Green and Clean Hospital Management System-Part I (GCHMS-PI)- Green & Clean Standard for the Health Care Organizations (HCOs)

Healthcare Organization Environmental Management System Requirements Module

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Basic Environment Management Requirement

EMR 1: Hospital shall develop, document and implement basic environment management system to address the requirements covered in this standard.

1- Hospital shall have documented policy towards GREEN & CLEAN concepts and ensure that it is communicated and implemented at appropriate levels within the hospital.
2- Hospital shall designate member of senior management to ensure compliance of the standard.
3- The Management shall review the outcomes of all the objective elements on regular basis and ensure timely corrective actions. The management shall also review the decisions taken by various committees in reference to adherence of the standard.

Structural Requirement

SR 1	**Organization shall have a defined criteria for construction requirement**.

1. The HCO shall fulfil the norms of National/ local statutory bodies, towards environment protection and safety.

- **Remarks**: This shall include design, construction, renovation, expansion, and operation of health care facilities.

- Guidance Note: HCO shall follow The International Building Code (IBC) Guidelines, International Private Sewage Disposal Code, and the applicable National Building guidelines for hospitals and health care units.

2. Hospital shall ensure that approved up-to-date drawings are maintained with the site layout, floor plans, and fire escape routes.

- **Remarks**: The up-to-date layout plan should have an approval from local Government Bodies/departments/Municipal Corporation / local bodies or Panchayat.

3. Hospital shall have a strategy for selection of site of construction.

- **Remarks:** Hospital shall take into consideration the factors detailed by WHO .Hospital shall avoid development of inappropriate sites to reduce the environmental impact. These sites shall include the following: Greenfield sites are places that have never been built on before. Brownfield sites are places that have been built on before but now are disused. Grey field (are similar to brown field) sites are economically obsolescent, outdated, failing, moribund and/or underused real estate land.

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- Guidance Note: Environmental Impact Assessment by approved agency is recommended before starting the construction, Coastal Regulation Zone notification & the Biological Diversity Act requirements should be considered if applicable. Local/National Environment Protection Act - An Act to provide for the protection and improvement of environment and for matters connected there with. Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development, of EPA can also be used as a good guiding reference. United States Environmental Protection Agency: Healthcare and Social Assistance Sector (NAICS 62) https://www.epa.gov/regulatory-information-sector/healthcare-and-social-assistance-sector-naics-62 can also be a good reference.

4. Hospital shall ensure conservation and preservation of available natural resources.

- **Remarks:** HCO shall ensure optimization of the use of natural resources (water, land, soil etc.) during construction. Efforts shall be made to plan for rain water harvesting at the construction site.

- Guidance Note: 'Rainwater Harvesting' is an important component for achieving the goals of 'Water Security, Shelter Security and Ecological Security. The National applicable mandatory rain water harvesting should be followed.

5. Hospital shall have a plan & monitoring mechanism during construction to reduce noise pollution, air pollution, soil erosion and airborne dust generation.

- Guidance Note: Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development of EPA and the applicable national rules there under and Noise Pollution should be taken into consideration.

6. Hospital management shall ensure that environmental aspect impact studies shall be carried out for hazard identification & risk assessment (HIRA) for material usage in construction.

- **Remarks:** Hospital management shall ensure that the material used for construction is not harmful for the occupants, environment and neighbours.

- Guidance Note: HIRA study to prevent, prepare, mitigate, respond and recover from a myriad of hazards should be initiated. Emergency Management and Civil Protection Act, Ontario, provides guidance for risk assessment for natural, technological and man-made hazards. The Chemical Accidents (Emergency Planning, Preparedness, and Response) applicable Rules in the country can be a good reference point for preparedness and response, during operation of on-site and off-site Emergency Plans during chemical disaster.

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SR-2	Organization shall have a defined criteria for facility requirement

1. Hospital management shall ensure that it complies with the laid down and applicable legislations and regulations required for the facility.

   - **Remarks:** Hospital shall ensure optimal natural open space for the patients, families and staff members.

   - Guidance Note: Inter National Building Code (IBC) and Applicable National Regulations for hospitals/health care units can be referred.

2. Hospital shall adhere to statutory norms to ensure facility, patient and staff safety in all areas

   - **Remarks:** Objective of facility safety is to provide employees with a safe and healthy workplace. A safe work environment ensures continued productivity by minimizing lost work days and work restrictions due to injuries.

