“IMPLEMENTATION OF GREEN HEALTHCARE PRACTICES:REDUCING ENVIRONMENTAL IMPACT IN HOSPITALS”

Submitted by :- Dr. Akankhya Jena
Roll No- 1452
Under Guidance and Supervision of
Dr. Piyusha Majumdar

INTRODUCTION

- A Green hospital is one which enhances patient well being, aids in curative process while utilizing natural resources in an efficient environment friendly manner.
- The Green Hospital is defined as a hospital that has taken the initiative to do the one or more of the following:
- choose an environmentally friendly site,
- utilizes sustainable and efficient designs,
- uses green building materials and products,
- thinks green during construction and keeps the greening process going.

A Green Hospital is constructed around a facility that recycles, reuses materials, reduces waste, and produces cleaner air.

Research Question

How does the execution of green healthcare practices in hospital decreases environmental impact?

Research Objectives

1. To identify current environmental practices in selected hospitals.
2. To identify the thoughts of patients and staff associated with green hospitals
3. To provide recommendations for effective green healthcare practices that can be adopted by hospitals.

Research design-This study employs combining quantitative and qualitative data collection and analysis methods to provide a comprehensive understanding of the impact of green healthcare practices.

Study setting and study population-The study will be conducted in four hospitals that have recently adopted or are in the process of implementing green healthcare practices in Bangalore

Sampling Technique and Ethical consideration - Convenience sampling method of sampling was used for the study and a informed consent was taken from the participants of the survey.

Inclusion Criteria:

Hospitals that have initiated green healthcare practices.

Hospital staff involved in implementing and managing green practices.

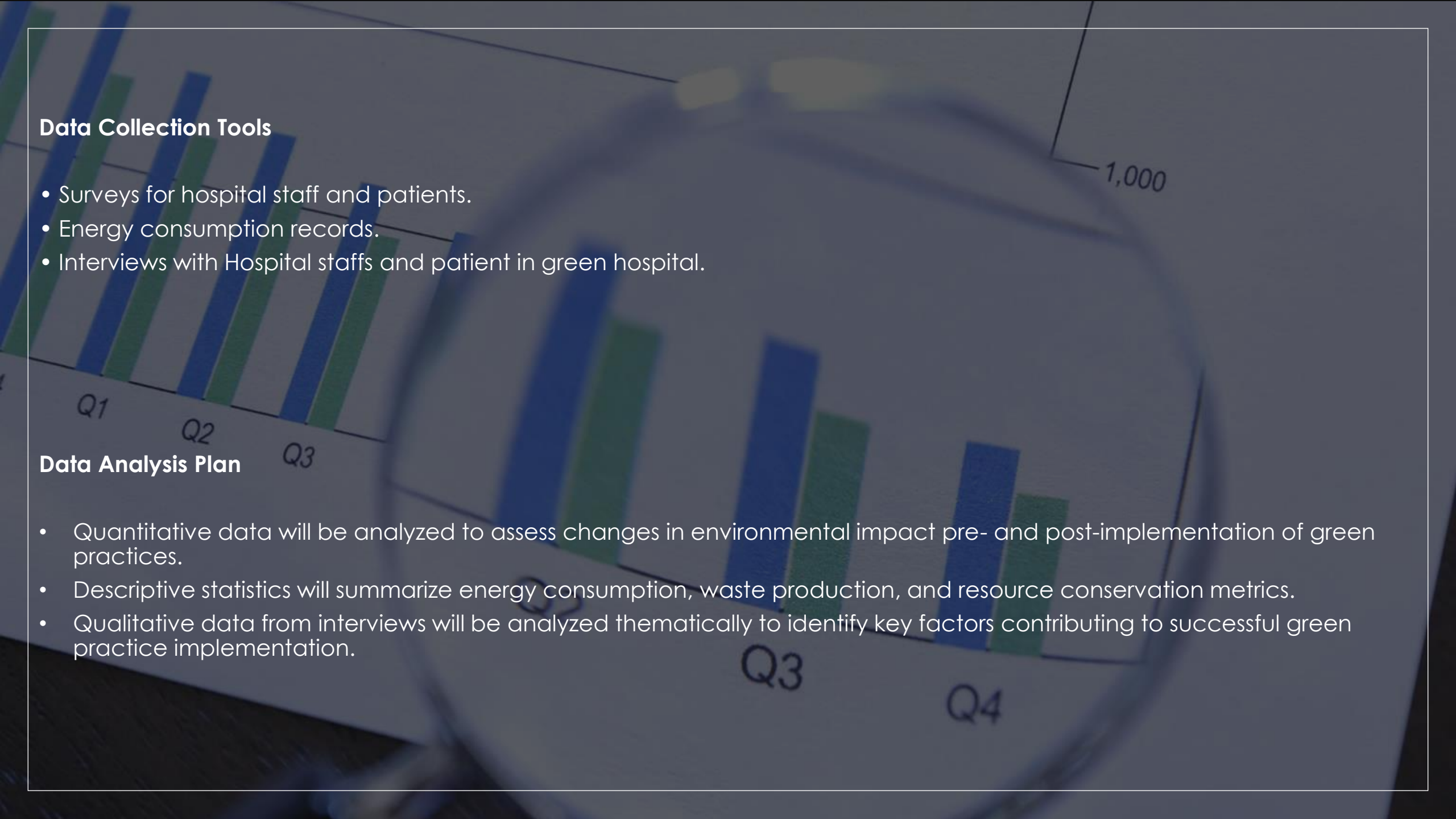
Patients receiving care in participating hospitals.

