

ENVIRONMENT MANAGEMENT PLAN FOR HOSPITALS

INTRODUCTION

The “environment” in The Environment (Protection) Act (EPA), 1986 includes water, air, land and the inter-relationship which exists among and between water, air, land, human beings, other living creatures, plants, micro-organisms and property. The environmental pollutants can be solids, liquids or gases present in such concentrations that may be injurious to the environment. The EPA addresses the prevention, control, and abatement of environmental pollution. The state has the responsibility to ensure standards for quality of environmental aspects and standards for emission or discharge of pollutants in the environment, prohibition, or restrictions on handling of hazardous waste etc. including research. Hospitals, given the complexity of the buildings and operations can be contributors to increase in environmental pollution and at the same time are heavily impacted by its adverse effects. Although, hazardous and polluting activities are prohibited or regulated by law, however, a specialized environment management plan is needed to mitigate detrimental effects of various pollutants in the campus and immediate vicinity which affect patients, attendants and the staff of the hospital.

2. SCOPE

The scope of the Environment Management Plan (EMP) mostly pertains to the statutes like the Environment (Protection) Act. However, in light of emerging technologies and resulting pollutants, there is a need to look at the environment in a holistic manner to cover issues in the immediate vicinity of hospitals in addition to the factors contextualized within the hospitals. The EMP is an effort to integrate factors impacting the environment like vehicular air/noise pollution, congestions/encroachments, vehicles as contributors to pollution, conflicts with pedestrians, overcrowding due to visitors/attendants, green cove/belt inadequacy, electricity generators associated with air/noise pollution with adequate mitigation measures. Also, the EMP has delved into prohibited and regulated activities and various types of waste management like Water waste, Solid waste, Pest Control, Condemnation of Hospital Items, Bio Medical waste, Radio-active waste, E-waste along with policy recommendations for same.

3. FACTORS CAUSING ENVIRONMENTAL POLLUTION & MEASURES TO MITIGATE THE SAME

i. Air Pollutants

Emissions from diesel generator (DG) sets & vehicles and dust due to construction & demolition (C&D) activities, poor condition of roads, sweeping activities contribute to pollution both within and around the hospitals. Open cooking activities by hawkers, mobile vendors and unauthorised shops around the hospital are other issues. Both are considered to contribute to the pollution to a very little extent.

Table 1: Air pollution and mitigation measures

S. No.	Contributor	Mitigation measures	Responsibility
1.	Use of DG sets	Mandatory compliance to Central Pollution Control Board guidelines related to type of fuel, emissions limits, stack height, etc. as specified from time to time.	Engineering Services Division (inside) Central Public Works Department. Municipal Corporation (inside and outside)
2.	Construction & demolition activities	GRAP compliance in Delhi- Retrofitted Emission Control Device (RECD) or Dual fuel mode, etc., as per latest directions	
3.	Service roads condition and road dust	Regular maintenance	
4.	Dust due to sweeping activities	Mechanised cleaning Using sprinkler-based cleaning machines	Engineering Services Division or CPWD for outer areas and Sanitation inside the hospital.
5.	Open cooking activities by hawkers, mobile vendors, and informal shops around the hospital.	Prohibition and removal through government agencies. Mitigation measures suggested for encroachments in other section.	Municipal Corporation Police

The health institutes should ensure timely and regular upgradation of DG sets, use of approved fuel types, timely replacement and repair, purchase of anti-smog guns, advanced water sprinkler-based cleaning machines etc. Air quality index monitoring device needs to be installed for monitoring the levels and interventions accordingly. Exhausts of isolation wards/ICUs should have High Efficiency

particulate air (HEPA) filters. Use of solar energy should be promoted for lighting and water heating etc.

ii. Vehicles as contributors to pollution

Government hospitals are high occupancy buildings visited by patient with restricted mobility that are dependent on their attendants for moving across various areas such as outpatient department, laboratories, procedure rooms to inpatient wards or ICUs. This requires public (including auto-rickshaws, taxis) and private vehicles plying both outside / nearby and entering / exiting in huge numbers (more than 10,000 in some hospitals). Recent efforts of the Government to expand medical infrastructure of the country have also contributed in heavy unregulated vehicular movement, traffic congestion within and around the hospital, speed and delay of vehicles and potential vehicular-pedestrian conflict. The service lanes are congested and non-hospital bound. Vehicles try to use hospital roads for by-passing the outside traffic. In addition, vehicles also enter as part of supply chain. Many are diesel vehicles.

