at 250 KLD.
- STP Sludge generation is 6-7 kg/week and is disposed along with BMW in yellow bags.

It was reported that treated wastewater is used for gardening and flushing purpose in residential complex, where dual piping is available.

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.

### 3.12 ESIC Hospital, Rohini

#### Background

- Date of Inspection: 10.3.2017
- Year of establishment : 1987: Central Govt.
- Total number of beds: 300 bedded hospital having Dental College and a hostel.
- Average occupancy; 90-95% occupancy.
- Average number of patient in OPD : 500-600/day,
- Consent under Air Act & Water Act 1974: Consent expired on 17.07.2011 (not applied for fresh consent)
- Authorisation under Bio medical waste (M&H) Rules, 1998: valid

#### Observations:

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- It was observed that uncovered bins are being used for collection of BMW at several places.
- As per the records, monthly generation of BMW of the hospital is Yellow-1130Kg, Red-743Kg and Blue-326Kg.
- Pre-treatment of liquid waste generated from the labs are not being done.
- The records w.r.t. strip tests/spore tests of Autoclave not maintained
- Solid waste generation: 250-300kg/day. However, there is no segregation through twin bin system in the hospital.
- Solid waste collection has been given to UPRNN and being dumped into MCD dhlaos. However, Hospital does not have any record of the generation of the same and the management is not aware of the treatment/disposal procedures of the same.
- ETP/STP is under construction and currently the wastewater generated is being disposed off into the nearby sewer.
- It was informed that vaccination of workers/staff is yet to be done.
- The hospital is required to phase-out chlorinated plastic bags.

#### Recommendations:

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.

### 3.13 Max Hospital, Shalimar Bagh.

#### Background:

- Date of Inspection: 10.3.2017
- Contact Person:- Mr. Vijay Kumar
- Year of establishment : 2011, Private hospital
- Total number of beds: 250

- Average occupancy 70%,
- Average number of patient in OPD : 386/day
- Consent under Air Act & Water Act 1974: Consent valid up to 08.06.2019.
- Authorisation under Bio medical waste (M&H) Rules, 1998: valid up to 05.06.2017.

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Waste generation: yellow: 207 kg, Red- 213 kg, blue – 96 kg & white 49 kg/day. BMW removed/transferred by covered trolleys and stored at temporary storage. It practices pre-treatment with chemical and autoclaving. Spore test also conducted to see the efficacy of disinfection.
- Solid waste generation: ~500 kg/day Twin bin system is not followed in the hospital.
- Solid waste, excluding kitchen waste, being given to Shakti Enterprises for further disposal and the kitchen waste to the piggeries. However, Hospital does not have any record on the generation of the same and the management is not aware of the treatment/disposal procedures of the same.
- It was observed that same type containers are being used for collection and storage of different types of BMW by placing the labels. The hospital is required to use coloured containers/bins for different types of BMW as specified in Bio Medical Waste (Management and Handling) Rules, 2016.
- It was informed that the hospital is uploading the BMW record annually on its website. The hospital is required to upload the monthly record on its website as per provisions of Bio Medical Waste (Management and Handling) Rules, 2016.
- The hospital has installed a STP of 125KLD (FAB) and ETP of 12.5KLD (for Lab, OT etc.). Actual sewage flow is 100KLD with a sludge generation of 15 to 20kg/week. As reported, the treated water is reused for flushing, cooling and gardening purpose.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance.

**3.14 Balaji Action Medical Institute, Paschim Vihar**

**Background:**

- Date of Inspection: 15.03.2017
- Contact Person: Dr. Rita Uarshney
- Year of Establishment: 2005. Category: Private
- Total number of beds : 250 beds.
- Average occupancy 70-80%,
- Average number of patient in OPD : – 500-600/day



- Consent under Air Act & water Act : Consent valid up to 08.06.2019.
- Authorisation under Bio medical waste (M&H) Rules, 1998: valid up to 05.06.2017.

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace BMW Pvt. Ltd.
- The quantity of BMW generation reported: Yellow- 53kg/d, Red 112 kg/d, Blue 98 kg/d, White- 11kg/d.
- Bio medical waste generated from Microbiology lab is handed over to CBWTF after pretreatment in Autoclave.
- It was informed that the staff was receiving comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016 during induction as also on daily basis
- It was informed that Hepatitis B vaccination was provided to approx. 400 Nursing Staff and 350 House-keeping staff and recently vaccination of Tetanus had also started.
- Care taken to maintain the Mortuary by fogging & washing with disinfectant.
- Records related to Hospital Acquired Infection(HAI) were obtained and it was informed that the institute was having a separate infection control team which ensured that HAI are kept to minimum.
- The coding and stickers on BMW bins and trollies were not uniform.
- Hospital is having valid consent to Operate under Air and Water Act and Authorization under BMW Rules.
- It was informed that approx. 250 kg/day of general waste was generated but no records of the same were existing. General waste lifted by Shakti Enterprises & dumped in MCD dhalao.
- Water supply to the hospital is by DJB. Hospital has a provision of using solar heaters for heating water.
- A common STP with M/s Balaji Action Hospital and Nursing Hostel has been installed with capacity of 600 KLD. STP is based on MBBR technology.
- Presently STP is treating approx. 300KLD (Average influent is 100 KLD from SBAMI and 200 KLD from Balaji Action Hospital and Nursing Hostel)
- The treated effluent is reused in Cooling Towers, horticulture and flushing with the excess discharge in sewer.
- Effluent generated from laundry and the liquid effluent generated after pre-treatment of liquid waste are discharged in STP.
- Sludge generation of 2 bags (~40-50 kg)/week used as manure.

**Recommendation:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 & SWM Rules, 2016 & their strict compliance.



### 3.15 Bhagwan Mahavir Hospital

#### Background:

- Date of Inspection: 15.03.2017
- Contact Person: Dr Annu Gosain
- Year of Establishment: 25/09/2003, Category : Govt of NCT Delhi
- Total number of beds : 252 beds
- Average occupancy : >100% occupancy
- Average number of patient in OPD : 2500/day
- Consent under Air & Water Act: Applied for
- Authorisation under Bio medical waste (M& H) Rules, 1998: available till March 2017. Applied for renewal:

#### Observations:

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- No. of staff quarters – 99; No. of occupants of hostel – 99
- Quantum of BMW: Yellow bins: 40-45 Kg/day, Red bins: 50 Kg/day, Sharps : 10-15 Kg/day.
- At many locations labels/stickers of BMW were not found existing on the colour coded bins.
- Proper colour coding of trolleys not maintained.
- Bio medical waste generated from Microbiology lab is handed over to CBWTF after pre-treatment in Autoclave. No records w.r.t. strip tests/spore tests of Autoclave could be shown.
- It was informed that the matter of Hepatitis B vaccination was in process. Tetanus vaccination is not initiated.
- It was informed that the Hospital was having a separate infection control team which ensured that Hospital Acquired Infections (HAI) are kept to minimum.
- The dead bodies stored in mortuary for a maximum of 24 hrs. Proper cleaning and disinfection practise followed.
- Solid waste generation – ~ 500 kg/day.
- Twin bin system is not followed for General solid waste in the hospital. No segregation of general waste observed.
- Solid waste, excluding kitchen waste, is being handed over to a private waste collector on lump sum basis. However, the contractor dumps the same in the nearby dhalao as per information gathered.
- Kitchen waste is given to nearby goshalas.
- Though it was claimed that Personal Protection Equipment's (PPE) are provided to the house keeping staff but it was observed that the staff was not having proper PPE while carrying out duties.

- It was informed that approx. 500 kg/day of general waste was generated from the hospital and the residential quarters but no records of the same could be shown.
- STP Capacity – 300 KLD of MBR Technology.
- It appears that the STP was just made operational at the time of committee's visit. No MLSS observed, Sludge drying system found non operational condition
- There were no flow meters installed at the STP. Presently intake effluent quantity to STP is reported as approx. 150KLD.
- It was reported that the treated effluent is reused to the extent of 80% for horticulture and the rest is discharged in sewer. However, no flow meter installed to quantify the reuse.
- No quantification of sludge generated from the STP

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.

**3.16 Sir Ganga Ram Hospital, Karol Bagh**

**Background**

- Date of Inspection: 20 .03.2017
- Contact person: Dr Satender Katoch,
- Year of establishment: 13<sup>th</sup> April,1954, Category : Private
- Total number of beds : 675 beds
- Average occupancy: 98%
- Average number of patient in OPD: OPD: 1400-1500 (goes up to 2000/day),
- Consent to operate under Air Act & Water Act : valid upto 13/01/2018
- Authorisation under Bio medical waste ( M& H) Rules ,1998: valid upto 03/01/2019

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace BMW Pvt. Ltd.
- Hospital is not using proper puncture proof container for disposal of sharps in some places. Hospital is also not disposing such container within prescribed time.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- It was informed that Hepatitis B vaccination was provided to Nursing and Housekeeping staff. During inspection no records were provided by the hospital. Hospital representative informed that they are doing annual check up of Nursing Staff and Housekeeping staff. However, Tetanus vaccine protocol was not done.
- Hospital is having certificate of accreditation from National Accreditation Board for Hospitals & Healthcare Providers (NABH).
- Barcoding, use of non-chlorinated blood bags, Tetanus vaccination and uploading on website remain to be undertaken.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.

- Solid waste is being collected in green and white bags. The kitchen waste in green bags are being given to the piggeries and the white bags are taken by a private contractor. However, the hospital management does not have any record on the generation of solid waste in green category and there is no proper agreement in this regard with the piggery. Further, there was no record of the final disposal of the white bags.
- Solid waste handling persons do not use PPEs like gloves, aprons, masks and shoes.
- The hospital has hired M/s Mobin Malik Enterprises, E-676, Main Road, Jagjit Nagar, IIIrd Pusta, Delhi-110053 for lifting general waste (Black Bags).
- The sources of water supply are DJB and 6 bore wells. Another source is water tankers.
- STP has been installed with capacity of 1000 KLD. STP is based on MBBR technology. Presently STP is treating approx. 600 - 650 KLD.
- STP was not properly functioning during the Ccommittee's visit as the water in the MBBR tank was dark black in color. Further, sharp stench could be felt near the MBBR tank indicating the existence of anaerobic condition. Post treatment of chlorination and softening covered.
- No flow meters installed at inlet & outlet. No sludge generation could be witnessed.
- The hospital uses about 300 KLD of fresh water for cooling towers instead of treated water.
- As informed, the treated effluent is reused in gardening, horticulture, flushing and construction purpose, however, no water meter installed in this regard.
- Unused treated water is being discharged in sewer.
- As per monitoring reports shown by hospital, the test results of treated wastewater showed high BOD:COD ratio indicative of chemical pollution. Bacterial quality not indicated in the test reports.
- Though it was claimed that Personal Protection Equipments (PPE) are provided to the house keeping staff but it was observed that the staff was not having proper PPE while carrying out duties.
- Hospital desired clarity on disposal mode for vacutainers, PVC blood bags & plastic petri plates from microbiology lab after autoclaving. Workshop from Ministry/CPCB/DPCC side requested.

**Recommendation:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

**3.17 Maharishi Valmiki Hospital, Poothkhurd**

**Background:**

- Date of Inspection: 22.03.2017
- Contact Person: Dr. Beena Khurana , MS
- Year of Establishment: 1985 Category: Govt of NCT Delhi
- Total number of beds : 150 beds
- Average occupancy : 60-70%
- Consent under Air & Water Act 1974: Applied for

- Authorisation under Bio medical waste (M& H) Rules, 1998: Applied for.

**Observations:**

- Maharishi Valmiki Hospital is a 150 bedded–multi specialty hospital of Delhi Govt.
- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- It was observed that the trolleys meant for transfer of bio medical waste were placed in an open place near stair case. It was informed that the hospital was going to provide separate cabins for such trolleys.
- No separate trolley washing area was found existing and it was informed that trolley washing was carried out inside the storage area meant for Bio Medical Waste only.
- No segregation of general waste was observed
- ETP has been recently commissioned with capacity of 165 KLD. ETP is based on EBR (Electro Biochemical Reactor) technology.
- The PWD staff required to maintain civil & electrical amenities at site, were not conversant with the treatment technology of the ETP installed.
- No flow meters have been installed at the ETP hence no information could be provided regarding the quantum of effluent being treated. No separate energy meter has been installed with the installed ETP.
- One Rainwater Harvesting Chamber in hospital premises working since 2014 onwards.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste handling persons does not have proper PPE.
- Hospital management does not have any record on the generation of the MSW and is not aware of the disposal procedures.
- It was informed that the Hospital has a separate infection control team. However, no data w.r.t. Hospital Acquired Infections (HAI) shown.
- Hospital has applied for Consent to Operate under Air and Water Act on 15.03.2016 and also applied for seeking Authorization under BMW Rules.

**Recommendation:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.

**3.18G.B. Pant Hospital:**

**Background:**

- Date of Inspection: 24.03.2017
- Contact Person: Dr.Rajiv Chawla (Director)
- Established in the year :2000, Delhi Govt. Hospital
- Total number of beds :735

- Average occupancy >100%
- Average number of patient in OPD: 1500-1700/day
- Consent under Air & Water Act: Consent applied for on 22.08.2013
- Authorization under Bio medical waste (M&H) Rules, 1998: valid up to 13.06.2016. The hospital has not applied for renewal of authorization so far. Show cause notice by DPCC in Dec, 2016. No reply furnished

### Observations

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Watergrace Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- The quantity of waste generation is estimated as: Yellow- 250-300 kg/day, Red-300-400 kg/day, White-10kg/day.
- It was informed that workers/staff engaged in BMW management has been immunized only for hepatitis B and not immunized for tetanus however no record of vaccination was available.
- Though it was claimed that Personal Protection Equipments (PPE) are provided to the staff but most of the staff was not using the same while handling the BMW.
- It was observed that the hospital was not using tamperproof container for collection of sharps and glass wares were mixed with sharps.
- It was also observed that the waste generated from Path microbiology labs is autoclaved and sent to the storage site in red bags for sending it to CBWTF instead of yellow colour & bag.
- Proper records of biomedical waste which are being autoclaved in the hospital are not being maintained properly. No record of spore test was available. It was reported that only strip tests are conducted.
- It was observed that the urine samples after testing are discarding in the drain without pre-treatment.
- The infectious material after autoclaving is discarded in red bags.
- It was informed that the laboratories are not having NABL Accreditation Certificate.
- It was informed that the hospital is using 1% Hypo solution for Disinfection;
- Monthly records of BMW management are not being uploaded by the hospital on its website.
- The hospital acquired infection (HAI) was reported to be 2-4%.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste generation is around 250 (900-1000 kg) bags per day and is dumped in a dhalao common for LNJP & GB Pant hospitals, which is later lifted directly by the municipality.
- STP of capacity 1250 KLD on UASB followed by electromagnetic bio-reactor, is in existence. Actual flow to STP is 1000 KLD. STP found in working condition with outlet quality meeting the desired standards.
- Pre-treatment of liquid waste generated from the labs is not being done

**Recommendation:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- As also desired hospital authorities ministries/CPCB/DPCC may organise training workshops on BMW & SWM Rules, 2016.
- Recommended for issuance of advisory for ensuring proper treatment of wastewater and effective waste management.

**3.19Gurunanak Eye Hospital, Asaf Ali Road, New Delhi:**

**Background**

- Date of Inspection: 24.03.2017
- Contact Person: Prof. Dr.Kamlesh (Director)
- Category: ,Govt Hospital
- Total number of beds: 212 beds with 170 occupancy
- Average number of patient in OPD: 1200-1500 patients/day
- Consent under Air & Water Act: Water consent not applied, consent under air act applied for
- Authorization under Bio medical waste (M&H) Rules, 1998: Applied for

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace Pvt Ltd. And Yashraj Bio Technology.
- Though it was claimed that Personal Protection Equipments (PPE) are provided to the staff but most of the staff was not using the same while handling the BMW.
- The quantity of BMW generation assessed is Yellow- 7kg/day, Red- 24 kg/day, Blue - 2 kg/day, though reported no blue colour marked cardbox is being used for collection of glassware.
- It was observed that glassware is being mixed with general waste.
- It was informed that collected BMW send to the temporary storage site manually. The hospital is required to use proper closed colour trollies for transportation of BMW to the temporary storage site.
- It was informed that Hospital workers have not been immunized by the hospital.
- Pretreatment of laboratory (infectious waste) waste is not being done by the hospital and it is handed over to M/s SMS Water Grace BMW Pvt. Ltd. without any pretreatment.
- It was observed that chemical liquid waste generated from the laboratory is not being pretreated.
- It was observed that the sharp containers are not tamper proof and need to be replaced. Sharps container placed at eye bank was also found filled with syringes and as per information the same was not removed for nearly three months.



- The Authorization under BMW Rules expired on 12.01.2017. However, the hospital has not applied for its renewal so far.
- It was informed that the hospital is not having any Autoclave.
- It was observed that the expired drug vials (eg. Antibiotics) are emptied in the drain and empty vials are reused for taking urine samples of inpatients. The infectious blood samples are not autoclaved before discarding but sent in red bags for disposal.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste generation was reported around 8 kg/day. The same is dumped in MCD Dhalao
- The hospital has installed a STP of 500 KLD capacity (MBR Technology) which was not found in operation.
- It was informed that STP is not in operation due to maintenance. But neither it was mentioned in the STP log book nor informed to DPCC.
- The hospital had applied for Consent to Operate under Air and Water Act on 30.11.2006.

### **Recommendations**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated

### **3.20St. Stephens Hospital, Tis Hazari**

#### **Background:**

- Date of Inspection: 27.03.2017
- Contact Person : Dr Ras Bage,
- Year of Establishment : 1885 , Category: Private
- Total number of beds : 595 beds
- Average occupancy: 60%
- Average number of patient in OPD: 880
- Consent under Air Act & Water Act: valid till 17/12/2019
- Authorisation under Bio medical waste (M& H) Rules ,1998: valid till 28/04/2018

#### **Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace BMW Pvt. Ltd..
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- The hospital was found to use very old stock of waste bins
- Color coding of the BMW collection bins were not up to the mark and most of the bins did not have foot-operated lead provisions
- The temper proof containers used for collection of sharps/needles are not disposed off for around 2-3 days till they are 2/3<sup>rd</sup> filled as informed by the staff.
- Immunization schedule not available. It was informed that while Hepatitis B vaccine was administered to staff handling BMW, that for Tetanus not initiated.

- The hospital is having hostels for doctors and nurses. Doctors hostel having 35 quarters and residing around 70 doctors. Nursing hostel having 150 quarters and residing around 350 nurses.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste is being collected in green and white bags. The kitchen waste in green bags is being given to the piggeries and the white bags are taken by the private contractor.
- Solid waste is being collected by a private contractor (M/s Bhupender Enterprises). The wet solid waste are being dumped into the MCD dhalao by the contractor and the gardening waste is being composted in the composting pits, within the campus.
- The hospital management does not have any record on the generation of solid waste except that for waste cardboards.
- The hospital is not maintaining record of solid waste handling.
- Solid waste & BMW handling hospital staff /persons not provided with PPEs like gloves, aprons, masks and shoes.
- Sewer line of these hostels is not connected with STP of the hospital and sewage of the same is being discharged directly into local sewer.
- The sources of water supply are 3 DJB connections and 4 bore wells. Additionally, water tankers are used, whenever required.
- STP has been installed with capacity of 500 KLD. Presently STP is hydraulically under loaded treating approx. 230-240 KLD.
- Part of treated wastewater is used for gardening purpose and the rest is disposed off into the sewers.
- No flow water meter installed in the STP.
- The hospital uses about 5KLD of fresh water for cooling towers.
- Record of the STP sludge generation is not maintained.

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

**3.21 Sant Paramanand Hospital**

**Background:**

- Date of Inspection: 27.03.2017
- Contact Person: Sh. Yatendra Chaudhary
- Year of Establishment: 1997
- Type/ Category: Private
- Total number of beds :153 beds
- Average occupancy : 90%
- Average number of patient in OPD : 500-550
- Consent under Air & Water Act 1974: Having valid consent
- Authorisation under Bio medical waste ( M& H) Rules, 1998: Applied for renewal on 27.02.2017.



**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s SMS Water Grace BMW Pvt. Ltd.
- Proper puncture proof container for sharps not observed in some places and found open in casualty.
- Hospital informed that quarterly training for handling and disposal of Bio Medical Waste are conducted. However, No records shown in this regard.
- It was informed that Hepatitis B and Tetanus vaccination was provided to Nursing Staff and Housekeeping staff. In case of needle injury , additional immunization administered.
- Though it was claimed that Personal Protection Equipments(PPE) are provided to the house keeping staff but it was observed that the staff was not having proper PPE while carrying out duties.
- They have provided training to their staffs regarding compliance of BMW Rules ,2016.
- Bio medical waste generated from Microbiology lab is handed over to CBWTF. after pre-treatment in Autoclave. Strip test introduced recently on weekly basis. Spore test not being done presently.
- Twin bin system for general solid waste not available in the hospital.
- The hospital has made separate arrangements for lifting general waste (Black Bags).
- Solid waste collected is being dumped into the nearby dhalao. Further, the hospital management does not have any record on the generation of solid waste in terms of weight.
- Waste handling staff/personnel did not have proper PPEs.
- The sources of water supply are 2 DJB connections and 3 bore wells.
- The hospital uses about 10 KLD of fresh water for cooling towers instead of treated water.
- A STP of 125 KLD capacity with SAFF technology is treating about 70-75 KLD of wastewater on an average. The treated wastewater is used for gardening purpose and the rest is being disposed off into the sewers.
- No record of the STP sludge generation provided. Sludge is being used for gardening requirements without proper treatment.
- Hospital is having valid consent to Operate under Air and Water Act (valid up to 24.11.2019) and Authorization under BMW Rules has expired on 10.12.2016 and applied for renewal on 27.02.2017.

**Recommendations:**

- Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 & SWM Rules, 2016 & their strict compliance.

**3.22Sunderlal Jain Hospital, Ashok Vihar**

**Background:**

- Date of Inspection: 29.03.2017
- Contact Person : Dr Saurabh

- Year of Establishment: 1985, Category : Private
- Total number of beds and : 200beds
- Average occupancy : 50%
- Average number of patient in OPD : 100-125 (of which 25 no. is EWS),
- No. of Surgeries performed: 5-10/day
- Consent under Air & Water Act : Having valid consent
- Authorisation under Bio medical waste ( M& H) Rules ,1998: Applied for.

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Immunization: Hepatitis B vaccination administered to entire staff however, the tetanus vaccination yet to be initiated for the staff.
- The expired blood bags from blood bank were being autoclaved and thereafter handed over to CBWTF in red bags. Records w.r.t. strip /spore test for the autoclave were not available. Non chlorinated blood bags not procured.
- Bins for bio medical waste were found placed in open outside the blood bank and EWS ward within the public reach.
- The Authorization under BMW Rules was valid till 09.09.2016 and the hospital has applied for its renewal on 09.09.2016.
- No records related to Hospital Acquired Infection(HAI) were maintained though it was informed that the institute was having a separate infection control team.
- Bio medical waste generated from Pathology lab was being handed over to CBWTF without any pre-treatment. The pathology lab was outsourced & operated by M/s Lal Pathlab.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Municipal Solid waste collected is being taken away by a private contractor( M/s Abu Siddiqui). Further, the hospital management does not have any record on the generation of the same and is not aware of the disposal procedures.
- Solid waste handling persons did not have proper PPEs.
- Hospital has 1 DJB water supply connection. Water consumption of 60-70 KLD reported with partial supply from 2 metered borewells within hospital premises.
- A STP of 80 KLD capacity and presently treating about 40 KLD of wastewater on an average.
- Some of the treated wastewater is being used for gardening purpose and the rest is being disposed off into the sewers.
- No disinfection being done to the treated wastewater.
- There is flow meter installed at inlet line and outlet line of the STP
- No record of the daily sludge generation available. Sludge is used for gardening requirements without proper treatment and excess sludge is dumped into a nearby pit without any proper protection.
- There are three Rainwater Harvesting Pits.

- Hospital is having valid consent to Operate under Air and Water Act issued by DPCC which is valid till 03.02.2020.
- The hospital is not having separate ETP to treat its effluent from LABs etc. It was informed that the entire liquid waste is treated in the installed STP.

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.

**3.23 Rajen Babu Institute of Pulmonary and Tuberculosis, Kingsway Camp.**

**Background:**

- Date of Inspection: 29.03.2017
- Contact person: Dr Dinesh Karwal, Medical Superintendent
- Year of Establishment: 1935; Category : North MCD
- Total number of beds : 700 beds as on 01/01/17
- Average occupancy: 60%
- OPD: 281/day, Casualty: 40-50/day and average surgeries conducted are 400/month including 300 surgeries/month related to cataract.
- Consent under Air & Water Act 1974: Yet to apply
- Authorisation under Bio medical waste (M& H) Rules ,1998: Yet to apply for renewal.

**Observations:**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. Presently BMW Rules 1998 followed.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff needed comprehensive training about implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- Bio-medical waste Generation: Blue (auto clavable): 6909 kg/yr, Yellow: 1096 kg/yr, Sharps : 2812 kg/yr.
- It was observed that the sharp waste including needles etc. was being disposed in cardboard containers rather than tamper proof containers.
- Proper colour coding of bins/trolleys needs to be maintained.
- Proper records need to be maintained w.r.t. bio medical waste as well as general municipal solid waste. The records regarding quantum of BMW were not in consonance with the actual quantum of BMW generated in the hospital.
- It was informed that Hospital was having valid Authorization under BMW Rules till May 2016 and were in process of applying for renewal of Authorization. Application for renewal of Consent to Operate under Air and Water Act was not filed due to absence of ETP/STP.
- It was informed that entire staff was vaccinated for Hepatitis B and Tetanus.

- The waste generated at microbiology lab was being treated in an Autoclave before handing it over to CBWTF. However, no records of strip test or spore test w.r.t. autoclave were found
- 08 Staff quarters within the premises and 200 Nos of Quarters in Residential complex.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- No segregation of general municipal solid waste observed. It was informed that approx. 1.50 Ton/day of general municipal solid waste is dumped at dhalao of North MCD which is finally disposed by North MCD to Bawana integrated waste management site.
- It was conveyed that the garden waste is dumped along with general municipal solid waste however a proposal has been forwarded to North MCD for constructing a pit for dumping of garden waste.
- Though it was claimed that Personal Protection Equipment's (PPE) are provided to the house keeping staff but it was observed that the staff was not having proper PPE while carrying out duties.
- Water supply to the hospital is by three DJB connections.
- Hospital is in process of commissioning (under trial run) a STP of 660 KLD capacity with aeration technology. Presently the quantum of effluent reaching the STP varied from 40-50 KLD only. No separate energy meters have been installed for the STP. The treated wastewater is proposed to be used for gardening purpose. However, there is no proposal for laying a pipelines for the same.
- The STP has been hydraulically oversized (more than 400% of the expected average flow, even though the current flow to STP is almost 2.5 times lesser than the expected average) and for very higher BOD (i.e., 400-500 mg/l) & COD (i.e., 800-100 mg/l) loads.
- Adjacent hospital namely I.D.Hospital is not having any STP (both being run by North MCD) and it would be appropriate if the effluent of I.D. Hospital is treated in the STP of this hospital.

**Recommendations:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated.
- Adjacent Hospital namely ID Hospital is not having any STP ( both being run North MCD) and it would be appropriate if the effluent of ID hospital is treated in the STP of this Hospital.

**3.24 Infectious Diseases(I.D.) Hospital, Kingsway Camp**

**Background:**

- Date of Inspection: 29.03.2017
- Contact Person: Dr. Aseem Babbar and Dr S.K Gupta
- Year of Establishment: 1935, Category: North MCD
- Total number of beds :150 beds
- Average Occupancy: 40 %
- Average number of patient in OPD: 450,
- Consent under Air Act & Water Act: Applied in 2014 but not received so far

- Authorisation under Bio medical waste (M& H) Rules,1998: applied in 2014 but not received so far.

**Observations**

- The hospital is in process of updating themselves for compliance w.r.t. Bio Medical Waste (Management and Handling) Rules, 2016. As informed, the hospital presently follows BMW rules 1998.
- The bio medical waste generated from the hospital is handed over to CBWTF namely M/s Biotic Waste Solutions Pvt. Ltd.
- It was observed that the staff were not conversant & needed comprehensive training on implementation of Bio Medical Waste (Management and Handling) Rules, 2016.
- At many locations labels/stickers of BMW were not found on the colour coded bins.
- Proper colour coding of trolleys not maintained.
- Proper records not maintained w.r.t. bio medical waste as well as general municipal solid waste.
- It was informed, entire hospital staff has been vaccinated for Rabies, Hepatitis B and Tetanus.
- Bio medical waste generated from microbiology lab is handed over to CBWTF, however no pre-treatment is carried out at the hospital.
- No records w.r.t. Hospital Acquired Infections (HAI) was maintained at the hospital. It was informed that the Hospital was having a separate infection control team
- 192 Staff quarters exist within the premises out of which 180 staff quarters were occupied.
- Hospital is existing in an area of approx. 37 Acres.
- Twin bin system is not available in the hospital for collecting the solid waste in segregated manner.
- Solid waste handling persons did not have proper PPEs.
- No segregation of general municipal solid waste observed. It was informed that general municipal solid waste was dumped at dhalao of North MCD.
- It was conveyed that the garden waste is dumped along with general municipal solid waste however a proposal has been forwarded to North MCD for constructing a pit for dumping of garden waste.
- No ETP/ STP has been installed to treat the effluent generated.
- Source of water is DJB (1 connection).

**Recommendation:**

- Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.
- The hospital is a major violator and penal provisions need to be initiated

**GENERAL COMMENTS /OBSERVATION ON HOSPITALS:**

**Hospitals ( 24 Nos.):**

**Generation of Bio-medical Waste (BMW):** The total generation of BMW from 24 Nos. of Hospitals in North MCD areas is about 7348.093kg/day.

**(a) Generation of Municipal Solid Waste (Non-infectious):**

- (i) Quantum - unknown, No record maintained by any hospital.
- (ii) The General waste is not segregated at source and the same is collected separately and disposed at Municipal dhalaos or through private vendors for final disposal at landfill sites.
- (iii) Segregation of solid waste to be carried out within the hospital premises and the organic waste to be treated within the premises, as far as possible as per Solid Waste Management Rules, 2016.

**(b) Generation of Hospital Hazardous Waste:**

- (i) Mercury waste generation is not observed due to change/advancement of technology for medical instruments i.e. Thermometer (non-breakable) or BP measuring sets.
- (ii) Sludge is collected in ETP before disinfection/chlorination of treated wastewater, which leads to the ETP sludge remaining as biologically active. The hospital should dispose the ETP sludge as per BMW Rules and its use as manure should be prohibited.

**(c) Waste generated from Pathological Laboratories and Sewage Systems:**

- (i) Some of the Hospitals are not following the pre-treatment of infectious wastes from pathological/microbiological laboratories as prescribed in the BMW Rules.
- (ii) M/s Lal Path Lab has not been included in the list of bulk generators by North MCD. It is recommended that the same may be included in the list.

**(d) Waste generated from sewage system:**

- (i) Most of the hospitals have STPs with filtration, softening and disinfection in the post-treatment process and they are not treating their Lab effluent separately. As decided in the recent Environment Clearances issued by SEIAA (Delhi), all the Hospitals should treat their effluent (infectious/chemical) generated from LABs etc. in a separate ETP..... **matter requires consideration at Policy/Ministry level.**
- (ii) The existing STP shall be checked regularly for continuous operation and efficiency through surprise visits by a third part auditor, preferably from DPCC and CPCB. The report on the same shall be submitted to the Hon'ble NGT.

**(e) Causes for hospital infections and Remedies for prevention:**

- (i) The possible causes of hospital infections as per observations include; absence of pre-treatment of blood samples, blood infected wastes, pathological lab discharges. Absence of separate temporary storage facility for BMW and general wastes; and also absence of on-site ETP with post treatment for disinfection.

**(f) General observations for BMW Management:**

- (i) No collection of BMW during weekends by the contractors. Therefore, the storage of wastes during weekends is for about 48 hrs.
- (ii) The storage area of BMW is washed with disinfectant which is being discharged into the ETP/STP for treatment.
- (iii) With respect to BMW Rules, 2016, the bar coding of waste storage bags and uploading of information on BMW on website is not followed by any of the hospitals.

## **4. Institution-Wise Recommended Actions**

### **1. Major violator recommended for initiation of penal provisions:**

- i) Hindurao Hospital, Malkaganj.
- ii) Saroj Super Specialty Hospital.
- iii) Baba Sahib Ambedkar Hospital.
- iv) ESIC Hospital, Rohini.
- v) Bhagwan Mahavir Hospital
- vi) Maharishi Valmiki Hospital, Poothkhurd
- vii) GuruNanak Eye Hospital, Asaf Ali Road, New Delhi
- viii) Rajen Babu Institute of Pulmonary and Tuberculosis, Kingsway Camp
- ix) Infectious Diseases(I.D.) Hospital, Kingsway Camp

### **2. Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016:**

- i) Loknayak Jaiprakash Hospital, Delhi Gate.
- ii) Sanjay Gandhi Hospital, Mangolpuri.
- iii) Fortis Hospital, Shalimar Bagh.
- iv) Sir Ganga Ram Hospital, Karol Bagh.
- v) G.B. Pant Hospital, Delhi Gate.
- vi) St. Stephens Hospital, Tis Hazari.
- vii) Sunderlal Jain Hospital, Ashok Vihar
- viii) Rajiv Gandhi Cancer Institute and Research Centre, Sector-5, Rohini.