Participants willing to provide informed consent.

Exclusion Criteria:

Hospitals that have not considered or implemented any green practices.
Participants who decline to participate in the study.

Research methodology



Data Collection Tools

- Surveys for hospital staff and patients.
- Energy consumption records.
- Interviews with Hospital staffs and patient in green hospital.

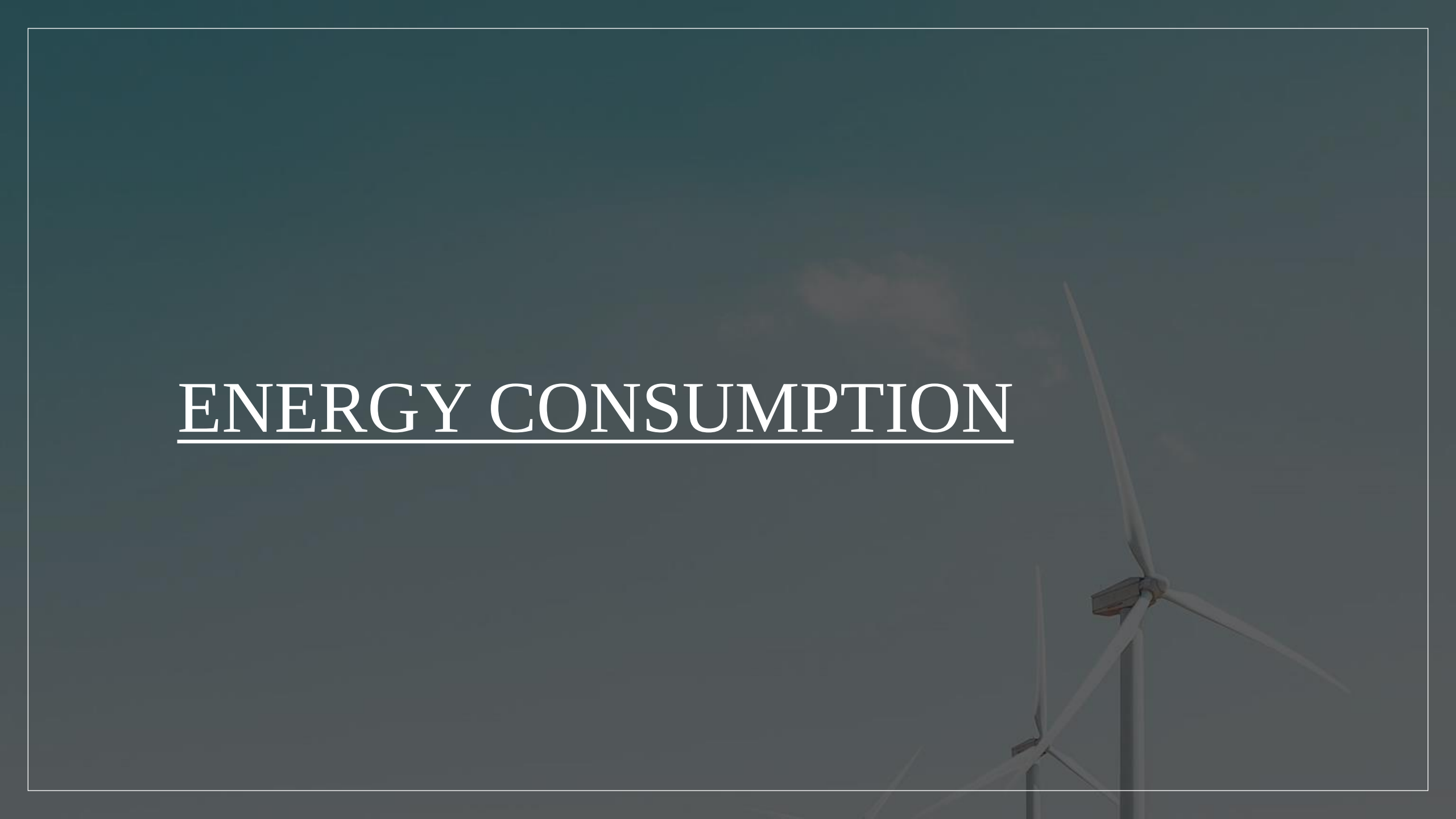
Data Analysis Plan

- Quantitative data will be analyzed to assess changes in environmental impact pre- and post-implementation of green practices.
- Descriptive statistics will summarize energy consumption, waste production, and resource conservation metrics.
- Qualitative data from interviews will be analyzed thematically to identify key factors contributing to successful green practice implementation.