Table 2: Mitigation measures for vehicles contributing to pollution

S. No.	Contributor	Mitigation measures	Responsibility
1.	Electric or green fuel-based vehicles	• Robust electric vehicles based intramural transport system as shuttle services for staff, patient and their attendants. • Promoting use of cycles, e-vehicle and discouraging diesel-based vehicles among hospital staff and visitors. Charging points as per requirements should be installed. • Hospital should provide incentives to promote electric vehicles such as providing free charging stations. • As a long-term measure, prohibiting petrol and diesel vehicles within the campus in near future, except for emergency and patient transportation.	Transport Department

2.	Regulation of vehicular movement and decongestion including entry and exit gates	• Adequate deployment, patrolling or Quick Response Team (QRT) ensures removal/towing/clamping and fining of unauthorized vehicles parked within the premises through security services and information to the police. • Traffic teams should be deployed at the entry/exit gates and at places known for traffic congestion. • Parking of vehicles, taxis and auto rickshaws is allowed at designated places. Multi-level parking offers space efficiency. • Entry should be allowed only to those authorised vehicles with verified stickers in restricted areas. • Use of RFID enabled tags and boom barriers for in-house vehicles will automate the process.	Health Institute Security Department
3.	Traffic congestion within hospital	• Regulating traffic, one-way roads within hospital and planning through roadmaps to critical zones like casualty building. • Creating separate walkways and roads for cycles. • Regulation of movement of vehicles according to a well-defined traffic circulation plan. • Walk-In hawkers and sellers should be prohibited inside the hospital and adequate canteen facilities may be	Health Institute Security Department

		provided at all needful locations.	
4.	Traffic congestion around hospital	• Area around the hospitals should be declared "Zero Tolerance Zone". • Improved traffic management plan by the traffic police around the hospital that allows hospital specific traffic on roads surrounding the hospitals. • The traffic police should develop dedicated ambulance corridor at an appropriate distance. • Vehicles to be fined regularly for unauthorised parking in and around the hospital. • Monitoring system to be introduced by Traffic Police. • Adequate deployment of traffic personnel and control of vehicle movement directly by police. • Removal of vendors, hawkers and other encroachments in 500m around gates by the Traffic Police, PWD, Municipal Corporation and Delhi Police. • Specific locations to be provided to vendors to prevent their haphazard spread by local development authority and Municipal Corporation. • Dedicated footpaths, traffic control barriers/chains to segregate the pedestrians, zebra- crossings	Traffic Police, PWD, Municipal Corporation, Delhi Police

		wherever necessary and well defined intra-mural traffic circulation plan. • Hospital supply vehicles should have separate access roads.	
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Improvement of signage for smooth traffic movement:

Appropriate and adequate signage should be installed at strategic places like entry / exit gates, administrative building, between residential area and hospital complex. The signage should be meaningful with appropriate graphics, bilingual, and should indicate the entry, exit, one way or two-way, parking location, shuttle service pick and drop off points and arrows to various departments, parking/no parking, speed limits, pedestrian — vehicle conflict zones, zebra-crossing etc.

Integrated solution to traffic congestion:

Traffic police and town planners should be engaged in development of an integrated traffic solution.

iii. Encroachment as contributor to pollution

Encroachments related factors are considered to contribute to environment pollution from somewhat to a great extent. Such factors are undesignated on-street parking, informal shops, hawkers, mobile vendors, auto-rickshaws parked near hospital, haphazard parking of vehicles, food distribution events around hospital, location of utilities such as the electric transformers, large waste bins etc. around the campus, unauthorised parking around the campus and unauthorised shelters.