### **3. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance:**

- i) Tirath Ram Shah Hospital, Rajpura Road.
- ii) Satyavadi Raja Harishchand Hospital, Narela
- iii) B.L.Kapoor Hospital, Pusa Road.
- iv) Jaipur Golden Hospital.
- v) Max Hospital, Shalimar Bagh
- vi) Balaji Action Medical Institute, Paschim Vihar.
- vii) Sant Paramanand Hospital





5. Summary Table on Observations & Recommendations:

Annexure

S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
1	<p><b>Lok Nayak Jai Prakash Hospital</b> - Delhi Govt. Hospital                      Date of Inspection: 06.02.2017                      No. of Beds : 1890                      OPD : 5000 (Emergency 1000 approx.)                      BMW Generation : 602 kg/day                      WW Generation : NIL                      Solid Waste : 1000 Kg/day                      Air/Water Consent: Applied                      BMW authorization under bio medical waste rules : Not having valid authorisation</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.                      (ii) One out of the two STPs not functional                      (iii) Liquid waste from laundry, kitchen, pathlabs also sent to STP without pre-treatment                      (iv) No recycling provisions for treated waste water.                      (v) Two bins system of segregation of municipal solid waste does exists                      (vi) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.                      2. Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.</p>
2	<p><b>Hindu Rao Hospital – Govt Hospital</b>                      Date of Inspection: 07.02.2017                      No. of Beds : 980                      OPD : 2000                      BMW Generation : 270 kg/day                      WW Generation : KL/D                      Solid Waste : 1100 Kg/day                      Air/Water Consent: not renewal                      BMW authorization under bio medical waste rules : applied for authorization on 10.06.2016</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.                      (ii) Untreated waste including blood samples presently discharged into common sewer after pre-treatment with hypo chloride only                      (iii) Two bins system of segregation of municipal solid waste does not exists                      (iv) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.                      (v) Records related to HAI not available with the hospital.</p>	<p>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.                      2. <b>The hospital is a major violator and penal provisions need to be initiated</b></p>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
3	<p><b>Tirath Ram Shah Hospital, Rajpura Road, Delhi 54</b>  Date of Inspection: 07.02.2017  No. of Beds : 200  OPD : 350-400  BMW Generation : 14 kg/day  WW Generation : 70 KL/D  Air/Water Consent: valid consent  BMW authorization under bio medical waste rules : valid authorization</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.  (ii) Two bins system of segregation of municipal solid waste does exist  (iii) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>3. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</p>
4	<p><b>Satyavadi Raja Harishchand Hospital, Narela</b>  Date of Inspection: 07.02.2017  No. of Beds : 200  OPD : 2000-3000/day  BMW Generation : 90.5 kg/day  WW Generation : 120 KL/D  Solid Waste : 75.6 Kg/day  Air/Water Consent: valid consent  BMW authorization under bio medical waste rules : valid authorization</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.  (ii) Two bins system of segregation of municipal solid waste does exist  (iii) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>1. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</p>
5	<p><b>Rajiv Gandhi Cancer Institute and Research Centre, SECTOR-5, ROHINI.</b>  Date of Inspection: 09.02.2017  No. of Beds : 302  OPD : 500-600/day  BMW Generation : 200 kg/day  WW Generation : 140 KL/D  Untreated WW : NIL  Air/Water Consent: Valid Consent</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.  (ii) Two bins system of segregation of municipal solid waste does not exist  (iii) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.  ➤ Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.</p>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	BMW authorization under bio medical waste rules : Valid Authorisation		
6	<p><b>Fortis Hospital, Shalimar Bagh</b>                      Date of Inspection: 10.02.2017                      No. of Beds : 262                      OPD : 280/day                      BMW Generation : 144 kg/day                      WW Generation : 153 KL/D                      Untreated WW : NIL                      Air/Water Consent: valid consent                      BMW authorization under bio medical waste rules : valid Authorisation</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.                      (ii) Two bins system of segregation of municipal solid waste does not exists                      (iii) It appeared that STP was made operational just prior to the visit.                      (iv) There is no proper record regarding the quantity of Solid waste generated and its disposal is being maintained by the hospital management                      (v) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.                      2. Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.</p>
7	<p><b>B.L.Kapoor Hospital, Pusa Road.</b>                      Date of Inspection: 13.02.2017                      No. of Beds : 465                      OPD : 900-1000                      BMW Generation : 350-425 kg/day                      WW Generation : 150 KL/D                      Untreated WW : NIL                      Solid Waste : 500 Kg/day                      Air/Water Consent: valid consent                      BMW authorization under bio medical waste rules : valid authorisation</p>	<p>(i) Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.                      (ii) Two bins system of segregation of municipal solid waste does exists                      (iii) Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p>	<p>1. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</p>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
8	<p><b>Sanjay Gandhi Hospital, Mangolpuril</b>  Date of Inspection: 09.03.2017  No. of Beds : 350  OPD : 2000-2500/day  BMW Generation : 110 kg/day  Untreated WW : NIL  Solid Waste : 200 Kg/day  Air/Water Consent: Applied Consent  BMW authorization under bio medical waste rules : Applied for authorization</p>	<ol style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does not exists</li> <li>iii. No records related to Hospital Acquired Infection (HAI) were maintained.</li> <li>iv. There is no proper record regarding the quantity of Solid waste generated and its disposal is being maintained by the hospital management</li> <li>v. During visit STP was operational. However, neither any dried sludge nor wet sludge seen at site. At outlet of STP a flow metre is installed, the reading shows that STP is not operating regularly. No record of Sludge is maintained.</li> <li>vi. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> </ol>	<ol style="list-style-type: none"> <li>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.</li> <li>2. Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC</li> </ol>
9	<p><b>Jaipur Golden Hospital</b>  Date of Inspection: 09.03.2017  No. of Beds : 242  OPD : 315  BMW Generation : 177 kg/day  ETP installed: 250KLD  Untreated WW : NIL  Solid Waste : Kg/day  Air/Water Consent: Valid Consent  BMW authorization under bio medical waste rules : Valid Authorization</p>	<ol style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does exists</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> </ol>	<ol style="list-style-type: none"> <li>1. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</li> </ol>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
10	<p><b>Saroj Super Specialty Hospital</b>  Date of Inspection: 09.03.2017  No. of Beds : 154  OPD : 700-800/d  BMW Generation : 113 kg/day  WW Generation : 35 KL/D  Untreated WW : Nil  Solid Waste : 200 Kg/day</p> <p>Air/Water Consent: Valid Consent  BMW authorization under bio medical waste rules : Valid Authorization</p>	<ul style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does not exists</li> <li>iii. No records related to Hospital Acquired Infection (HAI) were maintained.</li> <li>iv. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> <li>v. STP of capacity 35 KLD is installed for treatment of sewage as well as lab effluent and seems to be under capacity.</li> <li>vi. No flow meter installed at Inlet and Outlet of STP. Treated water of STP is discharge into public sewer</li> </ul>	<ul style="list-style-type: none"> <li>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.</li> <li><b>2. The hospital is a major violator and penal provisions need to be initiated.</b></li> </ul>
11	<p><b>Baba Sahib Ambedkar Hospital</b>  Date of Inspection: 10.03.2017  No. of Beds : 500 Avg.  OPD : 5069  BMW Generation : 194 kg/day  WW Generation : 200KL/D  Untreated WW : Nil  Solid Waste : 500-550 Kg/day  Air/Water Consent: Water valid up to 24/10/2018, Air valid up to 24/10/2018  BMW authorization under bio medical waste rules : Applied</p>	<ul style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does exists</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> <li>iv. There were evidences that the STP was just started before the committee's visit and there was a by-pass pipeline existing to divert the treated/untreated wastewater into the nearby sewer/drain</li> </ul>	<ul style="list-style-type: none"> <li>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.</li> <li><b>2. The hospital is a major violator and penal provisions need to be initiated.</b></li> </ul>
12	<p><b>ESIC Hospital, Rohini</b></p>	<ul style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> </ul>	<ul style="list-style-type: none"> <li>1. Hospital needs to strictly comply with the</li> </ul>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	Date of Inspection: 10.03.2017 No. of Beds : 300 BMW Generation : 2199 kg/month Solid Waste : 250-300 Kg/day Air/Water Consent: consent expired on 17.07.2011 ( not applied for fresh consent) BMW authorization under bio medical waste rules : Valid	<ul style="list-style-type: none"> <li>ii. Two bins system of segregation of municipal solid waste does exists</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> <li>iv. The records w.r.t strip tests/spore tests of Autoclave not maintained</li> <li>v. ETP/STP is under construction and currently the wastewater generated is being disposed off into the nearby sewer</li> <li>vi. The hospital is required to phase-out chlorinated plastic bags</li> </ul>	<p>provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.</p> <p><b>2. The hospital is a major violator and penal provisions need to be initiated.</b></p>
13	<b>Max Hospital, Shalimar Bagh</b> Date of Inspection: 10.03.2017 No. of Beds : 250 OPD:386/day BMW Generation : kg/day WW Generation : KL/D Untreated WW : Solid Waste : 500 Kg/day Air/Water Consent: Valid Consent BMW authorization under bio medical waste rules : Valid	<ul style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does exists</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> <li>iv. The hospital is required to use coloured containers/bins for different types of BMW as specified in Bio Medical Waste (Management and Handling) Rules, 2016.</li> </ul>	<p>➤ Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</p>
14	<b>Balaji Action Medical Institute, Paschim Vihar</b> Date of Inspection: 15.03.2017 No. of Beds : 250, OPD: 500-600/day BMW Generation : 274 kg/day	<ul style="list-style-type: none"> <li>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</li> <li>ii. Two bins system of segregation of municipal solid waste does exists</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> </ul>	<p><b>1.</b> Recommended for issuance of advisory for improvements of existing practices as per BMW Rules,2016 &amp; SWM Rules, 2016 &amp; their strict compliance.</p>

**INTERIM Report of Sub-Committee –III (North MCD) on Inspection of Bulk Waste Generators... Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	WW Generation : 300 KL/D Untreated WW : NIL Solid Waste : 250Kg/day Air/Water Consent: Valid consent Authorization under bio medical waste rules :Valid		
15	<b>Bhagwan Mahavir Hospital</b> Date of Inspection: 15.03.2017 No. of Beds : 252 OPD : 2500/day ( avg) BMW Generation : 112 kg/day WW Generation : 55 L/D Untreated WW : Nil Solid Waste : 500 Kg/day Air/Water Consent: Applied for BMW authorization under bio medical waste rules : available till March 2017. Applied for renewal:	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exists iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place. iv. It appears that the STP was just made operational at the time of committee’s visit. No MLSS observed, Sludge drying system found non operational condition. v. There were no flow meters installed at the STP.	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.  <b>2. The hospital is a major violator and penal provisions need to be initiated.</b>
16	<b>Sir Ganga Ram Hospital, Karol Bagh</b> Date of Inspection: 20.03.2017 No. of Beds: 675 OPD : 1400 BMW Generation : 33616 kg/ per month WW Generation : 400 KLD Untreated WW : NIL Air/Water Consent: valid BMW authorization under bio medical waste	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exists iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place. iv. STP was not properly functioning during the Ccommittee’s visit as the water in the MBBR tank was dark black in color	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016.  2, Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.



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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	rules : valid	v. No flow meters installed at inlet & outlet. No sludge generation could be witnessed vi. Unused treated water is being discharged in sewer.	
17	<b>Maharishi Valmiki Hospital, Poothkhurd</b> Date of Inspection: 22.03.2017 No. of Beds : 150 BMW Generation : 1603 kg/day WW Generation : 200 KL/D Untreated WW : Solid Waste : 226.9 Kg/day (by MCD) EC obtained: Applied for renewal Air/Water Consent: Applied for renewal BMW authorization under bio medical waste rules :Applied for	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exists iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place. iv. It was informed that the Hospital has a separate infection control team. However, no data w.r.t. Hospital Acquired Infections (HAI) shown. v. Hospital has applied for Consent to Operate under Air and Water Act on 15.03.2016 and also applied for seeking Authorization under BMW Rules.	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016. 2. <b>The hospital is a major violator and penal provisions need to be initiated.</b>
18	<b>G.B. Pant Hospital, Delhi Gate.</b> Date of Inspection: 24.03.2017 No. of Beds : 735 OPD : 1500-1700/day BMW Generation : 710 kg/day WW Generation : 1000KLD lid Waste : 900-1000 Kg/day Air/Water Consent : Not valid consent BMW authorization under bio medical waste	➤ Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ➤ Two bins system of segregation of municipal solid waste does exists ➤ Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place. ➤ It was observed that the hospital was not using tamper proof container for collection	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016. 2. As also desired hospital authorities ministries/CPCB/DPCC may organise training workshops on BMW & SWM Rules, 2016. 3. Recommended for issuance of Show-cause

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	rules : Not valid authorization	<p>of sharps and glass wares were mixed with sharps.</p> <p>➤ It was observed that the urine samples after testing are discarding in the drain without pre-treatment.</p> <p><i><b>i. The hospital has not applied for renewal of authorization so far. Show cause notice by DPCC in Dec, 2016. No reply furnished</b></i></p>	notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.
19	<p><b>GuruNanak Eye Hospital, Asaf Ali Road, New Delhi</b>                      Date of Inspection: 24.03.2017                      No. of Beds : 170                      OPD : 1200                      BMW Generation : 33 kg/day                      WW Generation : 200KLD                      Solid Waste : 8 Kg/day                      Air/Water Consent: Water consent not applied ,                      Air consent applied                      BMW authorization under bio medical waste rules :Applied</p>	<p>i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.</p> <p>ii. Two bins system of segregation of municipal solid waste does exists</p> <p>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</p> <p>iv. It was observed that glassware is being mixed with general waste.</p> <p>v. It was informed that collected BMW send to the temporary storage site manually. The hospital is required to use proper closed colour trollies for transportation of BMW to the temporary storage site</p> <p>vi. Pretreatment of laboratory (infectious waste) waste is not being done by the hospital and it is handed over to M/s SMS Water Grace BMW Pvt. Ltd.</p>	<p>1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 &amp; SWM Rules, 2016.</p> <p><b>2. The hospital is a major violator and penal provisions need to be initiated.</b></p>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
20	<b>St. Stephens Hospital, Tis Hazari</b> Date of Inspection: 27.03.2017 No. of Beds : 595 OPD : 880 BMW Generation : 311 kg/day WW Generation : 500 KL/day Solid Waste : 1220 Kg/day Air/Water Consent: Valid BMW authorization under bio medical waste rules : valid	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exist iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place iv. Sewer line of the hostels under this hospital is not connected with STP of the hospital and sewage of the same is being discharged directly into local sewer.	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016. 2. Recommended for issuance of Show-cause notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC. -
21	<b>Sant Paramanand Hospital</b> Date of Inspection: 27.03.2017 No. of Beds : 153 OPD : 500 BMW Generation : 106 kg/day Solid Waste : 64 Kg/day Avg. Air/Water Consent: valid consent BMW authorization under bio medical waste rules : applied for r ETP : Not provided Not valid documents attached for cross reference.	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exist iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.	1. Recommended for issuance of advisory for improvements of existing practices as per BMW Rules, 2016 & SWM Rules, 2016 & their strict compliance.
22	<b>Sunderlal Jain Hospital, Ashok Vihar</b> Date of Inspection: 29.03.2017 No. of Beds : 200 OPD : 120 BMW Generation : 50 kg/day	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exist iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016. 2. Recommended for issuance of Show-cause

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	WW Generation : 56.88 KLD Untreated WW : Nil Solid Waste : 40-50 Kg/day EC obtained: obtained Air/Water Consent: valid concent (valid till 3/2/2020) BMW authorization under bio medical waste rules : valid up to 9/9/2016, Applied for authrization ETP :	place. iv. No records related to Hospital Acquired Infection(HAI) were maintained though it was informed that the institute was having a separate infection control team.	notice under section 5 of EPA read with Bio Medical Waste Rules, 2016 may be issued to the hospital followed by strict monitoring by DPCC.
23	<b>Rajen Babu Institute of Pulmonary and Tuberculosis, Kingsway Camp</b> Date of Inspection: 29.03.2017 No. of Beds : 700 OPD : 250 BMW Generation : 30 kg/d Solid Waste : . 1.50 Ton/day Air/Water Consent: Not applied BMW authorization under bio medical waste rules : not applied	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016. ii. Two bins system of segregation of municipal solid waste does exists iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place. iv. It was informed that Hospital was having valid Authorization under BMW Rules till May 2016 and were in process of applying for renewal of Authorization. Application for renewal of Consent to Operate under Air and Water Act was not filed due to absence of ETP/STP. v. It was observed that the sharp waste including needles etc. was being disposed in cardboard containers rather than tamper proof containers	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM Rules, 2016. 2. <b>The hospital is a major violator and penal provisions need to be initiated.</b> 3. Adjacent Hospital namely ID Hospital is not having any STP ( both being run North MCD) and it would be appropriate if the effluent of ID hospital is treated in the STP of this Hospital. -
24	<b>Infectious Diseases(LD.) Hospital, Kingsway Camp</b>	i. Strict segregation of Bio Medical Waste not done as per BMW Rules 2016.	1. Hospital needs to strictly comply with the provisions of BMW Rules, 2016 & SWM

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S.No	Name of the Bulk Waste Generator/Hospital	Observations	Recommendations
	Hospitals		
	<p>Date of Inspection: 29.03.2017                      No. of Beds : 150                      OPD : 450                      BMW Generation : 9.56 kg/day:                      Solid Waste : 300 Kg/day</p> <p>Air/Water Consent: Applied in Jn                      BMW authorization under bio medical waste rules : applied in 2014 but not received so far.</p>	<ul style="list-style-type: none"> <li>ii. Two bins system of segregation of municipal solid waste does exist</li> <li>iii. Proper protocol for the trainings on BMW Rules 2016 and SWM Rules 2016 not in place.</li> <li>iv. Bio medical waste generated from microbiology lab is handed over to CBWTF, however no pre-treatment is carried out at the hospital.</li> <li>v. No records w.r.t. Hospital Acquired Infections (HAI) was maintained at the hospital. It was informed that the Hospital was having a separate infection control team</li> </ul>	<p>Rules, 2016.</p> <p><b>2. The hospital is a major violator and penal provisions need to be initiated.</b></p>



**Template of Table showing Inspections with respect to Bulk-Waste Generators and Hospitals**

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
(1)	<p><b><u>Lok Nayak Jai Prakash Hospital</u></b></p> <p>No. of Beds : 1649                      BMW Generation : 596 kg/day                      WW Generation : 1300 KLD                      Untreated WW : 700 KLD                      Solid Waste : _____ Kg/day</p>	<p>(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016</p> <p>(ii) Temporary waste storage is provided.</p> <p>(iii) BMW is disposed through CBWTF (M/s SMS Grace BMW Pvt. Ltd) located at Nilothi.</p> <p>(iv) Installed STP of capacity 600 KLD was found under shut down and STP of 1200 KLD found under construction. No Dual plumbing system exists.</p>	<p>(i) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.</p> <p>(ii) Pre-treatment of BMW is not practiced.</p> <p>(iii) Bar coding systems for BMW is not practised.</p> <p>(iv) Effluent generated from laundry is being discharged directly in to sewer.</p>	<p>Recommended for issuance of letter for improvements of existing practices w.r.t following:</p> <p>(i) Bin system to be followed for collection of Solid waste in accordance with the SWM Rules, 2016.</p> <p>(ii) On-site Pre-treatment of BMW to be ensured from labs &amp; OT also.</p> <p>(iii) Bar coding systems for BMW is to be practised.</p> <p>(iv) Trolleys should be provided for transfer of BMW to storage area.</p> <p>(v) The quantity of liquid waste generation has not been assessed. Provision may be made to treat entire wastewater and the treated water be recycled for ensuring zero discharge.</p> <p>(vi) The temporary waste storage facility required to be maintained hygienic.</p> <p>(vii) Waste collection bins needs replacement with more numbers.</p> <p>(viii) Waste management cell needs to be strengthened.</p> <p>(ix) The waste management staffs to be provided with protective gears.</p> <p>(x) Training protocols to be created and followed more rigorously for doctors, nurses &amp; waste management staff and STP operators.</p>
(2)	<p><b><u>Hindu Rao Hospital</u></b></p> <p>No. of Beds : 980                      BMW Generation : 326 kg/day                      WW Generation : 1530 KLD</p>	<p>(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016</p> <p>(ii) Temporary waste storage is provided.</p> <p>(iii) BMW is disposed through CBWTF (M/s</p>	<p>(i) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.</p>	<p>(i) On-site Pre-treatment of BMW to be ensured from labs &amp; OT also.</p> <p>(ii) STP should be installed and treated waste quality maintained</p>

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	Untreated WW : 1530 KLD Solid Waste : ____Kg/day	SMS Grace BMW Pvt. Ltd) located at Nilothi. (iv) STP found under construction. No Dual plumbing system exists.	(ii) Bar coding systems for BMW is not practised. (iii) Effluent generated from Hospital is being discharged directly in to sewer.	(iii) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016. (iv) Arrange regular training for staffs.
(3)	<b>Tirath Ram Shah Hospital</b>  No. of Beds : 200 BMW Generation : 206 kg/day WW Generation : 70 KLD Untreated WW : NIL Solid Waste : ____Kg/day	(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016 (ii) Pre-treatment of BMW is practiced (iii) Temporary waste storage is provided. (v) BMW is disposed through CBWTF (M/s SMS Grace BMW Pvt. Ltd) located at Nilothi. (iv) Treated effluent from STP is being used for cooling towers and gardening. No Dual plumbing system exists.	(i) Bar coding systems for BMW is not practised. (ii) Bin system for MSW is not followed in accordance with the SWM Rules, 2016. (iii) No provision for treatment of sludge is done.	(i) Implement BMW rules, 2016 in r/o transporting & storage of waste in hospital premises. (ii) Implement Bar code systems (iii) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016. (iv) Upload information on web site.
(4)	<b>Satyawadi Raja Harish Chander Hospital</b>  No. of Beds : 200 BMW Generation : 90 kg/day WW Generation : 220 KLD Untreated WW : NIL Solid Waste : ____Kg/day	(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016 (ii) Pre-treatment of BMW is not practiced (iii) Temporary waste storage is provided. (iv) BMW is disposed through CBWTF ( M/s Biotic waste Solutions) located at SSI Industrial Area at GTK Road. (v) Installed ETP of capacity 300 KLD found operational. No Dual plumbing system exists. (vi) Treated effluent from STP is being used for gardening.	(i) No pre treatment of infectious wastewater was observed. (ii) No secondary sedimentation tank was in place. (iii) No provision for treatment of sludge is done. (iv) No proper documentation of the quantity of sewage/solid waste generated is being maintained by the hospital management. (v) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.	(i) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016 (ii) Pre treatment of infectious wastewater shall be done properly as per Bio Medical Waste (Management and Handling) Rules, 2016. (iii) The existing STP's function shall be monitored for adequacy and efficiency. (iv) Proper records/documentation shall be maintained on the waste (Solid & Liquid) generation and disposal procedures. (v) Hospital Management shall ensure the proper treatment of sludge generated from the STP before disposal.
(5)	<b>Rajiv Gandhi Cancer Institute and Research Centre</b>  No. of Beds : 302 BMW Generation : 201 kg/day	(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016 (ii) Pre-treatment of BMW is practiced (iii) Temporary waste storage is provided.	(i) No provision for treatment of sludge is done. (vi) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.	(i) Pre treatment of infectious wastewater shall be done properly as per Bio Medical Waste (Management and Handling) Rules, 2016. (ii) The existing STP's function shall be



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	<p>WW Generation : 220 KLD                  Untreated WW : NIL KLD                  Solid Waste : ____Kg/day</p>	<p>(iv) BMW is disposed through CBWTF.                  (vii) Installed ETP of capacity 120 KLD found operational. No Dual plumbing system exists.                  (vi) Solid waste is being collected separately and given to the private contractor and no proper knowledge with staff members about the disposal of same.                  (vii) BMW is disposed through CBWTF (M/s SMS Grace BMW Pvt. Ltd) located at Nilothi.</p>	(ii)	<p>monitored for adequacy and efficiency. Proper documentation shall be maintained on the waste (Solid &amp; Liquid) generation and disposal procedures.                  (iii) Hospital Management shall ensure the proper treatment of sludge generated from the STP before disposal.                  (vi) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016</p>
(6)	<p><b>Fortis Hospital</b>                  No. of Beds : 262                  BMW Generation : 296 kg/day                  WW Generation : 153 KLD                  Untreated WW : 40 KLD                  Solid Waste : ____Kg/day</p>	<p>(i) Segregation of bio-medical waste (BMW) is practiced as per BMW Rules, 2016                  (ii) Pre-treatment of BMW is practiced                  (iii) Temporary waste storage is provided.                  (iv) BMW collected is transferred with closed trolleys.                  (v) STP of 300 KLD with SAFF reactor technology along with MGF, ACF and softening is being employed                  (viii) Part of treated effluent from STP being used for gardening and cooling tower.                  (ix) BMW is disposed through CBWTF (M/s SMS Grace BMW Pvt. Ltd) located at Nilothi.</p>	<p>(i) No test report is available to determine the quality of inlet wastewater.                  (ii) No sludge treatment is being employed, as of now even, though filter press is installed for dewatering the sludge.                  (iii) Sharp smell was felt during the site visit which may have the impact on the health of the operators.                  (vii) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016</p>	<p>(i) The existing STP's function shall be monitored for adequacy and efficiency.                  (ii) Proper documentation shall be maintained on the waste (Solid &amp; Liquid) generation and disposal procedures.                  (iii) Hospital Management shall ensure the proper treatment of sludge generated from the STP before disposal.                  (iv) Proper ventilation shall be provided in the STP area to prevent the development of anaerobic condition in the STP and to reduce the odour.                  (viii) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016</p>
(7)	<p><b>BLK Super Speciality Hospital</b>                  No. of Beds : 465                  BMW Generation : 500-kg/day                  WW Generation : 500 KLD                  Untreated WW : NIL                  Solid Waste : ____Kg/day</p>	<p>(i) Pre-treatment of BMW is practiced                  (ii) Temporary waste storage is provided.                  (iii) BMW collected is transferred with closed trolleys.                  (iv) Installed ETP of 550 KLD (i.e., one 300 KLD and another 250 KLD) outsourced to RBN Enviro for O&amp;M and treated effluent is being used for cooling towers and gardening.                  (v) BMW is disposed through CBWTF (M/s</p>	<p>(i) Segregation and two Bin system for MSW is not followed in accordance with the SWM Rules, 2016.                  (ii) Gloves and needle caps were observed in the bags of non-infectious waste at the storage site.                  (iii) There were no records maintained on the quantity of solid waste</p>	<p>(i) Bar coding of BMW bags shall be followed.                  (ii) Proper documentation shall be maintained on the solid waste generation and disposal procedures.                  (iii) Proper segregation of solid waste as per SWM Rules, 2016 shall be done and no infectious shall be allowed to mix with the general solid waste.                  (iv) Proper pre-treatment in accordance to</p>

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		SMS Grace BMW Pvt. Ltd) located at Nilothi.	generated.	<p>the BMW Rules, 2016 shall be given to the OT wastewater before treating the same in ETP.</p> <p>(ix) Hospital employees shall be made aware of the process of treatment of sludge generated from the ETP and its method of disposal.</p> <p>(x) Bin system to be followed for segregation and collection of Solid waste in accordance with the SWM Rules, 2016</p>
(8)	<p><b>New Delhi Railway Station</b></p> <p>No. of platform : 16                  Passengers footfall : ≈1 lakh/day                  Solid waste : 1400 kg/day                  Fine imposed : 3 crore</p>	<p>(i) Biodegradable and recyclable waste is managed by the NGO Chinton and the same is converted to compost.</p> <p>(ii) Solid waste is being segregated outside the platform area but within railway premises.</p> <p>(iii) Solid waste is being collected and given to the private contractor for disposal.</p> <p>(iv) Liquid waste from mechanical washing of tracks, laundry units and from toilets being directly discharged to sewer.</p> <p>(v) Railways have started installing bio-toilets and the task stands completed for 14,000 trains. A 100% conversion of toilets is targeted for 2019.</p> <p>(vi)</p>	<p>(i) Segregation and two Bin system for MSW is not followed in accordance with the SWM Rules, 2016.</p> <p>(ii) Solid waste found scattered along the track in yard portion of station.</p> <p>(iii) No on-site STP available at present.</p> <p>(iv) Foul smell was experienced.</p>	<p>(i) Two bin systems shall be employed and details of the type of waste to be dropped in each bin shall be indicated clearly for the collection of waste in the segregated manner.</p> <p>(ii) Source segregation facility to be provided for wet waste and dry wastes.</p> <p>(iii) Waste collection records to be maintained.</p> <p>(iv) Material recovery facility to be modernized</p> <p>(v) Pit composting needs to be operated hygienic way. Odour suppression steps required.</p> <p>(vi) Non-recyclable dry waste needs proper disposal.</p> <p>(vii) On-site STP facility to be installed.</p> <p>(viii) Treated water to be reused/ recycled for washing of tracks etc.</p> <p>(ix) Awareness campaigns to be more frequent.</p> <p>(x) Waste management cell needs to be established for proper coordination,</p>
(9)	<p><b>Narela Railway Station</b></p> <p>No. of platform : 02</p>	<p>(i) Solid waste is being segregated outside the platform area but within railway premises.</p>	<p>(i) Segregation and two Bin system for MSW is not followed in accordance with the SWM Rules,</p>	<p>(i) Two bin systems shall be employed and details of the type of waste to be dropped in each bin shall be indicated</p>

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	<p>Passenger's footfall ≈10000/day                  Solid waste : 100kg/day                  Fine imposed : Nil</p>	<p>(ii) Solid waste is being collected and given to the municipality for disposal.                  (iii) Temporary waste storage located within premises.                  (iv) Record maintained for waste collections.                  (v) Station yard maintained cleanliness, no littering observed.</p>	<p>2016.                  (ii) Sewage generated from the station is connected to Municipality sewer line.</p>	<p>clearly for the collection of waste in the segregated manner.                  (ii) Dumping of waste in the Railways land should be stopped immediately and the station in-charge shall ensure the proper handover of the entire solid waste generated in segregated manner to the MCD employees.</p>
(10)	<p><b>Sarai Rohilla Railway Station</b>                  No. of platform : 05                  Passenger's footfall : 30,000/day                  Solid waste : kg/day                  Fine imposed : Rs. 500 to Rs. 5000</p>	<p>(i) Solid waste is being segregated outside the platform area but within railway premises.                  (ii) Solid waste is being collected and given to the private contractor for disposal.                  (iii) Station cleaning was outsourced                  (iv) Solid waste found scattered along the railway tracks. Rag pickers collect waste from railway tracks.</p>	<p>(i) Segregation and two Bin system for MSW is not followed in accordance with the SWM Rules, 2016.                  (ii) Effluent generated from the kitchen, toilets, washing of tracks/trains/platforms is being discharged into sewer without any treatment.                  (iii) The collected wastes are dumped in the nearby dalaos.                  (iv) No proper cleaning of tracks was observed.</p>	<p>(i) Two bin systems shall be employed and details of the type of waste to be dropped in each bin shall be indicated clearly for the collection of waste in the segregated manner.                  (ii) Dumping of waste in the dalaos should be stopped immediately and the station in-charge shall ensure the proper handover of the entire solid waste generated in segregated manner to the MCD employees.                  (iii) Proper fines as per the guidelines shall be levied to the litterers.                  (iv) Sewer lines along the track shall be constructed and connected to the nearby MCD sewers for the collection and transportation of wastewater/soils generated in the rails.                  (v) Proper tools shall be used for removing the night soil from the tracks and manual scavenging shall be discouraged.</p>
(11)	<p><b>DTC Bus Depot , Rohini Sect-3</b>                  No. of Buses : 123                  Passenger flow : 35,000/Day                  Waste water Generation 10 KLD</p>	<p>i) Solid waste is being collected and dumped into the nearby dhalao without any segregation and treatment.                  ii) 12000 lit/day recycled water is being supplied by DJB for washing of buses</p>	<p>(i) No segregation of solid waste being carried out and same is being dumped into nearby dalao.                  (ii) No treatment is employed to the used wash waters and discharged into the sewerage networks.                  (iii) No proper maintenance of the records for waste generation and disposal.</p>	<p>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology.                  (ii) Proper pre-treatment shall be given to the wash water before letting into the MCD sewers.</p>

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				<p>(iii) Proper documentation of the quantity and quality of the wastewater and solid waste generated and their disposal methods shall be maintained by the depot authorities.</p> <p>(iv) Proper training shall be given to all the employees about the management of solid waste and best practices.</p>
(12)	<p><b>Maidans Hotels</b></p> <p>No. of Rooms : 55  Solid waste : 100kg /day  Waste water : 80 KLD  STP(Biological) : 125 KLD</p>	<p>(i) Solid is collected &amp; disposed daily.</p> <p>(ii) Temporary storage facility exists for dry and wet garbage.</p> <p>(iii) Wastewater generated is treated through an STP of 125 KLD capacity with post treatment of activated carbon filter.</p> <p>(iv) The treated waste water is partly (60 m<sup>3</sup>/d) is recycled and rest discharged into city sewer.</p> <p>(v) ETP sludge is composted and used as manure.</p> <p>(vi) The treated effluent quality is got tested through a private lab every 6 months.</p>		<p>(i) Waste management needs improvement.</p> <p>(ii) Arrange training for staffs</p> <p>(iii) Maintain zero discharge/zero waste.</p> <p>(iv) Testing of treated waste water frequency to be enhanced to at-least monthly.</p>
(13)	<p><b>Jaypee Siddharth Hotel</b></p> <p>No. of Rooms : 94  Solid waste : 500kg /day  Waste Water : 146 KLD  STP(Biological) : 156 KLD</p>	<p>(i) STP of total capacity 156 KLD is installed including ETP of 60 KLD.</p> <p>(ii) Both the treatment plants have filtration, softening and disinfection as post treatment processes.</p> <p>(iii) Treated wastewater is used in horticulture, washing and cooling tower.</p> <p>(iv) Solid waste is being segregated at source. The organic waste is being treated through OWC of capacity 500 kg/day. The compost produced is used for horticulture.</p>		<p>(i) The quality of compost shall be tested periodically in any certified labs and the records of the same shall be maintained properly.</p>

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(14)	<b>Crown Plaza Hotel, sect-10, Rohini</b>  No. of Rooms : Solid waste : 600 kg /day Waste water : 302 KLD STP(Biological) : 125 KLD	(i) A STP of capacity 260 KLD and an ETP of 100 KLD is in operation. Both are working with biological process. (ii) Treated effluent being used for gardening and cooling tower. (iii) Out of 450 Kg/day of organic waste generated, only 50 kg/day is being composted using OWG technology. However, the rest is given to the private contractor to transport the same to deliver this to the Goshalas.	Proper documentation on the quantity of compost being generated is not maintained by the management.	i) The mall management shall setup additional treatment facility for the excess waste generated as the current practice of disposal has serious gaps in proper management of solid waste. ii) The management shall maintain a proper record of the quantity of the compost being generated on daily basis
(15)	<b>Ambiance Mall, Sect-10, Rohini</b>  Solid waste : 1000 kg /day Waste water : 100 KLD ETP(Biological) : 150 KLD	(i) ETP of 150 KLD with MBR and ASP technology is in operation and recycled for flushing and horticulture. Another plant is also under proposal. (ii) Zero discharge is being maintained by the mall management in regard to the sewage. (iii) The waste is transferred by trolley and disposed at dhalao.	(i) The solid waste is being generated in Big Bazaar shopping centre and is being dumped into the dhalao by the private contractor and management is not aware of the disposal process. (ii) No proper documentation of the waste generation and treatment is available	i) Big Bazaar management shall ensure treating the waste within the mall premises itself as far as possible as they are coming under the category of bulk generators as per the Solid Waste Management Rules, 2016. In case the same is not viable, then the management shall establish a centralized treatment facility integrating various branches of the management for the treatment of organic waste. ii) The proper record on the same shall be maintained by the management.
(16)	<b>Delhi Technological University</b>  No of Rooms :1012 Solid waste : 5085 kg /day	(i) Kitchen waste is brought to a biogas facility for generation of methane for use in college canteen and generation of manure for gardening.	(i) STP does not exist and connected to sewer line. (ii) The waste collected directly transferred by trolley to dhalaos for disposal (iii) No treatment Facility available	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) minimise water consumption and maintain zero Discharge (iv) Prohibit garbage throwing/littering in the premises Maintain records of wastes (v) Segregation and collection of Solid waste in accordance with the SWM Rules, 2016 is to be implemented.
(17)	<b>Hindu College, Delhi University</b>	(i) E-waste as informed is disposed off	(i) Waste management cell does not	(i) Waste management cell to be established

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	No of Rooms :119 Solid waste :241 kg /day	through registered recyclers as per laid down procedure. (ii) The college is availing services of Jagruti, an NGO, for recycling of used waste paper to get writing pads and invitation cards for college annual day function.	exists (ii) on-site STP of 500 KLD capacity is under construction. (iii) The waste collected directly transferred by trolley to dhalaos for disposal	(ii) ETP should be installed and recycle treated wastewater from horticulture & flushing. (iii) Start daily collection of wastes. (iv) Waste management needs improvement. in accordance with the SWM Rules, 2016 is to be implemented.
(7)	ESI Hospital  No. of Beds : 300 BMW Generation : 129 kg/day WW Generation : KLD Untreated WW : KLD Solid Waste : ____Kg/day	(i) Pre-treatment of waste with chemical disinfection, autoclaving and spore test is practiced regularly. (ii) Waste disposed through registered recyclers. (iii) Facilities available are colour coded bins, segregation, waste removed before 48 hrs, record maintained and provides training to staffs.	(i) No ETP installed.	(vii) Install ETP for treating wastewater (viii) Implement BMW rules, 2016 (ix) Organize regular training to new staffs (x) Implement bar code system (xi) Upload information on website
(8)	Max Super Speciality Hospital  No. of Beds : 250 BMW Generation : 565 kg/day WW Generation : KLD Untreated WW : KLD Solid Waste : ____Kg/day	(i) BMW transferred by covered trolleys and stored at temporary storage. (ii) Pre-treatment of waste with chemical, autoclaving and spore test is practiced. (iii) ETP provided of capacity 12.5 KLD and treated effluent is being used for horticulture and flushing in water closets.		(i) Implement BMW rules, 2016 (ii) Organize regular training to new staffs (iii) Implement bar code system (iv) Upload information on website
(9)	Baba Saheb Ambedkar Hospital  No. of Beds : 500 BMW Generation : 194 kg/day WW Generation : KLD Untreated WW : KLD Solid Waste : ____Kg/day	(i) BMW transferred by covered trolleys and stored at temporary storage. (ii) Pre-treatment of waste with chemical, autoclaving and spore test is practiced. (iii) ETP provided of capacity 200 KLD and treated effluent is being used for horticulture and toilet flushing.		(i) Bar coding of BMW bags shall be followed. (ii) Uploading BMW information on website shall be done. (iii) Proper segregation of solid waste as per SWM Rules, 2016 shall be done. (iv) Proper documentation shall be maintained on the solid waste generation and disposal procedures. (v) Hospital employees shall be made aware of the process of treatment of solid waste & sludge generated from the ETP and their disposal methods.