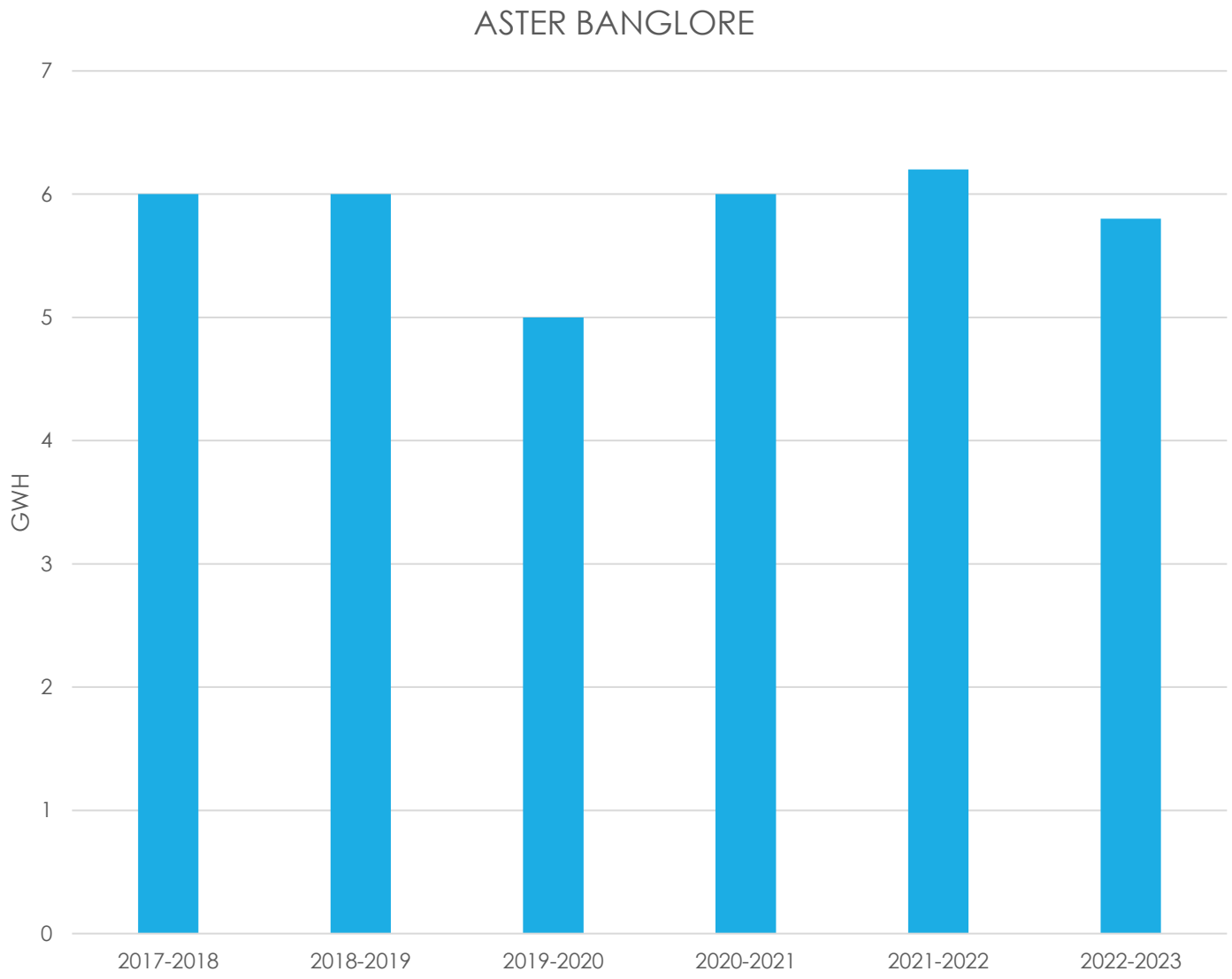
Literature Review

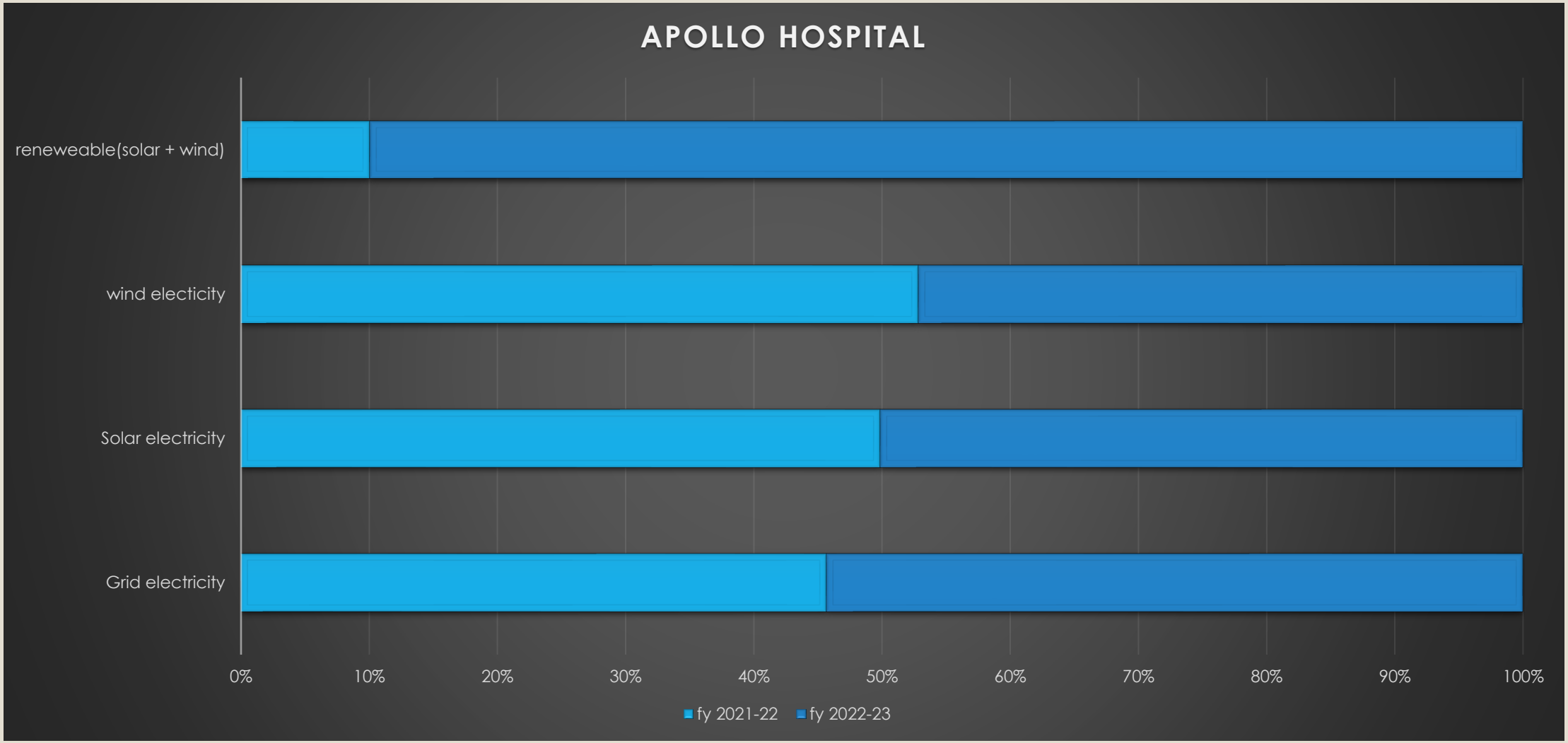
SL NO	Authors (Year)	Study Location	Sample Size	Sampling Technique	Salient Features
1	Joshi & Desai (2022)	Ahmedabad	9	Snowball sampling	Influence of green initiatives on patient satisfaction.
2	Reddy & Kumar (2021)	Hyderabad	12	Convenience sampling	Impact of renewable energy usage on hospital operations.
Z3	Gupta et al. (2020)	New Delhi	10	Purposive sampling	Focus on energy efficiency and waste reduction practices.
4	Prasad & Rao (2020)	Jaipur	10	Purposive sampling	Integration of green IT solutions in hospital management.

