



PUBLIC
HEALTH
FOUNDATION
OF INDIA



Green and Clean Policies to reduce the carbon and environmental footprint

National Institute of Ophthalmology Super Speciality Eye Clinic, Pune

GGHH Agenda Goals

- Energy
- Water
- Waste

Hospital Goal

- Reduce energy and carbon footprint of the hospital and use maximum natural light for building operations
- Reduce water consumption
- Reduce waste

Progress Achieved

- Green policy and its key objectives are communicated and implemented at all levels within the organization
- Knowledge of Green Environment among the members of hospital is enhanced
- Message of Green Environment spread to the community by the initiatives taken up under Green Policy

The Issue

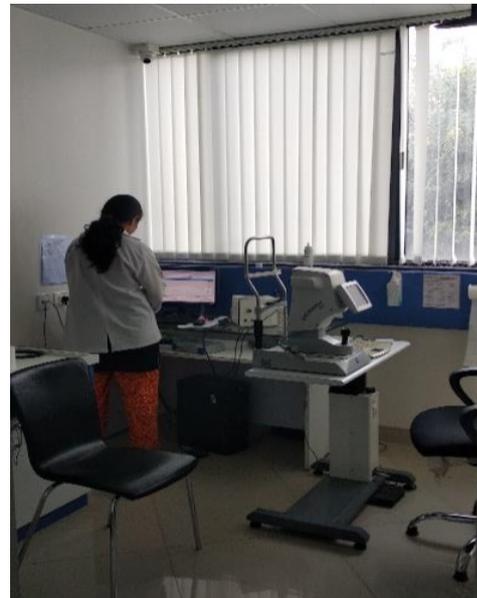
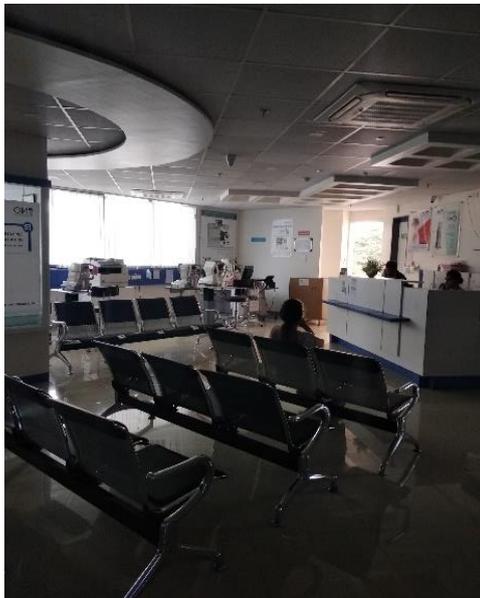
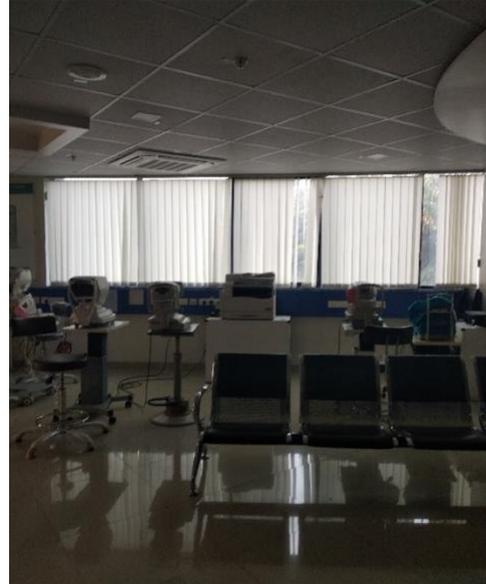
Healthcare is considered among one of the fastest growing sectors in India and spending on it is predicted to increase with time. A report from 2010-11 by the Confederation of Indian Industry (CII) projected healthcare spending to double every five years until 2020. Hospitals, an integral part of this sector, require the latest equipment with uninterrupted power supply for proper functioning. Despite these demands, hospitals have a huge potential for saving energy through efficient and green hospital design. Energy conservation measures, when coupled with architectural designs aimed at harnessing natural light and ventilation, can bring about a reduction of 10% in electricity consumption stated the CII report. This 10% reduction would in turn save up to INR 800 Million every year, the amount needed to meet the capital expenditure requirement of setting up a 150 bed tertiary care Hospital.¹