Mitigation measures:

The resident welfare associations (RWAs) in the adjoining colonies should issue stickers to allow only the residents to park. Designated parking areas should be identified for visitors after verification from the residents. Reorganization of peripheral parking to permanent multilevel parking near the hospital should be developed. Smart streetcaping can be implemented for the approaching roads and nearby markets. This would require accommodation of nearby pharmacy shops and other activities such as fruit shops, general merchants etc. Alternate site should be identified for relocation of the encroachment in other areas. Prevention of encroachment by hawkers, removal and relocation for hawkers, small shops etc. should be ensured if already exist. The Municipal Corporation should not allow food distribution in the immediate vicinity of hospitals and develop relocation plan, if existing, at other appropriate sites. State authorities like Municipal Corporation, local development authorities, police, traffic police should take appropriate steps in this regard.

Provision of adequate canteens/food outlets covering all visited areas should be ensured by the

hospital authorities. The food should be hygienic, affordable and of locally acceptable cuisine. Unauthorised entry by walk-in hawkers and sellers must be prohibited in the campus and restricted by the security services and unauthorised vehicles should be towed away.

iv. Overcrowding as contributor to pollution

Mitigation measures:

Overcrowding is considered as contributor to environment pollution from somewhat to a great extent. The various factors are lack of online or staggered appointments, tele-consultation, adequate waiting areas, appropriate/effective referral policy/system from other states or hospitals in Delhi leading to walk inpatients, huge patient-load that exceed the handling capacity of higher centres and long waiting times for admissions. Many attendants accompany a patient due to the acuity of patient and assistance needed.

The various measures recommended for reducing peak of patient flow, queues and waiting are:

- Online and staggered appointments and use of ORS portal.
- Queue management and token system by Security Services.
- Increased number of OPD registration counters.
- Dedicated department-based registration counters in respective department OPDs for decongestion of the main registration complex.
- Dedicated counter for Senior Citizens, Handicapped, Pregnant Ladies, Cancer patients etc.
- Token system for OPD Consultation.
- Evening OPD should also be run.
- Screening OPD.-Efficient feedback mechanism- Efficient feedback mechanism including “Mera Aaspataal” portal, public suggestion and feedback boxes.
- One patient one attendant policy.
- Patient facilitation services through patient care coordinators and Aao Sath Chale Services and provision of trolleys and wheelchairs readily available.
- Admissions coordinated through assigned resident doctors and called only on booked operation theater slots and beds.
- Designated fixed visiting hours and visitor passes.
- Creation of additional waiting areas with public facilities.
- Resting places or dharmshalas - The existing capacity may be augmented.
- e-Sanjeevani platform and tele-consultation.

v. Lack of green cover/belt

Vegetative cover in hospitals usually comprises trees along the boundary, along roads with shrubs interspersed. At time, there is enough empty open spaces to accommodate trees and also other vegetative cover along the boundary walls.

Mitigation measures:

There should be adequate green cover and proper inventory of trees in Hospitals. Hospitals should carry out regular and special plantation drives on Independence Day, Republic Day, Swachhta Pakhwada, World Environment Day for renewal and replacement of trees identifying all such places in the campus, where plantations can be done. Appropriate places need to be identified within the campus for the installation of potted plants. Climbers need to be raised to prevent heating of surfaces. The boundary walls may have climbers planted along sections where the space is not available for raising trees. Vertical gardens and roof gardens may be developed. A Comprehensive Landscape Development plan should be worked upon along with the existing master plan of hospitals to address the greening of campus along with additional water harvesting, green roofs etc. Herbal garden should be developed with the help of CPWD and Horticulture department. Regular upkeep should be done by a dedicated team of malis under the supervision of civil engineers. Gardens should be re-developed and more resilient & perennial plants should be planted.

vi. Noise Pollution

Factors contributing to noise pollution are use of DG sets, patient crowd, vehicle outside campus in surrounding roads, honking by vehicles, heavy equipment / high vibration equipment and equipment in ICUs etc.