ENERGY CONSUMPTION

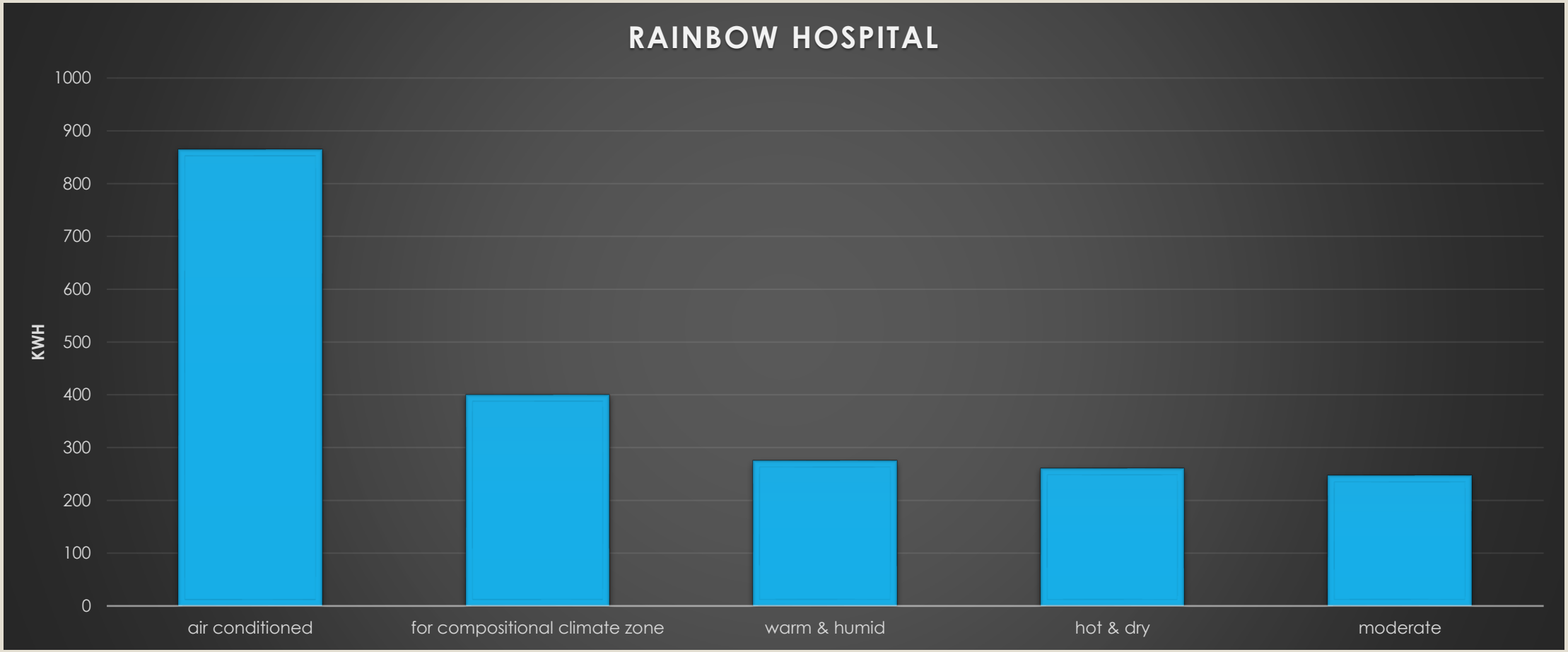


Energy utilization of Aster Hospital, Bangalore in the Past six years.

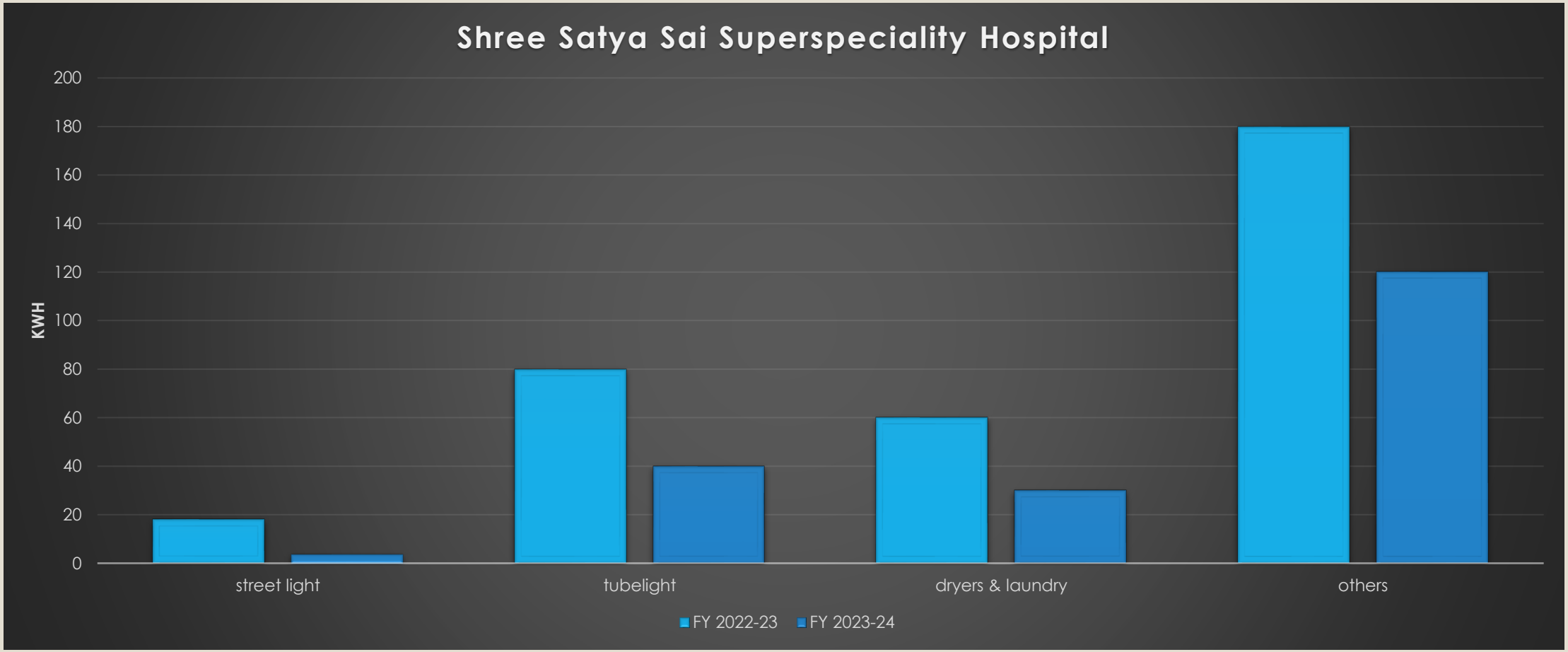




Energy consumption of Apollo hospital Bangalore by its different initiatives taken to conserve energy