   - Guidance Note: A good reference is Health Technical Memorandum (HTM) 2022 and NFPA's Medical Gas and Vacuum System Installation Handbook. The organization shall adhere to statutory provisions of National Explosive Regulations, Handling of Hazards/ Gases Rules and Static and Mobile Pressure Vessel (unfired) Rules. Occupational Safety & Health Administration (OSHA) standards provide information on the rule making process for workplace health and safety. OHSAS 18001 is an international occupational health and safety management system specification can also be referred to.

3. Hospital shall ensure optimal natural light in all facility areas.

   - **Remarks**: Hospital shall ensure that light pollution is not created. (Light pollution is excessive, misdirected, or obtrusive artificial light).

4. Hospital shall ensure effective site development planning and material containment within the construction site.

   - **Remarks:** Site development and boundary planning shall be done so that the neighbourhood is least impacted.

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- Guidance Note: Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development, EPA Federal Environmental Requirements for Construction, EPA, www.epa.gov,can be referred.

5. Hospital structure shall provide proper sidewalk, free standing facility for public transport, parking to satisfy patient & staff requirement and roads to avoid impacting neighbourhood by its structure.

- Guidance Note**:** Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development, EPA Federal Environmental Requirements for Construction requirements can be referred. www.epa.gov

6. Hospital shall ensure contamination detection, monitoring and prevention plan within the facility.

- **Remarks:** Community is not contaminated by any kind of leakage and spills in air, material or water.

- Guidance Note: Patient decontamination recommendations for hospitals, prepared by The Hospital and Healthcare System Disaster Interest Group & The California Emergency Medical Services Authority, EMSA #233, July 2005. Environment Protection Act and Rules and applicable. The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules can be referred.

7. Hospital shall ensure that Heating, ventilation and Air-conditioning (HVAC) shall protect the environment & not contaminate the environment in any form.

- Guidance Note: American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHARE) guidelines **c**an be good resource**. National** Environment (Protection) Act and Rules and other applicable National Ambient Air Quality Monitoring Rules can be refereed

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8. Hospital shall ensure that it establishes criteria for evaluation & acceptance of the environment friendly material usage for the facility.

- **Remarks**: Eco-friendly means earth-friendly or not harmful to the environment. This term most commonly refers to products that contribute to green living or practices that help conserve resources like water and energy. Eco-friendly products also prevent contributions to air, water and land pollution.

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- Guidance Note: Applicable Plastics Manufacture and Usage and Material Handling Rules applicable to Hospitals can be referred.

9. HCO shall ensure that required scavenging systems are installed for keeping the facility safe.

- **Remarks:** Scavenging system is the collection and subsequent removal of waste anaesthetic gases. Anaesthesia Gas Scavenging System (AGSS) should be installed in all areas where anaesthetic agents are being used.

- Guidance Note: International/National Guidelines can be followed for AGSS

10. Hospital shall ensure that cleaning of clinical areas like OT, ICU & other high risk area and cleaning of the facility is maintained all the time by establishing cleaning protocol and process for the entire building and all the areas in the hospital especially areas like Toilets, lifts, storages, kitchen, maintenance yard, roof top etc. (7.1)

- **Remarks:** self-explanatory

11. HCO shall also ensure that the facility is inspected periodically for cleaning, leakage / seepages, cracks etc and painting and landscape / vegetation of indoor and outdoor environment is maintained all the time. (9.1.1)

- **Remarks** A checklist can be prepared and schedule to be adhered in accordance to institutional priority.

SR-3	**The organization shall have a plan for optimum usage and conservation of water resources.**

1. Hospital shall have a plan for water usage for the whole facility which includes measurement, reduction and verification.

- **Remark:** Water conversation shall encompass the policies, strategies and activities to manage fresh water as a sustainable resource, to protect the water environment, and to meet current and future human demand. Water Footprint can be identified as a parameter for water performance monitoring as per ISO 14046. Water meters at different areas should be installed to measure the flow.

- Guidance Note: Applicable Water Preservation Rules/ Guidelines can be followed. EPA Federal Environmental Rules/Regulations and Requirements for Water and Sewage Utilities sectors (https://www.epa.gov/regulatory-information-sector/water-and-sewage-utilities-sector-naics-2213) can be referred.

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2. Hospital shall have a plan and process for accountability and optimization of building water performance.

   - **Remark:** This shall improve the accountability of water performance in HCO2

   - Guidance Note: Applicable Water Preservation Rules/ Guidelines can be followed. EPA Federal Environmental Rules/Regulations and Requirements for Water and Sewage Utilities sectors (https://www.epa.gov/regulatory-information-sector/water-and-sewage-utilities-sector-naics-2213) can be referred.