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(10)	<p><b>Saroj Super Speciality Hospital</b></p> <p>No. of Beds : 154  BMW Generation : 113 kg/day  WW Generation : 35 KLD  Untreated WW : KLD  Solid Waste : _____Kg/day</p>	<p>(i) BMW transferred by covered trolleys and stored at temporary storage.  (ii) Pre-treatment of waste with chemical is practiced.  (iii) ETP provided of capacity 35 KLD.  (v) BMW is disposed through CBWTF.</p>		<p>(i) Bar coding of BMW bags shall be followed.  (ii) Uploading BMW information on website shall be done, if not done already.  (iii) Proper segregation of solid waste as per SWM Rules, 2016 shall be done.  (iv) Proper documentation shall be maintained on the solid waste generation and disposal procedures.  (v) Hospital employees shall be made aware of the process of treatment of solid waste &amp; sludge generated from the ETP and their disposal methods.</p>
(11)	<p><b>Shri Balaji Action Medical Institute</b></p> <p>No. of Beds : 250  BMW Generation : 274 kg/day  WW Generation : 1.52 KLD  Untreated WW : KLD  Solid Waste : _____Kg/day</p>	<p>(i) Pre-treatment of waste for microbiology, lab wastes, bloods, etc. autoclave operational, Spore test is practiced.  (ii) ETP provided of capacity 35 KLD and treated effluent is being used for horticulture and toilet flushing.  (iii) ETP sludge is used as manure.</p>		<p>(i) Bar coding of BMW bags shall be followed.  (ii) Uploading BMW information on website shall be done, if not done already.  (iii) Proper segregation of solid waste as per SWM Rules, 2016 shall be done.  (iv) Proper documentation shall be maintained on the solid waste generation and disposal procedures.  (v) ETP sludge shall be adequately treated before using in gardening.  (vi) Hospital employees shall be made aware of the process of treatment of solid waste and its methods of disposal.</p>
(12)	<p><b>Jaipur Golden Hospital</b></p> <p>No. of Beds : 242  BMW Generation : 117 kg/day  WW Generation : KLD  Untreated WW : KLD  Solid Waste : _____Kg/day</p>	<p>(i) Pre-treatment of waste to lab wastes, microbiological wastes, etc. with chemical disinfectants, autoclaving followed by shredders. is practiced.</p>	<p>(i) No ETP installed.</p>	<p>(i) Bar coding of BMW bags shall be followed.  (ii) Uploading BMW information on website shall be done, if not done already.  (iii) Proper segregation of solid waste as per SWM Rules, 2016 shall be done.  (iv) Proper documentation shall be maintained on the solid waste generation and disposal procedures.  (v) ETP of adequate capacity shall be installed at the earliest for treating the</p>

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				<p>wastewater generated in the hospital.</p> <p>(vi) Proper pre-treatment in accordance to the BMW Rules, 2016 shall be given to the infectious wastewater before treating/disposing the same.</p> <p>(vii) Hospital employees shall be made aware of the process of treatment of solid waste and its methods of disposal.</p>
(17)	<p>Shakurbasti Railway Station</p> <p>No. of platform : 03                      Passenger's footfall : 5000/day                      Solid waste : 190 kg/day                      Fine imposed :</p>	<p>(i) Separate staffs (5 Nos.) engaged for waste management.</p>	<p>(i) No segregation practiced; mixed garbage transferred from bins (1 no.) through trolleys (2nos) and disposed at nearest Dhalaos.</p> <p>(ii) Wastewater generation is not assessed.</p>	<p>i) Two bin systems shall be employed and details of the type of waste to be dropped in each bin shall be indicated clearly for the collection of waste in the segregated manner.</p> <p>ii) Dumping of waste in the dalaos should be stopped immediately and the station in-charge shall ensure the proper handover of the entire solid waste generated in segregated manner to the MCD employees.</p> <p>iii) Proper fines as per the guidelines shall be levied to the litterers.</p> <p>iv) Sewer lines along the track shall be constructed and connected to the nearby MCD sewers for the collection and transportation of wastewater/soils generated in the rails.</p> <p>v) Proper tools shall be used for removing the night soil from the tracks and manual scavenging shall be discouraged.</p>
(19)	<p>Rohini sec-16 DTC Bus Depot-II</p> <p>No. of Buses: 90                      Passenger flow: 23,159/Day                      Waste water Generation 0.5 KLD                      Solid waste Generation: 35 kg /day</p>	<p>(i) ETP installed for treatment of wastewater and treated wastewater recycled (10KLD) for vehicle washing.</p> <p>(ii) ETP sludge composting is done.</p> <p>(iii) Waste storage facility available in the premises and disposed into the dhalaos.</p>	<p>(i) Waste management cell does not exist.</p> <p>(ii) No segregation is practiced; mixed solid waste placed in corridors. Waste transferred by trolleys.</p>	<p>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology.</p>



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				<ul style="list-style-type: none"> <li>(ii) Proper documentation of the quantity and quality of the wastewater and solid waste generated and their disposal methods shall be maintained by the depot authorities.</li> <li>(iii) Proper training shall be given to all the employees about the management of solid waste and best practices.</li> </ul>
(20)	<p>Nangloi DTC Bus Depot</p> <p>No. of Buses: 101                      Passenger flow: 17,000/Day                      Solid waste Generation: 44 kg /day</p>	<ul style="list-style-type: none"> <li>(i) Separate staffs exist for waste management.</li> </ul>	<ul style="list-style-type: none"> <li>(i) No segregation practiced; mixed garbage transferred through trolleys and disposed at Dhalaos.</li> <li>(ii) Wastewater generated is discharged into city sewer. Air pollution source is DG set.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology.</li> <li>(ii) Proper pretreatment shall be given to the wash water before letting into the MCD sewers.</li> <li>(iii) Proper documentation of the quantity and quality of the wastewater and solid waste generated and their disposal methods shall be maintained by the depot authorities.</li> <li>(iv) Proper training shall be given to all the employees about the management of solid waste and best practices.</li> </ul>
(21)	<p>Peeragarhi DTC Bus Depot</p> <p>No. of Buses: 90                      Passenger flow: 15,000/Day                      Solid waste Generation: 52kg /day</p>	<ul style="list-style-type: none"> <li>(i) Separate staffs exist for waste management.</li> <li>(ii) ETP installed.</li> </ul>	<ul style="list-style-type: none"> <li>(i) No segregation practiced; mixed garbage transferred through trolleys and disposed at Dhalaos.</li> <li>(ii) Wastewater generated is discharged into city sewer. Air pollution source is DG set.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology.</li> <li>(ii) Proper pretreatment shall be given to the wash water before letting into the MCD sewers.</li> <li>(iii) Proper documentation of the quantity</li> </ul>

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				<p>and quality of the wastewater and solid waste generated and their disposal methods shall be maintained by the depot authorities.</p> <p>(iv) Proper training shall be given to all the employees about the management of solid waste and best practices.</p>
(22)	<p>Mangalpuri bus Terminus</p> <p>No. of Buses: 85 Passenger flow: 2000/Day Solid waste Generation: 7kg /day</p>	<p>(i) On-site storage facility is available. (ii) Part-time staffs engaged for waste management. (iii) Waste water generation is nil.</p>	<p>(i) No segregation practiced; mixed garbage transferred through trolleys and disposed at Dhalaos</p>	<p>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology. (ii) Proper documentation of the quantity and quality solid waste generated and its disposal methods shall be maintained by the depot authorities. (iii) Proper training shall be given to all the employees about the management of solid waste and best practices.</p>
(23)	<p>Sultanpurii bus Terminus</p> <p>No. of Buses: 130 Passenger flow: 6000/Day Solid waste Generation: 8kg /day</p>	<p>(i) Part-time staffs engaged for waste management. (ii) Waste water generation is nil.</p>	<p>(i) On-site storage facility is available. (ii) No segregation practiced; mixed garbage transferred through pull Cart and disposed at Dhalaos</p>	<p>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by scientifically proven methodology. (ii) Proper documentation of the quantity and quality solid waste generated and its disposal methods shall be maintained by the depot authorities. (iii) Proper training shall be given to all the employees about the management of solid waste and best practices.</p>
(24)	<p>Rohini Sec-6 DTC bus Depot</p> <p>Passenger flow: 30,000/Day Waste water Generation: 1KLD</p>	<p>(i) Separate staffs exist for waste management. (ii) ETP installed.</p>	<p>(i) No segregation practiced; mixed garbage transferred through pull Cart and disposed at Dhalaos (ii) DG Set exists.</p>	<p>(i) Proper arrangement shall be made by the depot authority for the collection in segregated manner and disposal of the solid waste in the authorized area and by</p>

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				<p>scientifically proven methodology.</p> <p>(ii) Proper pretreatment shall be given to the wash water before letting into the MCD sewers.</p> <p>(iii) Proper documentation of the quantity and quality of the wastewater and solid waste generated and their disposal methods shall be maintained by the depot authorities.</p> <p>(iv) Proper training shall be given to all the employees about the management of solid waste and best practices.</p>
(27)	Signature View Apartment No. of Flats: 336	<p>(i) Separate staffs exist for housekeeping and waste management.</p> <p>(ii) Source segregation is done at household level.</p> <p>(iii) Waste transferred daily by trolleys and disposed at nearby dhalao from where it is carried away by MCD.</p> <p>(iv) Sewage from individual household connected to common sewer and then trunk sewer.</p> <p>(v) RWA is in planning for installing composting facility for organic waste of the society.</p>		<p>(i) Create awareness among residents for segregation and collection</p> <p>(ii) Arrange on-site composting of organic wastes/horticultural wastes</p> <p>(iii) Prohibit garbage throwing/littering in the premises</p> <p>(iv) Maintain records of wastes</p>
(28)	Nagin Lake Apartment No. of Flats: 325 Solid waste Generation: 360kg /day	(i) Separate staffs engaged for solid waste management. Single bin collection system exists,	<p>(i) No segregation is practiced at household level, no facility for composting and on-site storage</p> <p>(ii) The waste collected is transported to the dhalaos for disposal.</p> <p>(iii) Wastewater is discharged into city sewer line.</p>	<p>(i) Create awareness among residents for segregation and collection</p> <p>(ii) Implement source segregation</p> <p>(iii) Install ETP and recycle wastewater and minimise water consumption</p> <p>(iv) Prohibit garbage throwing/littering in the premises</p> <p>(v) Maintain records of wastes</p>
(29)	Ekta Enclave No. of Flats: 410 Solid waste Generation: 390 kg	(i) Separate staffs engaged for solid waste management. Single bin collection system exists,	(i) No segregation is practiced at household level, no facility for composting and on-site storage	<p>(i) Create awareness among residents for segregation and collection</p> <p>(ii) Implement source segregation</p>

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(30)	/day  Jhang Society No of Flats: 490 Solid waste Generation: 850 kg /day	(i) Separate staffs engaged for solid waste management. Single bin collection system exists,	(ii) The waste collected is transported to the dhalaos for disposal. (iii) Wastewater is discharged into city sewer line.  (i) No segregation is practiced at household level, no facility for composting and on-site storage (ii) The waste collected is transported to the dhalaos for disposal. (iii) Wastewater is discharged into city sewer line.	(iii) Install ETP and recycle wastewater and minimise water consumption (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes  (i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) Install ETP and recycle wastewater and minimise water consumption (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
(31)	Shri kirshna Apartment No of Flats: 310 Solid waste Generation: 240 kg /day		(i) No segregation is practiced at household level, no facility for composting and on-site storage. (ii) Wastes are being disposed in dhalaos. (iii) ETP/STP does not exist, wastewater directly discharged into city sewer. (iv) One DG set is observed in the premises with exhaust duct.	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) Install ETP and recycle wastewater and minimise water consumption (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
(32)	Delhi Citizen Society No. of Flats: 300 Solid waste Generation: 450 kg /day	(i) Separate staffs engaged for solid waste management. Single bin collection system exists,	(i) No segregation is practiced at household level, no facility for composting and on-site storage (ii) The waste collected is transported to the dhalaos for disposal. (iv) Wastewater is discharged into city sewer line. (v) One DG Set available.	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) Install ETP and recycle wastewater and minimise water consumption (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
(33)	Bharat Apartment No. of Flats:308 Solid waste Generation: 462 kg /day	(i) Separate staffs engaged for solid waste management. Single bin collection system exists,	(i) No segregation is practiced at household level, no facility for composting and on-site storage (ii) The waste collected is transported to the dhalaos for	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) Install ETP and recycle wastewater and minimise water consumption

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			<p>disposal.</p> <p>(iii) Wastewater is discharged into city sewer line.</p> <p>(iv) One DG Set available</p>	<p>(vi) Prohibit garbage throwing/littering in the premises</p> <p>(vii) Maintain records of wastes</p>
(34)	<p>Residential Society No. of Flats: 651</p> <p>Solid waste Generation: 550 kg /day</p> <p>Waste water Generation: 50 lit/house/day</p>		<p>(i) No segregation of waste into three separate streams at the source is being followed even though Rs. 50 per household is being charged by the private contractor for the collection of waste from the households.</p> <p>(ii) The mixed waste collected in the premises is being dumped in the nearby dhalao.</p> <p>(iii) Traces of solid waste dumping on the sides of the roads and in the park near by the dhalao were observed even though the waste lying there were cleaned just before the committee's visit. Further, the dumping was also observed in the surrounding drains.</p> <p>(iv) No existing sewage treatment plant for the premises.</p>	<p>(i) Source segregation of waste into three separate streams as specified in solid waste management rules 2016 should be implemented immediately.</p> <p>(ii) Awareness to be created among households for segregation and prevent throwing of garbage in public places.</p> <p>(iii) Fine shall be levied by the MCD on the defaulting households.</p> <p>(iv) Decentralized waste treatment systems like OWCs or other low cost composting techniques shall be employed by the RWA for treating the organic waste within the premises as far as possible.</p> <p>(v) Proper training in this regard shall be provided to the residents of the society either by the MCD officials or by hiring NGOs under IEC component of Swachh Bharat Mission.</p> <p>(vi) Dhalao shall be covered and gates shall be provided for preventing the unauthorized dumping of waste by the private contractors or the residents of the community.</p> <p>(vii) Unauthorized dumping of waste around the dhalao area shall be prevented by levying fines as prescribed in Solid Waste Management Rules, 2016.</p> <p>(viii) Proper documentation of the solid and liquid waste generated in the campus shall be quantified on daily basis and proper records shall be maintained by the RWA.</p>

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(35)	<p>Ghalib Memorial cooperative GP housing Society PVT LTD No. of Flats:300</p> <p>Solid waste Generation: 450 kg /day</p>	<p>(i) Separate staffs engaged for solid waste management. Single bin collection system exists,</p>	<p>(i) No segregation is practiced at household level, no facility for composting and on-site storage</p> <p>(ii) The waste collected is transported to the dhalaos for disposal.</p> <p>(iii) Wastewater is discharged into city sewer line.</p> <p>(iv) ETP is Not available</p>	<p>(i) Create awareness among residents for segregation and collection</p> <p>(ii) Implement source segregation</p> <p>(iii) Install ETP and recycle wastewater and minimise water consumption</p> <p>(iv) Prohibit garbage throwing/littering in the premises</p> <p>(v) Maintain records of wastes</p>
(36)	<p>Jhawahar Lal Nehru cooperative GP housing Society No. of Flats:300</p> <p>Solid waste Generation: 480 kg /day</p>	<p>(i) Separate staffs engaged for solid waste management. Single bin collection system exists,</p>	<p>(i) No segregation is practiced at household level, no facility for composting and on-site storage</p> <p>(ii) The waste collected is transported to the dhalaos for disposal.</p> <p>(iii) Wastewater is discharged into city sewer line.</p> <p>(iv) ETP is Not available</p>	<p>(i) Create awareness among residents for segregation and collection</p> <p>(ii) Implement source segregation</p> <p>(iii) Install ETP and recycle wastewater and minimise water consumption</p> <p>(iv) Prohibit garbage throwing/littering in the premises</p> <p>(v) Maintain records of wastes</p>
(37)	<p>Neelkant Apartment No. of Flats:346</p> <p>Solid waste Generation: 495 kg /day</p>		<p>(i) Solid waste is being collected and dumped into the nearby dalao without any segregation and treatment by the private collector.</p> <p>(ii) Sewage generated is being discharged into the sewerage networks without any treatment.</p> <p>(iii) No proper maintenance of the records for waste generation and disposal</p> <p>(iv) Sources of air pollution identified in 3 DG sets</p> <p>(v) Spillage of waste/ water not observed.</p>	<p>(i) Source segregation of waste into three separate streams as specified in solid waste management rules 2016 should be implemented immediately.</p> <p>(ii) Fine shall be levied by the MCD on the defaulting households.</p> <p>(iii) Decentralized waste treatment systems like OWCs or other low cost composting techniques shall be employed by the RWA for treating the organic waste within the premises as far as possible.</p> <p>(iv) Proper training in this regard shall be provided to the residents of the society either by the MCD officials or by hiring NGOs under IEC component of Swachh Bharat Mission.</p> <p>(v) Dalao shall be provided with gates for preventing the unauthorized dumping of waste by the private contractors or the residents of the community.</p>

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				<p>(vi) Unauthorized dumping of waste around the dalao area shall be prevented by levying fines as prescribed in Solid Waste Management Rules, 2016.</p> <p>(vii) Proper documentation of the solid and liquid waste generated in the campus shall be quantified daily basis and proper records shall be maintained by the RWA.</p>
(38)	<p>Printer Society No. of Flats: 438</p> <p>Solid waste Generation: 600 kg /day</p>		<p>(i) Solid waste is being collected and dumped into the nearby dalao without any segregation and treatment by the private collector.</p> <p>(ii) Sewage generated is being discharged into the sewerage networks without any treatment.</p> <p>(iii) No proper maintenance of the records for waste generation and disposal</p> <p>(iv) Sources of air pollution identified in 3 DG sets.</p>	<p>(i) Source segregation of waste into three separate streams as specified in solid waste management rules 2016 should be implemented immediately.</p> <p>(ii) Fine shall be levied by the MCD on the defaulting households.</p> <p>(iii) Decentralized waste treatment systems like OWCs or other low cost composting techniques shall be employed by the RWA for treating the organic waste within the premises as far as possible.</p> <p>(iv) Proper training in this regard shall be provided to the residents of the society either by the MCD officials or by hiring NGOs under IEC component of Swachh Bharat Mission.</p> <p>(v) Dalao shall be provided with gates for preventing the unauthorized dumping of waste by the private contractors or the residents of the community.</p> <p>(vi) Unauthorized dumping of waste around the dalao area shall be prevented by levying fines as prescribed in Solid Waste Management Rules, 2016.</p> <p>(vii) Proper documentation of the solid and liquid waste generated in the campus shall be quantified daily basis and proper records shall be maintained by the RWA.</p>

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(41)	Unity Mall Solid waste Generation: 102kg /day	(i) ETP is installed and recycled for flushing and horticulture	(i) STP does not exist and connected to sewer line. Sources of air pollutions are 3 Nos. DG sets and Kitchen ducts.	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) minimise water consumption and maintain zero Discharge (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
(42)	City Centre Mall Solid waste Generation: 800kg /day	(i) ETP is installed and recycled for flushing and horticulture	(i) STP does not exist and connected to sewer line. Sources of air pollutions are 3 Nos. DG sets and Kitchen ducts. (ii) The waste collected directly transferred by trolley to dhalaos for disposal	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) minimise water consumption and maintain zero Discharge (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
(43)	D-Mall Solid waste Generation: 105 kg /day	(i) ETP is installed and recycled for flushing and horticulture	(i) STP does not exist and connected to sewer line. Sources of air pollutions are 2 Nos. DG sets and Kitchen ducts. (ii) The waste collected directly transferred by trolley to dhalaos for disposal (iii) No treatment Facility available	(i) Create awareness among residents for segregation and collection (ii) Implement source segregation (iii) minimise water consumption and maintain zero Discharge (iv) Prohibit garbage throwing/littering in the premises (v) Maintain records of wastes
		(ii) (iii)	(iv)	



# **Report of Sub-Committee IV (EDMC Area) on Inspection of Bulk Waste Generators and Hospitals**

**Original Application No. 199 of 2014 & Original Application No. 281 of 2016 (M.A. No. 1007/2016) filed by Almitra H. Patel & Anr. Vs. Union of India & Ors. & Kudrat Sandhu Vs. Govt. of NCT & Ors.**

**April, 2017**

**ONSTITUTION OF SUB COMMITTEE- IV (EDMCA)**

S.NO.	Name		Represented by
(i)	<b>Dr Rashid Hasan, Ex-Adviser ,MoEF&amp;CC</b>		Chairman
(ii)	Representative of Department of Urban Development. Govt of NCT Delhi. Not below the rank of Director	Member	None represented
(iii)	Representative of East Delhi Municipal Corporation- Not below the rank of Superintending Engineer (SE)	Member	Dr. M.L.Sharma ,Assistant Commissioner
(iv)	Representative of Delhi Jal Board- Not below the rank of Superintending Engineer (SE)	Member	Mr. Rakesh sahani, Superintending Engineer
(v)	Representative of Medical Council of India - To be nominated by MCI	Co-convener	None represented
(vi)	Representative of Ministry of Urban Development-Not below the rank of Director	Member	Ms Ritu Pachori, Technical Officer
(vii)	Representative of Indian Railways- to be nominated by Railways	Member	None represented
(viii)	Representative of Delhi Development Authority not below the rank of Director	Member	Mr. S.K.Garg Superintending Engineer
(ix)	Representative of Delhi Pollution Control Committee- Environmental Engineer-	Co convener	Sh. Shyam Sundar, Environmental Engineer
(x)	Representative of Central Pollution Control Board- Scientist-E	Member Convenor	J. Chandra Babu, Scientist-D

The following officers have assisted the team in inspections and report writing;

1. Sh. B.L. Chawla, Senior Environmental Engineer, DPCC
2. Sh B. Vinod Babu, Scientist-E & Nodal officer, Waste Management Division, CPCB
3. Smt Vineeta, Senior Scientific Assistant, CPCB
4. Sh Rajeev Sharma, Environmental Engineer, DPCC
5. Sh. S.D. Tomar, Executive Engineer, EDMC
6. Sh Rajesh Taneja, EDMC

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**Introduction:**

Hon'ble National Green Tribunal (NGT) in the matter of Original Application No. 199 of 2014 & Original Application No. 281 of 2016 (M.A. No. 1007/2016) filed by 'Almitra H. Patel & Ors. Vs. Union of India & Ors. & Kudrat Sandhu Vs. Govt. of NCT & Ors' vide its order dated 10.01.2017 constituted a Committee under Additional Secretary, MoEF&CC for inspection of the premises of bulk waste generators (hospitals, hotels, schools, group housing societies, market, shopping malls etc.) and for submission of a report on the quantum of waste generated as well as status of their waste management, including installation of STPs, connection with sewerage network etc.

The order also states that the Committee under Additional Secretary, Ministry of Environment, Forest and Climate Change would be entitled to form different sub-committees from amongst above which will visit the various locations of Delhi where the mass generator of waste are located and submit their report to the Tribunal. These Sub-committees would be entitled to seek assistance of any of the Public Authorities, Corporations, Local Authority, DDA or any other Government and Semi-Government whenever they require participation of any officer (s) of Government or Authority.

The aforesaid Committee had convened two meetings with all stakeholders at MoEF&CC. The second meeting of the committee was held on 23/01/2017, wherein the following: 4 Sub-committees were constituted to cover the area of NCT, Delhi;

1. New Delhi Municipal Council Hon'ble G.K. Pandey, Former Member, NGT
2. South Delhi Municipal Corporation Hon'ble D.K. Agarwal, Former Member, NGT
3. North Delhi Municipal Corporation Dr. R. Dalwani, Former Advisor, MoEF&CC
4. East Delhi Municipal Corporation Dr. Rashid Hasan, Former Advisor, MoEF&CC

**Inspections carried out by Sub-committee IV:**

The Sub-committee constituted under Dr. Rashid Hasan, Former Advisor, MoEF&CC for East Delhi Municipal Corporation Area has initiated inspection of Bulk Generators like Hotels, Malls, Hospitals etc. on 04.02.2017 and onward. In pursuance to the Hon'ble NGT order 10.01.2017 in the aforesaid matter, the Sub-committee for East Delhi Municipal Corporation Area (EDMCA) has inspected 48 no. of Bulk Generators like Hospitals, Hotels, Malls, Colleges, Railway Stations, Bus Terminals as well as one Waste to Energy Plant during 04.02.2017 to 28.02.2017, as per the details as given under:

- |                                   |      |
|-----------------------------------|------|
| 1) Hospitals                      | : 11 |
| 2) Hotels / Banquet Halls         | : 14 |
| 3) Colleges                       | : 04 |
| 4) Malls and Commercial Complexes | : 06 |
| 5) Railway Stations               | : 04 |

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

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6) Bus Terminals	: 02
7) Waste to Energy Plant, EDMC	: 01
8) Apartment Complex	: 03
9) Mandis / Markets	: 02
10) Office Complex	: 03
<b>Total</b>	<b>: 48</b>

**1. Details of bulk waste generated**

Estimated quantity of waste generated from 48 nos. of bulk-waste generators inspected by the team is given below;

<b>S.NO.</b>	<b>UTILITY</b>	<b>QTY OF MUNCIPIAL SOLID WASTE ( Kg/day)</b>	<b>QTY OF WASTE WATER ( KLD)</b>
<b>1</b>	Hospital - 11	<b>2577</b>	<b>2010</b>
<b>2</b>	Hotels -14	<b>2700</b>	<b>858</b>
<b>3</b>	Colleges - 4	<b>320</b>	<b>230</b>
<b>4</b>	Malls & Commercial +Complexes - 6	<b>2215</b>	<b>369</b>
<b>5.</b>	Railway Stations -4	<b>2850</b>	<b>300</b>
<b>6.</b>	Bus Terminals - 2	<b>1060</b>	<b>24.8</b>
<b>7.</b>	Waste to Energy Plant, EDMC -1	-	-
<b>8</b>	Apartment Complex - 3	<b>1600</b>	<b>540</b>
<b>9</b>	Mandis / Markets - 2	<b>6000</b>	-
<b>10.</b>	Office Complex - 3	<b>1450</b>	-
	<b>TOTAL</b>	<b>20772</b>	<b>4331.8</b>

## **2. Details of Individual Inspections**

### **2.1 Hospitals**

#### **3.1.1 M/s Max Super Speciality Hospital, Patparganj**

Date of Inspection : 04/02/2017  
No. of Beds : 401  
BMW Generation : 406 kg/day  
WW Generation : 180 KLD

M/s Max Super Speciality Hospital located at Patpar Ganj, Delhi-110 092. This hospital was established in the year 2005. It is a 401 Bedded hospital and occupancy is about 80 to 85 %. The hospital is involved in treatment of out patients daily around (OPD) 1600. The hospital is having valid Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorisation under the Bio-medical Waste Management Rules. As informed, the hospital has separate cell for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is satisfactory. Photographs taken during the visit is enclosed as Annexure-3.1.1.

Bio-medical waste generation - Presently, the hospital is generating about 406 Kg/day, which include yellow, red, white and blue category wastes (at 126 kg/day, 150 kg/day, 67 kg/day and 63 Kg/day respectively). The team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving in accordance with the operating parameters as stipulated under the BMW Rules and is satisfactory.

Closed type of trolley is used for collection of bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patient area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, wash-water collection provision and connected to ETP. Separate provision of washing provided for washing of bins.

Presently, the hospital is using adequate number of colour coded bins and bags for segregation of waste at source as per BMW Rules. Presently, the segregated waste is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facility (CBWTF) located at Niloti, Delhi. Records with regard to the bio-medical waste generation and its handling are maintained as per BMW Rules. All the workers involved in handling of bio-medical waste is trained, immunised and also provided with proper PPEs. Fire safety measures provided by the hospital are satisfactory.

Water consumption, wastewater generation and wastewater treatment and disposal: The hospital is consuming water about 180 KLD and generating wastewater about 160 KLD. The waste water generated from the hospital is treated in STP/ETP comprising of collection/equalization tank, Primary settling tank, aeration tank, secondary settling tank, treated water collection tank. Treated wastewater is used for horticulture purposes, cooling tower and for flushing in toilets. ETP sludge generated from STP/ETP is disposed-off in landfilling and is used in gardening as manure.

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Solid Waste Generation: In the hospital about 548 kg/day of municipal solid waste (MSW) is generated. Bin system for MSW segregation is not followed in accordance with the Solid Waste Management Rules, 2016.

Recommendation: This committee recommends that a letter may be issued by DPCC for taking up improvements w.r.to installation of two separate bins for on-site collection of solid waste generated in wards in accordance with the SWM Rules, 2016; and training to the sanitary workers needs to be organised by Hospital at regular intervals.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

**3.1.2. M/s Dr. Hedgewar Arogya Samsthan. Near KarKar Dooma Court, East Delhi**

Date of Inspection : 06/02/2017  
No. of Beds : 200  
BMW Generation : 140 kg/day  
WW Generation : 100 KLD  
Untreated WW : nil

Dr. Hedgewar Arogya Samsthan located at East Arjun Nagar, Delhi-110 032 was established in the year 2002. It is a 200 Bedded hospital and occupancy is about 100 %. The hospital is involved in treatment of out patients daily around (OPD) 2500 to 3000. As per the information provided during the visit, the hospital applied for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 on 19.08.2013 as well as applied for Authorisation under the Bio-medical Waste Management Rules on 03.05.2016. As informed, the hospital has separate cell for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is satisfactory. Photographs taken during the visit is enclosed as Annexure-3.1.2

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 138.8 kg/day which include yellow, red, white and blue category waste at 53.5 kg/day, 78 kg/day, 2 kg/day and 5.3 Kg/day respectively. The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving in accordance with the operating parameters as stipulated under the BMW Rules and is satisfactory. Digital X-ray fixer solution generated about 325 L during April 2016 to January 2017 is stored presently for final disposal.

Presently, the hospital is using adequate number of colour coded bins and bags for segregation of waste at source as per BMW Rules. The hospital is using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, wash water collection provision and connected to ETP. Separate provision of washing provided for washing of bins.

Presently, the segregated waste is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. Records with regard to the bio-medical waste generation and its handling are maintained as per BMW Rules. All the

workers involved in handling of bio-medical waste is trained, immunised and also provided with proper PPEs. Fire safety measures provided by the hospital are satisfactory.

Water consumption, wastewater generation and wastewater treatment and disposal: The hospital is consuming water about 155 KLD and generating wastewater about 100 KLD. The waste water generated from the hospital is treated in STP/ETP of capacity 100 KLD and STP/ETP is comprising of collection/equalization tank, Primary settling tank, Aeration tank, Secondary settling tank. Treated wastewater is used for horticulture purposes. ETP sludge generated from STP/ETP after drying is disposed off through CBWTF. However, STP/ETP is not operated properly due to lack of training to the STP operator.

Solid Waste Generation: About 375 kg/day of municipal solid waste (MSW) is generated. Bin system for MSW segregation is not followed in accordance with the Solid Waste Management Rules, 2016.

Recommendation: This committee recommends that a letter may be issued by DPCC for taking up improvements in a time bound manner especially w.r.to (i) Proper operation and maintenance of STP; (ii) Two bin system for collection of segregated solid waste as per SWM Rules, 2016 and (iii) disposal of fixer hypo solution only through the registered recyclers; (iv) Disposal of bio-medical waste through CBWTF in holidays as per BMWM Rules.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.3 Indira Gandhi ESI Hospital, Jhilmil Colony, Delhi**

No. of Beds : 300  
BMW Generation : 50 Kg/day  
WW Generation : 60 KLD  
Untreated WW : 60 KLD

M/s Indira Gandhi ESI Hospital located at Near Vivek Vihar Police Station, Jhilmil, Delhi- 110 095 was inspected on 06-02-2017. As informed, the hospital was established in the year 1985. It is a 300 Bedded hospital and occupancy is about 100 %. The hospital is involved in treatment of out patients daily around (OPD) 2200 to 2500. As per the information provided during the visit, the hospital is yet to apply for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorisation under the Bio-medical Waste Management Rules. As informed, the hospital has separate staff for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus since last three years and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is poor. Photographs taken during the visit is enclosed as Annexure-3.1.3.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 50 Kg/day which include yellow, red, white and blue category waste at 2.4 kg/day, 18 kg/day, 8 kg/day and 21 Kg/day respectively.

Presently, the hospital is not using adequate number of colour coded bins and bags for segregation of waste at source as per BMWM Rules. Colour coded bins are not provided with the bio-hazard symbol. The visited team observed that the provision for collection of sharp waste is not proper and requires improvement. The bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi



except in holidays. The visited team also observed that the hospital is not using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, but no wash water collection provision and its connection to ETP for further treatment and requires improvement. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are not maintained properly as per BMW Rules.

All the workers involved in handling of bio-medical waste is not trained and also not provided with proper PPEs and awareness on the new BMW Rules, 2016 is yet to be organised by the hospital. The visited team observed that the laboratory, microbiology, biotechnology waste is not pre-treated using autoclaving in accordance with the operating parameters as stipulated under the BMW Rules and is satisfactory. Digital X-ray fixer solution generated about 120 l per month is sold to the local vendor but not through registered recyclers.

Water consumption, wastewater generation: The hospital is consuming water about 70 KLD and generating wastewater about 60 KLD. Untreated wastewater generated from the hospital is stored in a collection tank and is discharged into sewer.

Solid Waste Generation: In the hospital about 50 kg/day of municipal solid waste (MSW) is generated. Bin system for MSW segregation is not followed in accordance with the Solid Waste Management Rules, 2016. All the generated MSW is disposed of through MCD.