Table 3 : Mitigation measures for noise pollution

S. No.	Common contributor	Mitigation measures	Responsibility
1.	Use of DG sets	Acoustic enclosures Following DPCC norms	Engineering Services Division
2.	Honking by vehicles	No Honking Zone Penalties/fines Signage	Police (outside) Security Services (inside)
3.	Heavy equipment/ high vibration equipment	Sound proofing. Regular maintenance by the concerned agencies. Proper platform is made for absorbing the vibration as per guidelines.	Engineering Services Division

4.	Equipment in ICUs	Centralised monitoring system maintenance programs.	Equipment	Stores & user department
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4. PROHIBITED AND REGULATED ACTIVITIES IN HOSPITALS

a. Prohibited Activities

- i. Smoking or chewing of tobacco. “The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003” or COTPA, 2003.
- ii. Alcohol Consumption or Narcotics.
- iii. Spitting in public places.
- iv. Open urination or defecation.
- v. Use of mercury-based sphygmomanometer and thermometers.

b. Regulated Activities: The regulated activities in hospitals and measures recommended to address such activities are as follows:

- i. Waste generation and management: All types of wastes such as Bio-Medical Waste (BMW) management including consent to establish, operate and authorisation, solid waste management, liquid waste management, e-waste management, hazardous waste etc. are regulated and compliance must be ensured as per the statutory requirements.
- ii. Maintenance activities for upkeep of various buildings of the hospital are also considered as a regulated activity.
- iii. Control of Emissions from DG Sets: The D.G sets must comply with regulatory norms.

c. MANAGEMENT OF PROHIBITED AND REGULATED ACTIVITIES

i. Prohibited Activities

Table 4: Mitigation measures for prohibited activities

Sr. No.	Prohibited Activities	Mitigation measures	Responsibility
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1.	Smoking or chewing of tobacco. "The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003" or COTPA, 2003.	Posters at strategic locations for both education/awareness and information regarding it punishable offence and quantum of penalty. Fine as per rule facilitated through Security Services.	Hospital Security Services
2.	Alcohol Consumption or Narcotics	Posters at strategic locations. Complaint to police through Security Services.	Hospital Security Services
3.	Spitting in public places	Posters at strategic locations. Fine as per rule through Security Services.	Hospital Security Services
4.	Open urination or defecation	Availability of adequate urinals/ toilets at all patient care and waiting areas.	Engineering Services Department/CPWD
5.	Use of mercury-based sphygmomanometer and thermometers	Purchase and disposal policy of mercury free items	Hospital Stores/ Purchase Department

ii. Regulated Activities

Measures recommended to address such activities are as follows:

A. Waste Generation and Management: Compliance must be ensured as per the statutory requirements.

B. Maintenance activities for upkeep of various buildings. The dust particles can be suppressed by water sprinkling as detailed in relevant section.

C. Control of Emissions from DG Sets: The D.G sets must comply with regulatory norms. The Retrofitted Emission Control Device (RECD) or Dual fuel mode and compliance of emission standards as per latest directions under Section 12 of the Commission for Air Quality Management in National Capital Region and Adjoining Areas Act 2021 - Regulations for use of DG sets in NCR must be ensured.