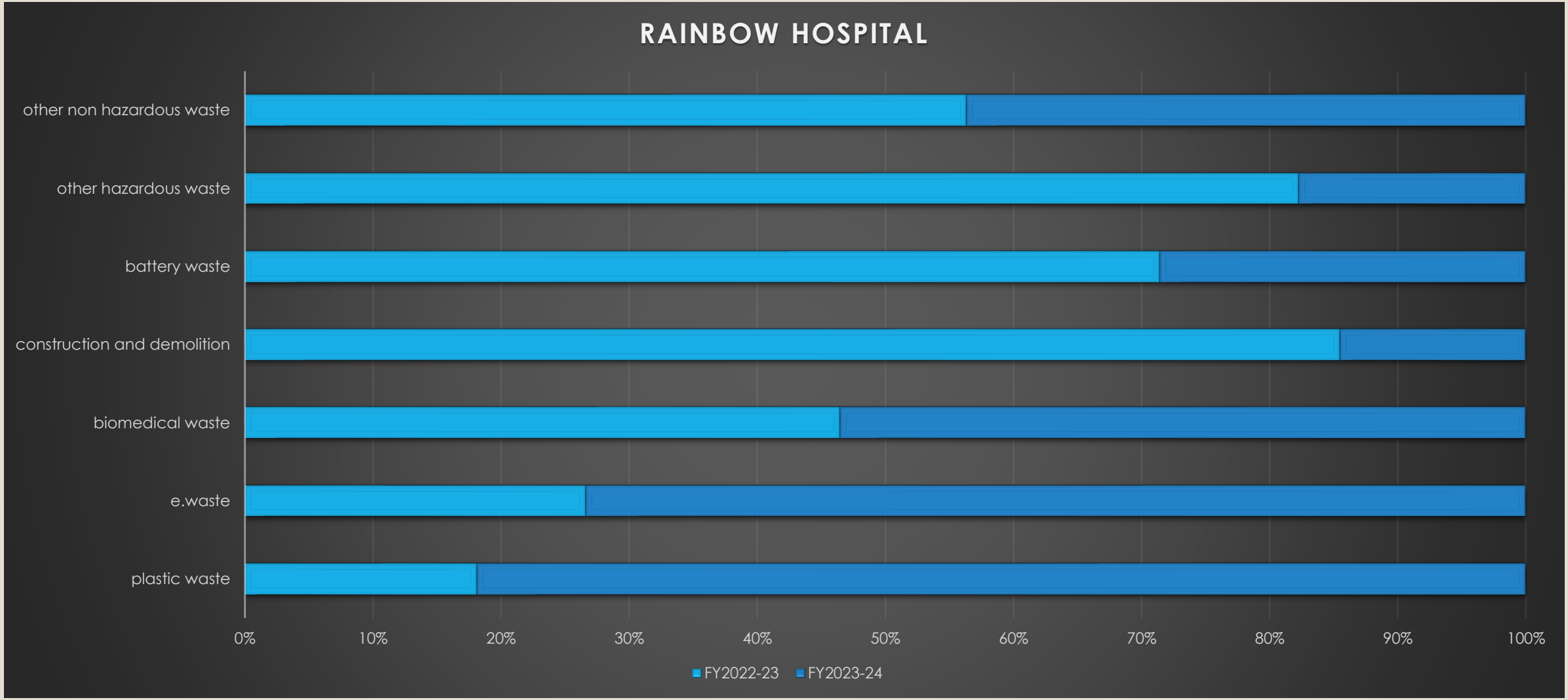


Energy consumed by Rainbow Hospital to keep up with different temperature required in a hospital.