Recommendation: This committee recommends that the DPCC may issue directions to ensure compliance with respect to the action points especially w.r.to the (i) installation of adequate facilities and to carry out improvements; (ii) To comply with the provisions of BMW Rules, 2016 and SWM Rules, 2016; (iii) Improvement of segregation practices at source; (iv) Pre-treatment of lab chemical waste as per BMW Rules, 2016; (v) Installation of STP in a time bound manner to ensure compliance to the liquid waste discharge standards; (vi) Training/awareness to the staff periodically on waste management aspect is essential; (vii) disposal of fixer hypo solution only through the registered recyclers and (viii) Improvement in housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

#### **3.1.4 GTB Hospitals, Dilshad Garden, Delhi**

No. of Beds : 1500  
BMW Generation : 1135 kg/day  
WW Generation : 640 KLD  
Untreated WW : nil

**About G.T.B. Hospital:** G.T.B. Hospital located at Dilshad Garden, Delhi – 110095 was inspected on 06-02-2017. As informed, the hospital was established in the year 1987. It is a 1500 Bedded hospital and occupancy is about 100 %. The hospital is involved in treatment of out patients daily around (OPD) 7000. As per the information provided during the visit, the hospital is having Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 which are valid upto 12.12.2017 as well as Authorisation under the Bio-medical Waste

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
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Management Rules is valid upto 24.05.2018. As informed, the hospital has separate staff for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is good. Photographs taken during the visit is enclosed as Annexure-3.1.4

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 1135 Kg/day which include yellow, red, white and blue category waste at 334 kg/day, 590 kg/day, 31 kg/day and 180 Kg/day respectively.

Presently, the hospital is not segregating the bio-medical waste at source as per BMW Rules. Colour coded bins are not provided with the bio-hazard symbol. The visited team observed that the bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, wash water collection provision and its connection to ETP for further treatment. Separate provision of washing of bins and trolley is provided. Records with regard to the bio-medical waste generation and its handling are maintained.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving in accordance with the operating parameters as stipulated under the BMW Rules and is satisfactory. Digital X-ray fixer solution generated is sold to the local vendor but not through registered recyclers.

Water consumption, wastewater generation: The hospital is consuming water about 800 KLD and generating wastewater about 640 KLD. The wastewater generated from the hospital is treated in STP/ETP of capacity 1200 KLD and STP/ETP comprises collection/Equalization tank, Primary Settling Tank, Aeration Tank and Secondary Settling Tank. However, operation of ETP/STP requires improvement. Treated wastewater is used for gardening. ETP sludge generated from STP/ETP after drying is used as manure.

Solid Waste Generation: In the hospital about 1200 kg/day of municipal solid waste (MSW) is generated. All the generated MSW is disposed of through MCD.

Recommendation: This committee recommends that DPCC may issue letter to hospital for taking up the following improvements especially w.r.to (i) Training to STP operator; (ii) Training to health care staff on segregation; (iii) Installation of flow meters to the STP; (iii) maintenance of O&M records of STP and (iv) Hypo solution( X-ray fixer solution) is required to be sold only to the registered recycler.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.5 Swamy Dayanand Hospital**

Dilshad Garden, Delhi

No. of Beds : 350  
BMW Generation : 370 kg/day  
WW Generation : 260 KLD

Untreated WW : 260 KLD

About Swamy Dayanand Hospital: Swamy Dayanand Hospital located at Dilshad Garden, Delhi – 110095 was inspected on 10.02.2017. As informed, the hospital was established during the year 1960-61. It is a 350 Bedded hospital and occupancy is about 80 to 90%. The hospital is involved in treatment of out patients daily around (OPD) 2000. As per the information provided during the visit, the hospital is applied for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as well as Authorisation under the Bio-medical Waste Management Rules. As informed, the hospital designated a separate staff for bio-medical waste management in the hospital. At present, the hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Photographs taken during the visit is enclosed as Annexure-3.1.5.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 370 Kg/day which include yellow, red, and blue category waste at 190 kg/day, 147 kg/day, and 33 Kg/day respectively.

Presently, the hospital is segregating the bio-medical waste at source and still scope for improvement as per BMW Rules. The visited team observed that the bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using closed type of trolley without bio-hazard symbol for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, wash water collection provision and its connection to ETP for further treatment is not provided. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are maintained.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving but same is not operated w.r.to sterilisation duration in accordance with the operating parameters stipulated under the BMW Rules. Chemical disinfection using 1 % Sodium hypochlorite solution is used which is not as per BMW Rules, 2016. Digital X-ray fixer solution about 800 l generated during the one year is sold to the local vendor but not through registered recyclers.

Water consumption, wastewater generation: The hospital is consuming water about 330 KLD and generating wastewater about 260 KLD. The wastewater generated from the hospital is discharged into sewer without imparting any treatment.

Solid Waste Generation: In the hospital about 400 kg/day of municipal solid waste (MSW) is generated. All the generated MSW is disposed of in nearby Dhalao through Sulabh Contractor. MSW is not segregated as per Solid Waste Management Rules, 2016.

Recommendation: This committee recommends that DPCC may direct the hospital for taking up the installation of adequate facilities and to carry out improvements especially w.r.to (i) Installation of STP ; (ii) Pre-treatment of BMW as per BMW Rules, 2016; (iii) Training to the staff; (iv) Segregation of solid waste in bins in accordance with the SWM Rules, 2016.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.6 M/s Jag Pravesh Chandra Hospital, Shastri Park, Delhi.**

No. of Beds : 210  
BMW Generation : About 85 Kg/day  
WW Generation : 90 KLD  
Untreated WW : 90 KLD

About Jag Pravesh Chandra Hospital: Jag Pravesh Chandra Hospital located at Sastry Park, Delhi was inspected on 10.02.2017. As informed, the hospital was established during the year 2003. It is a 210 Bedded hospital and occupancy is about 70 to 80%. The hospital is involved in treatment of out patients daily around (OPD) 3000. As per the information provided during the visit, the hospital is applied for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. The Authorisation obtained under the Bio-medical Waste Management Rules is having validity upto 10.03.2017. As informed, the hospital identified and designated a separate staff for bio-medical waste management in the hospital. At present, the hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Photographs taken during the visit is enclosed as Annexure-3.1.6.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 83.6 Kg/day which include yellow, red, and blue category waste at 43.6 kg/day, 36.5 kg/day, and 3.5 Kg/day respectively. Details with regard to the white category waste generated by the hospital are not provided.

Presently, the hospital is segregating the bio-medical waste at source as per BMWM Rules. The visited team observed that the bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using closed type of trolley with bio-hazard symbol for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is not restricted and provided with lighting, ventilation. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are maintained.

The visited team observed that the laboratory, microbiology, biotechnology waste is not pre-treated as required under the BMWM Rules. Chemical disinfection using 1 % Sodium hypochlorite solution is used which is not as per BMWM Rules, 2016.

Water consumption, wastewater generation: The hospital is consuming water about 110 KLD and generating wastewater about 90 KLD. The wastewater generated from the hospital is treated in STP/ETP having capacity 50 KLD. STP/ETP is provided with Collection/Equilisation tank, Aeration Tank. Treated wastewater is discharged through open drain.

Solid Waste The solid waste generated is disposed of in nearby Dhalao through SMCD. MSW is not segregated as per Solid Waste Management Rules, 2016.

Recommendation: This committee recommends that DPCC may issue letter to hospital for taking up the improvements of existing practices especially w.r.to (i) Proper operation and maintenance of STP as well as enhancement of wastewater treatment capacity; (ii) Training

to all the staff to improve segregation of bio medical waste in colour coded bins specified as per BMWM Rules; (iii) Segregation and disposal of solid waste as per SWM Rules, 2016 and (iv) Pre-treatment of lab waste as per BMWM Rules, 2016; (iv) Chemical disinfection using 10 % Sodium hypochlorite solution as required under the BMWM Rules.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.7 M/s Lal Bahadur Sastry Hospital, Khichripur, Delhi**

No. of Beds : 100  
BMW Generation : 70 kg/day  
WW Generation : 80 KLD  
Untreated WW : nil

About Lal Bahadur Shastri Hospital: Lal Bahadur Shastri Hospital located at Khichari Pur Delhi-110091 was inspected on 10.02.2017. As informed, the hospital was established in the year 1999 (Functional) .It is a 100 Bedded hospital and occupancy is about 188 %. The hospital is involved in treatment of out patients daily around (OPD) 3000. As per the information provided during the visit, the hospital applied for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 on 05.07.2013 as well as Authorisation under the Bio-medical Waste Management Rules on 25.04.2016. As informed, the hospital has separate cell for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus since last three years and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is very poor. Photographs taken during the visit is enclosed as Annexure -3.1.7

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 70.75 Kg/day which include yellow, red, white and blue category waste at 36.33 kg/day, 31 Kg/day, 1.25 Kg/day, and 2.1 Kg/day respectively.

Presently, the hospital is not segregation of waste at source as per BMWM Rules, 2016 and the provision for collection of sharp waste is proper. The bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. Hospital is using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, and presently under renovation. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are not maintained properly as per BMWM Rules.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving in accordance with the operating parameters as stipulated under the BMWM Rules and is satisfactory. All the workers involved in handling of bio-medical waste is not trained on the new BMWM Rules, 2016.

Water consumption, wastewater generation: The hospital is consuming water about 100 KLD and generating wastewater about 80 KLD. Untreated wastewater generated from the hospital is treated

using STP/ETP comprising Collection/Equalisation tank, Aeration Tank. Treated wastewater is used for horticulture. However, STP is not operated or maintained properly.

Solid Waste Generation: In the hospital about 1 to 1.5 TPD of municipal solid waste (MSW) is generated. All the generated MSW is disposed of through MCD.

Recommendation: This committee recommends that DPCC may direct the hospital for ensuring time bound actin plan for installation of adequate facilities and to carry out improvements especially w.r.to (i) Segregation of bio-medical waste (BMW) at source as per BMW Rules, 2016; (ii) Needs proper record maintenance for disposal of BMW as per BMW Rules; (iii) To operate and maintain STP properly; (iv) Proper collection and storage of sludge generation from STP; (v) To put the shredder in operation; (vi) Temporary waste storage area needs improvement; (vii) Two bin system for solid waste needs to be practised and (viii) Requires improvement in housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.8 M/s Chacha Nehru Bal Chikistalaya, Geetha Colony, Delhi**

No. of Beds : 220  
BMW Generation : 110 kg/day  
WW Generation : 135 KLD  
Untreated WW : 135 KLD

About Chacha Nehru Bal Chikistalaya: Chacha Nehru Bal Chikistalaya located at Geetha Colony, Delhi was inspected on 13.02.2017. As informed, the hospital was established in the year 2003. It is a 221 Bedded hospital and occupancy is about 100 %. The hospital is involved in treatment of out patients daily around (OPD) 900-1000. As per the information provided during the visit, the hospital obtained Authorisation under the Bio-medical Waste Management Rules which was having validity upto 07.02.2016 and applied for renewal on 05.03.2016. As informed, the hospital has separate cell for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is good. Photographs taken during the visit is enclosed as Annexure-3.1.8.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 110 Kg/day which include yellow, red, white and blue category waste at 10 kg/day, 86.5 Kg/day, 10 Kg/day, and 3 Kg/day respectively.

Presently, the hospital is using adequate number of colour coded bins and bags for segregation of waste at source as per BMW Rules. Segregation of waste is practiced as per BMW Rules, 2016. The visited team observed that the provision for collection of sharp waste is proper. The bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, and wash water collection provision. Separate provision of washing of bins and trolley is provided. Records with regard to the bio-medical waste generation and its handling are maintained properly as per BMW Rules.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving but the sterilisation duration is not maintained in accordance with the operating parameters as stipulated under the BMWWM Rules. All the workers involved in handling of bio-medical waste is trained on the new BMWWM Rules, 2016.

Water consumption, wastewater generation: The hospital is consuming water about 175 KLD and generating wastewater about 135 KLD. Untreated wastewater generated from the hospital is discharged directly into the sewer without imparting any treatment. Existing ETP/STP (100 KLD) is presently under renovation and capacity needs to be enhanced.

Solid Waste Generation: In the hospital about 250 Kg/day of municipal solid waste (MSW) is generated. All the generated MSW is disposed of nearby Dhalao by the own staff.

Recommendation: This Committee recommends that DPCC may direct the hospital for taking up action plan for installation of adequate facilities and to carry out improvements especially w.r.to (i) To restore STP on priority basis, since untreated effluent being discharged directly into the sewer and also for enhancement of existing STP suitably; (ii) Bin system needs to be practised for MSW as per SMW Rules, 2016; and (iii) Training to staff for further improvement of disposal of Bio Medical Waste and MSW in accordance with Rules.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.9 M/s Dharamshila Cancer Hospital and Research Institute, Vasundhara Enclave, Delhi**

No. of Beds : 200  
BMW Generation : 140 kg/day  
WW Generation : 100 KLD  
Untreated WW : nil.

About Dharamshila Hospital and Research Centre: Dharamshila Hospital and Research Centre located at Vashundhra Enclave Delhi-10096 was inspected on 13.02.2017. As informed, the hospital was established in the year 1994. It is a 200 Bedded hospital and occupancy is about 50 %. The hospital is involved in treatment of out patients daily around (OPD) 125 to 150. As per the information provided during the visit, the hospital obtained Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 and is having validity upto 11.08.2008 and applied on 02.06.2016 for renewal of Authorisation under the Bio-medical Waste Management Rules. As informed, the hospital has separate cell for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is good. Photographs taken during the visit is enclosed as Annexure-3.1.9.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 137 Kg/day which include yellow, red, white and blue category waste at 40 kg/day, 60 Kg/day, 07 Kg/day, and 30 Kg/day respectively.

Presently, the hospital is using adequate number of colour coded bins and bags for segregation of waste at source as per BMWWM Rules. Segregation of waste is practiced as per BMWWM Rules, 2016. The visited team observed that the provision for collection of sharp waste is not proper. The

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bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, and wash water collection provision. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are maintained properly as per BMWM Rules.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving but the records with regard to the pre-treatment with operating conditions is not maintained in accordance with the BMWM Rules. All the workers involved in handling of bio-medical waste is trained on the new BMWM Rules, 2016.

Water consumption, wastewater generation: The hospital is consuming water about 125 KLD and generating wastewater about 100 KLD. Wastewater generated from the hospital is treated by the ETP/STP (capacity -100 KLD). ETP/STP comprises collection/Eq. Tank, Aeration Tank, Secondary settling Tank, sludge collection. However, STP/ETP is not operated regularly as no sludge is generated in the existing STP/ETP and neither sludge is seen in the sludge drying bed. ETP/STP is not attached with the digital flow meter and energy meter.

Solid Waste Generation: In the hospital about 100 Kg/day of municipal solid waste (MSW) is generated. All the generated MSW is disposed of nearby Dhalao by the own staff.

Recommendation: DPCC may direct the hospital for taking up the following time bound actin plan for installation of adequate facilities and to carry out improvements especially w.r.to (i) Pre-treatment for lab chemical waste; (ii) segregation of sharp waste as per BMWM Rules; (iii) Storage of BMW requires improvement w.r.to wash water collection provision; (iv) Provision of container washing facility; (v) To operate and maintain STP regularly; (vi) Provision of energy meter to the STP (vii) Provision for collection and storage of sludge generated from STP needs to be improved; and (viii) Bin system for solid waste as per SWM Rules needs to be provided.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

**3.1.10 M/s Institute of Human Behaviour and Allied Sciences, Dilshad Garden, Delhi- 110 095**

No. of Beds : 365  
BMW Generation: 31Kg/day  
WW Generation : 330 KLD  
Untreated WW : 330 KLD

About Institute of Human Behaviour & Allied Sciences: Institute of Human Behaviour & Allied Sciences located at Dilshad Garden, Delhi 110095 was inspected on 27.02.2017. As informed, the hospital was established in the year 1971-1972. It is a 365 Bedded hospital and occupancy is about 90-95 %. The hospital is involved in treatment of out patients daily around (OPD) 1500-1600. As per the information provided during the visit, the hospital obtained Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 and is having validity upto 11.06.2020 and Authorisation under the Bio-medical Waste Management Rules is valid upto 10.06.2019. As informed, the hospital has separate cell for bio-medical waste management in



the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is good. Photographs taken during the visit is enclosed as Annexure-3.1.10.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 31 Kg/day which include yellow, red, white and blue category waste at 1 kg/day, 24 Kg/day, 03 Kg/day, and 03 Kg/day respectively.

Presently, the hospital is using adequate number of colour coded bins and bags for segregation of waste at source as per BMW Rules. Segregation of waste is practiced as per BMW Rules, 2016. The visited team observed that the provision for collection of sharp waste is proper. The bio-medical waste collected from the hospital is disposed of within 48 hours through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi except in holidays. The visited team also observed that the hospital is using pull cart with bio-hazard symbol for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation, and wash water collection provision and storage area requires improvement. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are not maintained properly as per BMW Rules.

The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving but the records with regard to the pre-treatment with operating conditions is not maintained in accordance with the BMW Rules. All the workers involved in handling of bio-medical waste is required to be trained on the new BMW Rules, 2016. Presently, waste linen, mattresses is not disposed off through CBWTF and kept at the temporary waste storage area. Display board at the pre-treatment area is not provided.

Water consumption, wastewater generation: The hospital is consuming water about 415 KLD and generating wastewater about 332 KLD. Wastewater generated from the hospital is treated by the ETP/STP. ETP/STP comprises collection/Eq. Tank, Aeration Tank, Secondary settling Tank, treated water collection and sludge collection provision. However, STP/ETP is not operated regularly as no sludge is generated in the existing STP/ETP and neither sludge is seen in the sludge drying bed.ETP is not operated regularly and not maintained properly.

Solid Waste Generation: In the hospital about 8 Tonnes per month of municipal solid waste (MSW) is generated. All the generated MSW is disposed of nearby Dhalao by the own staff. MSW is not disposed off regularly and stored haphazardly.

Recommendation: This Committee recommends that the DPCC may direct the hospital for taking up the following time bound actin plan for installation of adequate facilities and to carry out improvements especially w.r.to (i) Pre-treatment for lab chemical waste in accordance with the BMW Rules, 2016; (ii) Storage of BMW requires improvement w.r.to wash water collection provision; (iii) To operate and maintain STP regularly; (iv) Provision for collection and storage of sludge generated from STP needs to be provided; (vi) Display board at the entrance of the pre-treatment of waste should be provided; (vii) Bin system for solid waste needs to be provided and (viii) waste linen and mattresses should be disposed off within 48 hours as required under the BMW Rules, 2016; (ix) MSW is required to be stored and disposed of as per SWM Rules, 2016.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.1.11 M/s Rajiv Gandhi Super Speciality Hospital, Dilshad Garden, Delhi- 110 095**

No. of Beds : 650 (present occupancy 70 beds)

BMW Generation : 35 Kg/day.

WW Generation : 60 KLD

About Rajiv Gandhi Super Specialty Hospital: Rajiv Gandhi Super Specialty Hospital located at Dilshad Garden, Delhi was inspected on 27.02.2017. As informed, the hospital was established in the year 2011. It is a 650 Bedded hospital and occupancy is about 70 beds. The hospital is involved in treatment of out patients daily around (OPD) 400. As per the information provided during the visit, the hospital is yet to apply for Consents under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. Authorisation under the Bio-medical Waste Management Rules was valid upto 24.06.2016 and applied for renewal. As informed, the hospital has separate staff for bio-medical waste management in the hospital. The hospital is not using mercury based thermometers or B.P. Apparatus since last three years and presently using digital thermometers and B.P. Apparatus. Housekeeping of the hospital is poor. Photographs taken during the visit is enclosed as Annexure-3.1.11.

Bio-medical waste generation: Presently, the hospital is generating total bio-medical waste at about 35 Kg/day which include yellow, red, white and blue category waste at 4 kg/day, 25 kg/day, 2 kg/day and 4 Kg/day respectively.

Presently, the hospital is not using desired colour coded bins as per BMWM Rules 2016. Only yellow colour bags are used for segregation of all categories of waste. Colour coded bins are not provided with the bio-hazard symbol. The visited team observed that the provision for collection of sharp waste is not proper and requires improvement. The bio-medical waste collected from the hospital is disposed of once in two days through a Common Bio-medical Waste Treatment Facilities (CBWTFs) located at Niloti, Delhi and also in holidays. The visited team also observed that the hospital is not using closed type of trolley for collection of generated bio-medical waste from different wards and its conveyance to the temporary waste storage area which is provided away from patients area and also in a designated area. The temporary waste storage area is restricted and provided with lighting, ventilation. Separate provision of washing of bins and trolley is not provided. Records with regard to the bio-medical waste generation and its handling are not maintained properly as per BMWM Rules.

All the workers involved in handling of bio-medical waste is not trained and also not provided with proper PPEs and awareness on the new BMWM Rules, 2016 is yet to be organised by the hospital. The visited team observed that the laboratory, microbiology, biotechnology waste is pre-treated using autoclaving and however its efficacy is not assessed and neither records with regard to the operating parameters as stipulated under the BMWM Rules.

Water consumption, wastewater generation: The hospital is consuming water about 75 KLD and generating wastewater about 60 KLD. Untreated wastewater generated from the hospital is treated and however ETP (Capacity: 500 KLD) is not operated regularly and requires training for the operators. Sludge generated from the ETP is used as manure.

Solid Waste Generation: Two bin system for collection of segregated solid waste is not provided in accordance with the Solid Waste Management Rules, 2016. All the generated MSW is disposed of through nearby Dhalao.

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Recommendation: This Committee recommends that the DPCC may issue directions to ensure in respect of the following: (i) To comply with the provisions of the BMW Rules, 2016 as well as SWM Rules, 2016; (ii) Operation and maintenance of the STP/ETP regularly; (iii) Housekeeping requires improvement.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I

### **3.2 Hotels /Banquet Hall**

#### **3.2.1 M/s The Leela Ambience Convention Hotel, Surajmal Vihar, Shahdara, Delhi**

Date of Inspection	: 04/02/2017
No. of Rooms	: 480
No of Kitchens	: 4
No of Restaurants	: 4
MSW Generation	: 200 kg/day
WW Generation	: 460 KLD

This is five star hotel established in a built-up area of 95444 m<sup>2</sup> and has 480 rooms with 4 kitchens, 4 restaurants. It was established in 2012 after obtaining Environmental Clearance under the Environment Protection Act, 1986 (EPA, 1986) and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of this hotel is reported as 30%. Photographs taken during the visit is enclosed as **Annexure-3.2.1**.

**Waste water management** – Waste water generated from kitchens, laundry, floor washings, rooms, toilets, restaurants, etc. is collected for treatment. It was observed that the hotel has installed Sewage Treatment Plant of 625 KLD capacity. At present 460 KLD of waste water is generated from the hotel. The hotel has laundry facility. The waste water generated from the laundry is treated in a separate ETP. After treatment of waste water, the same is mixed with sewage for further treatment in STP. The treated wastewater is used for horticulture purposes, cooling tower and toilet flushing in rooms. Dual plumbing system has been installed in toilets

About 350 – 500 Kg/day of solid waste is reported to be generated from the hotel, the segregated waste is collected in separate bins in two parts i.e. dry waste and wet waste. Horticulture waste of about 75 Kg/day is collected separately. Cold room has also been provided for storage of putrescible wet waste to eliminate the scope of bad odour. Although the hotel has implemented two bin systems at all locations except in guest rooms Compost plant has been provided, but operation of which needs improvement. It was also observed that the staffs in the kitchen need to be trained further to improve the segregation of solid waste at generation point. Two bin waste collection system should be implemented in guest rooms. Wrapping bags are provided to guests for disposal of sanitary napkins, diapers etc. only on demand; however Hotel may provide the same as part of toiletry kit for wrapping the same securely for disposal of same as dry-waste.

Solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. Separate collection point has been identified for storage of segregated waste prior to its disposal through vendor. Used cooking oil is also sent to a separate vendor. The end use or disposal of wastes collected by vendors is not known to the inspection team. Hotel management is also seems to be not aware of the final mode of disposal by these vendors. The vendors engaged by the Hotel are not 'registered waste pickers' as required under SWM rules 2016.

**Observations & recommendations** – Waste segregation practices were satisfactory, however kitchen staff needs to be trained further to improve the segregation of solid waste at generation point. Two bin waste collection system should be implemented in guest rooms also. Hotel may provide wrapping bags as part of toiletry kit for wrapping sanitary napkins, diapers etc. and disposal of same as dry-waste. It was observed that STP was in operation and operating conditions were

satisfactory. There was no discharge of treated wastewater from the Hotel. The compost plant needs to be operated effectively and on regular basis a re-use the compost for plants within the premises.

The committee recommends for issuance of letter for improvements of existing practices by providing two bin system in hotel rooms and regular training to kitchen and other sanitary staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I and photographs taken during the survey also annexed at annexure-I.

### **3.2.2 M/s Ginger Hotels, Vivek Vihar, East Delhi**

Date of Inspection	: 04/02/2017
No. of Rooms	: 81
No of Kitchens	: 1
No of Restaurants	: 1
MSW Generation	: 200 kg/day
WW Generation	: 28 KLD

Ginger Hotel is having plot area of 1668 m<sup>2</sup> and built up area of 3752 m<sup>2</sup>. This hotel has 81 rooms, one kitchen and one restaurant. It was established in 2010 after obtaining Consent to Establish under Water Act, 1974 and Air Act, 1981. This hotel has full occupancy on the day of inspection.

**Waste water management** – About 28 KLD of wastewater is reported to be generated. The hotel has installed a Sewage Treatment Plant at basement, but it was found defunct and not operating conditions at the time of visit. There was no sludge generation for STP. Anaerobic (septic) conditions were noticed in treatment units. The untreated wastewater is discharged into public sewers without any re-use or recycling.

**Waste Management** - No records were shown to inspecting team regarding solid waste generation from the hotel but it was estimated that approximately 70 kg/day of solid waste is generated. There was no segregation of waste generated kitchens and restaurant. Only single bins were provided in kitchen rooms and restaurant resulting into collection of mixed solid waste. Compost plant has not been provided. There is a separate shed to store the mixed waste. No provision is made to store segregated wastes. It was reported that solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. Arrangement for disposal of solid waste needs to be improved by ensuring safe disposal as per SWM rules 2016. . The vendor engaged by the Hotel is not 'registered waste pickers' as required under SWM rules 2016.

**Observation & recommendations** – STP installed by this hotel is found to be defunct and untreated wastewater found discharged into public sewer. Hotel was also found to be grossly violating with respect to solid waste management. Solid waste is not segregated at source of generation. It is proposed that punitive action be taken against this hotel for ensuring treatment of wastewater and implementing solid waste management practices.

Summary observation, deficiencies and recommendations are given in the tabular chart given at annexure-I. Photographs taken during the survey also annexed at annexure—3.2.2

### **3.2.3 M/s Park Plaza, Plot No. 32, CBD, Behind Karkar Duma Court, East Delhi.**

No. of Rooms	: 91
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MSW Generation : Not provided  
WW Generation : 56 KLD  
Untreated WW : nil

This is a five star hotel is established in 2013 after obtaining Environmental clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. It is built up in a plot of 2500 m<sup>2</sup> and built up area of 5542 m<sup>2</sup> having 91 rooms , 2 restaurants and 2 kitchens .The hotel has valid consent to operate. The occupancy of hotel is reported as 57%.

**Waste Water management-** Waste water generated from kitchens, laundry, floor washings, rooms, toilets, restaurants, etc. is collected for treatment. The hotel has installed Sewage Treatment Plant of 100 KLD capacity, but STP is not properly operated. About 56 KLD of liquid waste is reported to be generated from Hotel. The hotel has laundry facility. The waste water generated from laundry is mixed with waste water generated from other sources, for treatment. Separate facility for treatment of laundry waste does not exist. Treated water is used for horticulture purposes. No sludge is being generated due improper operation of plant.

**Waste management-** No record of solid waste generated was provided by hotel authorities. In spite of two bin system in kitchen, the same is not segregated properly. Single bin is provided in rooms. Compost plant has not been provided. Although the hotel has two bins system, the solid waste is getting mixed up at waste storage area. It was reported that solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. The vendor engaged by the hotel is not registered waste picker as required under SWM rules

**Observations and recommendations-** STP installed by this hotel is not operating properly. Skilled staff needs to be deployed to operate the STP. The kitchen staffs need to be trained for segregation of solid waste at generation point. Two bin waste collection system should be implemented in guest rooms also. Hotel should provide wrapping bags as part of toiletry kit for wrapping sanitary napkins, diapers etc. and disposal of same as dry-waste. Cold room is required to be provided for storage of wet waste to eliminate the scope of decomposition of waste. The compost plant should be provided. This committee recommends for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to improving operation of STP, two bins system in rooms, training to staff on segregation, and installation of on-site compost plant

Summary observation, deficiencies and recommendations are given in the tabular chart given at annexure-I. Photographs taken during the survey also annexed at annexure – 3.2.3.

#### **3.2.4 M/s Golden Palm, Patparganj, Delhi**

No. of Rooms : 50  
MSW Generation : No records  
WW Generation : 28 KLD  
Untreated WW : nil

This is a three star hotel having plot area of 1416 m<sup>2</sup> and has 50 rooms, 1 restaurant and 1 kitchen .It was established in 2013 after obtaining Environmental Clearance under EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of hotel is reported as 90 %.

**Waste Water Management-** Waste water generated from kitchens, floor washings, rooms, toilets, restaurants, etc. is collected for treatment. At present about 28 KLD of liquid waste is generated from the hotel. The hotel has installed Sewage Treatment Plant, but same was not operated properly. There was no MLSS in aeration tank and sludge was not generated on from STP. The hotel claims that entire treated waste water is used for gardening and sludge is used for horticulture purposes.

**Waste Management-** No record shown regarding solid waste generated from the hotel. In spite of two bin system in kitchen, the same is not segregated properly. Single bin is provided in rooms. No Compost plant installed. Solid waste is stored in open, with bins overflowing. It was reported that solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. The vendor engaged by the hotel is not registered waste picker as required under SWM rules

**Observations and recommendations-** STP installed by this hotel should be operated properly. Skilled staff needs to be deployed to operate the STP. The kitchen staffs need to be trained for segregation of solid waste at generation point. Two bin waste collection system should be implemented in guest rooms also. Hotel may provide wrapping bags as part of toiletry kit for wrapping sanitary napkins, diapers etc and disposal of same as dry-waste. Cold room is to be provided for storage of wet waste to eliminate the scope of decomposition of waste. Covered waste storage area should be provided. The compost plant should be provided. Hotel authorities to ensure final disposal of waste as per SWM rules 2016. This committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to improvement of waste management practices as per SWM Rules, 2016, proper operation, provision of covered storage shed and maintenance of ETP and Installation of compost plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given Annexure-I. Photographs taken during the survey also annexed at annexure – 3.2.4.

### **3.2.5 M/s Lemon Tree Hotels, East Delhi Mall.**

This Hotel falls under the purview of the Uttar Pradesh State as per the proof shown by the hotel authorities.

### **3.2.6 M/s Park Inn by Radisson at Patparganj, East Delhi.**

No. of Rooms	: 76
MSW Generation	: 30 Kg/day
WW Generation	: 20 KLD
Untreated WW	: nil

The hotel having plot area of 2130 m<sup>2</sup> and built up area of 8662 m<sup>2</sup>. The hotel has 76 rooms, 1 restaurant and 2 kitchens. It was established in 2014 after obtaining Environmental Clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of hotel is reported as 55 %.

**Waste Water management-** Waste water generated from kitchens, floor washings, rooms, toilets, restaurants, etc. is collected for treatment. The hotel has installed Sewage Treatment Plant of 65 KLD capacity, but it was found defunct at the time of inspection. At present 20 KLD of waste water is

generated. The treated waste water is used for gardening and flushing. The dual piping system was inspected, but due to no colour coding on pipes, the existence of dual piping could not be verified.

**Waste Management-** about 30 kg/day solid waste is generated from the hotel. Two bin system is found in kitchen, but mix waste is collected in both bins. Single bin system is provided in guest rooms. Wrapping bags are provided to guests for disposal of sanitary napkins, diapers etc. Separate room with two bin system has been provided for storage of solid dry waste. Compost plant has not been provided. Solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. The vendors engaged by the hotel are not registered waste pickers as required under SWM rules 2016. E waste and used batteries are sent to authorize recycler.

**Observations and recommendations-** Staff in the kitchen needs to be trained to improve the segregation of solid waste at generation point. Two bins system should be adopted in rooms for segregation of waste at source. Compost plant should be provided. Arrangement should be made for storage of wet waste to eliminate the scope of decomposition of waste. Hotel authorities to ensure final disposal of waste as per SWM rules 2016. The committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to improvement of waste management practices as per SWM Rules, 2016, proper operation and maintenance of STP and installation of compost plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.6.

### **3.2.7 M/s JP Hotel & Resort, Patparganj, IP Extension, Delhi**

No. of Rooms	: 50
MSW Generation	: 35 Kg/day
WW Generation	: 16 KLD
Untreated WW	: nil

This is a three star hotel, having plot area of 1421m<sup>2</sup> and seven storeyed building. The hotel has 50 rooms, 1 restaurant and 2 kitchens. It was established in 2013 after obtaining Environmental Clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of hotel is reported as 50 %.

**Waste Water Management-** Waste water generated from kitchens, floor washing, rooms, toilets, restaurants etc is collected for treatment. About 20 KLD of liquid waste is reported to be generated from hotel. It was observed that the hotel has installed Sewage Treatment Plant of 60 KLD, but STP is not properly operated. No sludge is being generated due improper operation of plant. The treated waste water is used for gardening and flushing. The dual piping system was inspected, but due to no colour coding on pipes, the existence of dual piping could not be verified.

**Waste management-** About 35 kg/day solid waste is reported to be generated from the hotel. Single bin system is provided in kitchen and rooms. There was no segregation of waste. No proper storage has been provided for storage of wet waste to eliminate the scope of decomposition of waste. Compost plant has not been provided. Solid waste is stored in open area without shed. Solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management.

**Observations and recommendations-** Staff in the kitchen needs to be trained to improve the segregation of solid waste at generation point. Two bins system should be adopted in rooms for



segregation of waste at source. Compost plant should be provided. Arrangement should be made for storage of wet waste to eliminate the scope of decomposition of waste. Hotel authorities to ensure final disposal of waste as per SWM rules 2016. The committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to Improvement of waste management practices as per SWM Rules, 2016, proper operation and maintenance of ETP and provision of covered shed for waste collection point and Installation of compost plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.7.

### **3.2.8 M/s Holiday Inn, Mayur Vihar, Delhi.**

No. of Rooms	: 193
MSW Generation	: 450kg/day
WW Generation	: 130 KLD
Untreated WW	: nil

This is a five star hotel having 193 rooms, 2 restaurants and 3 kitchens. It was established in 2010 after obtaining Environmental Clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of this hotel is reported as 86%. The hotel has valid consent to operate.

**Waste Water management** – Waste water generated from kitchens, laundry, floor washing, rooms, toilets, restaurants etc is collected for treatment. Hotel has installed Sewage Treatment Plant of 280 KLD and ETP of 30 KLD capacity. At present 130 KLD of waste water is generated from the hotel. The hotel has laundry facility. The waste water generated from the laundry is treated at ETP. After treatment of waste water from ETP, the same is mixed with sewage water for further treatment in STP. The Sewage Treatment Plant was running efficiently. The treated waste water is used for horticulture purposes, cooling tower and toilet flushing in rooms. Dual plumbing system has also been installed in toilets. The sludge produced is disposed of along with solid waste.