3. Hospital shall have a water conservation strategy.

   - **Remarks:** Hospital shall have an alternate source of water available at the facility. Water balance shall be based on the law of conservation of mass, which should be implemented to optimize withdrawal, consumption and discharge.

4. Hospital shall have a plan for usage of potable water.

   - **Remarks**: Potable water is defined as water which is fit for drinking. The parameters which need to be evaluated are; colour, turbidity, pH and the organoleptic (aesthetic) parameters (taste and odour) along with coliform counts. HCO shall ensure disinfection of water: use of Chlorine 0.2 ppm.HCO shall ensure softening of water, wherever required.

   - Guidance Note: National Standard Specifications for Drinking Water can be followed. Applicable Water Preservation Rules/ Guidelines can be followed. EPA Federal Environmental Rules/Regulations and Requirements for Water and Sewage Utilities sectors (https://www.epa.gov/regulatory-information-sector/water-and-sewage-utilities-sector-naics-2213) can be referred.

5. Hospital shall have a plan for recycling of water.

   - **Remarks:** Water recycling is reusing treated wastewater for beneficial purposes such as landscape irrigation, toilet flushing, and replenishing ground water basin.

   - Guidance Note: Applicable Water Preservation Rules/ Guidelines can be followed.EPA Federal Environmental Rules/Regulations and Requirements for Water and Sewage Utilities sectors (https://www.epa.gov/regulatory-information-sector/water-and-sewage-utilities-sector-naics-2213) can be referred.

6. Hospital shall obtain consent from regulators for waste water treatment

   - Guidance Note: National guidelines on bio medical waste management can be followed.

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7. Hospital shall have a plan for installing an aerobic/oxygenated sewage treatment system where effluents can be used for irrigation.

   - **Remarks**: Effluent treatment plant should remove biological or chemical waste products from water, thereby permitting the treated water to be used for other purposes.

   - Guidance Note: National guidelines on bio medical waste management can be followed. United States Environmental Protection Agency regulations for Medical waste can also be followed. https://www.epa.gov/rcra/medical-waste

8. Hospital shall have an ongoing educational program for efficient usage and conservation of water for all stakeholders (staff, patient and visitors)

   - **Remark:** Education content should be prepared for all faculty and staff. Booklets, brochures and boards can be used for Information Education and Communication (IEC) for public.

SR-4	**The organization shall have a plan for optimum usage and conservation of energy resources.**

1. Hospital shall have a plan for installation of energy system compliant to statutory norms.

   - Guidance Note: Electricity Regulations/ Energy conservation Laws.

2. Hospital shall develop an energy conservation plan.

   - **Remarks**: Energy conservation refers to reducing energy consumption through using less of an energy service. This is the most cost-efficient way to reduce energy use.

   - Guidance Note: National Energy Conservation regulations/Rules can be a good reference note..

3. Hospital shall have a strategy for optimization of energy usage and saving.

   - **Remarks:** Energy optimization refers to systematic controlled reduction in the voltages received by an energy consumer to reduce energy use and power demand.

   - Guidance Note: National Energy Performance Optimization Guide can be a good reference

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4. Hospital shall have proper accountability for measurement and verification of all energy usage

   - **Remarks**: Self explanatory

   - Guidance Note: National Energy Conservation regulations/Rules can be a good reference note.

5. Hospital shall develop a plan for usage of renewable energy. (6.1.4)

   - **Remarks:** Renewable energy is defined as energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain and geothermal heat. This shall be planned for self-supply to reduce impact on environment. Hospital can focus more on generation of solar energy, biogas etc.

   - Guidance Note: International/National Policy on Biofuels can be a good reference

6. Hospital shall have a plan for refrigerant management so it does not impact the environment

   - **Remark**: Refrigerant management plan includes existence of practices that maximize recovery and recycling of ozone-depleting substances (both chlorofluorocarbons [CFCs] and hydro chlorofluorocarbons [HCFCs] and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment. Hospital shall ensure phasing out of the ODS (Ozone depleting substances) as refrigerant.

   - Guidance Note: Applicable Environment Protection Act can be a good reference.

7. Hospital shall ensure energy audits of the building.

   - **Remarks**: An energy audit is an inspection, survey and analysis of energy flows for energy conservation in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s).

   - Guidance Note: Energy Management System can be good reference.