Green buildings, including hospitals, are constructed in a certain angle of alignment with the sun to enhance the use of natural light. The main orientation of building in the north and south directions

maximizes this use of natural light. Windows are generally located in such a manner so as to ensure ventilation, further increase access to natural light and reduce heat.²

Apart from energy efficient measures, hospitals can also reduce their environmental footprint by minimizing the non-hazardous waste generation through paper recycling, minimal packaging, waste segregation etc. Reduction of water footprint by adopting simple measures like creating awareness among the hospital staff on judicious use of water are among other sustainable or green practices adopted by hospital in India.

Figure 1: Use of Natural Light at NIO hospital building



The National Institute of Ophthalmology (NIO) is one such hospital that has successfully been able to implement energy, water and waste efficiency measures simultaneously in their effort to reduce their carbon and environmental footprints.

Sustainability Strategy Implemented

The management team at NIO led the initiative of adopting a set of Green Policies in 2016 in conjunction with the launch of their newly built environment friendly building in Pune. The major focus was to reduce carbon and environmental footprint of the hospital building by following a set of guidelines and standards. An on campus Green and Clean Committee formulated and implemented these policies and actions.

Steps undertaken to formulate and implement the green policy:

- The management set up a Green and Clean Committee comprised of a Chairman and Secretary along with 3 members and 2 representatives from the hospital staff as the core group.
- The Green and Clean Committee lays out Green Policy and Green Standards for efficient implementation within the hospital with respect to reducing carbon and environmental footprint
- A quality team and an apex improvement committee are in place for providing assistance during the review and audit process of the Green Policy and Standards.
- The policy and standards were devised to have individual strategies for each specific project related to carbon and environmental footprint reduction.

Strategy formulated and implemented to reduce energy/carbon footprint:

- Building is constructed to capture maximum natural light during the day which reduces need for artificial lighting.
- Hospital uses high efficiency and energy saving LED lights for indoor and outdoor applications that are used only when necessary and preferably avoided during the day time.
Hospital uses natural ventilation and light wherever possible reducing the overall contribution to both energy and carbon footprint of the building.
- Committee members and representatives regularly monitor energy consumption through close check on power bills and per unit spent. They take necessary steps to reduce the consumption as and when required.
- The committee monitors hospital's own vehicles and vehicles under the control or influence of the organization to reduce carbon emissions through promoting regular maintenance checks, carpooling, reduce idle timing etc.
- The hospital is working on a plan for using solar energy for heating water that could be used for general operations and functioning.
- The hospital utilizes the diesel generator only as an emergency service and diverts only essential load to it.
- The hospital conducts energy audit at periodic intervals to continually identify opportunities for energy saving.
- Awareness programs organized for the staff about the need and benefits of energy conservation.

Strategy formulated and implemented to reduce environmental footprint- Water and Waste:

- Water meters installed to measure consumption and monitor for overuse/waste.
- Representatives conduct regular checks to prevent any leakages in water taps, toilets and cleaning areas.

- The hospital organizes education programs on a regular basis for staff, patients and visitors regarding different measures that they can adopt for water conservation within the hospital. Posters and educational material on judicious use of water taps in drinking and washing areas are available throughout the hospital.
- The hospital trains grounds and cleaning staff to not leave the taps open when not in use and reuse waste water (non-infectious) for cleaning outdoor areas.
- A bore well is used as an alternative source of water.
- The hospital ensures that they procure only eco-friendly products with minimal packaging and only have contracts with eco-friendly service providers. For instance, using plastic to the minimum and biodegradable material.
- The hospital has developed separate program for waste reduction and its appropriate segregation at the source.
- The hospital ensure that printing on both sides of paper to minimize waste.
- The hospital collects and segregates general waste as per the Pune Municipal Corporation guidelines.
- The hospital plants trees inside and outside the hospital premises.