**Waste management** - About 450 kg/day solid waste is reported to be generated from the hotel and segregated in two parts i.e. dry waste and wet waste. Cold room has also been provided for storage of wet waste to eliminate the scope of decomposition of waste. Vermi-compost plant has been provided and found working condition. About 50 kg of vermi- compost is produced, which is used for horticulture. Although the hotel has two bin system at end point but single bin system in the rooms.

Separate waste storage area has been provided for storage of solid waste. Trolleys are used to dispose solid waste from generation point to waste storage area. Solid waste which has not been composted is given to vendor for final disposal but end point of disposal is not known to hotel management. The end use of disposal of wastes collected by vendors is not known to the hotel management. The vendors engaged by the hotel are not registered water pickers as required under MWS 2016

**Observations and recommendations** – Waste generation practices were satisfactory, however kitchen staff needs to be trained further to improve the segregation of solid waste at generation point. Two bin waste collections should be implemented in guest rooms. Hotel may provide wrapping bags as part of toiletry kit for wrapping sanitary napkins, diapers etc and disposal of same as dry waste. Arrangement for disposal of solid waste needs to be improved by ensuring disposal as per MWS rules 2016. The committee recommends for issuance of letter for improvements of existing practices by providing 2 bin system in hotel rooms and regular training to kitchen and other sanitary staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.8.

### **3.2.9 M/s Crown Plaza, Mayur Vihar, Delhi**

No. of Rooms	: 160
MSW Generation	: 400 Kg/day
WW Generation	: 80 KLD
Untreated WW	: nil

This is a five star built on a plot area of 5955 m<sup>2</sup> and built up area of 27680 m<sup>2</sup>. The hotel has 160 rooms, 2 restaurants and 3 kitchens. It was established in 2010 after obtaining Environmental Clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of this hotel is reported as 60- 70%. The hotel has valid consent to operate.

**Waste Water management** – Waste water generated from kitchens, laundry, floor washing, rooms, toilets, restaurants etc is collected for treatment. Hotel has installed Sewage Treatment Plant of 280 KLD and ETP of 30 KLD capacity. At present 80 KLD of waste water is generated from the hotel. The Sewage Treatment Plant was running efficiently. The treated waste water is used for horticulture purposes, cooling tower and toilet flushing in rooms. Dual plumbing system has also been installed in toilets. The sludge produced is disposed of along with solid waste.

**Waste management** - About 400 kg/day solid waste is reported to be generated from the hotel and segregated in two parts i.e. dry waste and wet waste. Cold room has also been provided for storage of wet waste to eliminate the scope of decomposition of waste. Vermi -compost plant has been provided and found working condition. The vermi compost is used for horticulture. Although the hotel has two bin system at end point but single bin system in the rooms.

Separate waste storage area has been provided for storage of solid waste. Trolleys are used to dispose solid waste from generation point to waste storage area. Solid waste which has not been composted is given to vendor for final disposal but end point of disposal is not known to hotel management. The end use of disposal of wastes collected by vendors is not known to the hotel management. The vendors engaged by the hotel are not registered waste pickers as required under MWS 2016

**Observations and recommendations** – Waste generation practices were satisfactory, however kitchen staff needs to be trained further to improve the segregation of solid waste at generation point. Two bin waste collections should be implemented in guest rooms. Hotel may provide wrapping bags as part of toiletry kit for wrapping sanitary napkins, diapers etc and disposal of same

as dry waste. Arrangement for disposal of solid waste needs to be improved by ensuring disposal as per MWS rules 2016. Housekeeping around Vermi Compost plant needs improvement. The committee recommends for issuance of letter for improvements of existing practices with respect to waste management practices needs improvement in accordance with the SWM Rules, 2016, two bins system in hotel rooms and regular training to the kitchen and STP and other staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.9

### **3.2.10 M/s Fraser Suites, Mayur Vihar Phase-I, Delhi**

No. of Rooms	: 92
MSW Generation	: 50-60 kg/day
WW Generation	: 40 KLD
Untreated WW	: 40 KLD

This is a five star hotel built on a plot of 4013 m<sup>2</sup>, with 90 studio apartments having kitchen, drawing and bed rooms in each apartment and a restaurant at ground floor. It was established in 2011 after obtaining Environmental Clearance under the EPA, 1986 and Consent to Establish under Water Act, 1974 and Air Act, 1981. The hotel has valid consent to operate. The occupancy of this hotel is reported as 70%.

**Waste Water management** - About 40 KLD of liquid waste is reported to be generated. It was observed that the hotel has installed Sewage Treatment Plant, but STP was under maintenance at the time of visit. There was no sludge generation from STP. Even skilled staff is not deployed at the plant. Untreated sewage is being discharged into drain without re-use or recycling.

**Waste Management** - About 50-60 kg/day solid waste is generated from the hotel. It was also observed that single bin system is adopted in kitchen and apartments. There was no segregation of waste generated from kitchen and apartments. The solid waste was stored in a room at ground floor, without any arrangement of bags for final disposal. The same is being segregated at the storage area. No space for storage of wet waste is provided. Compost plant has not been provided. Solid waste is given to vendor for final disposal but end point of disposal is not known to hotel management. The vendor engaged by the hotel is not registered waste picker as required under MWS rules 2016.

**Observations and recommendations** - STP installed by this hotel is found to be under maintenance and untreated wastewater found discharged into drain. Hotel was also found to be grossly violating with respect to solid and liquid waste management. Two bins system should be provided in kitchen and apartments. Solid waste is not segregated at source of source of generation. The committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to improvement of waste management practices as per SWM Rules, 2016, restoration of STP and proper operation and maintenance of STP, impart training to the concerned staff and installation of compost plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.10

### **3.2.11 M/s Golden Petal Hotel & Banquet, Shiv Puri, Geeta Colony,**

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No. of Rooms : 15  
MSW Generation : 80 kg/day  
WW Generation : no record  
Untreated WW : no record

The Golden Petal Hotel and Banquet is a guest house having plot area of 300 m<sup>2</sup> and covered area of 1200 m<sup>2</sup>. The guest house has 15 rooms, banquet halls at two floors and kitchen at top. The occupancy of guest house is reported as 50%. The guest house and banquet has no consent to operate from DPCC.

**Waste Water Management** - No records were reported to be maintained regarding liquid waste generation. The untreated liquid waste is discharged into sewer without any re-use or recycling.

**Waste management** - No records were reported to be maintained regarding solid waste generation, but it was estimated that about 80 kg/day solid waste is generated from the guest house and banquet. Single bin system is adopted in kitchen and banquet. No storage area for solid waste is provided. The solid waste is reported to be disposed off at nearest dhalao being maintained by EDMC.

**Observations and recommendations** - Two bin system needs to be adopted in guest house, kitchen and banquet halls. Waste water from kitchen should be treated and recycled. Committee recommends issuance of directions for seeking consent form DPCC, ensuring proper treatment of wastewater and effective waste management with respect to bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, Installation of STP, Covered shed for waste collection point and training to the sanitary workers is required to be organised.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.11

### **3.2.12 M/s Hotel De Aqua, Shastri Park, Delhi**

This hotel was not in operation, was under shutdown at the time of inspection

### **3.2.13 M/s Hall Mark Banquet, Karkar Duma Metro Station, Delhi**

Date of Inspection : 17.02.2017  
No. of Halls : Three (3)  
Capacity : 1100 visitors (average visitors 500 per day)  
SW Generation : 750 kg/day  
WW Generation : Water supply from DMRC  
Untreated WW : Open drain

Hallmark Banquet, Karkardooma, is 3 storied structure constructed by Delhi Metro Rail Corporation at Karkardooma Metro Station. Later on, part of the built up area at Metro Station had been leased out to Private operators for commercial activities. As on date, Hallmark Banquet (three party halls) and Orchid Grand Banquets are being run at different floors. However, no information in respect of exact built up area could be ascertained due to non availability of documents with the private operators. During the functions, around 1100 persons visit the premises. Photographs taken during the visit is enclosed as Annexure-3.2.13.

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Water consumption, Wastewater generation and wastewater treatment and disposal: The exact information regarding water consumption was not available with the private vendor as the water was being provided by DMRC on lump sum basis. However, it has been informed that on an average 20 kilo litre of water is consumed during the functions. The waste water treatment facility comprising of collection / equalization tank, primary settling tank, aeration tank, secondary settling tank, treated water collection tank had been installed. Effluent Treatment Plant / Sewerage Treatment Plant were found completely non-operational. The food oil was also being discharged into storm water drain without treatment.

**Solid Waste Generation:** Temporary uncovered waste storage was provided for collection of mixed waste. Informal waste pickers or waste collectors were noticed collecting recyclable materials during the inspection. No separate collection bins were provided in the premises including kitchen. The total quantity of Municipal Solid Waste generated was approximately 750 kg. per day. The garbage is disposed of without segregation at nearby dhalao, designated place provided by the East Delhi Municipal Corporation. MSW segregation at source was not being done by private operator in consonance of SWM Rule, 2016. Hallmark Banquet, Karkardooma, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** Committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to Bin system needs to be practiced as per SWM Rules, restoring operation of ETP in a time bound manner, provision of separate room for storage of solid waste and improving housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I.

**3.2.14 M/s Orchid Grand (Banquet Hall), Karkar Duma Metro Station, Delhi**

Date of Inspection : 17.02.2017  
No. of Halls : Two (2)  
Capacity : 600 visitors per day  
SW Generation : 500 kg/day  
WW Generation : Water supply from DMRC  
Untreated WW : Open drain

Orchid Grand Banquet, Karkardooma, Delhi is a three storeyed structure had been constructed by Delhi Metro Rail Corporation at Karkardooma Metro Station. Later on, part of the built up area at Metro Station had been leased out to Private operators for commercial activities. As on date, Hallmark Banquet (three party halls) and Orchid Grand Banquets are being run at different floors. However, no information in respect of exact built up area could be ascertained due to non availability of documents with the private operators. During the functions, around 600 persons visit the premises. Orchid Garand hospitality Pvt. Ltd. opting consent to operate from DPCC on 28.05.2015 to run restaurant and banquet hall. Photographs taken during the visit is enclosed as Annexure-3.2.14.

Water consumption, Wastewater generation and wastewater treatment and disposal: The exact information regarding water consumption was not available with the private vendor as the water was being provided by DMRC on lump sum basis. However, it has been informed that on an average 20 kilo liter of water is consumed during the functions. The waste water treatment facility comprising of collection / equalization tank, primary settling tank, aeration tank, secondary settling

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tank, treated water collection tank, had been installed. Effluent Treatment Plant / Sewerage Treatment Plant were found completely non-operational. The food oil was also being discharged into storm water drain without treatment.

**Solid Waste Generation:** No waste storage for collection of solid waste has been provided. Informal waste pickers or waste collectors were noticed collecting recyclable materials during the inspection. No separate collection bins were provided in the premises including kitchen. The total quantity of Municipal Solid Waste generated was approximately 500 kg. per day. The garbage is disposed of without segregation at nearby dhalao, designated place provided by the East Delhi Municipal Corporation. MSW segregation at source was not being followed by private operator in consonance of SWM Rule, 2016. Orchid Grand Banquet, Karkardooma, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends for imposing environmental compensation or fine for grossly non-complying / violations in respect to proper operation of STP, bin system for collection of segregated waste, Provision of separate room for storage of solid waste, On-site segregation, Control of bad odour and Improvement in Housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed as annexure 3.2.14

### **3.3 Colleges**

#### **3.3.1 M/s Shaheed Sukhdev College of Business Studies, Vivek Vihar**

Date of Inspection : 14.02.2017  
No. of Students : 1200  
MSW Generation : 30 kg/day  
WW Generation : 100 KLD  
Untreated WW : 100KLD

Shahdeed Sukhdev College of Business Studies is a premier institution of the University of Delhi, imparting education in the fields of Management and Information Technology. It was established in August, 1987 by the Delhi Administration on the initiation of UGC and the Ministry of Human Resources, has, in a short span of 25 years, established itself as the leading undergraduate management school. Around 1,200 students have been enrolled for under graduation courses.

Three storeyed building structure has been constructed having 30 classrooms and one canteen without residential hostel accommodation in a plot area of approximately 1.43 acres. However, no information in respect of built up area was reported as Sanctioned Building Plan was not available, at the time of inspection, with college authorities. The only one canteen in the college premises, having one kitchen, is being run by the private vendor for students. Housekeeping of the college was found satisfactory. Photographs taken during the visit is enclosed as Annexure-3.3.1.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the college, as per Delhi Jal Board's bill, is approximately 77 kilo litre per day (KLD) and the waste water from toilets etc. is being discharged directly without treatment into sewer line. Moreover, no oil and grease trap at canteen has been provided.

**Solid Waste Generation:** Only single bin system has been provided in the college to avoid littering and no separate storage facility for Solid Waste exists. Municipal Solid Waste including Horticulture waste is being disposed of at dhalao, designated place provided by Municipal Corporation, on regular basis. MSW segregation at source is not being followed. The total quantity of Municipal Solid Waste generated is approximately 30 kg. per day and therefore Shaheed Sukhdev College of Business Studies, Vivek Vihar, Delhi is not a Bulk Waste Generator as per definition defined in SWM Rule, 2016.

**Recommendation:** This committee recommends that letters be issued to the college for (i) Segregate solid waste at source and provide two Bin systems for collection of segregated biodegradable and non-biodegradable waste in accordance with the SWM Rules, 2016; and (ii) Provide training to staff working at canteen, and sanitary workers.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I.

#### **3.3.2 M/s Vivekanand Mahila College, Vivek Vihar, Delhi**

Date of Inspection : 14.02.2017  
No. of Students : 2200  
MSW Generation : 100 kg/day  
WW Generation : 20 KLD

Untreated WW : 20 KLD

Vivekanand College is one of the largest college of East Delhi that provides opportunities for higher education in Arts, Comers, Social Science and Humanities to women in trans Yamuna area. The college, established in the year 1970, is spread over an area of over 10 acres which includes 4000 sqm. of built up area and 5.2 acres of open space for garden and sports facilities. The teaching - learning process is facilitated in 35 classrooms, 12 tutorial rooms, 2 laboratories, 3 computer centers, seminar room and an auditorium. The college also provides residential facilities for the principle, teaching faculty and non teaching staff. Around 2,200 students have been enrolled for under graduation courses. The canteen in the college premises, having only one kitchen, was being run by the private vendor for students. Housekeeping of the college was found satisfactory. Solar Panels has also been noticed installed for green power. Photographs taken during the visit is enclosed as Annexure-3.3.2.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the college, as per Delhi Jal Board's bill, has been reported approximately 25 kilo litre per day. The waste water from toilets, kitchen etc. was being discharged into sewerage line. No separate waste water treatment facility has been provided in the campus. Moreover, no oil and grease trap at canteen was provided.

**Solid Waste Generation:** No separate storage space for collection of Solid Waste exists. The onsite horticulture waste processing unit by using vermi composting was found functional. Municipal Solid Waste is dumped at dhalao, designated place provided by Municipal Corporation, on regular basis. MSW segregation practice at source is not being followed. The total Solid Waste coming out of College is more than 100 kg. and therefore Viveka Nand College, Vivek Vihar, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** Committee recommends that letter be issued to college for (i) Segregation of solid waste at source and provide two Bin systems in accordance with SWM rules, 2016, upgrading composting plant and (ii) Provide training to staff working at canteen and sanitary workers.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I.

### **3.3.3 Shyam Lal College, Shahdara, Delhi**

Date of Inspection : 14.02.2017  
No. of Students : 6000  
MSW Generation : 140 kg/day  
WW Generation : 90 KLD  
Untreated WW : 90 KLD

Shyam Lal College was founded in 1964 and is one of full-fledged constituent colleges of University of Delhi imparting education in commerce and humanities to more than 6000 students. There is no residential hostel accommodation exist within the premises of the college. The college is being run in two shifts i.e. Morning & Evening Shifts. Upon enquiry, it has been informed that the total plot area of the college is approximately 7.29 acres with 12,000 sqm. built up area having 65 classrooms. The canteen facility in the college premises is operated by the private vendor for students. Housekeeping of the college was found un-satisfactory. The college has also been recognized for their efforts in



getting 7.5 tons of waste paper recycled during the month of December, 2016. Photographs taken during the visit is enclosed as Annexure-3.3.3.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the college, as per Delhi Jal Board's bill, was found approximately 25 kilo litre per day. The waste water from toilets etc. was being discharged into sewerage line. No separate waste water treatment was noticed in the premises. No oil and grease trap was there at kitchen's canteen. Moreover, single bin system was there to collect mixed waste. The rain water harvesting system was under installation.

**Solid Waste Generation:** The onsite horticulture waste processing compost pits were there but found poorly maintained. The total quantity of Municipal Solid Waste generated was approximately 140 kg. per day, though no separate storage space for collection of MSW was provided. Municipal Solid Waste without segregation is dumped at dhalao, designated place provided by Municipal Corporation, on regular basis. The Solid Waste Generation is more than 100 kg. and therefore, Shyam Lal College, Shahdara, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends that letter be issued to college for ensuring (i) Segregate solid waste collection at source as per SWM Rules, 2016, and (ii) providing training to staff working at canteen staff and sanitary workers.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I.

#### **3.3.4 Dr. Bhim Rao Ambedkar College, University of Delhi**

Date of Inspection : 28.02.2017  
No. of Students : 2665  
MSW Generation : 50 kg/day  
WW Generation : 20 KLD  
Untreated WW : 20 KLD

Dr. Bhim Rao Ambedkar College came into existence in 1991 during the birth centenary year of Bharat Ratna Baba Saheb Bhim Rao Ambedkar. It is a constituent college of University of Delhi and is sponsored by Delhi Government. There is no residential hostel accommodation exist within the premises of the college. Around 2,600 students have been enrolled for under graduation courses. The total plot area of the college is approximately 9.0 acres with 45 classrooms. However, no information in respect of built up area could be reported as Sanctioned Building Plan was not available, at the time of inspection, with college authorities. The canteen in the college premises, having only one kitchen, was being run by the private vendor for students. Housekeeping of the college was found satisfactory. The rain water harvesting system has been provided in the college premises. Photographs taken during the visit is enclosed as Annexure-3.3.4.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the college was found approximately 20 kilo litres per day. The waste water from toilets etc. was being discharged into septic tank which is cleaned as and when required. The overflow from septic tank is discharged into storm water drain and septage is used as manure. No separate waste water treatment was noticed in the premises. Moreover, no oil and grease trap at

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canteen was provided. The onsite horticulture waste processing compost pits were there but found poorly maintained.

**Solid Waste Generation:** The total quantity of Municipal Solid Waste generated was approximately 50 kg. per day, though no separate storage space for collection of MSW was provided. During the visit of the canteen, it was noticed that the waste was being stored in single bin system without segregation. MSW segregation at source was not being done in consonance of SWM Rule, 2016. Dr. Bhim Rao Ambedkar College, Main Wazirabad Road, Delhi is not a Bulk Waste Generator as per definition defined in SWM Rule, 2016.

**Observations and recommendations:-** This committee recommends that issue letter be issued to college for ensuring (i) Segregate solid waste collection at source as per SWM Rules, 2016, and (ii) providing training to staff working at canteen staff and sanitary workers.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I.

### **3.4 Mall/Commercial complexes**

#### **3.4.1 M/s V3S East Centre Mall, Laxmi Nagar, District Centre, Delhi**

Date of Inspection : 13.02.2017  
No. of Shops : 180  
MSW Generation : 120 kg/day  
WW Generation : 160 KLD  
Untreated WW : nil

M/s V3S Mall is built in area of 12540 sq. meters and built up area is of 36000 sq. meter consists of 180 shops. It was established in 2007-2008 after obtaining environmental clearance under the EPA, 1986 and Consent to Establish under water Act, 1974 and Air Act, 1981. The mall has single bin system for collection of solid waste at shops, Corridors. It was observed during the inspection that mall has installed ETP of 165 KLD capacity but need proper maintenance. Operators of ETP required training. The mall has not maintained the log book of discharge of treated/untreated waste water. It was reported that the treated waste water is used for the Horticulture purpose. The Floor sweeping of the mall was found satisfactorily as no spillage, pooling of water/waste water, and no littering of waste was found in the mall.

The mall has installed bio-digester of capacity 60 kg/batch and it was reported that bio digesting process was not done properly. It was found that the compost plant was also not working properly. The storage of solid waste was not proper and causing foul smell. It was reported that the same was given to the vendor without knowing their permits/authorization from EDMC and their final disposal practices.

During the inspection it was observed that there was no separate bin for domestic Hazardous Waste, no separate collection of C & D and horticulture waste. And the quantity of mixed waste generated was 120kg/day but no record was maintained by the mall.

**Observations and recommendations**-The committee recommends issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to improvement of waste management practices as per SWM Rules, 2016 in corridors and restaurants, Proper operation of STP, Proper storage of waste with wash water collection provision, proper operation and maintenance of STP and Sludge disposal.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.4.1

#### **3.4.2 M/s Cross River Mall (EPMS), Shahdara, Delhi**

No. of Shops : 120  
MSW Generation : 950 kg/day  
WW Generation : 52 KLD  
Untreated WW : nil

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The Mall was inspected on 13.02.2017. The Mall having total area of 250000 sq. feet and built up area of 457000 sq. feet consists of 123 shops. It was established in 2007 after obtaining environmental clearance under EPA, 1986 and Consent to Establish under water Act, 1974 and Air Act, 1981. The mall has single bin system for collection of solid waste at shops, corridors etc. It was reported that the 60-70 KLD of water was consumed and source of which was outside tankers. The mode of discharge of treated waste water was storm water drain. The mall is treating about 45 KLD of waste water and Septic condition was observed in the ETP during the inspection. The Floor sweeping of the mall was found satisfactorily as no spillage, pooling of water/waste water, and no littering of waste was found in the mall. Also the fire safety measures were also adopted by the mall.

The mall has Temporary waste storage area which was enclosed and covered but requires improvement. It was found that no compost plant and bio-digester were installed by the mall. It was reported that the solid waste was disposed through vendor and final disposal of which was not known.

The temporary waste storage area is located within the premises provided with proper ventilation and there was no wash water collection system connected to sewer lines/ETP. The quantity of mixed waste generated was 150 kg/day but no record was maintained by the mall.

**Observations and recommendations**-This committee recommends for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to improvement of waste management practices as per SWM Rules, 2016, proper operation and maintenance of STP, provision of pull cart / trolley for waste transfer to temporary collection area and installation of compost plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure3.4.2

### **3.4.3 M/s Aggarwal Fun City Mall, Shahdara, Delhi**

Date of Inspection	: 14.02.2017
No. of Shops	: 4 shops 2500 visitors
MSW Generation	: 400 kg/day
Kitchens/Restaurants	: 6 nos
WW Generation	: 32 KLD
Untreated WW	: nil

M/s Aggarwal Fun City Mall has a plot area of 10000 sq. meter and built up area of 30,000 sq. meter consists of 04 shops and 2500 visitors visit per day as informed by the contacted person. The mall was established in 2008. The mall has valid consent to operate which is valid up to 21.08.2017. The quantity of segregated wet and dry waste generated was 300kg/day and 100 kg/day respectively. The mall has not installed composting plant. Temporary storage area was not found covered during the inspection. Solid waste was disposed-off nearby dhalla through vendors. A measure taken for safety of sanitation workers was found satisfactorily.

The mall has installed STP of capacity 100 KLD. The sewage generated was first treated and then re-used for gardening and cooling purposes. The waste water generated by the mall was 32 KLD. The

mall have 3 D.G sets, two of 1500 KVA and one of was 500 KVA. The mall has installed fume hoods and ducting system which has stack height of 20 meters from ground level and 5 meters approx. from the roof level for emission control.

**Observations and recommendations**-This committee recommends for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to installation of bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, Improving operation of STP, training to the sanitary workers and STP operator

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.4.3

#### **3.4.4 M/s DLF Galleria, Mayur Vihar Ph-I Extension**

Date of Inspection	: 15.02.2017
No. of Shops	: 113/ 12,000 visitors
MSW Generation	: 175 kg/day
WW Generation	: 40 KLD
Restaurants	: 01
Untreated WW	: nil

The Mall having totalled built up area of 170000 sq. feet consists of 113 shops. It was established in 2006 after obtaining environmental clearance under the EPA, 1986. The mall has installed STP of 45 KLD consist of Collection tank, primary settling tank and aeration tank. It was reported that the 50-60 KLD of water was consumed and source of water is outside tankers. The treated waste water is re-used for gardening and cooling purposes.

The mall has temporary waste storage area which was found covered. It was found that no compost plant and bio-digesters were installed by the mall. It was reported that the solid waste is disposed through vendor in the nearby dhallao. The temporary waste storage area was located within the premises provided with proper ventilation. The mall has not provided two bin systems for collection/segregation of solid waste. The quantity of mixed waste generated was 150-200kg/day.

**Observations and recommendations**-This committee recommends for issuance of letter for improvements of existing practices with respect to bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016 and regular training to the sanitary workers and STP operator.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.4.4

#### **3.4.5 M/s Star City, Mayur Vihar Ph-I Extension**

Date of Inspection	: 15.02.2017
No. of Shops	: 40 shops
MSW Generation	: 250 kg/day
No of Restaurants	: 04
WW Generation	: 25 KLD

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Untreated WW : 25 KLD

This Mall having total area of 5680 sq. meter and having built up area of 12326 sq. meter consists of 30-35 shops. As informed the total number of visitors per day is 250 approx. The mall has installed STP of 25 KLD but was not found operating during the inspection. It was reported that the 7.5 KLD of water was consumed and source of which is outside tankers. The mall has also 5 bore wells. The treated waste water was re-used for horticulture purposes. The mall has three banquet halls.

The Municipal solid waste and temporary waste was found stored in open area. About 250 Kg/day of Municipal solid waste was generated by the mall. It was reported that the solid waste was disposed through vendor in the nearby dhallao. The mall has provided single bin systems for collection/segregation of solid waste.

**Observations and recommendations**-This committee recommends for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to provision of bins system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, provision of waste collection point, ensure proper operation of STP and provision of training to the sanitary staff and STP operators.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.4.5

**3.4.6 M/s Parsvnath Commercial Complex, Seelampur, Delhi.**

Date of Inspection : 28.02.2017  
No. of Shops : 02 (wholesale market & a shop)  
Total plot area : 51, 240 Sq.m  
Built-up area : 96813 Sq.m  
No. of Visitors : 1000  
MSW Generation : 320 Kg/day  
WW Generation : 60 KLD  
Untreated WW : 50 KLD

M/s Parsvnath Commercial Complex was built in an area of 51240 sq. meter and having built up area of 96813 sq. meter. As informed, the total number of visitors per day is 1000 approx. They have obtained environmental clearance under the EPA, 1986 and Consent to operate under water Act, 1974 and Air Act, 1981 and which is valid up to 03.03.2020. The mall has installed STP of 60 KLD but was not found operating during the inspection. The STP was under repair and waste water was disposed off into the drain without treatment.

The temporary waste was found stored in covered area and as informed 320 Kg/day of Municipal solid waste is generated by the mall. It was reported that the solid waste was disposed through vendor without knowing the final disposal. The quantity of segregated wet and dry waste generated was 15-20kg/day and 300 kg/day respectively. The mall has not installed composting plant. The mall has provided single bin systems for collection/segregation of solid waste.

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This committee recommends for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to provision of bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, augmenting and re-commissioning the STP, regular training to the sanitary workers and STP operators.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.4.6

### **3.5 Railway Stations**

#### **3.5.1 Shahdara Railway Station**

Date of Inspection : 14/02/2017  
No. of trains : 200 per day  
No. of Passengers: 25000 per day  
MSW Generation : 800 kg/day  
WW Generation : 200 KLD  
Untreated WW : 200 KLD

Shahdara Railway Station is a very old Railway Station having 4 platforms, covering an area of about 1.5 km<sup>2</sup>. It caters 200 trains and 25000 passengers per day. The Railway Station has one restaurant run by IRCTC. Sh. Om Parkash Sharma, Superintendent of railway station present during inspection.

**Waste Water Management** - The station has two bore wells and OHT of 225 lakh capacity. Liquid waste generated is reported to be 200 KLD. No treatment plant is provided for treatment of liquid waste. The untreated waste is discharged into city sewerage system.

**Waste Management** - Housekeeping was very poor. Approach to the railway station was found dirty and unhygienic condition and waste was found scattered all over the outside premises. Daily waste generation from station premises is reported to about 800 kg. There were no dust bins on platform and station premises. Waste is collected from sweepings and stored in open. The solid waste is not segregated and there is no provision for storing the waste. Animals and rodents were seen at waste storage site under the bridge. Sanitation conditions were poor. Overall, the collection and storage of waste is not as per SWM rules 2016. The stored solid waste is disposed off at nearest dhalao (waste pick-up point) of EDMC by the staff engaged for sanitation.

**Observations and recommendations**- The house keeping was poor. Collection, segregation and storage was not as per SWM rules 2016. There are no facilities for treatment of wastewater. It is recommended that directions be issued to Railways authorities to augment the facilities in time bound manner for collection segregation, storage and transfer of waste through authorised waste pickers. Two bins system for collection of dry and wet wastes should be implemented. It is also required to impart training to housekeeping staff by Indian Railways. A sewage treatment plant needs to be installed with provision for re-use of treated water. Washable aprons should be provided for railway tracks at station premises.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.5.1

#### **3.5.2 Vivek Vihar Railway Station**

Date of Inspection : 14-02-2017.  
No. of trains : 31 trains per day  
No. of Passengers : 1200  
SW Generation : 50Kg/day  
WW Generation : Records not available  
(one tube well)  
Untreated WW : Records not available



Vivek Vihar Railway Station is having 2 platforms covering an area of about 0.25 km<sup>2</sup>. It caters 1200 passengers. The Railway Station has no restaurant or canteen. Sh. SS Shaktore, charge of railway station was present during inspection.

**Waste Water Management** - The station had no record of arrangement of water and disposal of liquid waste generated. Station has one tube-well to meet water requirements. There is no specific discharge point for wastewater generated from station premises.

**Solid Waste Management** - No bin system is found during visit. Solid waste is swept from platform periodically and disposed in open adjacent to platform. The waste was found littered in open in and around the railway station. There was no system of waste segregation and waste collection. No record of waste generated is available. Daily waste generated is reported to about 50 kg. No provision of collection and storage space. Information regarding disposal of solid waste was not provided.

**Observations and recommendations** - The house keeping was poor. Collection, storage and disposal of solid waste were not as per SWM rules 2016. It is recommended that directions be issued to railway authorities for proper upkeep of railway Station and to implement solid waste management as per SWM rules, 2016.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.5.2

### **3.5.3 Anand Vihar Railway Station**

Date of Inspection	: 14-02-2017
No. of trains	: 20
No. of Passengers	: 60000 per day
MSW Generation	: 2 TPD
WW Generation	: 100 KLD
Untreated WW	: 100 KLD

Anand Vihar Railway Station has 7 platforms covering an area of about 100 acre. About 15-20 trains originate or terminate at this Station. There are multiple stalls/eateries in Station premises. Sh. SK. Chopra, Superintendent was present during inspection.

**Wastewater Management** - The station is receiving water from one rainy well (infiltration gallery) installed at Mandawali. This railway station has its own Sewage treatment Plant of 110 KLD capacity, but STP was found not operated properly and partially treated sewage was being discharged into open drain. No sludge was found at ETP, which indicates that ETP has not been operated properly.

**Solid Waste Management** - The railway station was found clean and in hygienic condition compared to other railway stations in Eastern Delhi. Multiple bins were provided all throughout the station. The tracks have washable aprons and were found washed at the time of inspection. Daily waste generated is reported to about 2000 kg. The mixed solid waste is segregated manually from the waste collection point in effective manner. An NGO named Chintan was working in segregation of waste and re-use of recyclables from collection point of the railway station. The open collection point has no access control for animals. Un-usable solid waste fraction is sent for disposal at Ghazipur dumpsite. The over-all housekeeping was found satisfactory.

**Observations and recommendations** - It is recommended that a letter be issued Railway Authorities to operate the sewage treatment plant properly and treated waste water needs to re-used for horticulture, washing of tracks etc. to reduce groundwater extraction. The existing bins should be replaced with two bin system to achieve segregated collection of solid waste from station premises as per SWM Rules, 2016. Regular monitoring by railway authorities and training to housekeeping staff is required. ETP should be run and maintained properly.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.5.3

#### **3.5.4 Mandawali Railway Station**

Date of Inspection	: 28-02-2017
No. of trains	: 22 (stoppage)
No. of Passengers	: 500 to 600 per day
MSW Generation	: Not provided
WW Generation	: Not provided

Mandawali Railway Station is having 2 platforms covering an area of about 0.75 km<sup>2</sup>. It has 22 train stoppage and about 500-600 passengers travel daily. The Railway Station has no restaurant or canteen. Sh. Rahul, Station Master was present during visit and briefed about the station operations.

**Waste water management** - The station has water supply from Delhi Jal Board. No records of water usage and disposal of waste water generation were available. Wastewater is discharged into open drainage.

**Solid Waste Management** - The railway Station has no arrangement of cleaning. No bin system is found during visit. The waste was found to be littered in open, in and around the railway station. No system for waste segregation and collection. No record of daily waste generation is maintained. However, daily waste generated is reported to about 500 kg. No provision of storage space exists. The solid waste was dumped along railway station in low lying area. The people living in JJ cluster close to railway station were dumping their waste within station premises. There was no separate staff for housekeeping, resulting in unhygienic and bad sanitary conditions in the station premises.

**Observations and recommendations** - It is recommended that directions be issued to Railway Authorities to make arrangements for cleaning of Railway Station. Collection, segregation and disposal of solid waste should be done as per SWM Rules, 2016. The solid waste thrown in low lying area needs to be lifted and disposed off through authorised waste pickers. Regular cleaning and safe disposal of waste as per SWM rules 2016 is required to maintain cleanliness in the station area.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure-3.5.4

### **3.6 Bus Terminals**

#### **3.6.1 Anand Vihar ISBT**

Date of Inspection	: 14-02-2017
No. of buses	: 3000
No. of Passengers	: 152000 per day
MSW Generation	: 1000 Kg/day
WW Generation	: 24 KLD
Untreated WW	: 24 KLD

Anand Vihar Bus Terminal was commissioned in the year 1996, it is spread in an area of about 21 acre. It has 160 bays and caters 3000 buses and caters to about 1.5 – 2 lakhs passengers.

**Waste Water management** - The station has 4 bore wells for extraction of ground water is about 30 KLD. There is no ETP for treatment of wastewater generated from the premises. Untreated sewage generated is discharged into drain without any treatment. There was accumulation of untreated sewage in open ditches/low-lying area within bus-station remises.

**Waste Management** – The eateries/shops inside the bus terminal have provided bins in front of their shops. Single bins were also provided by in the premises of bus terminal; however, the number of such bins is not adequate. The waste was not segregated. The waste was collected and stored in open area in scattered manner and there was no access control for stray animals. The waste from collection point is disposed off at nearest dhalao of EDMC. No record of daily waste generation was available. However, daily waste generated is reported as about 2000 kg.

About 46 housekeeping staff is deputed for looking after cleaning of bus terminal, however housekeeping was poor and needs improvement. People were found defecating and urinating in open, thus creating unhygienic conditions. Public toilet system provided was not adequate.