8. Hospital shall have a policy of using energy efficient equipment and this policy shall be in congruence with the purchase policy.

   - **Remarks**: Energy Efficiency is defined as percentage of total energy input to a machine or equipment that is consumed in useful work and not wasted as useless heat

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- Guidance Note: A good reference point is Energy Star, a joint program of the EPA and US Department of Energy, offering a catalogue of energy-efficient products.Council of Australian Government (COAG) policy on National Strategy on Energy Efficiency, Oct 2008.

9. Hospital shall have an ongoing educational program on conservation of energy resources for staff, patient and / or family member.

- **Remarks**: Training and development calendar should be prepared and feedback of each training programme should be taken for adequate evaluation.

Process Requirement

PR-1	The organization shall have a process for purchase and procurement

1) Hospital shall have a good building management plan in place.

- **Remarks:** The plan should include total cost of ownership approach strategies around Procurement, Reduction, Use- Phase Management, Responsible Reuse, and Responsible Recycling.

- Guidance Note: For good building management plan refer to Guidelines for The Construction Establishment and Maintenance of Private Hospital and Day Procedure Facilities, Australia can be a good reference.

2) Hospital shall have an asset management plan.

- **Remark**: An Asset Management Plan (AMP) is a tactical plan for managing an organization's infrastructure and other assets to deliver an agreed standard of service.

- Guidance Note: A good guidance document can be Guidelines for Infrastructure and Asset Management Plan Template, draft v6 for pilot council review**,** Sept 2006.Essentials of asset management, a Zetes white paper, www.zetes.com

3) Hospital shall ensure that there is a documented purchase plan.

- **Remark:** A good purchase plan shall have a process for the project and plan for the most effective management of procurement. Hospital shall include purchase of environment friendly materials which can be reused or recycled as per

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manufacturers' recommendations. Hospital shall have an evaluation criterion of the supply chain with regards environment performance

- Guidance Note: A good reference note is Essentials of Asset Management, a Zetes white paper and U.S. Department of Health and Human Services Medicare Hospital Value-Based Purchasing Plan Development.

4. Hospital shall ensure to procurement of environment friendly products.

- **Remarks:** The product purchased shall be be less toxic, minimally polluting, more energy efficient, safer and healthier for patients, workers, and the environment. The product shall contain higher recycled content, have less packaging and be fragrance-free. Eg: Predictive digital thermometer, use of PVC-free packaging, PTCA Balloon Catheter for various types of therapies

- Guidance Note: National Environment (Protection) Act, and the Rules, North American Green Purchasing Initiative (NAGPI), A Buyer's Guide, www.cec.org/nagpi

5. Hospital shall have a purchase plan in line with infection control, cleaning processes and administrative (cost) policies.

- Guidance Note: National Environment (Protection) Act, and the Rules and North American Green Purchasing Initiative (NAGPI), A Buyer's Guide, ww.cec.org/nagpi

6. Hospital shall establish a purchasing programme (environmentally preferable) and ensure that procurement of cleaning and other janitorial products supports the programme.

- **Remarks:** Hospital shall ensure procurement of material for cleaning (housekeeping) that are environmentally benign or that are less toxic than other products, while still maintaining the high level of cleanliness required within the facility.

- Guidance Note: Environmentally Preferable Purchasing Programme, 1993 and North American Green Purchasing Initiative (NAGPI), A Buyer's Guide, www.cec.org/nagpi

7. Hospital shall have a purchasing policy that reduces purchase of mercury containing equipment unless it is approved by Hazardous Materials Committee (or equivalent).

- **Remarks**: Hospital shall ensure that no equipment contains toxic chemicals, especially mercury.In addition to biological materials like blood, body fluids and microbiological cultures, mercury, nuclear isotopes, medical gases, LPG gas are examples of hazardous material

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- Guidance Note: Hazardous Materials could be identified as per part II of Manufacture, Storage and Import of Hazardous Chemical (Amendment) RulesEliminating Mercury in Hospitals, Environmental Best Practices for Health Care Facilities November 2002, JCAHO. Environment of Care Standards, 1.3, 2.3, 4.0.

8 Hospital shall have plan for end-of-life management for purchased or inherited equipment till final disposition, including take-back, refurbishment, resale, and responsible donation or recycling.

- **Remarks:** End of Life Management defines waste as substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of – Basel Convention1 on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the 'Basel Convention').Hospital shall ensure product register guidance of the ideal end of life usage of the equipment.