The Graded Response Action Plan (GRAP) for NCR (Revision: October 2023) by Commission for Air Quality Management in National Capital Region and adjoining areas has been classified under 4 different stages of adverse air quality in Delhi viz.:

- a. Stage — I 'Poor' (AQI 201 - 300): Ensure that Construction & Demolition (C&D) materials and waste are properly stored/ contained, duly covered in the premises. Ensure transportation of C&D waste in covered vehicles and its recycling at an appropriate processing facility. Strictly enforce directions and yardsticks for use of anti-smog guns at C&D sites. Intensify use of anti-smog guns, water sprinkling and dust suppression measures in road construction / maintenance / repair projects.
- b. Stage — II, 'Very Poor' (AQI 301-400): Avoid dust generating construction activities during months of October to January.
- c. Stage — III 'Severe' (AQI 401-450): Hospitals are exempt from strict ban on construction, subject to strict compliance of the C&D Waste Management Rules, dust prevention/control norms including compliance with the directions of the Commission issued from time to time in this regard.
- d. Stage — IV 'Severe +' (AQI >450): No specific mention of hospitals.

5. WASTE MANAGEMENT AND POLLUTION CONTROL

There should be designated officials authorised for ensuring compliances to statutory requirements. The hospitals consider that there are no gaps in the statutory or administrative provisions that have led to inadequate control of air or other pollutions in and around hospital that are detrimental to the health of occupants / visitors of the hospital. However, need of environment engineer is felt.

a. WATER WASTE

Effluent and Sewage management: The effluent and sewage generation is being treated through sewage treatment plants (STPs) and effluent treatment plants (ETPs). There should be designated officials authorised for ensuring regulatory compliances. Hospitals have provisions of Sewage Treatment Plant (STP) and Effluent Treatment Plant (ETP). Monitoring of compliance to waste discharges under regulatory compliance is through monitoring system integrated with DPCC as per guidelines. Qualified and experienced manpower to operate and supervise functioning of these facilities are available. However, posting of environment engineer is suggested for improving the supervision. Treated ETP/STP water is used in construction, flushing in toilets and horticulture purpose.

b. SOLID WASTE

Solid waste management must be as per Solid Waste Management Rules, 2016. Regular reporting should be done and uploaded on website in compliance with the said rules. There should be designated officials authorised for ensuring regulatory compliances related to solid waste such as Additional Medical Superintendent, Officer In charge / Link / Medical Officer (sanitation). Dumping of waste around hospitals is not encouraged and is prohibited. In hospitals, it should be segregated, collected and transported as two categories i.e., blue, and green wastes. Compost machines and bulk waste generator under SWM Rules, 2016 should be installed and operationalised or the municipal corporation manages the solid waste. There should be proper segregation of Bio-Medical Waste and common municipal solid waste (MSW). It is ensured through the BMW Management Committee and the allied staff deployed. The hospitals have different policies for segregation, colour coded bins, trolleys, handlers, collection system and separate collection sites for Bio Medical Waste Management under BMW unit and Municipal Solid Waste Management according to rules for proper segregation.

Compliance of SWM Rules, 2016 should be ensured in the hospitals by daily routine rounds/ inspections carrying out for ensuring proper segregation. Appropriate coloured garbage bins are placed at every 100-200 meters. Garbage prone or vulnerable points should be eliminated. Timely collection of waste from the central storage area by Municipal Corporation or authorized vendor should be ensured.

The wet waste should be processed within premises using organic waste re- processor/composting machines or should be taken by the municipal corporation.

Dry waste is generally collected and managed by the municipal corporation. Hospitals are now being mandated to recycle the dry waste through material recovery facility established in campus.

The area outside the buildings should be cleaned two to three times daily or as and when required.

Water sprinkling to suppress dust clouding should be carried out in hospitals. Mechanised brooming machine with automatic sprinklers or manual should be carried out. Mechanised cleaning should be carried out.

Burning of waste must not be allowed / should be prohibited and enforced through the security services. Effective waste management policy/system and its compliance prevent the burning of the waste. Training and raising awareness among waste handlers on regular basis and monitoring by sanitary supervisors also contribute to prevent it.