**Observations and recommendations** - Regular monitoring by higher authorities and training to housekeeping staff by Delhi Transport Corporation is required. It is required to replace the existing waste bins into two bin system as required under SWM Rules, 20-16. A captive compost plant should be provided. It is required to install sewage treatment plant and treated wastewater should be re-used within bus-terminal, so as to reduce extraction of ground water.

The Committee recommends for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements with respect to bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, Up gradation of sanitary conditions, Installation of STP, Installation of compost plant, augmenting waste collection point and regular training to the sanitary workers is required to be organised by the DTC to improve waste management and housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure – 3.6.1

#### **3.6.2 Shahdara Bus Terminal**

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Date of Inspection	: 14-02-2017
No. of buses	: 200
No. of Passengers	: 10000
MSW Generation	: 50 – 60 kg/ day
WW Generation	: 800 litres per day
Untreated WW	: nil

Shahdara Bus Terminal is spread in an area of about 5000 m<sup>2</sup>, it is run by Delhi Transport Corporation. This terminal was commissioned in the year 1990. It has 4 bus bays and caters 200 -250 buses and about 10,000 passengers per day. Sh. Ram rattan Singh is in charge of bus terminal was present at the time of inspection.

**Waste Water Management** - The bus terminal has no arrangement of public toilets. The Sulabh Shochlaya adjacent to bus terminal is used for the purpose. The station has arrangement of municipal water. About 800 litres of water is used per day. Wastewater generated from the premises is reported to be discharged into public sewer.

**Waste management** - Single bins provided in Bus-terminal were not adequate in number. No record of daily waste generation was available. However, daily waste generated is reported to be about 50 – 60 kg. The solid waste is not segregated. No provision was made for waste collection point. The waste is collected from bins was being transferred in trolleys and disposed off in nearest Dhalao.

**Observations and recommendations** - Housekeeping needs improvement. Solid waste collection and segregation should be ensured as per the provisions under SWM rules, 2016. Regular monitoring by higher authorities and training to housekeeping staff by Delhi Transport Corporation is required. Quantity of wastewater generation was less, therefore, separate STP may not be required, and the same may be discharged through public sewerage system leading to STP.

The Committee Recommends for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements with respect to bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016, Up-gradation of sanitary conditions, discharge of wastewater into public sewerage network connected to terminal STP and training to the sanitary workers is required to be organised by the DTC to improve waste management and housekeeping.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure – 3.6.2

### **3.7 Wastes to Energy Plants**

#### **3.7.1 M/s EDWPC Pvt Ltd., Ghazipur**

Date of Inspection : 13.02.2017  
Capacity : 12 MW  
Processing Capacity : 2000 TPD (permitted 1300 TPD)  
RDF Production : 550 TPD  
No o Boilers : 01  
Average – 8 MW generations

The Waste to energy plant was inspected on 13.02.2017. The plant has been installed after obtaining environmental clearance under the EPA, 1986 and Consent to Establish under water Act, 1974 and Air Act, 1981. Mixed solid waste is received at the plant site which is segregated into different categories i.e compostable waste, RDF, inert material, plastic, metals etc. The plant has mechanical segregation facility. The plant has capacity to generate 12MW electricity and solid waste processing about 1300 metric tonnes. At present about 08 MW electricity is generated. It was informed that discussions are going on for processing the waste 2000 metric tonnes per day.

The plant is equipped with online monitoring system for measurement of let out emissions. The pollutants from the emissions of boiler are treated in the reactor by using lime and activated carbon slurry and followed by trapping the pollutants in the bag filters. The leachate treatment plant has been installed to treat the leachate and the treated leachate is used in the process. The plant is using treated effluent from the sewage treatment plant in its process.

Fly Ash generated from the process is re-utilized for manufacturing of bricks, blocks etc. compostable waste is sent to its compost plant and inert material to C&D waste processing plant. The bottom ash was being sent for disposal in Ghazipur dumpsite

This committee recommends for augmenting the capacity of Waste to Energy and Waste processing Plants is required to address entire waste generated from EDMC area.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.7.1.

### **3.8 Residential Apartments**

#### **3.8.1 Milan Vihar, Plot No. 72, IP Extension, Delhi-110 092**

Date of Inspection	: 20.02.2017
No. of Flats	: 370
Plot Area	: 6.5 Acres
Built up area	: 50 -60 %
MSW	: 500 to 600 kg/day
Water consumption	: 240 KLD
WW Generation	: 190 KLD

About Milan Vihar Co-operative Group Housing Society, I.P. Extension, Delhi: Milan Vihar Co-operative Group Housing Society is a seven story residential housing society having 399 nos. of flats out of which approximately 370 are occupied. The total built up area is approximately 12,000 sqm in a plot area of 6.5 acres. However, no exact information in respect of built up area could be obtained as Sanctioned Building Plan was not available, at the time of inspection, with the management committee. The rain water harvesting system was found installed. Photographs taken during the visit is enclosed as Annexure-8.1.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the housing society is approximately 260 kilo Litre per day. The waste water from toilets, kitchens and washrooms etc. is being discharged into sewer line provided by Delhi Jal Board.

**Solid Waste Generation:** The quantity of Municipal Solid Waste, which is being disposed of without segregation at nearby dhalao on daily basis, has been reported to be generated approximately 500-600 kg. per day. The mixed garbage is collected through chute system in each Block. Milan Vihar Cooperative Group Housing Society, I.P. Extension, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends for issuance of letter to the Milan Vihar CGHS for (i) Segregate solid waste at source and provide two Bin systems for collection, setup in house unit of composting plant in accordance of waste generation and handover non-biodegradable waste to East Delhi Municipal Corporation, use of chute only for the dry waste and (ii) Providing training to sanitary staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.8.1.

#### **3.8.2 MayurDhwaj, Plo No. 60, IP Extension, PatparGanj, DELHI-110 092**

Date of Inspection	: 20.02.2017
No. of Flats	: 300
Plot Area	: 5 Acres
Built up area	: 40 %
MSW	: 500 kg/day
Water consumption	: 190 KLD
WW Generation	: 150 KLD

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About Mayur Dhvaj Co-operative Group Housing Society, I.P. Extension, Delhi: Mayur Dhvaj Co-operative Group Housing Society is a seven story residential housing society having 300 nos. of flats. The total built up area is approximately 4,000 sqm. in a plot area of 5 acres. However, no exact information in respect of built up area could be obtained as Sanctioned Building Plan was not available, at the time of inspection, with the management committee. No rain water harvesting system was there. Photographs taken during the visit is enclosed as Annexure-8.2.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the housing society is approximately 250 kilo litres per day. The waste water from toilets, kitchens and washrooms etc. is discharged into sewer line provided by Delhi Jal Board.

**Solid Waste Generation:** The quantity of Municipal Solid Waste, which is being disposed of without segregation at nearby dhalao on daily basis, has been reported to be generated approximately 500-600 kg. per day. The mixed garbage is collected through chute system in each Block. Mayur Dhvaj CGHS, I.P. Extension, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends issuance of letter to the Mayur Dhvaj CGHS for ensuring segregate solid waste at source, provide two Bin systems for collection, setup in house unit of composting plant, use of chute only for the dry waste and Providing training to sanitary staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.8.2.

**3.8.3 Amrapali Apartment, IP Extension, Patpar Ganj, DELHI-110 092**

Date of Inspection	: 20.02.2017
No. of Flats	: 302
Plot Area	: 5 Acres
Built up area	: 40 -50 %
MSW	: 500 Kg/day
Water consumption	: 225 KLD
WW Generation	: 200 KLD

About Amrapali Apartment, I.P. Extension, Delhi: Amrapali Apartment is a three story residential housing society having 300 nos. of flats. The total built up area is approximately 4,000 sqm. in a plot area 5 acres However, no exact information in respect of built up area could be provided as Sanctioned Building Plan was not available, at the time of inspection, with the management committee. No rain water harvesting system has been installed.

Water consumption, Wastewater generation and wastewater treatment and disposal: The water consumption of the housing society is approximately 220 kilo litres per day. The waste water from toilets, kitchen and washroom etc. was being discharged into sewer line provided by Delhi Jal Board.

**Solid Waste Generation:** The quantity of Municipal Solid Waste, which is being disposed of without segregation at nearby dhalao on daily basis, has been reported to be generated approximately 500-600 kg. per day. The mixed garbage is collected through chute system in each Block. Amrapali CGHS, I.P. Extension, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

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**Recommendation:** This committee recommends issuance of letter to Amrapali Apartment CGHS for ensuring segregate solid waste at source, installation of in house unit of composting unit and provide training to sanitary staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.8.3.



### **3.9 Mandi/Markets**

#### **3.9.1 M/s Flower Mandi, Ghazipur, Delhi.**

Date of Inspection : 27.02.2017  
No. of Shops : 411  
Plot Area : 9.9 Acres  
Built up area : 1.5 Acres.  
SW : 3 TPD  
Wastewater generation: No data

The Phool Mandi, Ghazipur has been developed in Ghazipur area in the year 2015. It spreads in 3.7 acre area and 180 shops have been leased out to private vendors for trading flowers. Fruit and vegetable mandi, Ghazipur is being managed by Secretary, Agriculture Produce Marketing Committee.

Water consumption, Wastewater generation and wastewater treatment and disposal: The exact information regarding water consumption was not available. No waste water treatment facility like, ETP or STP has been installed. The waste water without treatment was being discharged directly into Storm Water drain.

**Solid Waste Generation:** Separate waste storage facility for collection of flower waste has been provided without enclosure within the mandi premises. The total quantity of Municipal Solid Waste generated is approximately 3000 kg. per day. The un-segregated waste is collected and transported by East Delhi Municipal Corporation for dumping at Sanitary Landfill Site (SLF), Ghazipur. MSW segregation at source was not being followed by APMC in consonance of SWM Rule, 2016. Phool (Flower) Mandi, Ghazipur, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends for issuance of direction for ensuring time bound action plan to the Agriculture and Market Produce Committee for covering waste storage area, ensure disposal of segregated waste on daily basis, segregation of dry and wet waste to be followed by the shops for segregation as per SWM Rules, 2016, and installation of compost / biomethanation plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.9.1.

#### **3.9.2 M/s Subji Mandi of Agricultural Produce Marketing Committee, Ghazipur, Delhi.**

Date of Inspection : 27.02.2017  
No. of Shops : 468 (small 180, large 288)  
Plot Area : 37 Acres  
MSW : 3 TPD

About Fruit and Vegetable Mandi, Ghazipur, Delhi: The Fruit and Vegetable Market Committee, Shahdara was established in the year 2001 and was shifted to present premises at Ghazipur in the year 2015. It spreads in 15 acre area and 288 shops have been leased out to private vendors for trading fruits and vegetables. Fruit and Vegetable Mandi, Ghazipur is being managed by Secretary,

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Agriculture Produce Marketing Committee. Photographs taken during the visit is enclosed as Annexure-1.

Water consumption, Wastewater generation and wastewater treatment and disposal: The exact information regarding water consumption was not available. No waste water treatment facility like, ETP or STP has been installed. The waste water without treatment was being discharged directly into Storm Water drain.

**Solid Waste Generation:** Separate waste storage facility for collection of fruits and vegetables waste has been provided at three different locations with enclosures within the Mandi premises. The total quantity of Municipal Solid Waste generated is approximately 10-12 tonnes per day. The un-segregated fruit and vegetable waste is collected and transported by East Delhi Municipal Corporation for dumping at Sanitary Landfill Site (SLF), Ghazipur. MSW segregation at source was not being followed by APMC in consonance of SWM Rule, 2016. Fruit and Vegetable Mandi, Ghazipur, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends for issuance of directions for ensuring time bound action plan for providing covered waste storage area, ensure daily disposal of segregated non-recyclable waste, ensure segregation of dry and wet waste as per SWM Rules, 2016 and installation of compost / biomethanation plant.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.9.2.

### **3.10 Office Complex**

#### **3.10.1 SCOPE Complex, District Centre, Laxmi Nagar, Delhi**

Date of Inspection : 17.02.2017  
Officer Complexes : Major ONGC-10 floors, HPCL-03 floors & SAIL-05 floors  
Waste Generation : 1450 Kg/day  
Water consumption : No data

SCOPE Minar, Laxmi Nagar, Delhi a multi-storey structure located at Laxmi Nagar District Center primarily constructed to accommodate the offices of Public Sector Undertakings, Govt. of India. As of now, 36 offices are functioning from the premises most of the offices does not have canteen facility, however, it was informed that three canteens had been operating by ONGC, HPCL and SAIL office. However, no information in respect of total plot area and built up area could be obtained due to non availability of documents with the maintaining agency.

Water consumption, Wastewater generation and wastewater treatment and disposal: The exact information regarding water consumption was not available with the maintaining agency. No waste water treatment facility like, ETP or STP has been installed. No consent to operation from DPCC was obtained. The waste water without treatment was being discharged directly into Storm Water drain.

**Solid Waste Generation:** Separate waste storage facility for collection of municipal waste has been provided outside the building premises. The total quantity of Municipal Solid Waste generated was approximately 1450 kg. per day. The garbage is disposed of without segregation at nearby dhalao, designated place provided by the East Delhi Municipal Corporation. MSW segregation at source was not being followed by private operator in consonance of SWM Rule, 2016. SCOPE Minar, Laxmi Nagar, Delhi is a Bulk Waste Generator as per definition provided in SWM Rule, 2016.

**Recommendation:** This committee recommends for issuance of letter for improvements of existing practices with respect to on-site segregation of waste to be followed as per SWM Rules, 2016 by all offices, disposal of sewage into sewerage network connected to terminal STP, provision of training to sanitation and kitchen staff.

Summary observation, deficiencies and recommendations are given in the tabular chart given at Annexure-I. Photographs taken during the survey also annexed at annexure—3.10.1

### **3. Common Observations of Inspection**

Following are the common observations of the Committee which are derived based on inspections of actual operation practices by bulk-waste generators in East Delhi Municipal Corporation area;

- (i) Hospitals are aware of the requirement of following colour coded segregation and requirement of proper storage of biomedical waste prior to sending it to CBMWTF. Some of the hospitals still need improvement and awareness in this regard.
- (ii) Most of STPs installed in hospitals are not functioning or not operated properly.
- (iii) Only single bins were installed for collection of solid waste in Railways Stations, bus-stations, colleges, hotels, etc.
- (iv) Some of the generators such as Hotels, Malls etc. have provided two bin system for collection of waste, but failing to practice good segregation practices
- (v) Most of the generators were not providing separate collection of domestic hazardous waste, and also not aware of the requirement of providing wrapping bags for sanitary napkins, used diapers etc. (for disposal in dry-waste bins)
- (vi) Though the hotels have provided two bins system in kitchen, they fail to provide similar two bin waste collection from their guest rooms. Moreover, most of the hotels are failing in effective segregation of waste in two bin systems installed.
- (vii) Most of the bulk-waste generators are sending their waste through vendor without knowing how those vendors are disposing their waste ultimately (no proper arrangement for backward linkage).
- (viii) None of the waste pickers / waste collectors (vendors engaged by bulk waste generators) are authorised/registered by Municipal Corporation (as required under SWM Rules, 2016) to conduct their business.
- (ix) STPs have been installed in most of the hotels, malls, hospitals except in colleges, bus terminals, railway stations etc. However, most of these STPs were found defunct and not operated and maintained properly.
- (x) Most of the STPs installed by bulk-waste generators were found to be defunct and non-operational.
- (xi) The committee observed that there is a lack of awareness among the staff about the solid waste, bio-medical waste, e-waste and hazardous waste management rules.
- (xii) The type of waste collection bins and equipment used for collection and transfer of waste are not adequate. Mechanised equipment such as pull-cart trolleys, wheel trolleys are yet to be installed.
- (xiii) The committee has observed that sanitation conditions in public utilities such as Bus Terminals and local train stations are very poor and needs immediate attention.
- (xiv) On-site waste processing facilities such as bio-digesters, compost plants, vermicomposting plants etc.

## **5. Category-wise Recommendations of Bulk-Waste Generators**

### **5.1 Hospitals**

The committee observed that there are some common deficiencies and non-compliances on part of Health Care facilities. Committee therefore recommends the following to ensure compliance with BMW Rules, and guidelines;

- Need improvement in on-site collection, handling and storage prior to handing over the waste to CBMWTFs
- Improvement in segregation of biomedical waste as per the colour coding
- STPs were not installed in some of the hospitals, installation of the same needs to expedite
- Almost all hospitals should have dedicated trained staff for operation and maintenance of ETPs and to ensure compliance to discharge standards.
- 10% sodium hypochlorite solution is not commercially available; moreover it is difficult to handle such high concentration liquid. In this regard, hospitals may continue to sterilise the wastes at concentrations as specified in earlier BMW rules, 1998. Meanwhile a clarification in this regard may be obtained from MoEF&CC.
- Hospitals should ensure that spent hypo solution generated from X-Rays should be given to only the actual user, who has authorisation from SPCBs/PCCs.
- Hospital should install two bins for collection of dry and wet solid waste as per the provisions under SWM rules, 2016. Separate bins should also be installed for domestic hazardous wastes.
- Separate storage provision should also be made for other wastes such as used batteries, E-Waste, CFLs, etc.
- It is practically not possible to ensure no-chlorinated plastics in medical treatment (which are used in such as gloves, blood bags, vaccine vials etc.); however health care facilities should take every measures to minimise use of non-chlorinated plastics. Further, every hospital should ensure use of non-chlorinated plastic bags for disposal as required under BWM rules, 2016. Use of limited quantity of chlorinated plastics may not cause environmental concern as long as the standards already notified for hydrogen chloride and Dioxins in incinerator emissions are met. In this regard, clarification may be sought from MoEF&CC
- Regular training should be imparted to nursing staff, medical attendants, housekeeping staff and others involved in generation, handling and disposal of wastes (biomedical and other wastes) generated in hospital premises.
- HCF should ensure disposal of bio-medical waste through CBWTF in holidays also as per BMW Rules.
- Every hospital should ensure pre-treatment of laboratory waste and contaminated/date-expired blood bags.
- Hospitals should engage trained staff for operation of STPs. Installation of flow meters, periodic testing of treated wastewater quality, records of wastewater treated, disposed or utilised, sludge generated etc. should be maintained. In case of Hospitals not having STPs, the same may be installed in time bound manner.
- Every hospital should ensure better housekeeping and sanitary conditions the premises.

- Temporary storage area for BMW should have proper ventilation and have restricted access. There should be a provision for washing of containers with provision of drainage connected to STP.
- Waste collection area should have proper signage for identification and easy access for collection of waste by CBMWTF operator.
- All the Hospitals should initiate action for implementing bar-coding system.
- Hospitals should ensure that used linen and mattresses are disposed as per BMW Rules,
- Closed trolleys should be used for handling waste within the hospital premises.
- Hospitals should ensure that acidic and alkali discharge from laboratory is segregated, collected separately for neutralisation prior to mixing the same rest of the discharge for treatment in STP.
- DPCC should provide a checklist on implementation of BMW Rules to every hospital, and each hospital should display the same on Notice Board at the entrance.

## **5.2 Hotels / Banquet Halls**

The committee observed that there are some common deficiencies and non-compliances on part Hotels and Banquet halls. This committee therefore recommends the following to ensure compliance of these bulk waste generators as required under SWM rules, 2016;

- All hotels and Banquet halls should install two bin system to in their guest rooms
- Every hotel and Banquet hall should provide wrapping bags in toilet kits for disposal of sanitary napkins, diapers, etc for disposal of the same along with dry waste s required under SWM rules, 2016
- Every hotel and banquet hall should provide regular training to kitchen and other staff on segregation of solid waste in separate bins at the point of generation.
- Every bulk-waste generator should install compost plant or ensure sending their wet-waste to a common compost facility. However larger hotels should ensure operation of captive compost plant.
- Every hotel and banquet hall should ensure installation of STP
- Proper operation of the same by trained and dedicated staff.
- The treated water should be tested regularly. Records of wastewater consumed, generated, treated, re-used and disposed should be maintained.
- There should be temporary waste storage area where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, Used batteries, used oils, spent solvents from laundry, horticulture waste, C&D waste, and other wastes.
- The committee appreciates the measures taken by some hotels for providing cold storage rooms for putrescible wet-wastes. All hotels may initiate similar provisions to improve sanitary conditions.
- Efforts should be taken for recycling of treated wastewater for horticulture, toilet flushing, cooling tower etc. In case of toilet flushing, the treated wastewater should be disinfected with appropriate methods.
- Hotels and banquet should ensure that the vendors providing waste disposal services are registered with Municipal Corporation. They should also be aware of the methods of waste

disposal being practiced by these vendors. Hotels should take responsibility for proper disposal of their wastes by vendors engaged by them.

### **5.3 Colleges**

The committee observed that there are some common deficiencies and non-compliances on part Colleges, it recommends the following to ensure compliance as required under SWM rules, 2016;

- Install two bin systems at all waste collection points i.e. in-front of class rooms, corridors, restaurants etc.
- The restaurants operating in campus should provide regular training to kitchen and other staff on segregation of solid waste in separate bins at the point of generation.
- Wastewater should be discharge into public sewerage network connected to terminal STP.
- There should be temporary waste storage area where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, Used batteries, used laboratory chemicals, horticulture waste, C&D waste, and other wastes.
- It shall be ensure that the vendors providing waste disposal services are registered with Municipal Corporation. They should also be aware of the methods of waste disposal being practiced by these vendors.
- Student awareness campaign should be organised.
- Regular training to the sanitary workers is required to be organised by college

### **5.4 Malls and Commercial Complexes**

The Committee observed that there are some common deficiencies and non-compliances on part Malls / Commercial Complexes. This committee therefore recommends the following to ensure compliance of these bulk waste generators as required under SWM rules, 2016;

- Install two bin system at all waste collection points and in-front of shops
- The restaurants operating at food courts should provide regular training to kitchen and other staff on segregation of solid waste in separate bins at the point of generation.
- Every Mall should ensure installation of STP and ensure proper operation of the same by trained and dedicated staff.
- The treated water should be tested regularly. Records of wastewater consumed, generated, treated, re-used and disposed should be maintained.
- There should be temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, Used batteries, used oils, horticulture waste, C&D waste, and other wastes.
- Efforts should be taken for recycling of treated wastewater for horticulture, toilet flushing, cooling tower etc. In case of toilet flushing, the treated wastewater should be disinfected with appropriate methods.
- Every Mall should ensure that the vendors providing waste disposal services are registered with Municipal Corporation. They should also be aware of the methods of waste disposal being practiced by these vendors. Hotels should take responsibility for proper disposal of their wastes by vendors engaged by them.

### **5.5 Railway Stations**

The Committee observed that sanitary conditions in railway stations and Bus terminals were are far from satisfactory, however, the conditions were better in case of Anand Vihar railway station. The following are common recommendations to ensure compliance by Railway Stations as required under SWM rules, 2016;

- Install two bin systems for collection of dry and wet waste from railway platforms, in-front of the stalls, restaurants etc. as required under SWM Rules, 2016. The colour of wet waste bin may be green and while blue bin may be kept for recyclable wastes.
- The restaurants operating in station premises should provide regular training to kitchen and other staff on segregation of solid waste in separate bins at the point of generation.
- Large railway stations, and coach cleaning yards should ensure installation of STP and also ensure proper operation of the same by trained and dedicated staff. The treated water should be tested regularly. Records of wastewater consumed, generated, treated, re-used and disposed should be maintained.
- Wastewater should be discharge into public sewerage network connected to terminal STP.
- There should be a temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, plastic waste, Used batteries, C&D waste, and other wastes.
- Efforts should be taken for recycling of treated wastewater for horticulture, toilet flushing, cooling tower etc.
- It should be ensured that the vendors providing waste disposal services are registered with Municipal Corporation. Railways should also be aware of the methods of waste disposal being practiced by these vendors. Railways should take responsibility for proper disposal of their wastes by vendors engaged by them.
- In case of smaller stations, railways should ensure that the wastewater from the premises is disposed through public
- Railways should up-gradation of sanitary conditions.
- All major railway stations should provide washable aprons for railway tracks at station premises.
- Regular training to the sanitary workers is required to be organised by the Indian railways.
- Railways should engage adequate sanitary workers for maintenance of the railway stations.

### **5.6 Bus Terminals**

The Committee observed that conditions in bus terminals were very poor especially due to poor sanitary conditions. The following are common recommendations to ensure compliance by Bus terminals;

- Bus-terminals should up-gradation of sanitary conditions, public utilities such as toilets, urinals should be provided at number of locations. Adequate number of sanitation staff should be engaged to maintain the same.



- Install two bin systems for collection of dry and wet waste the premises of bus-terminals, bus-bays, in-front of the stalls, restaurants etc. as required under SWM Rules, 2016. The colour of wet waste bin may be green and while blue bin may be kept for recyclable wastes.
- The restaurants operating in bus-terminals should provide regular training to kitchen and other staff on segregation of solid waste in separate bins at the point of generation. Further, training to the sanitary workers should also be organised by the Transport Corporation.
- Inter-State Bus terminals should ensure installation of STP and also ensure proper operation of the same by trained and dedicated staff. The treated water should be tested regularly. Records of wastewater consumed, generated, treated, re-used and disposed should be maintained.
- In case of smaller Bus-terminals wastewater should be discharge into public sewerage network connected to terminal STP
- There should be a temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, plastic waste, Used batteries, C&D waste, and other wastes.
- Inter-State Bus-terminals may install captive compost plants within its premises.

#### **5.7 Waste to Energy Plant, EDMC**

The committee observed that W to E plant at Ghazipur has been commissioned and operation of the same is being stabilised. The committee recommends the following;

- Enhancement of capacity of Waste to Energy and Waste processing Plants is required to address entire waste generated from EDMC area.
- Verification of emission compliance by DPCC
- The operator of the W t E plant may explore the possibility of utilising bottom ash.

#### **5.8 Apartment Complex**

The Committee observed that Residential complexes are not aware of their responsibilities under WM Rules, 2016. They continue to operate the way, they have been practicing in earlier years, with the primary objective is sending the mixed waste to Dhalaos. The committee recommends the following in respect of residential complexes;

- Two Bin system for collection of solid waste need to be followed in each household as required under SWM Rules, 2016.
- Domestic hazardous wastes should be collected separately, and the same should be handed over to authorised waste pickers of Municipal Corporation.
- Door to door collection should be practiced for collection of wet and dry wastes. In complexes where common chute exists, the use of the same should be restricted for only the dry waste.
- Every complex should install captive compost plant for segregated wet wastes.
- There should be a temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, plastic

waste, Used batteries, C&D waste, domestic hazardous waste, horticulture waste, and other wastes. And arrangements with local bodies should be made for collection and disposal of such segregated wastes.

### **5.9 Mandis / Markets**

The Committee observed that Mandis and Markets are not aware of their responsibilities under WM Rules, 2016. No initiatives have been taken by market committees to provide necessary infrastructure for waste management. The committee recommends the following in respect of markets and Mandis;

- All markets and Mandis should ensure segregation of dry and wet waste as required under SWM Rules, 2016
- They shall ensure installation of on-site compost plant or bio-methanation plants (with energy or fuel recovery)
- There should be a temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, packaging waste, C&D waste, and other wastes. And arrangements with local bodies should be made for collection and disposal of such segregated wastes.
- Mandis and markets should ensure disposal of segregated waste on daily basis to minimise odour problems.

### **5.10 Office Complex**

The committee recommends the following in respect of Office Complexes;

Recommended for issuance of letter for improvements of existing practices with respect to;

- Two Bin system for collection of solid waste need to be followed in each household as required under SWM Rules, 2016.
- Large new office complexes should ensure installation of STP and also ensure proper operation of the same by trained and dedicated staff. However, In case of older complexes, sewage may discharge into public sewerage network connected to terminal STP
- Domestic hazardous wastes should be collected separately, and the same should be handed over to authorised waste pickers of Municipal Corporation.
- Door to door collection should be practiced from each office of the complex for collection of wet and dry wastes.
- There should be a temporary waste storage area, where separate collection bins should be provided in separate covered spaces for wet solid waste, dry solid waste, E-Waste, plastic waste, used batteries, C&D waste, domestic hazardous waste, horticulture waste, and other wastes. And arrangements with local bodies should be made for collection and disposal of such segregated wastes.

## **6 Common Recommendations**

**Segregation at Source** – Every bulk waste generator should ensure segregation of solid waste generated in their premises. Two bin waste collection systems should be implemented for all sources of waste collection i.e. households, guest rooms, hospital wards, banquets, bus-terminals, railways stations etc. If required suitable notices / placards should be placed near bins to educate users.

(ii) Collection areas at Source of Generation– Separate space with covered shed or room should be provided for storing the segregated waste generated from the premises of a bulk-waste generator. There should be arrangement for proper ventilation, provision for container washing, drainage for collection of wash water from storage space, etc. In case of hotels and commercial kitchens, installation of cold storage rooms may be considered as an option to control odour from stored putrescible material prior to collection and also to maintain better sanitary conditions. Further, storage area should have partitioned spaces or separate rakes or suitable bins to keep dry-waste, wet-waste, domestic-hazardous-waste, E-waste and used batteries.

**Engaging authorised waste pickers** – Bulk-waste generators should ensure that waste pickers or waste collectors, the person or agency (vendors) engaged by them are authorised by local body or entity as defined under Rule 2 of Solid Waste Management Rules, 2016. Rules stipulates that such vendors shall be authorised to facilitate segregation, sorting and recovery of recyclables from various components of waste before the waste is delivered or taken up for its processing or disposal by authorised facilities (authorised by DPCC) or handed over to work force engaged by the local body for the purpose.

**Training to ETP/STP operators** – Most of the operators of ETPs/STPs are not aware of the science and engineering of wastewater treatment. Bulk-waste generators should ensure that STP operators are given practical training by suitable agency or professional organisation.

**On-site vermicomposting / bio-digesting of organic waste** – Solid Waste Management Rules, 2016 stipulate that segregated bio-degradable waste shall be processed treated and disposed-off through composting or bio-methanation within the premises as far as possible. Such compost facilities may be commissioned especially in 4 star hotels, 5 star hotels and large commercial kitchens such as banquet halls.

**PPEs to the workers handling solid waste:** Necessary Personal protection Equipment such as Gloves, face mask, gumboots, should be provided to all the works handling waste including operators of sewage treatment plant and compost plant.

(vii) Utilization of old landfill material for road construction – A portion of solid waste (old digested material) dumped at Ghazipur landfill site can be mined to retrieve sub-grade material for use in road construction.

**Collection, Transportation and Disposal of Segregated Waste** – The authorised waste pickers engaged by Municipal Corporation should ensure that segregated wastes are collected in separate vehicles and transported to waste processing facilities (Compost or Bio-methanation Plant / C&D Recycling facility / W to E plant / Sanitary Landfill / Treatment Storage and Disposal facility for hazardous wastes / Common Biomedical Waste Treatment Facility / RDF plant / Waste Sorting facility etc.)

## **7. Recommended action**

A summary of observations made, short-comings and recommendations in respect of 48 bulk waste generators inspected by the Sub-Committee –IV is given at Annexure-I. Based on degree of non-compliance observed, this committee recommends **following action against the bulk-waste generators;**

A. Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following bulk-waste generators or hospitals;

- 1) Ginger Hotels Vivek Vihar, East Delhi
- 2) Golden Palm, Patparganj
- 3) Park Inn By Radison, PatparGanj
- 4) JP Hotel & Resort, PatparGanj, IP Extension, Delhi
- 5) Fraser Suites, Mayur Vihar Phase-I, Delhi
- 6) Hall Mark Banquet , KarKar Duma Metro Station, Delhi
- 7) Orchid Grand (Banquet Hall), KarKar Duma Metro Station, Delhi

B. Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements in respect of following bulk-waste generators or hospitals;

- 1) Institute of Human Behaviour and Allied Sciences, Dilshad Garden, Delhi- 110 095
- 2) Rajiv Gandhi Super Speciality Hospital, Dilshad Garden, Delhi- 110 095
- 3) Park Plaza, Plot No. 32, CBD, Behind KarKar Duma Court, East Delhi.
- 4) Golden Petal Hotel & Banquet, Shiv Puri, Geeta Colony
- 5) V3S East Centre Mall, Laxmi Nagar, District Centre, Delhi
- 6) Cross River Mall (EPMS), Shahdara, Delhi
- 7) Aggarwal Fun City Mall, Shahdara, Delhi
- 8) Star City, Mayur Vihar Ph-I Extension, Delhi
- 9) Parsvnath Commercial Complex, Seelampur, Delhi.
- 10) Mandawali Railway Station, Delhi
- 11) Indira Gandhi ESI Hospital, Jhilmil Colony, Delhi
- 12) Swamy Dayanand Hospital (Re-visit), Dilshad Garden, Delhi
- 13) LalBahadur Sastry Hospital Khichripur, Delhi
- 14) Chacha Nehru BalChikistalayaGeetha Colony, Delhi
- 15) Dharamshila Cancer Hospital and Research Institute, Vasundhara Enclave, Delhi
- 16) Shahdara Railway Station

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- 17) Vivek Vihar Railway Station
- 18) Anand Vihar ISBT
- 19) Shahdara Bus Terminal
- 20) Flower Mandi, Ghazipur, Delhi.
- 21) SubjiMandiOf Agricultural Produce Marketing Committee Ghazipur, Delhi.

C. Recommended for issuance of letter for improvements of existing practices in respect of following bulk-waste generators or hospitals;

- 1) Max Super Speciality Hospital, Patparganj, Delhi
- 2) Dr.HedgewarArogyaSamsthan. Near KarKar Duma Court,
- 3) GTB Hospitals, Dilshad Garden, Delhi.
- 4) Jag Pravesh Chandra Hospital, Shastri Park, Delhi.
- 5) The Leela Ambience Convention Hotel, Surajmal Vihar, Delhi
- 6) Holiday Inn, Mayur Vihar, Delhi.
- 7) Crown Plaza, Mayur Vihar, Delhi.
- 8) ShaheedSukhdev College of Business Studies, Vivek Vihar
- 9) VivekanandMahila College, Vivek Vihar, Delhi
- 10) ShyamLal College, Shahdara, Delhi
- 11) Dr.Bhim Rao Ambedkar College, University of Delhi
- 12) DLF Galleria, Mayur Vihar Ph-I Extension, Delhi
- 13) Anand Vihar Railway Station, Delhi
- 14) Milan Vihar, Plot No. 72, IP Extension, Delhi-110 092
- 15) MayurDhwaj, Plo No. 60, IP Extension, PatparGanj, DELHI-110 092
- 16) Amrapali Apartment, IP Extension, PatparGanj, DELHI-110 092
- 17) SCOPE District Centre Laxmi Nagar, Delhi

**Others**

The Waste to Energy Plant, Ghazipur may take appropriate action as per the recommendations of this committee given at Annexure-I;

	Name of Unit	Recommendation
1	Waste to Energy Plant, Ghazipur (12 MW capacity)	<ul style="list-style-type: none"> <li>- Enhancement of capacity of Waste to Energy and Waste processing Plants is required to address entire waste generated from EDMC area.</li> <li>- Explore the possibility of utilising bottom ash.</li> <li>- Verification of emission compliance by DPCC / CPCB</li> </ul>

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The following units were not inspected in detail by the committee;

1	Lemon Tree Hotels, East Delhi Mall	Visited the unit as per the list provided by EDMC. However, it was found that this Hotel falls under the purview of the UP State hence, detailed inspection was not made.
2	Hotel De Aqua, Shastri Park, Delhi	Building structure exist but not operational. Hence no specific recommendations were made

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**Annexure-I**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
1.1	Max Super Speciality Hospital, Patparganj  No. of Beds : 400 BMW Generation : 406 kg/day WW Generation : 180 KLD Untreated WW : nil	(i) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016 (ii) Pre-treatment of BMW is practiced (iii) Temporary waste storage is provided. (iv) BMW is disposed through CBWTF located at Nilothi. (v) Installed ETP and operating properly. Dual plumbing system exists.	(i) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.	Recommended for issuance of letter for improvements of existing practices in respect of the following:  (i) Bin system to be followed in accordance with the MSWM Rules, 2016. (ii) Regular training to the sanitary workers is organised by the Hospital.
1.2	Dr.Hedgewar Arogya Samsthan. Near KarKar Duma Court, E.Delhi  No. of Beds : 200 BMW Generation : 140 kg/day WW Generation : 100 KLD Untreated WW : nil	(i) Segregation of bio-medical waste (BMW) is practised as per BMWM Rules, 2016. (ii) Pre-treatment of waste is done by autoclaving. (iii) BMW is disposed through CBWTF located at Nilothi. (iv) Installed STP	(i) STP needs proper operation and maintenance. (ii) Operator of STP requires training on O & M of STP. (iii) Bin system for MSW is not followed in accordance with the SWM Rules, 2016.	Recommended for issuance of letter for improvements of existing practices;  (i) Proper operation and maintenance of STP. (ii) Two bin system to be followed for segregated collection of solid waste as per SWM Rules, 2016.