Implementation Process

- The Chairman and Secretary manage and provide guidance on the overall implementation of Green Policy and Standards with assistance provided by the committee members.
- Two representatives monitor the implementation of Green & Clean Standards with respect to waste segregation at the source (biomedical and general waste), energy consumption and water conservation.
- Representatives provide training and use posters and visuals on each aspect of energy, water and waste to the hospital staff to generate awareness. They provide training per the strategy laid out by the committee and management team for each specific aspect of environmental and carbon footprint reduction.
- The Quality Team conducts audits working closely with the Green and Clean Committee along with its representatives to ensure compliance. Together they also map key performance indicators and monitor surveillance activities.
- The hospital uses the following indicators to monitor and measure performance related to compliance with Green & Clean Standards:
 - Sustainability strategy:*
 1. Compliance to energy saving practices
 2. Compliance to water saving practices
 3. Paper consumption rate
 - Infection Control:*
 4. Compliance to Biomedical waste disposal (as per the Bio-medical Waste Management Regulations of 2016)
 5. Compliance to Hand Hygiene and use of Personal Protective Equipment
 6. Incidence Reporting & Analysis
 7. Incidence of post-operative infection

Tracking Process

The Green and Clean Committee representatives monitor and supervise the Green Policy and Standard. Committee members provide assistance in overall implementation, monitoring and surveillance/In case of any violation or any discrepancy representatives take an account of the matter

which is then raised to the concern of Chairman and Secretary. Hospital management reviews Green & Clean management system separately every quarter to ensure its continuity, suitability, adequacy and effectiveness. The Chairman and Secretary along with committee members and representatives approve any updates or proposals for the renewal of the guidelines and standards.

A Quality Improvement Committee reviews the following:

- Statutory Compliances
- Risk Assessment & Management
- Feedback and suggestions received from external sources in relation to green and clean compliance
- Adequacy of Green & Clean Policy
- Extent to which the Green & Clean objectives have been achieved

Challenges and lessons learned

The hospital staff is successfully able to manage their new building as per the devised policy and standards.

Next Steps

- The hospital management is considering to install solar water heaters and solar panels for power supply on the building. This is aimed at not only reducing the overall energy and carbon footprint but to also bring down the cost of electricity and avail financial benefits.

Demographic information

National Institute of Ophthalmology is a private Ophthalmology hospital in Aundh, Pune. The hospital has recently been established in 2016. It has an old parent hospital branch under the same name that was established in 1993 in Shivaji Nagar Pune.

Links

To know more about Energy Efficient and Green Hospitals:

- <http://www.cii.in/webcms/Upload/CII%20Report%20on%20Energy%20Efficient%20Hospitals%20%E2%80%93%20visiting%20the%20realities.pdf>
- https://igbc.in/igbc/html_pdfs/technical/Green%20Hospitals.pdf

To learn more about NIO, Pune: <http://nioeyes.com/>

Health and Environment Leadership Platform's work and other case studies: <https://www.ceh.org.in/activities/help/about/>

Main contact person information:

Ananya Tewari

Email: ananya@ccdcindia.org

Harshada Oak, Quality Manager, NIO

Email: centerhead@nioeyes.com
Telephone no.: +91-8600005525

Keywords/topics: Green Hospitals, Energy Efficient Hospitals

Submission date: January 2019

References

1

<http://www.cii.in/webcms/Upload/CI%20Report%20on%20Energy%20Efficient%20Hospitals%20%E2%80%93%20visiting%20the%20realities.pdf>

2

<http://www.cii.in/webcms/Upload/CI%20Report%20on%20Energy%20Efficient%20Hospitals%20%E2%80%93%20visiting%20the%20realities.pdf>