9. Hospital shall develop and implement an office supply and product purchasing policy (environmentally preferable) and educate employees on the environmentally preferable office products.

- **Remarks:** Hospital shall have periodic calibration of office equipment with respect to environment friendly purchasing and market availability of those products.Hospital shall have a furniture purchase plan by using environmentally preferred material and in line with infection control and cleaning processes.Hospital shall ensure that furniture is less toxic, less harmful and environment friendly.

- Guidance Note: Eliminating Mercury in Hospitals, Environmental Best Practices for Health Care Facilities, November 2002, JCAHO. Environment of Care Standards, 1.3, 2.3, 4.0

10. Hospital shall develop, implement and annually evaluate a comprehensive chemicals purchasing policy.

- **Remarks:** Hospital shall ensure that sets goal are enumerated for the elimination of harmful chemicals products. At a minimum, the chemicals policy shall requirethe development of a plan of action to address classes of chemicals of concern and HAZMAT (Hazardous Material) shall be carefully evaluated.

- Guidance Note: Guide to Choosing Safer Products and Chemicals Implementing Chemicals Policy in Health Care. North American Green Purchasing Initiative (NAGPI), A Buyer's Guide, www.cec.org/nagpi

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11. Hospital shall have a purchasing policy for vehicles after evaluating the type, size and the number of vehicles required to meet the needs of the facility.

- **Remarks:** Emission performance of the vehicles shall be evaluated on regular intervals. Hospital shall own, contact or lease low emitting and fuel-efficient or alternative fuel (e.g. Biodiesel, compressed natural gas or liquid propane) vehicles.

- Guidance Note: National Motor Vehicle Regulations and Motor Vehicle Rules

PR-2	**The organization shall have a process for material planning and Management**

1. Hospital shall have documented policy and procedures for the selection of environment friendly materials and resources used during construction or renovations.

- **Remarks**: This shall also include interior furnishings and furniture.

- Guidance Note: Healthy Hospitals Healthy planet Healthy people - Addressing climate change in health care settings.North American Green Purchasing Initiative (NAGPI), A Buyer's Guide, www.cec.org/nagpi

2. Hospital shall purchase or use materials which have less environmental impact in all areas (construction, structure of facility, furnishing, food, cleaning agents etc.)

- Guidance Note: Federal Environmental Requirements for Construction, refer www.epa.gov

3. Hospital shall use materials which help in toxic waste reduction.

- **Remarks**: Refer U S .EPA waste Management Regulation https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-waste

4. Hospital shall prefer usage of material which can be easily recycled.

- **Remarks**: self-explanatory

5. Hospital shall try to eliminate usage of mercury, lead and carcinogenic items.

- Guidance Note: Eliminating Mercury in Hospitals, Environmental Best Practices for Health Care Facilities, November 2002, JCAHO, Environment of Care Standards, 1.3, 2.3, 4.0

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PR-3	Hospital shall have a process for indoor and outdoor environment management

1. Hospital shall demonstrate initiative by maintaining good indoor and outdoor environment.

- **Remarks:** Hospital shall have walkways, greenery, landscaping, waste management, environment friendly transport etc.
- Guidance Note: Green Guide for Health Care (GGHC)

2. Hospital shall have a plan for maintaining good indoor air quality, lighting and ventilation.

- Guidance Note: WHO, 1987. Air Quality Guidelines for Europe, World Health Organization, Regional Office for Europe, European series, No 23, Copenhagen, Denmark. WHO. National Ambient Air Quality Monitoring Series. Carbon Dioxide Monitoring for Indoor Air Quality.

3. Hospital shall ensure use of low emitting materials used in the facility.

- **Remarks:** Usage of material that contain none or reduced amounts of persistent bio accumulative and toxic chemicals (PBTs), Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs), Halogenated Fire Retardants (HFR), Heavy Metals phthalates, Perfluoro chemicals (PFCs) and other chemicals that can cause harm to installers, staff, patients and visitors.
- Guidance Note: US Environment (Protection) Agency EPA Guidelines can be referred.

4. Hospital shall have a policy for correctly labelling and properly storing all chemicals as per manufacturers' recommendations.