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
				(iii) Disposal of fixer hypo solution only through the registered recyclers. (iv) (iv) Disposal of bio-medical waste through CBWTF in holidays also as per BMW Rules.
1.3	IG ESI Hospital Jhil Mill Colony, E. Delhi  No. of Beds : 300 BMW Generation : 50 Kg/day WW Generation : 60 KLD Untreated WW : 60 KLD	(i) BMW is disposed through CBWTF (ii) No ETP/STP installed (iii) 4 bin system exists	(i) Segregation of bio-medical waste (BMW) is not practised as per BMW Rules, 2016. (ii) Bins are not labelled with Bio-hazard symbol (iii) No STP installed. (iv) Bins not adequate (v) Temporary waste storage area needs improvement (vi) No washing platform for bins/waste containers (vii) No pre-treatment of BMW is practiced. (viii) Electrical needle cutter is not in working condition (ix) Staff is not aware about BMW Rules, 2016. (x) Disposal of fixer hypo solution is not through registered recycler	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements: (i) To comply with the provisions of BMW Rules, 2016 and SWM Rules, 2016. (ii) Improvement of segregation practices (iii) Pre-treatment of lab waste (iv) Installation of STP in a time bound manner. (v) Training to staff periodically on waste management aspect is essential. (vi) Disposal of fixer hypo solution only through the registered recyclers. (vii) Disposal of bio-medical waste through CBWTF in



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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
			(xi) Housekeeping is very poor	holidays also as per BMWM Rules. (viii) Housekeeping requires improvement
1.4	GTB Hospitals, Dilshad Garden, Delhi.  No. of Beds : 1500 BMW Generation : 1135 kg/day WW Generation : 640 KLD Untreated WW : nil	(i) BMW is disposed through CBWTF (ii) Separate colour coded bins exists (iii) STP installed (iv) Pre-treatment of BMW is practiced (v) Adequate waste storage facility (vi) ETB sludge is used as manure	(i) Segregation is not done as per BMWM Rules, 2016 (ii) Operation of STP requires improvement. (iii) STP is not provided with flow meter (iv) Hypo fixer solution is sold to unauthorised recycler.	Recommended for issuance of letter for improvements of existing practices; (i) Training to STP operator (ii) Training to staff on segregation (iii) Installation of flow meters and maintenance of O&M records of STP. (iv) Hypo solution is required to be sold only to the registered recycler
1.5	Swamy Dayanand Hopsital Dilshad Garden, Delhi  No. of Beds : 350 BMW Generation : 370 kg/day WW Generation : 260 KLD Untreated WW : 260 KLD	(i) Member of a CBMWTF (ii) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016 and still scope for improvement. (iii) Single bin system for Solid waste (iv) Pre-treatment for lab waste given (v) Solid waste picked by MCD (vi) Trolley used	(i) STP is not installed (ii) There is a scope for improvement of segregation. Bio-hazard symbol to be used on trolleys (iii) Solid waste not segregated (iv) Hypo fixer solution needs to be sold only to the registered recyclers. (v) 1 % Hypo solution is used for pre-treatment of waste	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; (i) Installation of STP (ii) Pre-treatment of BMW (iii) Training to staff (iv) Segregation of solid waste in bins in accordance with the SWM Rules, 2016.

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
			(vi) Pre-treatment of lab waste to be done as per BMWM Rules, 2016 (vii) Storage requires improvement	
1.6	Jag Pravesh Chandra Hospital Shastri Park, Delhi.  No. of Beds : 210 BMW Generation : 80 kg/day WW Generation : 90 KLD Untreated WW : 90 KLD	(iv) Bio-medical Waste is disposed off through CBMWTF located at Nilothi (v) STP Installed (vi) Segregation of bio-medical waste (BMW) is practiced as per BMWM Rules, 2016.	(i) Pre-treatment of lab waste not done (ii) STP not operated properly (iii) Needs improvement in segregation of Bio medical waste by way of training to staff. (iv) waste transfer records not maintained properly (v) Pre-treatment of waste is not practiced. (vi) Sludge generated from STP is not handled properly. (vii) Two bin system for solid waste not provided.	Recommended for issuance of letter for improvements of existing practices; (i) Proper operation and maintenance of STP as well as enhancement of wastewater treatment capacity; (ii) (ii) Training to all the staff to improve segregation of bio medical waste in colour coded bins specified as per BMWM Rules; (iii) Segregation and disposal of solid waste as per SWM Rules, 2016 (iv) Pre-treatment of lab waste as per BMWM Rules, 2016; (v) Chemical disinfection using 10 % Sodium hypochlorite solution as required under the BMWM Rules.

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
1.7	Lal Bahadur Sastry Hospital Khichripur, Delhi  No. of Beds : 100 BMW Generation : 70 kg/day WW Generation : 80 KLD Untreated WW : nil	(i) Member of CBMWTF (ii) STP installed. (iii) Partial Segregation of bio-medical waste (BMW) is practiced.. (iv) Single bin system for Solid waste (v) Pre-treatment for lab waste given (vi) Solid waste picked by MCD (vii) Trolley used	(i) Segregation of bio-medical waste (BMW) is not practised as per BMW Rules, 2016. (ii) No record shown for disposal of BMW. (iii) STP not operated properly. (iv) Collection and storage of sludge generative from STP not provided. (v) Shredder not working. (vi) Temporary waste storage area for BMW needs improvement. (vii) Two bin system for solid waste not provided. (viii) Very poor housekeeping.	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; (i) Segregation of bio-medical waste (BMW) needs to be practised as per BMW Rules, 2016. (ii) Needs proper record for disposal of BMW. (iii) To operate and maintain STP properly. (iv) Proper collection and storage of sludge generative from STP. (v) To put the shredder in operation. (vi) Temporary waste storage area needs improvement. (vii) Two bin system for solid waste needs to be practised. (viii) Requires improvement in housekeeping.
1.8	Chacha Nehru BalChikistalaya	(i) Member of CBMWTF (ii) STP installed.	(i) STP under renovation. (ii) Bin system for solid	Recommended for issuance of directions for ensuring time

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
	Geeta Colony, Delhi  No. of Beds : 220 BMW Generation : 110 kg/day WW Generation : 135 KLD Untreated WW : 135 KLD	(iii) Segregation of bio-medical waste (BMW) is practiced. (iv) Single bin system for Solid waste (v) Pre-treatment for lab waste given (vi) Solid waste picked by MCD (vii) Single bin system for solid waste. (viii) Trolley used	waste is not provided.	bound action plan for installation of adequate facilities and to carry out improvements; (i) To restore STP on priority basis, since untreated effluent being discharged directly into the sewer. (ii) and also for enhancement of existing STP suitably; (iii) Bin system needs to be practised for MSW. (iv) Training to staff for further improvement of disposal of Bio Medical Waste and MSW in accordance with Rules.
1.9	Dharamshila Cancer Hospital and Research Institute, Vasundhara Enclave, Delhi  No. of Beds : 200 BMW Generation : 140 kg/day WW Generation : 100 KLD Untreated WW : nil	(i) Member of CBMWTF (ii) STP installed. (iii) Segregation of bio-medical waste (BMW) is practiced. (iv) Single bin system for Solid waste (v) Trolley used	(i) Pre-treatment for lab waste is not given. (ii) Label for cytotoxic waste not provided (iii) STP is not operated properly. (iv) Collection and storage of sludge generated from STP is not provided. (v) Needles not destroyed	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; (i) Pre-treatment for lab chemical waste; (ii) Segregation of sharp waste as per BMW Rules; (iii) (iii)Storage of BMW requires improvement

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
			<p>properly and stored in open container.</p> <p>(vi) Lab chemicals used being discharged directly without any pre-treatment.</p> <p>(vii) Two bin system for solid waste not provided.</p> <p>(viii) Bins washing not proper.</p>	<p>w.r.to wash water collection provision;</p> <p>(iv) Provision of container washing facility;</p> <p>(v) To operate and maintain STP regularly;</p> <p>(vi) Provision of energy meter to the STP</p> <p>(vii) Provision for collection and storage of sludge generated from STP needs to be improved; and</p> <p>(viii) Bin system for solid waste as per SWM Rules needs to be provided.</p>
1.10	<p>Institute of Human Behaviour and Allied Sciences Dilshad Garden, Delhi-110 095</p> <p>No. of Beds : 365 BMW Generation : 31Kg/day WW Generation : 330 KLD Untreated WW: 330 KLD</p>	<p>(i) Member of CBMWTF (ii) STP installed. (iii) Segregation of bio-medical waste (BMW) is practiced. (iv) Single bin system for Solid waste (v) Closed Trolley used (vi) Housekeeping is good</p>	<p>(i) Pre-treatment for lab waste is practiced but records not maintained. (ii) STP is not operating properly. (iii) Lab chemicals used being discharged directly without any pre-treatment. (iv) Bin system for solid waste is not practiced. (v) Display Board at pre-treatment area not provided</p>	<p>Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points;</p> <p>(i) Pre-treatment for Chemical lab waste. (ii) To operate and maintain STP regularly. (iii) Bin system for solid waste needs to be provided as per SWM Rules, 2016.</p>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
				(vi) Linen and mattresses stored more than 48 hours  (iv) Disposal of linen and mattresses in accordance with BMWM Rules, 2016  (v) Proper record maintenance for pre-treatment of bio-medical waste.
1.11	Rajiv Gandhi Super Speciality Hospital Dilshad Garden, Delhi-110 095  No. of Beds : 650 BMW Generation: 35 Kg/day. WW Generation : 60 KLD	(i) Member of CBMWTF (ii) STP installed. (iii) Single bin system for Solid waste (iv) Closed Trolley used	(i) Segregation of bio-medical waste (BMW) is not practiced properly. (ii) Only yellow colour colour coded bag is used for segregation of all categories of bio-medical waste (iii) Pre-treatment for lab waste is practiced but no records not maintained. (iv) STP is not operating properly and no log book maintained. (v) Lab chemicals used being discharged directly without any pre-treatment. (vi) Bin system for solid waste is not practiced. (vii) Waste in temporary waste storage area is stored haphazardly	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points; (i) Segregation of BMW at source as per colour coding stipulated under BMWM Rules, 2016. (ii) Lab. Chemicals needs to be pre-treated as per BMWM Rules, 2016 (iii) To operate and maintain STP regularly and to maintain the records as per BMWM Rules, 2016. (iv) Log book for pre-treatment of waste as per BMWM Rules. (v) Disposal of BMW in accordance with the

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
				BMW Rules, 2016. (vi) Bin system for solid waste needs to be provided as per SWM Rules, 2016. (vii) Improvement of housekeeping.
	<b>Hotels /Banquet Hall</b>			
2.1	The Leela Ambience Convention Hotel, Surajmal  No. of Rooms : 480 MSW Generation : 200 kg/day WW Generation : 460 KLD Untreated WW : nil	(i) Two bins system of segregation of municipal solid waste exists (ii) Segregation practices are satisfactory. (iii) Installed ETP and treated water is re-used for horticulture, cooling tower and toilet flushing. (iv) Dual plumbing system installed for reuse of treated wastewater. (v) Wet waste stored in cold room (vi) Compost plant installed	(i) There is a scope for further improvement in training/practices. (ii) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (iii) Compost plant is not operated properly	Recommended for issuance of letter for improvements of existing practices;  - Bin system to be implemented in hotel rooms also - Regular training to kitchen and other staff - Proper operation of compost pant
2.2	Ginger Hotels Vivek Vihar, East Delhi  No. of Rooms : 80 WW Generation : 28 KLD Untreated WW : 28 KLD	i. Single bin system for solid waste collection from all over the hotel ii. STP installed	(i) STP found to be defunct during visit. (ii) Segregation of municipal solid waste in accordance with SWM Rules, 2016 is not practiced. (iii) Mixed waste is collected in single bin against the SWM Rules, 2016.	Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points;  - Improvement of waste management practices as per SWM Rules, 2016

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations	
		Hospitals	Measures Taken		Short-comings / Deficiencies
				(iv) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices.	- proper operation and maintenance of STP - Installation of compost plant
2.3	Park Plaza, Plot No. 32, CBD, Behind KarKar Duma Court, East Delhi.  No. of Rooms : 90 MSW Generation : Not provided WW Generation : 56 KLD Untreated WW : nil	(i) STP installed and treated water is re-used for horticulture, cooling tower. (ii) Segregated collection of solid waste	(i) STP is not operating properly. (ii) Needs improvement in waste segregation in two bins. (iii) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (iv) No compost plant (v) Waste stored on floor but not in Bins within the temporary waste storage area.	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points; i. Improving operation of STP ii. Two bin system to be provided in rooms also iii. Training to staff on segregation iv. To install on-site compost plant	
2.4	Golden Palm, Patparganj  No. of Rooms : 50 MSW Generation : No records WW Generation : 30 KLD	i. Two bin system for solid waste collection in kitchen and single bin in rooms. ii. STP installed	(i) Waste segregation not satisfactory. Storage bins over-flowing. (ii) Solid waste collected in open without cover/shed (iii) STP installed but was not in operation.	Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points; - Improvement of waste management practices as per	



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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	Untreated WW : 30 KLD		(iv) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (v) No compost plant	SWM Rules, 2016 - proper operation and maintenance of ETP - To provide waste collection shed - Installation of compost plant
2.5	Lemon Tree Hotels, East Delhi Mall	-	-	Visited the unit as per the list provided by EDMC  It was found that this Hotel falls under the purview of the Uttar Pradesh State as per the proof shown by the hotel authorities.
2.6	Park Inn By Radisson, PatparGanj  No. of Rooms : 76 MSW Generation : 30 Kg/day WW Generation : 20 KLD Untreated WW : 20 KLD	(i) Two bin system for waste collection in kitchen. (ii) Installed STP (iii) Solid waste is given to vendor (iv) Provided waste collection room (v) E-waste is sold to the e-waste recycler	(i) Segregation of waste not done properly in two bin system. (ii) STP found defunct (iii) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (iv) Compost plant does not exist	Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points; - Improvement of waste management practices as per SWM Rules, 2016 - proper operation and maintenance of STP - Installation of compost plant
2.7	JP Hotel & Resort PP Ganj, IP Extension,	(i) Single bin system for waste collection.	(i) Segregation of waste not done properly in two bin	Recommended for imposing environmental compensation or

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	Delhi  No. of Rooms : 50 MSW Generation ; 35 Kg/day WW Generation : 16 KLD Untreated WW : 16 KLD	(ii) Installed STP (iii) Solid waste is given to vendor	system. (ii) STP not operating properly (iii) Solid waste stored in open without cover/ shed (iv) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (v) Compost plant does not exist	fine for grossly non-complying / violations in respect to following action points; - Improvement of waste management practices as per SWM Rules, 2016 - proper operation and maintenance of ETP - Provision of shed for waste collection point - Installation of compost plant
2.8	Holiday Inn, Mayur Vihar, Delhi.  No. of Rooms : 190 MSW Generation : 450kg/day WW Generation : 120 KLD Untreated WW : nil	(i) Two bins system of segregation of solid waste exists for all areas except guest rooms. Segregation practices were satisfactory. (ii) Installed STP and operating satisfactorily. Disinfection done by UV lamp system. (iii) Dual plumbing system installed for reuse of treated wastewater for flushing. (iv) Solid waste is given to vendor for final disposal (v) Wet waste is stored in cold room (vi) Vermi-Compost plant installed for converting food & veg. waste into manure and operating	(i) There is a scope for further improvement in training/practices for segregation of solid waste. (ii) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices.	Recommended for issuance of letter for improvements of existing practices;  - Bin system to be implemented in hotel rooms also - Regular training to be given to kitchen and other sanitary staff

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
			satisfactorily. Manure is used for gardening (vii) Cold room for wet waste storage	
2.9	Crown Plaza, Mayur Vihar, Delhi.  No. of Rooms : 160 MSW Generation ; 400 Kg/day WW Generation : 80 KLD Untreated WW : nil	(i) Two bins system of segregation of solid waste exists for all areas except guest rooms. (ii) Installed ETP (iii) Dual plumbing system installed for reuse of treated wastewater. (iv) Solid waste is given to vendor (v) Wet waste stored in cold room (vi) Vermi-Compost plant installed (vii) Dual plumbing system exists and treated water used in flushing (viii) Cold room for wet waste storage	(i) Segregation of waste is not practiced in rooms. (ii) There is a scope for further improvement in training/practices for segregation of solid waste. (iii) Operation of ETP needs improvement (iv) House-keeping around compost plant needs improvement (v) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices.	Recommended for issuance of letter for improvements of existing practices; - Waste management practices needs improvement in accordance with the SWM Rules, 2016 - Bin system to be implemented in hotel rooms also - Regular training to the kitchen and STP and other staff is required
2.10	Fraser Suites Mayur Vihar Phase-I, Delhi  No. of Rooms : 90 MSW Generation : 50 kg/day WW Generation : 40 KLD	(i) Single bin systems in all areas including guest rooms. (ii) Solid waste is given to vendor (iii) Waste storage room provided	(i) Segregation of waste was not practiced as per SWM Rules, 2016. (ii) Wastewater was being by-passed without treatment. (iii) STP was under maintenance (iv) No compost plant	Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points; - Improvement of waste management practices as per

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
	Untreated WW : 40 KLD		(v) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices.	SWM Rules, 2016 - STP is required to be restored in a time bound manner. - Proper operation and maintenance of STP is required by giving training to the concerned staff - Installation of compost plant
2.11	Golden Petal Hotel & Banquet Shiv Puri, Geeta Colony  No. of Rooms : 15 MSW Generation : 80 kg/day WW Generation : no record Untreated WW : no record	(i) 15 Rooms with Banquet Hall (ii)	(iii) Segregation of waste is not practiced as per SWM Rules, 2016. (iv) No temporary solid waste storage provision made (v) Solid waste is conveyed in trolley and disposed off in nearby Dhalao. (vi) Sewage generated is directly discharged into open drain. (vii) Best waste management practices are not being followed.	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points; - Obtain consent from DPCC - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Install STP - Covered shed for waste collection point - Regular training to the sanitary workers is required to be organised by Hotel Authority.
2.12	<b>Hotel De Aqua</b> Shastri Park	i) Building structure exist but not operational	- Building structure exist but not operational	None

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	Delhi			
2.13	<b>Hall Mark Banquet</b> KarKar Duma Metro Station Delhi	<ul style="list-style-type: none"> <li>i. Single bins provided</li> <li>ii. ETP installed</li> </ul>	<ul style="list-style-type: none"> <li>i) ETP was not found functioning properly.</li> <li>ii) Bin system not practiced as per SWM Rules.</li> <li>iii) No separate room provided for storage of solid waste. Solid waste stored near the gate in open bins.</li> <li>iv) Foul smell was observed near ETP and solid waste disposal area.</li> <li>v) Housekeeping very poor.</li> </ul>	<p>Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points;</p> <ul style="list-style-type: none"> <li>i) Bin system needs to be practiced as per SWM Rules.</li> <li>ii) ETP is required to be restored in a time bound manner.</li> <li>iii) Provide separate room for storage of solid waste.</li> <li>iv) Housekeeping need to be improved.</li> </ul>
2.14	<b>Orchid Grand (Banquet Hall)</b> KarKar Duma Metro Station Delhi	<ul style="list-style-type: none"> <li>1. ETP installed</li> <li>2. Few waste bins provided</li> </ul>	<ul style="list-style-type: none"> <li>i) ETP installed but not operational. ETP was in defunct condition. Untreated effluent is by-passed.</li> <li>ii) Bin system not practiced as per SWM Rules.</li> <li>iii) No separate room provided for storage of solid waste.</li> <li>iv) Mixed waste was being segregated by local vendor in the back side(car parking</li> </ul>	<p>Recommended for imposing environmental compensation or fine for grossly non-complying / violations in respect to following action points;</p> <ul style="list-style-type: none"> <li>i) Proper operation of STP</li> <li>ii) Two bin system for collection of segregated waste</li> <li>iii) Provision of separate room for storage of solid waste.</li> <li>iv) On-site segregation</li> <li>v) Control of bad odour.</li> </ul>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
			area) v) Foul smell was observed. vi) Housekeeping very poor.	ii.) Improvement in House keeping
	<b>Colleges</b>			
3.1	Shaheed Sukhdev College of Business Studies, Vivek Vihar  No. of Students: : 1200 MSW Generation : 30 kg/day WW Generation : 100 KLD Untreated WW : 100KLD	i) Hostel is not attached with the College. ii) Bins provided	i) Segregation of waste is not practiced as per SWM Rules, 2016. ii) No temporary waste storage provision. iii) No segregation of waste iv) Solid waste is conveyed in trolley and disposed off in nearby Dhalao. v) Sewage generated is directly discharged into open drain.	Recommended for issuance of letter for improvements of existing practices; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Regular training to the sanitary workers is required to be organised by college.
3.2	VivekanandMahila College Vivek Vihar  No. of Students: : 2200 MSW Generation : 100 kg/day WW Generation : 20 KLD Untreated WW : 20 KLD	i) Hostel is not attached with the College ii) Bins installed iii) Compost plant installed iv) Solid waste is conveyed in a trolley and disposed off in nearby Dhalao.	(i) Segregation of waste is not practiced as per SWM Rules, 2016. (ii) Vermi compost requires improvement. (iii) No designated waste storage provision for temporary waste storage. (iv) Sewage generated is directly discharged into drain.	Recommended for issuance of letter for improvements of existing practices; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Regular training to the sanitary workers is required to be organised by college

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
3.3	ShyamLal College, Shahdara  No. of Students: : 6000 MSW Generation : 140 kg/day WW Generation : 90 KLD Untreated WW : 90 KLD	i) Hostel is not attached with the College. ii) Paper waste is segregated and fresh paper is obtained from the vendor. iii) Bins provided iv) Solid waste is disposed off in nearby Dhalao.	i) Segregation of waste is not practiced as per MSWM Rules, 2016. ii) No temporary waste storage provision. iii) Sewage generated is collected in a tank and then pumped directly into open drain.	Recommended for issuance of letter for improvements of existing practices; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Regular training to the sanitary workers is required to be organised by college.
3.4	Dr.Bhim Rao Ambedkar College University of Delhi No. of Students: : 2665 MSW Generation : 50 kg/day WW Generation : 20 KLD Untreated WW : 20 KLD	(i) Hostel is not attached with the College. (ii) Septic tank for wastewater treatment then discharge into drain (iii) Bins installed	(i) Segregation of waste is not practiced as per MSWM Rules, 2016. (ii) No designated place for temporary waste storage provision. (iii) Solid waste is disposed off through MCD.	Recommended for issuance of letter for improvements of existing practices; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Regular training to the sanitary workers is required to be organised by college.
	<b>Mall/Commercial complexes</b>			
4.1	V3S East Centre Mall, Laxmi Nagar, District Centre, Delhi  No. of Shops : 180 MSW Generation : 120	(i) Single bin system for collection of waste at shops, corridors (ii) Partial segregation practices were satisfactory. (iii) Installed compost plant (iv) Installed STP and treated water is	(i) Installed STP but needs proper maintenance. Operator of STP requires training. (ii) No public litter bins (iii) Storage of Solid waste is not	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points;

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	kg/day WW Generation : 160 KLD Untreated WW : nil	re-used. (v) Solid waste is given to vendor.	proper and causing foul smell. (iv) Compost plant is not working properly. (v) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices.	- Improvement of waste management practices as per SWM Rules, 2016 in corridors and restaurants. - Proper operation of STP - Proper storage of waste with wash water collection provision - Training for proper operation and maintenance of STP - Sludge disposal
4.2	Cross River Mall (EPMS), Shahdara, Delhi  No. of Shops : 120 MSW Generation : 950 kg/day WW Generation : 52 KLD Untreated WW : nil	(i) Single bin system for collection of waste at shops, corridors (ii) Partial segregation practices. (iii) Temporary waste storage area. (iv) Installed STP. (v) Solid waste is given to vendor. (vi) Manual waste transfer to temporary collection area.	(i) Installed STP but not operating properly. (ii) Inadequate public litter bins (iii) Solid waste is given to vendor, without knowing their permits/authorisation from EDMC and their final disposal practices. (iv) No trolley for solid waste collection. (v) Sewage is discharged in storm water drain.	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points; - Improvement of waste management practices as per SWM Rules, 2016. - Proper operation and maintenance of STP. - Install compost plant - Needs pull cart / trolley for waste transfer to temporary collection area.



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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
4.3	Aggarwal Fun City Mall, Shahdara  No. of Shops : 4 shops /2500 visitors MSW Generation : 400 kg/day WW Generation : 32 KLD Untreated WW : nil	i) STP provided and treated water is reused for gardening and cooling.  ii) Bins provided by restaurants	i) Segregation of waste is not practiced as per SWM Rules, 2016.  ii) MSW is stored in temporary waste storage area not covered and there was no access control.  iii) Operation of STP was not satisfactory  iv) Solid waste is disposed off nearby Dhalao through vendor.	Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points;  - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.  - Improving operation of STP  - Regular training to the sanitary workers and STP operator is required to be organised by Mall authority.
4.4	DLF Galleria, Mayur Vihar Ph-I Extension  No. of Shops : 113/12,000 visitors MSW Generation : 175 kg/day WW Generation : 40 KLD Untreated WW : nil	i) STP provided and treated water is reused for gardening and cooling.  ii) Waste collection bins provided	i) Segregation of waste is not practiced as per SWM Rules, 2016.  ii) MSW is stored in temporary restricted waste storage area.  iii) Solid waste is disposed off nearby Dhalao through vendor.  iv) Sewage generated is treated and then reused for gardening and cooling.	Recommended for issuance of letter for improvements of existing practices;  - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.  - Regular training to the sanitary workers and STP operator is required to be organised by Mall authority.
4.5	Star City,	i) Waste collection bins provided	i) Segregation of waste is not	Recommended for issuance of

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	<p>Mayur Vihar Ph-I Extension</p> <p>No. of Shops : 30 shops</p> <p>MSW Generation : 250 kg/day</p> <p>WW Generation : 25 KLD</p> <p>Untreated WW : 25 KLD</p>	<p>ii) Installed STP, claims that treated water being used for horticulture</p> <p>iii) Solid waste is disposed off nearby Dhalao through vendor.</p>	<p>practiced as per MSWM Rules, 2016.</p> <p>ii) MSW is stored in open waste storage area. No access control.</p> <p>iii) STP was not in operation during the visit. Sewage generated is treated batch-wise.</p>	<p>directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points;</p> <ul style="list-style-type: none"> <li>- Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.</li> <li>- Provision of waste collection point with access control.</li> <li>- Improving operation of STP</li> <li>- Regular training to the sanitary workers and STP operator is required to be organised by Mall authority.</li> </ul>
4.6	<p>Parsvnath Commercial Complex Seelampur, Delhi.</p> <p>No. of Shops : 02</p> <p>Total plot area: 51, 240 Sq.m</p> <p>Built-up area: 96813 Sq.m</p> <p>No. of Visitors: 1000</p> <p>MSW Generation : 320 Kg/day</p> <p>WW Generation : 60 KLD</p>	<p>i.) Installed STP</p> <p>i.) MSW is stored in designated storage area</p> <p>ii.) Provision made for cleaning of bins</p> <p>iii.) Waste collection bins provided</p>	<p>i.) Segregation of waste is not practiced as per MSWM Rules, 2016.</p> <p>ii.) Solid waste is disposed off through vendor.</p> <p>iii.) STP was not in operation during the visit (under repair).</p> <p>iv.) Un-treated effluent discharge into drain.</p>	<p>Recommended for issuance of directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points;</p> <ul style="list-style-type: none"> <li>- Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.</li> <li>- Augmenting and re-</li> </ul>

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S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
	Untreated WW : 50 KLD			commissioning the STP - Regular training to the sanitary workers and STP operator is required to be organised by Mall authority.
	<b>Railway Stations</b>			
5.1	<b>Shahdara Railway Station</b> No. of trains : 200 No. of Passengers: 25000 MSW Generation : 800 kg/day WW Generation : 200 KLD Untreated WW : 200 KLD	(i.) Platform Sweeping (ii.) Solid waste is conveyed and disposed off in nearby Dhalao of EDMC through vendor.	(i) Segregation of waste is not practiced as per SWM Rules, 2016. (ii) The SW is collected and disposed off in open area (iii) All the rodents and animals are having access to the MSW presently stored improperly under the bridge. iv) Sewage generated is disposed directly into sewer. v) Housekeeping was very poor.	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Up-gradation of sanitary conditions - Installation of STP - Provide washable aprons for railway tracks at station premises. - Regular training to the sanitary workers is required to be organised by the Indian railways.
5.2	<b>Vivek Vihar Railway Station</b>	(i.) Sweeping of platform	i) Segregation of waste is not practiced as per SWM Rules, 2016.	Recommended for issuance of directions for ensuring time bound action plan for installation

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
	No. of trains : 30 No. of Passengers: 1200 MSW Generation : no record WW Generation : No record (one t/well) Untreated WW : nil		<ul style="list-style-type: none"> <li>ii) SW is swept and disposed off adjacent to platforms</li> <li>iii) All the rodents and animals are having access to the Solid Waste.</li> <li>iv) Sewage generated is disposed without any treatment.</li> <li>vi) Housekeeping is very poor.</li> </ul>	<ul style="list-style-type: none"> <li>- of adequate facilities and to carry out improvements;</li> <li>- Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.</li> <li>- Up-gradation of sanitary conditions</li> <li>- Regular training to the sanitary workers is required to be organised by the Indian railways.</li> </ul>
5.3	<b>Anand Vihar Railway Station</b>  No. of trains : 20 No. of Passengers: 600000 MSW Generation : 2 TPD WW Generation : 100 KLD Untreated WW : 100 KLD	<ul style="list-style-type: none"> <li>i) Housekeeping was satisfactory.</li> <li>ii) Adequate numbers of single bins were provided at all platforms and corridors.</li> <li>iii) On-site segregation at collection point for recovery of Plastics and Glass by an NGO 'Chintan' for recycling.</li> <li>iv) Regular sweeping of platform</li> <li>v) Installed STP for treatment of generated sewage.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Segregation of waste is not practiced as per SWM Rules, 2016.</li> <li>(ii) Open type of temporary waste storage provision was provided. No access control was provided.</li> <li>(iii) Solid waste is conveyed and disposed off in Ghazipur through vendor.</li> <li>(iv) STP is not operated properly and untreated sewage is discharged.</li> </ul>	<ul style="list-style-type: none"> <li>- Recommended for issuance of letter for improvements of existing practices;</li> <li>- Up gradation of sanitary conditions</li> <li>- Regular training to the sanitary workers is required to be organised by the Indian railways.</li> <li>- Proper operation of STP</li> <li>- Two Bin system and other necessary provisions to be implemented in accordance with the SWM Rules, 2016.</li> </ul>
5.4	<b>Mandawali Railway</b>	i.) No effective measures were taken	(i) Segregation of waste is not	Recommended for issuance of

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
	<b>Station</b>  No. of trains: 22 (stoppage) No. of Passengers: 500 to 600 per day MSW Generation : Not provided WW Generation : Not provided		practiced as per SWM Rules, 2016. (ii) All the collected MSW is disposed off in open area adjacent to the railway platforms within station premises (iii) Sewage generated is disposed directly into the open drain. (iv) Housekeeping is very poor. (v) No sanitation staff were engaged	directions for ensuring proper treatment of wastewater and effective waste management with respect to following action points; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016. - Up gradation of sanitary conditions - For lifting and disposal of MSW thrown in nearby area - To provide adequate sanitary workers for maintenance of the railway station.
	<b>Bus Terminals</b>			
6.1	Anand Vihar ISBT  No. of buses : 3000 No. of Passengers: 152000 MSW Generation : 1 TPD WW Generation : 24 KLD Untreated WW : 24 KLD	(i) Waste collection bins in front of shops (ii) Single bins at various points within bus terminal (iii) Floor Sweeping (iv) Toilets (v) Open type waste collection point (vi) Solid waste is conveyed and disposed off in Ghazipur landfill site by vendor.	i) Segregation of waste is not practiced as per SWM Rules, 2016. ii) Temporary waste storage provision was in open with no cover and not having access control to stray animals iii) Adequate number of litter bins iv) No adequate public toilets	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; - Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016 for segregated waste collection. - Up gradation of sanitary

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
				<ul style="list-style-type: none"> <li>v) Housekeeping is very poor</li> <li>vi) Sewage treatment plant was not installed</li> </ul> <ul style="list-style-type: none"> <li>- conditions</li> <li>- Installation of STP</li> <li>- Installation of compost plant</li> <li>- Augmenting waste collection point</li> <li>- Regular training to the sanitary workers is required to be organised by the DTC to improve waste management and housekeeping.</li> </ul>
6.2	Shahdara Bus Terminal  No. of buses : 200 No. of Passengers: 10000 MSW Generation : WW Generation : nil Untreated WW : nil	(i.) Single bins provided before each shop. (ii.) Sweeping at regular intervals (iii.) Solid waste is conveyed in a trolley and disposed off in nearby Dhalao. (iv.) Sewage generated is collected in a tank and then pumped directly into open drain.	i) Segregation of waste is not practiced as per SWM Rules, 2016. ii) No designated waste storage provision for temporary waste storage. iii) Adequate litter bins not provided	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities and to carry out improvements; <ul style="list-style-type: none"> <li>- Bin system and other necessary provision to be implemented in accordance with the SWM Rules, 2016.</li> <li>- Up-gradation of sanitary conditions</li> <li>- Wastewater should be discharge into public sewerage network connected to terminal STP</li> <li>- Regular training to the sanitary workers is required to be organised by the DTC to</li> </ul>