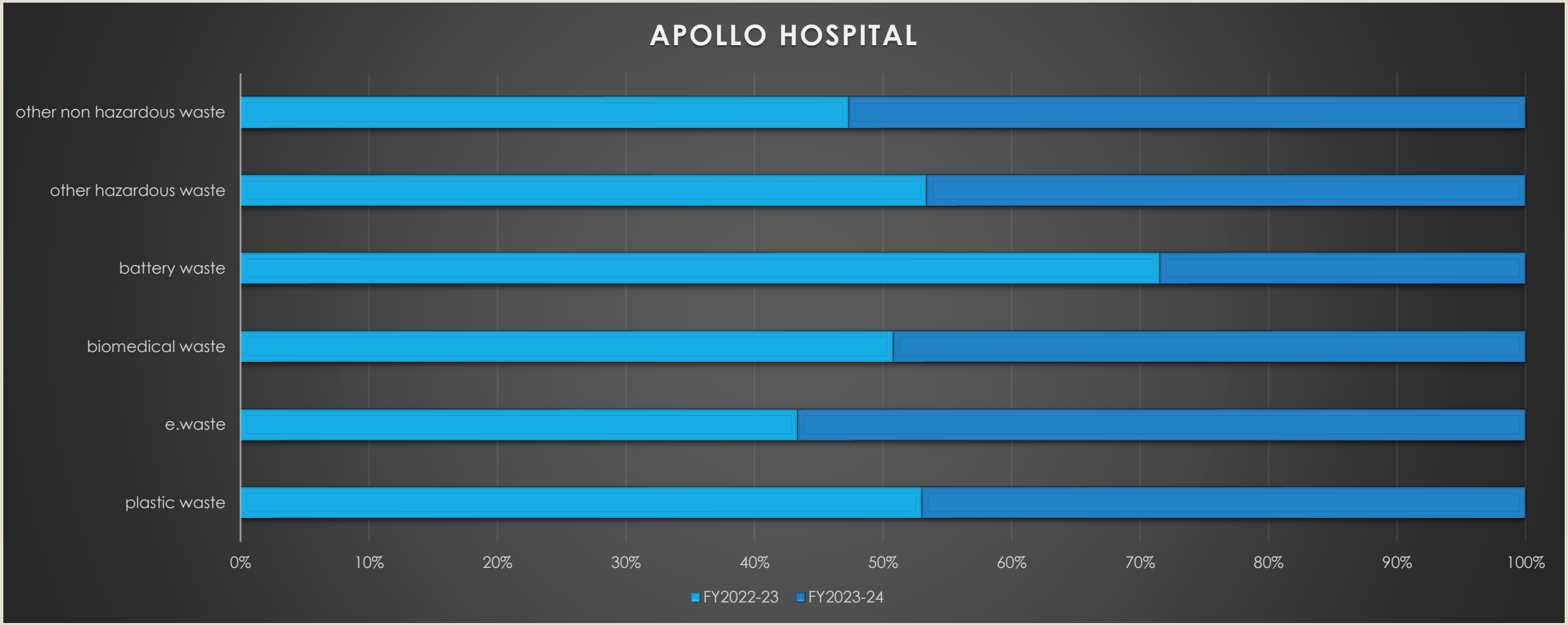


Difference in energy consumption of Shree Satya Sai Superspecialty Hospital after initiatives were taken to conserve the electricity.

WASTE REDUCTION



Comparison between two financial years of % of waste reduction after implementation of green healthcare initiatives.



Comparison between two financial years of % of waste reduction after implementation of green healthcare initiatives.