- **Remarks**: HAZMAT shall be identified at each location with proper signatures and segregation. MSDS (Material Safety Data Sheet) shall be displayed for all HAZMAT at each location.
- Guidance Note: Handling of Hazardous Materials Guidelines

5. Hospital shall have no smoking policy to ensure tobacco free zone.

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6. Hospital shall have a plan to ensure chemical and pollutant source control

- **Remarks:** Hospital shall ensure that pesticides and other chemicals used on the exterior of the facility are applied safely by a trained professional and that only the amounts required are used.
- Guidance Note: Handling of Hazardous Materials Guidelines

PR-4	**Organization shall have a process for housekeeping and cleaning agents with defined criteria considering performance / people / planet and pricing**

1. Hospital shall have housekeeping and cleaning policies and procedures in accordance with the size and complexity of the services and shall be aligned with green hospital standards.

- **Remarks**: HCO shall have a selection procurement committee which gets guidance from Infection Control Committee. The hospital shall have procedures to assist the housekeeping personnel to carry out their assigned duties while practicing infection control activities.
- Guidance note: A good reference is CDC Guidelines for Disinfection and Sterilization in Health Care Facilities.

2. Hospital shall have defined criteria for selection of housekeeping products.

- **Remark**: Criteria for selection shall refer to use of non-hazardous cleaning agents. These are agents that reduce environmental pollutants; dialysis / haemodialysis cleaning agent should be non-formalin, and where no alternatives are available like storing pathological specimens in formalin, HCO shall otherwise not use formalin products. HCO shall ensure reduction of Volatile Organic Compound (VOC) emissions inside and outside buildings.
- Guidance Notes: A good reference point is criteria for selection in Environmental Best Practices for Health Care Facilities | November 2002 , JCAHO Environment of Care Standards 1.3,2.3,4.0.Guidelines for Buying Environmentally Preferable Products.

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3. Hospital shall have a protocol for Cleaning of Products, Materials and Equipment (environmentally Preferable)

   - **Remark**: Hospital shall procure cleaning products and materials that are environmentally benign or that are less toxic than other products while still maintaining the high level of cleanliness required in the facility.Hospital shall prohibit products that are manufactured with carcinogens, mutagens and teratogens aerosols; asthma-causing agents (asthmagens), respiratory irritants, and chemicals that aggravate existing respiratory conditions. Usage of aldehyde products for fumigation and fogging should be banned.

   - Guidance Note: A good reference is CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities .Guidelines for Buying Environmentally Preferable Products .EPA Environment (Protection) rules

4. Hospital shall have an ongoing induction training programme for all the housekeeping staff for the cleaning of all the areas in the hospital.

   - **Remarks**: Hospital shall have an annual training programme for all the staff.

PR-5	The organization shall have a process for management of waste

1. Hospital shall comply with all biomedical waste management rules.

   - **Remark:** Hospital shall ensure biological waste should be disposed as recommended by national regulations. Biomedical waste must be properly managed and disposed of to protect the environment, general public and workers, especially healthcare and sanitation workers who are at risk of exposure to biomedical waste as an occupational hazard.

   - Guidance Note: Refer to BMW Rules, and SPCB, Environment (Protection) Act. National Guidelines on Bio medical Waste Management, under Bio medical waste (Management & Handling), Guidelines for Bio Medical waste, https://www.epa.gov/sites/production/files/2016-

2. Hospital shall have a process to review and improve the waste management plan preferably through a committee consisting of all stake holders.

   - **Remark:** The Hospital Waste Management Advisory Committee shall periodically review the implementation of the rules and recommend amendment. Hospital Waste Management Committee shall establish a policy that seeks to reduce overall waste generation. It shall ensure that all medical waste is properly segregated at the point of origin into properly labelled receptacles, i.e. avoid mixing infectious and other

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medical waste with general garbage; ensure that staff is aware of and trained in the requirements of the waste plan.Hospital Waste Management Committee shall ensure that plastics, anything containing PVC, batteries, mercury containing products and materials treated with flame retardants are not incinerated along with other medical waste as they release toxic and carcinogenic compounds into the air when incinerated.

- Guidance Note: Infection Control Committee can be a part of Waste Management Advisory Committee.

3. Hospital shall have a protocol for collection, transportation, storage and handling of all kinds of waste.

- **Remark**: Hospital shall have a waste management plan for all waste including recyclable, hazardous, bio medical and e -waste and materials. Waste shall be tracked along with a reporting mechanism for its weight or volume and associated cost information.

- Guidance Note: ISO 14051 may be identified as a guidance document.WFN garbage Collection, Law no. 2005-6, Protocol for Disposal of Bio Medical Waste. National Guidelines on Bio medical waste management, under Bio Medical Waste (Management & Handling) Rules 1998.

4. Hospital shall have documented policies and procedures to achieve zero waste through composting and/or recycling and the operations and procurement shall align with the same goal.