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
				improve waste management and housekeeping.
	<b>Waste to Energy</b>			
7.1	<b>Waste to Energy Plant Ghazipur (12 MW capacity) M/s ED</b>  Average – 8 MW generation Date of Inspection : 13.02.2017 Capacity : 12 MW Processing Capacity: 2000 TPD (permitted 1300 TPD) RDF Production: 550 TPD No o Boilers : 01	i) MSW permitted processing capacity: 1300 TPD. ii) Energy production about 8.75 MW from MSW against 12 MW capacity. iii) Mechanical segregation facility is provided iv) Installed ETP for leachate treatment. v) Ash is utilised for brick making, cement kiln. vi) Installed APCD comprising of reactor followed by bag filter to achieve emission standards of DPCC vii) Online emission monitoring system installed.	i) Possibility of utilising bottom ash needs to be explored.	i) Enhancement of capacity of Waste to Energy and Waste processing Plants is required to address entire waste generated from EDMC area. ii) Explore the possibility of utilising bottom ash. iii) Verification of emission compliance by DPCC / CPCB
	<b>Residential Apartments</b>			
8.1	<b>Milan Vihar,</b> Plot No. 72, IP Extension, Delhi-110 092  No. of Flats: 370 Plot Area: 6.5 Acres Built up area: 50 -60 % <b>MSW:</b> 500 to 600 kg/day <b>Water consumption:</b> 240	i) Collection of Municipal solid waste through chute directly into the waste storage area. ii) About 17 sanitary workers engaged for collection and disposal of MSW. iii) Fire fighting provision provided. iv) Common waste chute v) Housekeeping was satisfactory. vi) The rain water harvesting system	i) Mixed waste is collected and no segregation of MSW at source followed. ii) Collected MSW is disposed in nearby MSW Dhalao at Hasanpur Depot. iii) Domestic waste water generated is discharged into the public sewer without any	Recommended for issuance of letter for improvements of existing practices;  i. Two Bin system need to be followed as per SWM Rules, 2016 for segregation of waste at source. ii. Restrict use of common

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	KLD <b>WW Generation:</b> 190 KLD	was found installed	treatment.	chute for only dry waste. iii. Installation of compost plant iv. Arrangements with local bodies
8.2	<b>Mayur Dhvaj</b> Plot No. 60, IP Extension PatparGanj, DELHI-110 092  No. of Flats: 300 Plot Area: 5 Acres Built up area: 40 % MSW: 500 kg/day Water consumption: 190 KLD WW Generation: 150 KLD	i) Collection of Municipal solid waste through common chute directly into the waste storage area. ii) Fire fighting provision provided. iii) Collected MSW is disposed in nearby MSW Dhalao at Hasanpur Depot.	i) Mixed waste is collected and no segregation of MSW at source followed. ii) Foul smell was observed from waste storage area iii) Domestic waste water generated is discharged into the public sewer without treatment.	Recommended for issuance of letter for improvements of existing practices;  i. Two Bin system need to be followed as per SWM Rules, 2016 for segregation of waste at source. ii. Restrict use of common chute for only dry waste. iii. Installation of compost plant iv. Arrangements with local bodies
8.3	<b>Amrapali Apartment</b> IP Extension PatparGanj, DELHI-110 092  No. of Flats: 302 Plot Area: 5 Acres Built up area: 40 -50 % MSW: 500 kg/day Water consumption: 225 KLD	i) Collection of Municipal solid waste on daily basis from the flats manually. ii) Fire fighting provision provided. iii) Collected MSW is disposed in nearby MSW Dhalao.	i) Mixed waste is collected and no segregation of MSW at source followed. ii) There is no temporary waste storage area. iii) Domestic waste water generated is discharged into the public sewer without imparting treatment.	Recommended for issuance of letter for improvements of existing practices;  i. Two Bin system need to be followed as per SWM Rules, 2016 for segregation of waste at source. ii. Installation of compost plant iii. Arrangements with local bodies



**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
		Hospitals	Measures Taken	
	WW Generation: 200 KLD			
	<b>Mandis / Markets</b>			
9.1	<b>Flower Mandi</b> Ghazipur, Delhi.  No. of Shops: 411 Plot Area: 9.9 Acres Built up area: 1.5 Acrtes. MSW: 3 TPD	(i) MSW is disposed at MCD Landfill site at Ghazipur but not on daily basis  (ii) Segregated paper waste is sold to the paper waste recycler directly	(i) MSW Storage area was not properly installed (ii) Bad odour observed. (iii) Compost or bio-methanation plant not installed	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities; - For covered waste storage area - Disposal of segregated waste on daily basis - Segregation of dry and wet waste to be followed by the shops for segregation as per SWM Rules, 2016 - For installation of compost / biomethanation plant.
9.2	<b>Subji Mandi Of Agricultural Produce Marketing Committee</b> Ghazipur, Delhi.  No. of Shops: 468 Plot Area:37 Acres MSW: 3 TPD	i. Separate waste storage points  ii. MSW is disposed at MCD Landfill site at Ghazipur	(i) There was no propter MSW Storage area. MSW is stored in open areas at three temporary waste storage places.  (ii) MSW is disposed at MCD Landfill site at Ghazipur but not on daily basis.	Recommended for issuance of directions for ensuring time bound action plan for installation of adequate facilities; - For covered waste storage area - Ensure daily disposal of segregated dry waste on daily basis - Segregation of waste to be followed by the shops for

**Report of Sub-Committee –IV (EDMC Area) on Inspection of  
Bulk Waste Generators and Hospitals**

S.No	Name of the Bulk Waste Generator/Hospital	Observations		Recommendations
	Hospitals	Measures Taken	Short-comings / Deficiencies	
				segregation as per SWM Rules, 2016 - For installation of compost / biomethanation plant.
	<b>Office Complex</b>			
10.1	<b>SCOPE District Centre</b> Laxmi Nagar Delhi ONGC-10 floors HPCL-03 floors SAIL-05 floors Waste Generation: 1450 Kg/day Water consumption: No data	i) Single bin system practiced ii) Housekeeping was satisfactory iii) Solid waste is given to the vendor	i) Single bin system in all the offices. ii) Solid waste is given to the vendor but disposal at end point is not known to management of offices exist in the scope tower. iii) Every agency has independent kitchen. Waste water is discharge along with the domestic sewage generated from the scope complex.	Recommended for issuance of letter for improvements of existing practices with respect to; i) On-site segregation of waste to be followed as per SWM Rules, 2016 by all offices ii) Disposal of sewage into sewerage network connected to terminal STP.

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M/s Max Super Speciality Hospital, Patparganj

<p>Chart in Wards Showing Colour Coding and Segregated waste Disposal</p>	

M/s Dr Hedgewar Arogya Samsthan, Near KarKarduma Court, E. Delhi



Dr.Hedgewar Arogya Sansthan



Colour coded Bins used for Segregation



Trolleys used for intra-mural transportation



Waste needle cutter & waste sharp container



Pre-treatment of waste



Temporary waste storage area



Waste Water Treatment Process Flow Chart



IG ESI Hospital, Jhil Mill Colony, Delhi



Containers used for segregation of bio-medical waste



Improper segregation of waste



Temporary BMM and Hypo Solution Storage area



Area selected for construction of ETP



GTB Hospitals, Dilshad Garden, Delhi



Containers used for segregation of bio-medical waste



Autoclave used for pre-treatment of waste

Temporary Waste Storage area



ETP installed by the Hospital



Swamy Dayanand Hospital



Containers used for segregation of bio-medical waste



Pre-treatment of waste using Autoclave and Dry Heat Sterilisation



Intramural Transportation of Waste

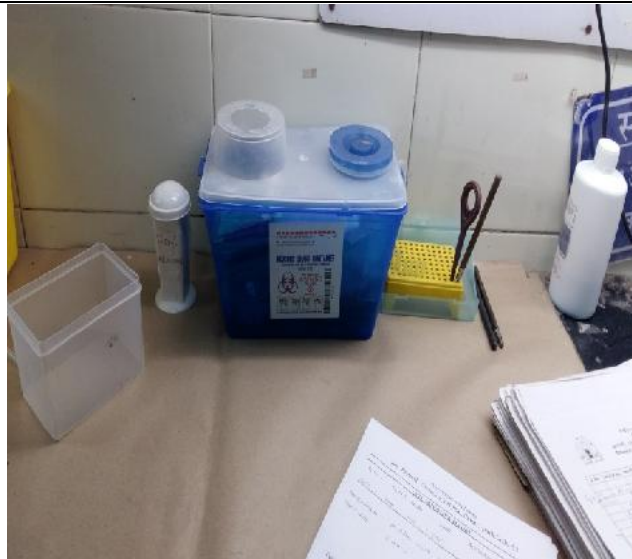


Temporary Waste Storage area as well as Hypo-Solution in drum

M/s Jag Pravesh Chandra Hospital, Shastri Park, Delhi.



**Containers used for segregation of bio-medical waste**



**Pre-treatment of waste using Autoclave and Dry Heat Sterilisation**



**Temporary Waste Storage area**



M/s Lal Bahadur Sastry Hospital, Khichripur, Delhi



Segregation of bio-medical waste at source



Temporary Waste Storage



Component of STP/ETP



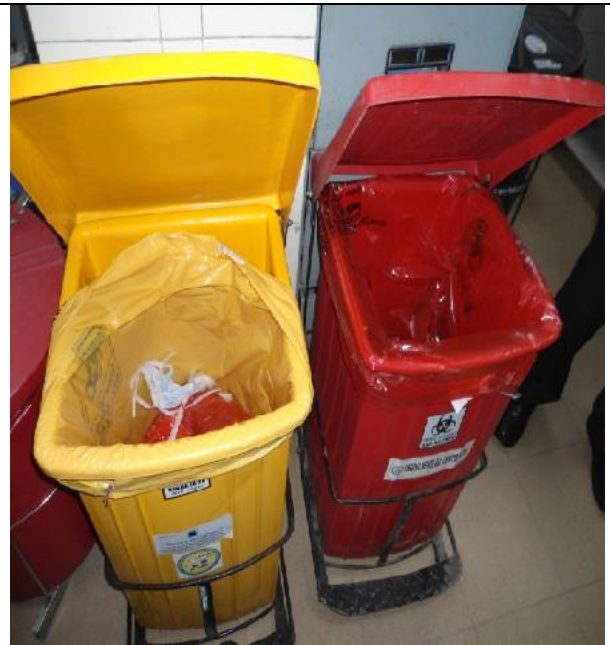
On-site autoclave and shredder installed by the hospital



M/s Chacha Nehru Bal Chikistalaya, Geetha Colony, Delhi



Chacha Nehru Children Hospital



Coloured containers used for segregation



Glass waste Collected in Card Box



Temporary Bio-medical Waste Storage area



ETP Installed by the Hospital-Not operation



M/s Dharamshila Cancer Hospital and Research Institute, Vasundhara Enclave, Delhi



Segregation of bio-medical waste at source



Pre-treatment of waste at source



Temporary BMW storage area



STP/ETP installed and the sludge drying bed without any sludge



M/s Institute of Human Behaviour and Allied Sciences, Dilshad Garden, Delhi- 110 095



Segregation of Bio-medical Waste at source



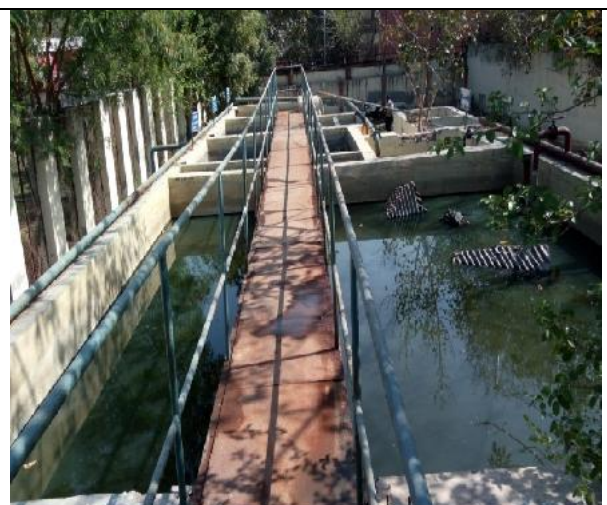
Pre-treatment of Bio-medical Waste



Temporary Waste Storage Area



Temporary Waste Storage area



STP/ETP Installed by HCF and not in operation



M/s Rajiv Gandhi Super Speciality Hospital, Dilshad Garden, Delhi- 110 095



Rajiv Gandhi Super Speciality Hospital, Dilshad Garden, Delhi



Segregation of bio-medical waste at source



Pre-treatment of BMW by autoclave



Waste Storage area



Haphazard storage of bio-medical waste

**Annexure-3.2.1**

**M/s The Leela Ambience Convention Hotel, Surajmal Vihar, Shahdara, Delhi**


M/s Ginger Hotels, Vivek Vihar, East Delhi

	
<p>Septic Tank condition in ETP</p>	<p>Mixed Solid waste collected in bins</p>
	
<p>Enclosed Collection Bin Provided</p>	<p>Filters not in operation</p>



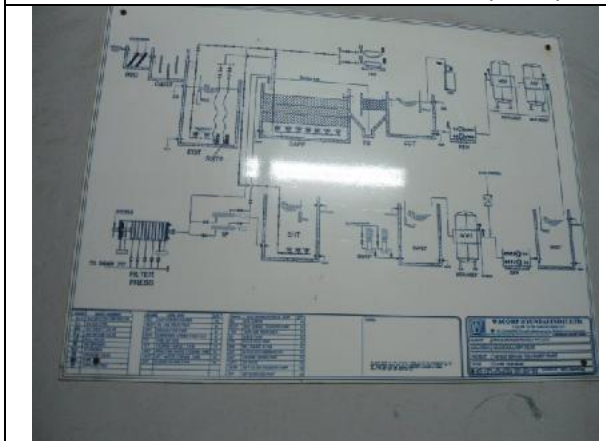
M/s Park Plaza, Plot No. 32, CBD, Behind KarKar Duma Court, East Delhi



Bins Used for Segregation of Waste at Source



Temporary MSW Storage Provision



Flow Diagram of STP installed by the Hotel



Improperly operated STP



M/s Golden Palm, Patparganj, Delhi



Golden Palm Hotel



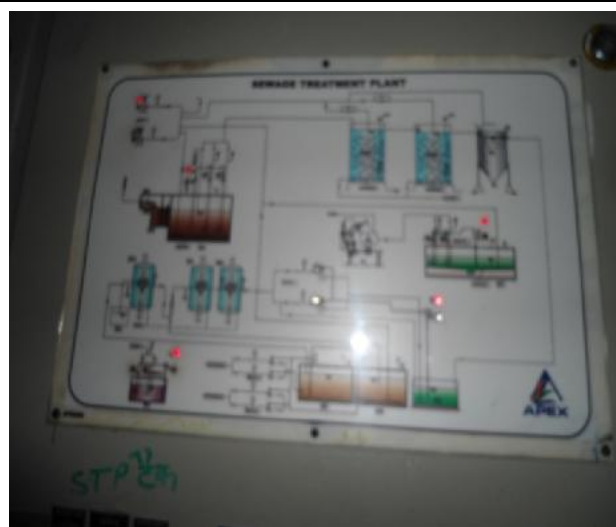
Two Bin system used for collection of MSW



MSW Storage In Trolleys



Temporary MSW Storage shed

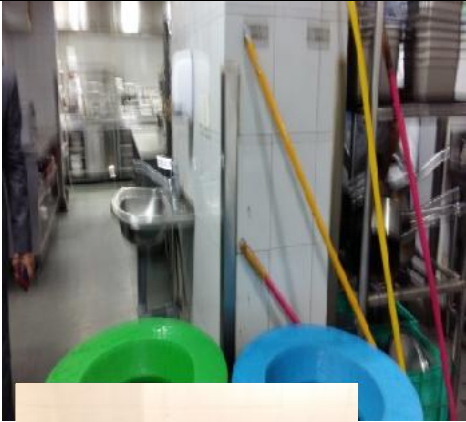
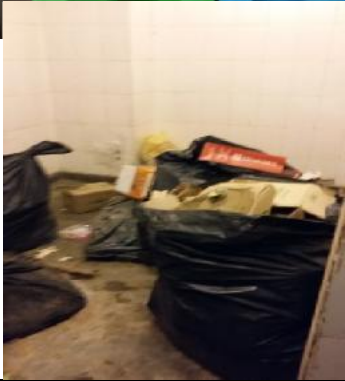
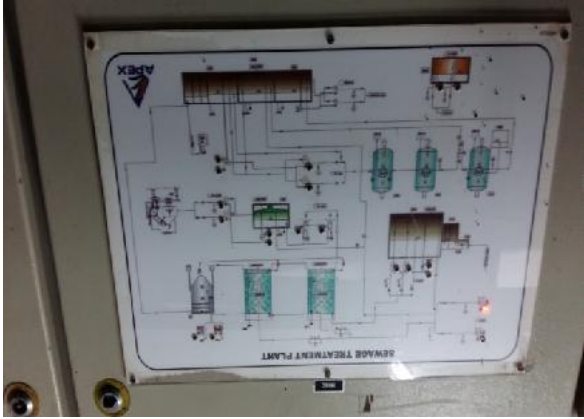
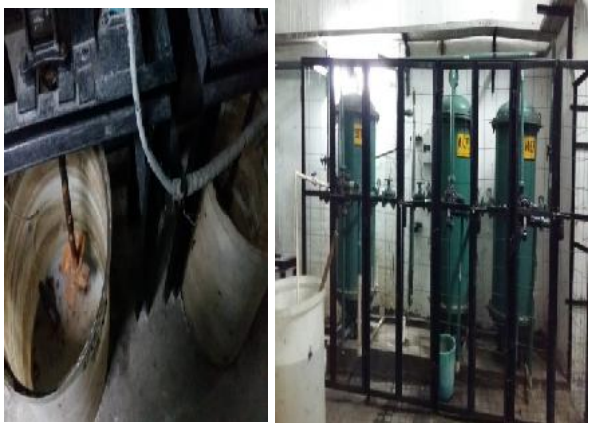


Flow Diagram of the ETP Installed by the Hotel

M/s Lemon Tree Hotels, East Delhi Mall



2.6 M/s Park Inn by Radisson at Patparganj, East Delhi, Delhi.

	
	<p>Temporary MSW Storage area</p>
<p>Bins used for segregation of MSW at source</p>	
<p>Flow diagram of STP</p>	
<p>Chemical mixing (Empty) and Filter Units of STP</p>	



Empty chemical dosing tank of STP



Empty centrifuge observed during the visit

**Annexure-3.2.7**

**M/s JP Hotel & Resort, Patpar Ganj, IP Extension, Delhi**



Bin system used for segregation of MSW at source





Temporary MSW Storage Provision in Trolley



Flow diagram of the STP installed by the Hotel

**Annexure-3.2.8**

**M/s Holiday Inn, Mayur Vihar, Delhi**



Holiday Inn



Chemical wastewater Treatment Unit

	
<p>E-Waste Storage Provision</p>	<p>Flow Diagram of STP</p>
	
<p>Unit Operations of STP</p>	
	
<p>On-site Compost Plant</p>	<p>Cold Storage Unit</p>

Annexure-3.2.9

M/s Crown Plaza, Mayur Vihar, Delhi



Crown Plaza



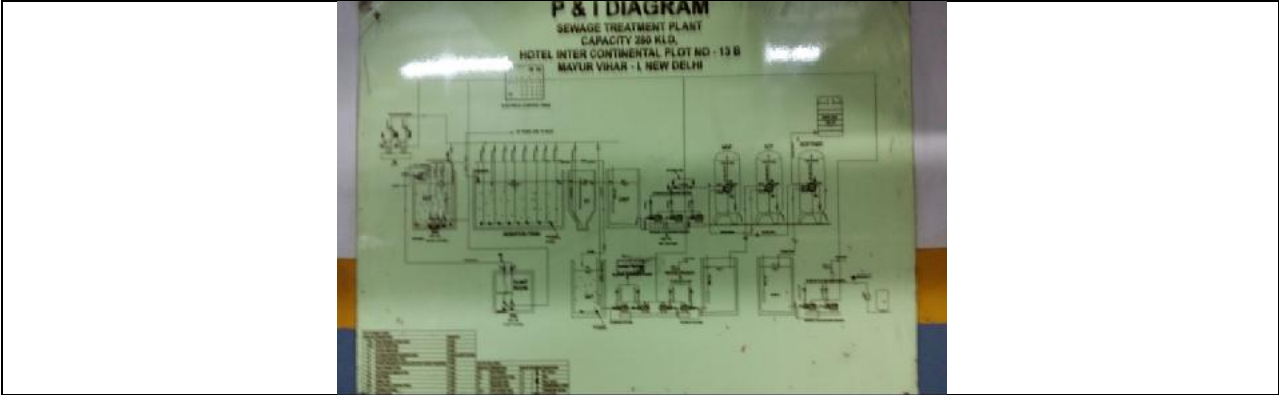
Two bin system adopted for segregation of MSW at source



Mixed waste Storage Bin, On-site compost plant and the centrifuge as a part of STP



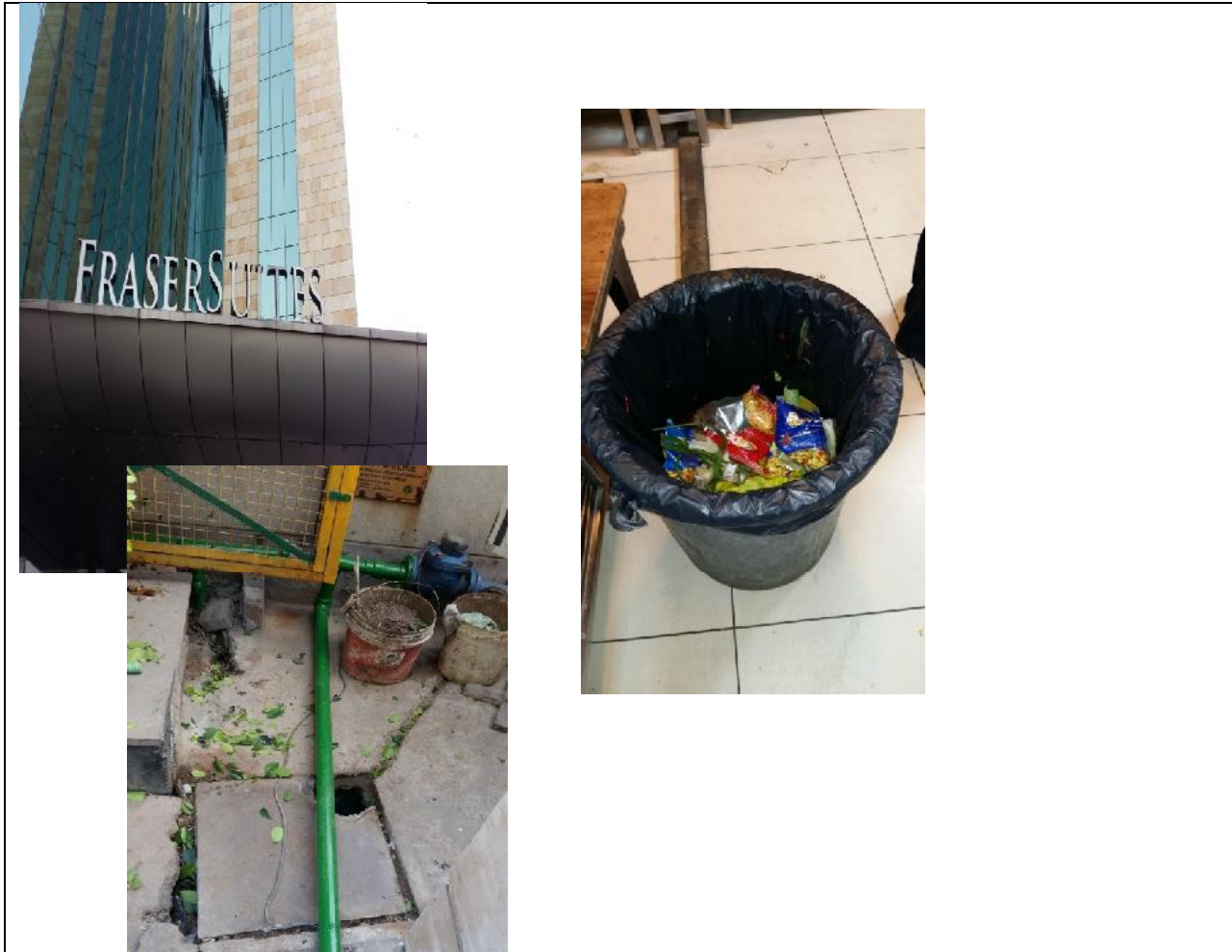




Flow Diagram of the ETP Installed by the Hotel



M/s Fraser Suites, Mayur Vihar Phase-I, Delhi



Fraser Suites

Bin used for segregation of MSW

Untreated sewage discharge



Temporary Storage of MSW



M/s Golden Petal Hotel & Banquet, Shiv Puri, Geeta Colony, Delhi.



Bins used for segregation of solid waste at source



Bin used for segregation of waste at source

**M/s Hotel De Aqua, Shastri Park, Delhi.**



M/s Hall Mark Banquet, Kar Kar Duma Metro Station, Delhi



Single bin used for segregation of waste



Single bin used for segregation of waste



Waste storage area



Temporary waste storage container



Effluent Sewage Treatment Plant



M/s Orchid Grand (Banquet Hall), KarKar Duma Metro Station, Delhi



Waste storage area



Waste storage area



Waste storage area



Waste storage area



Sewage Treatment Plant

M/s. Shaheed Sukhdev College of Business Studies, Vivek Vihar



Shaheed Sukhdev College of Business Studies



Bins used for segregation of bio-medical waste management



Bin used for segregation of bio-medical waste management



Conveyance of bio-medical waste



M/s Vivekanand Mahila College, Vivek Vihar, Delhi





ShyamLal College, Shahdara, Delhi



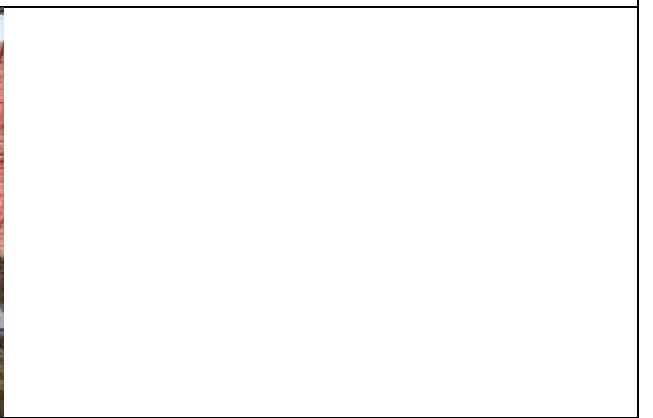




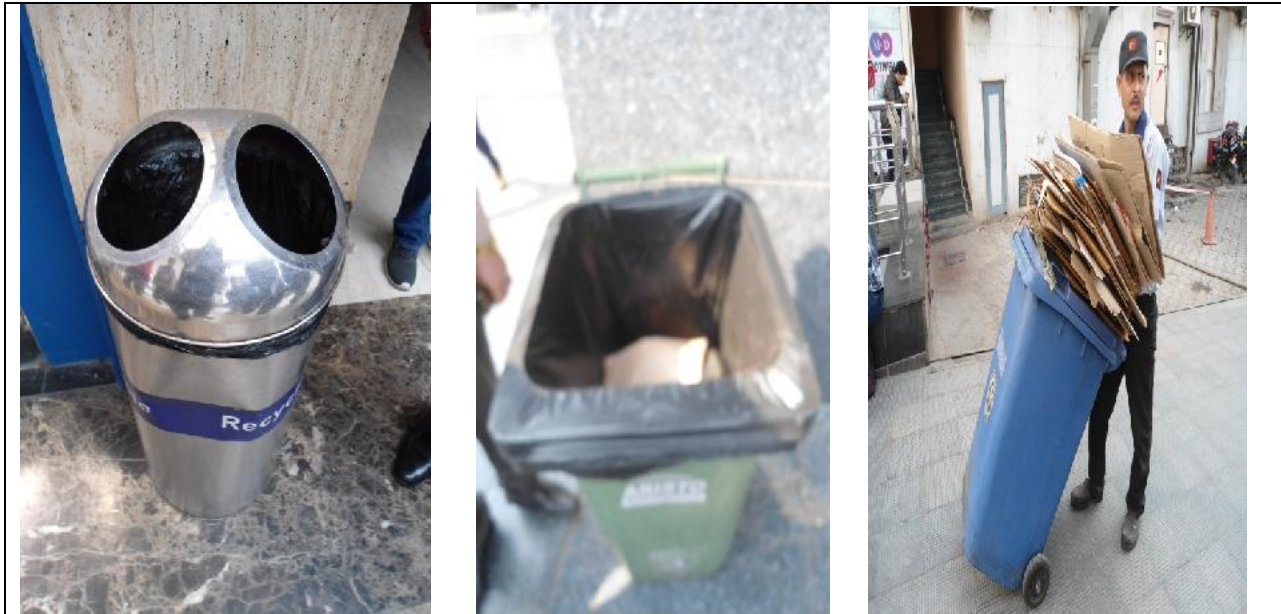
Dr. Bhim Rao Ambedkar College, University of Delhi







M/s V3S East Centre Mall, Lakshmi Nagar, District Centre, Delhi



Bins used for segregation of waste at source



Temporary MSW Storage



On-site Compost Plant



STP Installed by the Mall



M/s Cross River Mall (EPMS), Shahdara, Delhi



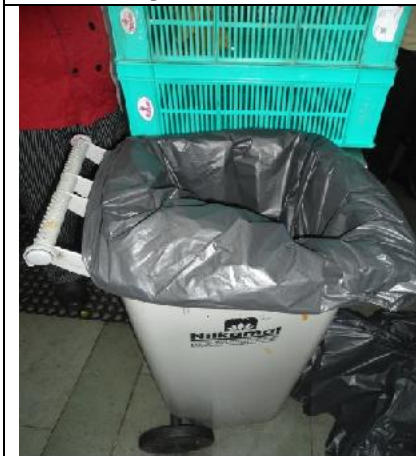
Improper storage



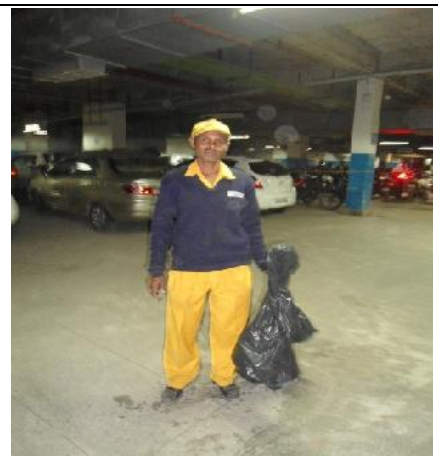
Wet Storage Area



STP Entrance



Waste Storage



Annexure-3.4.3

M/s Aggarwal Fun City Mall, Shahdara, Delhi







**M/s DLF Galleria, Mayur Vihar Ph-I Extension**

M/s Star City, Mayur Vihar Ph-I Extension



Parsvnath Commercial Complex, Seelampur, Delhi.







Shahdara Railway Station\*



Vivek Vihar Railway Station\*





Anand Vihar Terminal RS





Mandawali Railway Station





Anand Vihar ISBT \*





Shahdara Bus Terminal



Waste to Energy Plant at Ghazipur



Waste to Energy Plant at Ghazipur



MSW Landfill at Ghazipur



MSW Landfill at Ghazipur



Milan Vihar, Plot No. 72, IP Extension, Delhi-110 092



Annexure-3.8.2

MayurDhwaj, Plo No. 60, IP Extension, Patpar Ganj, DELHI-110 092



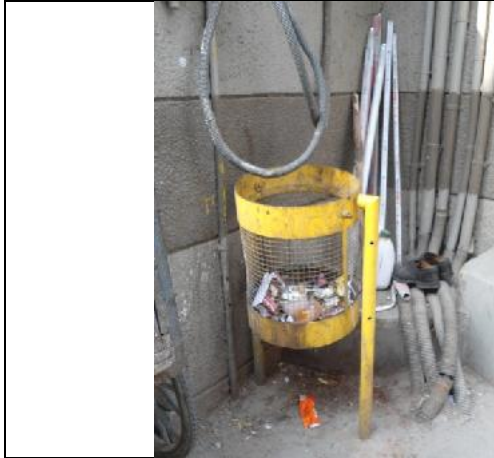
**Annexure-3.8.3**

**Amarpali Apartment, IP Extension, Patpar Ganj, DELHI-110 092**

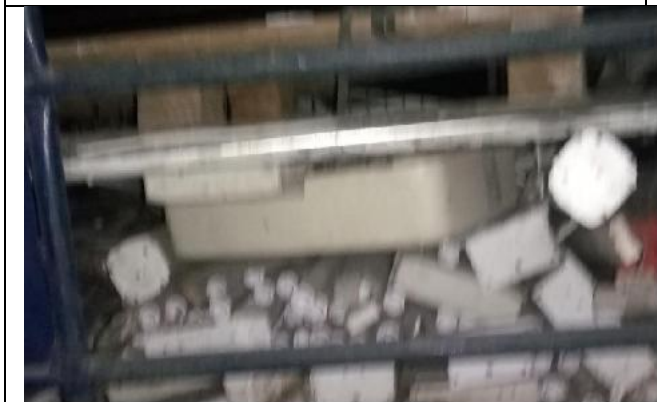


20.02.2017( 3.Agarsen Awas)





Metro Mall



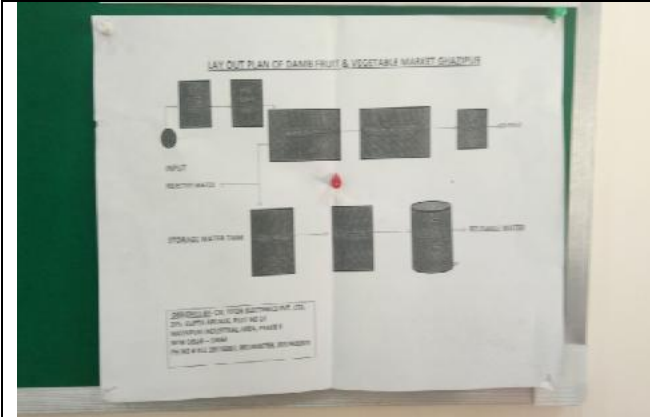








M/s Flower Mandi, Ghazipur, Delhi.

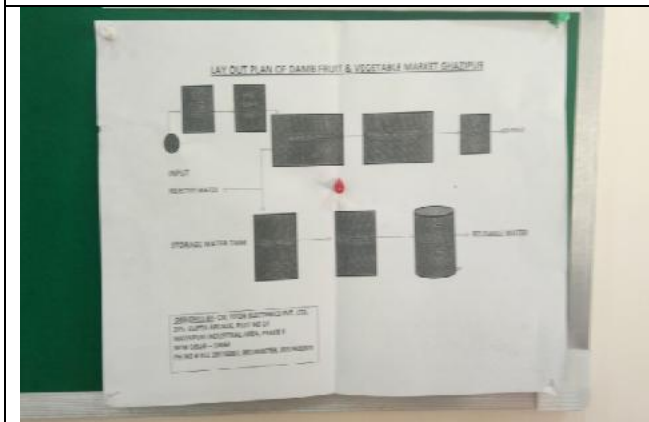


M/s Subji Mandi Of Agricultural Produce Marketing Committee, Ghazipur, Delhi.





M/s Flower Mandi, Ghazipur, Delhi.



M/s Subji Mandi Of Agricultural Produce Marketing Committee, Ghazipur, Delhi.





**20.02.2017( 3.Agarsen Awas)**



**Gated society**



**Recyclables collected by informal waste pickers**







SCOPE Complex, District Centre, Laxmi Nagar, Delhi



Waste storage area of canteen at GF



Waste storage



Waste storage



Waste storage



Dustbin outside complex to store waste



Waste storage area of office