The Hospital Administration should monitor cleanliness and removal of waste. Regular rounds,

inspection of the sites, monitoring of services & records and meetings should be held. The department of sanitation services should be under the direct control of Medical Superintendent(s). There should be Officer In charge(s) who oversee the functioning and policy making. There should be dedicated team of Sanitation Officers, inspectors to supervise and outsourced staff that carry out cleanliness and collection of waste. Necessary building infrastructure, equipment and material should be available for effectiveness. There can be a sanitation and cleanliness committee. Periodic rounds are being taken by the designated members of the committee.

Hospital Administration should visit and inspect the waste processing facilities on regular basis or once in six months.

The hospitals should plan to phase out mercury based apparatus (if not done already) by 2025 in line with the obligations of Minamata Convention on mercury.

c. PEST CONTROL

The department of community medicine, engineering services or the administration directly monitor the services. The services of pest and vector control can be either managed in-house if the expertise is available or can be outsourced to experienced expert firms under the supervision of sanitation officers/inspectors and guidance of officer in charges. The material used should be as per the World Health Organization Pesticide Evaluation Scheme (WHOPES) and other guidelines in vogue that ensures that vector control products and public health pesticides active ingredients are effective, safe and meet stringent quality and manufacturing standards. Adequate numbers of appropriate chemical spray machines should be ensured.

d. CONDEMNATION OF HOSPITAL ITEMS

There are various categories of waste material that are generated in the hospital such as general, furniture, machinery and equipment, linen etc. Respective stores should carry out regular periodic condemnation through e-auction as per hospital policy and collected by government approved vendors so that no condemned items accumulate. Committees also monitor or there are nodal officers or condemnation department.

e. BIO-MEDICAL WASTE (BMW) MANAGEMENT

BMW should be managed as per BMW Rule, 2016 that includes segregation, collection, storage, transfer and disposal. Hospitals should have designated officials authorised for ensuring regulatory compliances related to BMW management. Hospitals should have consent to operate and BMW authorisation in compliance with the existing BMW Management Rules. In compliance with the BMW management rules, the disposal will be at a Common biomedical waste treatment facility or in-house as per the guidelines in the said rules. No healthcare facility shall setup onsite BMW treatment

facilities if a Common Bio-Medical Waste Treatment Facility (CBMWTF) exists within 75 km of distance.

Proper segregation of different categories of BMW should be ensured by the segregation at the point of waste generation into various categories using appropriately colour coded bins, bags, cardboard boxes and puncture proof containers with needle destroyers.

Pre-treatment of lab/microbiological waste/blood samples/blood bags should be done through autoclaving and microwaving.

Designated well-ventilated and secure area for temporary storage of BMW should be available in all hospitals. Proper bar code mechanism should be in place. Designated website/webpage for online uploading of the monthly BMW reports should be functional.

f. RADIO-ACTIVE WASTE MANAGEMENT

All hospitals should have Radiation Safety Officers (if applicable), and all radiation equipment should be registered with The Atomic Energy Regulatory Board (AERB). Radioactive wastes generated in the medical facilities using radioactive source for diagnostic and/or therapeutic applications also must meet safety requirements stipulated by AERB. Compliance of safe disposal of radioactive waste in hospitals should be ensured by allowing the technetium 99m and iodine 131 waste to decay for more than 4 half-lives in radioactive waste storage room and then disposing them into general waste as per AERB guidelines. After its life cycle usage, all radioactive waste should be sent to the original manufacturer/supplier of the country, after obtaining due approval from AERB. In case if it is from India, the Board of Radioisotope technology (BRIT), Mumbai is available for safe disposal. Once it is disposed, the hospital/RSO should ensure to intimate AERB for the compliance of safe disposal. For patients injected with the radioactivity, there should be a separate toilet for flushing of excreta.

Radioactive leaks:

In case of emergencies such as radioactive leakage, pre-planned and established structural & non-structural measures should be taken by the various stakeholders including Radiation Safety Officer to minimize risks to health, life and hospital environment. These situations need to be intimated to the national safety regulatory authority. Similarly, radiation disaster management should be dealt by competent authority established with guidance and stipulated procedures.