- **Remark:** Zero waste maximizes recycling, minimizes waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the marketplace.

- Guidance Note: A good reference to achieve zero waste is UCLA Zero Waste Plan, World Health Organization publication on Safe Management of Wastes from Health Care (Geneva,1999), National Guidelines on Bio Medical Waste Management, World Health Organization publication Safe Management of Wastes from Health Care centre for Disease Control, Standards for Management of Infectious Wastes, Atlanta, GA.

5. Hospital waste management plan shall have documented policies and procedures to prevent contamination of the land associated with improper disposal of toxic, hazardous, infectious or radiological substances.

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- **Remark**: Hospital shall make efforts to prevent land pollution. Land pollution is defined as any physical or chemical alteration to land which cause its use to change and render it incapable of benefits thereon.

- Guidance Note: National Guidelines on Bio Medical Waste Management and Hazardous Wastes Handling Guidelines issued by EPA.

6. Hospital shall have a defined process to select contractors for solid, medical or hazardous waste treatment and shall ensure periodic review.

- **Remark**: Hospital shall verify selected contractors who are licensed and permitted by the state.

- Guidance Note: A good reference is solid waste management. A Guide to Competitive Contracting For Collection Guide, Solid Waste Management Privatization Procedural Manual Medical Waste Collection, Treatment and Disposal.

7. Hospital shall ensure that a solid waste facility is in place.

- **Remark**: Solid wastes are described as residual products which have potential for soil and groundwater contamination

- Guidance Note: A good reference Is Solid-Waste Management A Guide to Competitive Contracting For Collection, Solid Waste Management Privatization Procedural Manual Medical Waste Collection, Treatment And Disposal.

8. Hospital shall ensure that liquid waste management is in place

- **Remarks:** Hospital shall have an effluent treatment plant in accordance with the guidelines of State Pollution Control Board. The hospital shall ensure that a sewage treatment plan is in place and waste water is treated before it is released the water in municipal drains or reused.

9. Hospital shall have clear defined roles and responsibilities of all staff members towards participation in environmental programme.

- **Remarks:** A matrix can be designed for all stakeholders.

10. Hospital shall have an educational program for new and existing employees regarding its waste management plan.

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- **Remarks**: Hospital shall conduct orientation classes on biomedical waste management for all staff members

PR-6	**Hospital shall have a process for food purchasing that supports human and ecological health**

1. Hospital shall have sustainable food purchasing policies and procedures.

- **Remarks**: A sustainable food purchasing policy shall enable the institution to move from isolated projects, sustained by the interest and involvement of a few people, to an institutional framework for understanding and making change towards a more sustainable food system.

- Guidance Note: City of Minneapolis Local and Sustainable Food Purchasing Policy Sustainable Food: A guide for hospitals Ben Bradshaw Minister of State for Health.

2. Hospital shall have a policy for food service-ware which shall also be environmentally preferable material.

- **Remarks:** Selection of environment friendly food service ware shall ensure use of less energy and generates much lower levels of air and water pollutants. It also ensures less solid waste in its production, use and disposal.

- Guidance Note: Choosing Environmentally Preferable Food Service Ware. Reusable and Sustainable Bio-based Products, Health Care without Harm.

3. Hospital shall develop and implement a purchasing programme for non-food service ware.

- **Remarks:** All paper-based items - napkins, paper towels, wipes, tray liners etc. shall be procured such that they fulfil environmentally preferred material criteria.

- Guidance Note: Greening Your Purchase of Food Service-ware Environmental Protection Agency.

4. Hospital shall develop and implement a food waste reduction programme.

- **Remarks**: A food waste reduction programme shall encourage businesses to contribute to a more sustainable economy by building waste reduction into

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design and delivery new and improved products and services. Hospital can have donation programme for usable food.

- Guidance Note: Preparatory Study on Food Waste Across EU27 Technical Report, Putting Surplus Food To Good Use – EPA, United States Environment Protection Agency

5. Hospital shall facilitate recycling of food.

- **Remarks:** Recycling of food shall reduce solid waste disposal in landfills. It can also save a lot of money and cause less impact on the environment.

- Guidance Note: Technical Guidelines for Food waste Recycling Projects in Housing Estates, Environment Protection Department, Turning Food Waste into Compost or Energy, Pierce County Coalition for Environmental Health Priorities

6. Hospital shall minimize toxic chemical use in food services preparation and service areas, including cleaning chemicals and pest management.