There should be set protocol to be followed in case of a radioactive spill:

Minor Spill:

- i. Notify the person in the area that a spill has occurred.

- ii. Prevent the spread by covering the spill with absorbent paper.
- iii. Survey with low range, thin window GM based survey meter or an appropriate contamination monitor, check the area around the spill, hands and clothing for contamination.
- iv. Clean up using disposable gloves and handling tongs. Carefully fold the absorbent paper. Insert it into a plastic bag and dispose of in the radioactive waste container. Also insert all other contaminated materials such as disposable gloves into plastic bag.
- v. Report the incident to the Radiation Safety Officer.

Major Spill:

- i. Call for help: Notify the Radiation Safety Officer.
- ii. Clear the Area: Notify all the persons not involved in the spill to vacate the room.
- iii. Prevent the spread: Cover the spill with absorbent material, but do not attempt to clean it up. Confine the movement of all the personnel potentially contaminated to prevent spread of contamination.
- iv. Monitor: Monitor all people involved in spill for contamination before leaving the room.
- v. Shield the source: If possible, the spill should be shielded, but only if it can be done without further contamination and without significantly increasing radiation exposure.
- vi. Close the room: Leave the room and lock the door to prevent entry.
- vii. Personal decontamination: Contaminated clothing should be removed and stored for further evaluation by Radiation Safety Personnel. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

g. E-WASTE MANAGEMENT

Compliance to E-waste rules should be ensured by annual/periodic bids by the respective Store Sections for e-waste collection and disposal to agency (dismantlers/recyclers) authorized by Delhi Pollution Control Committee (DPCC) and a Green Certificate is provided by agency. Annual E-waste returns should also be sent to DPCC.

6. POLICY RECOMMENDATIONS

There should be a multi-disciplinary inter-agency committee that should address issues impacting the environment and develop/revise the EMP as per the requirements of the area/region/specific institutes. There should be representation from statutory / implementing bodies viz., CPCB/DPCC,

NDMC, MoEFCC, Delhi Police, Traffic Police, Civil society, NGOs etc. All hospitals should have regular environment engineers on rolls of the hospital who should coordinate/liase and implement the environment management plans.

7. TRAINING

Civic consciousness is essential to ensure implementation of statutory requirements, therefore hospitals should carry out regular trainings and awareness programs highlighting the negative impact of environmental hazards. There should be an annual training schedule and all staff must be covered. Trainings should also be conducted on occasions such as Environment Day and Swachhta Pakhwada. Environment related topics should be included in the induction training of newly joined Nursing Officers and Resident doctors and as a component of in-service education system. The IEC (Information Education and Communication) posters should be placed at all the sites where the wastes are generated. IEC videos can also be played on LED screens. Various competitions such as poster making, essay writing competitions etc. may also be held to promote awareness of environment management. Regular audits should be conducted with feedback to the concerned departments and the competent authority. Trainings of outsourced employees must be ensured using a mandatory responsibility clause in tenders with submission of proofs and penal provisions in case of non-compliance. Use of vernacular language in trainings and bilingual posters in IEC material will prove to be more effective in view of education of the staff involved in waste management activities. Street plays or nukkad nataks with participation by key stakeholders may also be conducted.

8. NEWER TECHNOLOGIES

Newer technologies to mitigate ambient air pollution and fugitive emission such as pulse radio wave frequency machines need to be explored. More research in the domain should be carried out.

9. CONCLUSION

The Environment management plan provides for the safety of the occupants of hospitals of both patients and the staff by filling the gap of integration of the various statutes applicable to the hospitals and those generally applicable in the immediate vicinity. The plan identifies such pollutants and factors that can adversely impact the environment. It suggests the mitigation measures and delineates the responsibilities of the various stakeholders within the hospitals and role of the government agencies bringing together a multidisciplinary and multi-pronged strategy to holistically address the issue.