- **Remarks**: Hospital shall use environmentally preferable cleaning products to clean food preparation and food service areas (cafeterias), kitchen equipment, surfaces and dishware.

- Guidance Note: U.S. Environmental Protection Agency (EPA), Efficacy Data Requirements for Sanitizing Rinses (for previously cleaned food-contact surfaces). . U.S. Environmental Protection Agency (EPA), 40 CFR Parts 152, 156, and 158. Exemption of certain pesticide substances from Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

7. Hospital shall have a process for evaluation of the suppliers, which fulfils environmental impact material criteria.

- **Remarks**: Environmental impact materials are the unwanted byproducts of economic activities which alter environmental conditions such as the acidity of soils, the nutrient content of surface water and the radiation balance of the atmosphere.

- Guidance note: Assessing the Environmental Impacts of Consumption and Production Priority Products and Materials. United Nations Environment Programme (UNEP)

8. Hospital shall have a green cafeteria plan.

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- **Remarks**: Hospital shall have public cafeteria services which shall eliminate usage of bottled water and encourage the use of reusable containers and public drinking fountains.

- Guidance note: Buying for a Better World: A Guide for Sustainable Procurement in the UN UNEP

9. Hospital shall have an educational programme for patient and staff to encourage consumption of food that support and human and ecological health.

- **Remarks**: Hospital shall use educational posters and sessions about food that support human and ecological health

PR-7	**Hospital shall have an educational and training programme for all stakeholders**

1. Hospital shall have an educational programme for staff, integrating environmental programme and its impact on human health.

2. Hospital shall have an infection control training programme emphasizing specially on maintenance of clean environment, neighbourhood to avoid infections.

3. Hospital shall also have awareness and training programme for Hand washing for all the staff, visitors and patients in the hospital.

4. Hospital shall define a training and assessments tools for all the teams to establish a sustainable process to maintain the standards.

PR-8	**Hospital shall have innovations in operation to contribute to green practices**

1. Hospital shall define key organizational stakeholders and involve them in ongoing cross discipline decision-making processes, procedures, protocols and continuous improvement plans.

2. Hospital shall demonstrate a cross discipline approach in operations and maintenance decision-making to ensure implementation of safe, healthful, environmentally sensitive methods and materials.

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3. Hospital shall also demonstrate a reward and incentive plan for beneficial environment friendly initiatives.

PR-9	**Hospital shall have a community and neighbourhood benefit Programme**

1. Hospital shall develop a communication and an educational programme integrating safe and clean environment practices and its impact on human health.

- **Remarks**: This shall include awareness and education of patients, visitors, and the community.

2. Hospital shall have training material for educating patients and the community by developing educational posters, newsletters for a patient education campaign.

- **Remarks**: Public health education campaign in language understood by the staff and community.

3. Hospital shall demonstrate initiative in creating and enhancing awareness among patients, visitors, service providers, vendors and the community about environmental sustainability and its human health benefits.

PR-10	**Hospital shall ensure usage of new techniques and designs to maintain green standards**

1. Hospital shall innovate or demonstrate usage of new technique / s and designs to ensure the reduction of environmental impact in every process.

- Guidance Note: Green Guide for Health Care (GGHC)

2. Hospital shall develop the concept of “Health care without harm”.

- Guidance Note: Green guide for health care (GGHC)

3. Hospitals shall follow strict maintenance standards for critical areas within the premises.

- Guidance Note: Green Hospital Maintenance Standards

4. Hospital shall adopt innovative green technologies to minimize environmental impact.

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- Guidance Note: Green Guide for Health Care (GGHC)

5. Hospitals shall make efforts through new techniques and designs to reduce VOC emission to the maximum possible extent.

- Guidance Note: National Emission Standards for Petrochemicals, EPA Guidelines can be a good reference.

Outcome Requirement

OR-1	**Hospital shall establish monitoring, review & verification of Procedures to maintain the standards.**

1. Hospital shall have indicators to optimize usage of energy and water.

- Guidance Note: Green Hospital Score Card developed by Ontario Health Association. The performance is measured on energy, waste, water, pollution prevention and corporate leadership, planning and management. Energy Performance Optimization Guide,

2. Hospital shall have indicators to measure the waste generation as per the category (hazardous, recyclable, bio medical, e waste etc.)

- Guidance Note: Bio medical wastes Guidelines by EPA.

3. Hospital shall have continuous green standard Improvement projects.

- Guidance Note: Green guide for health care (GGHC)

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