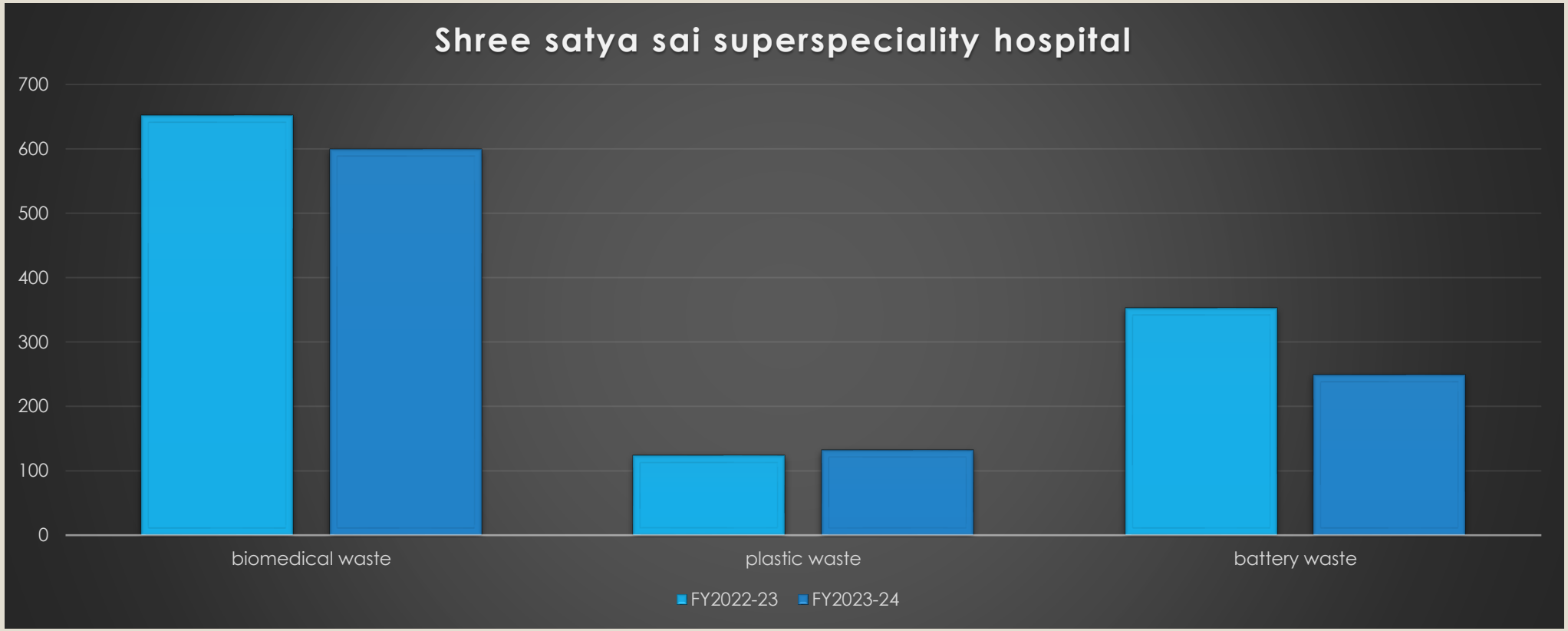
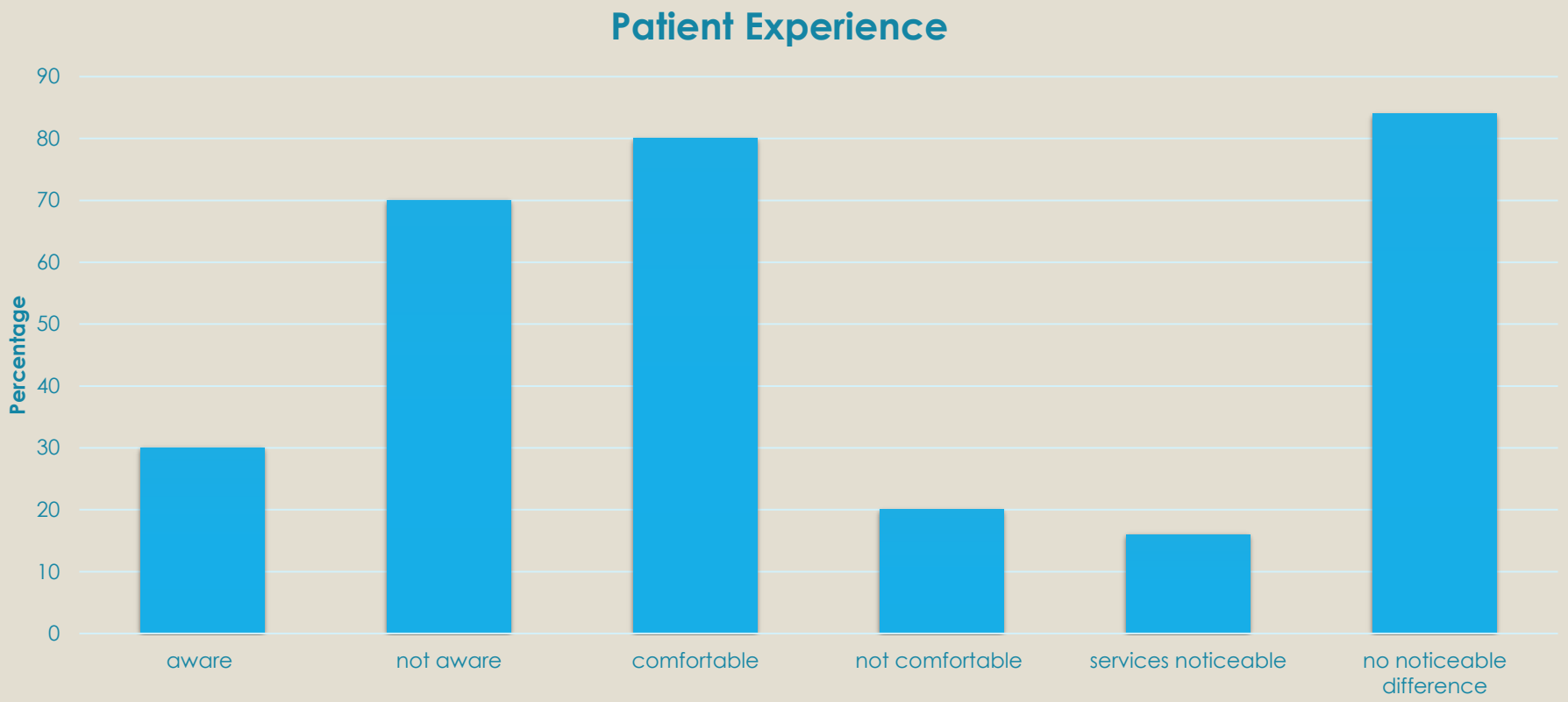
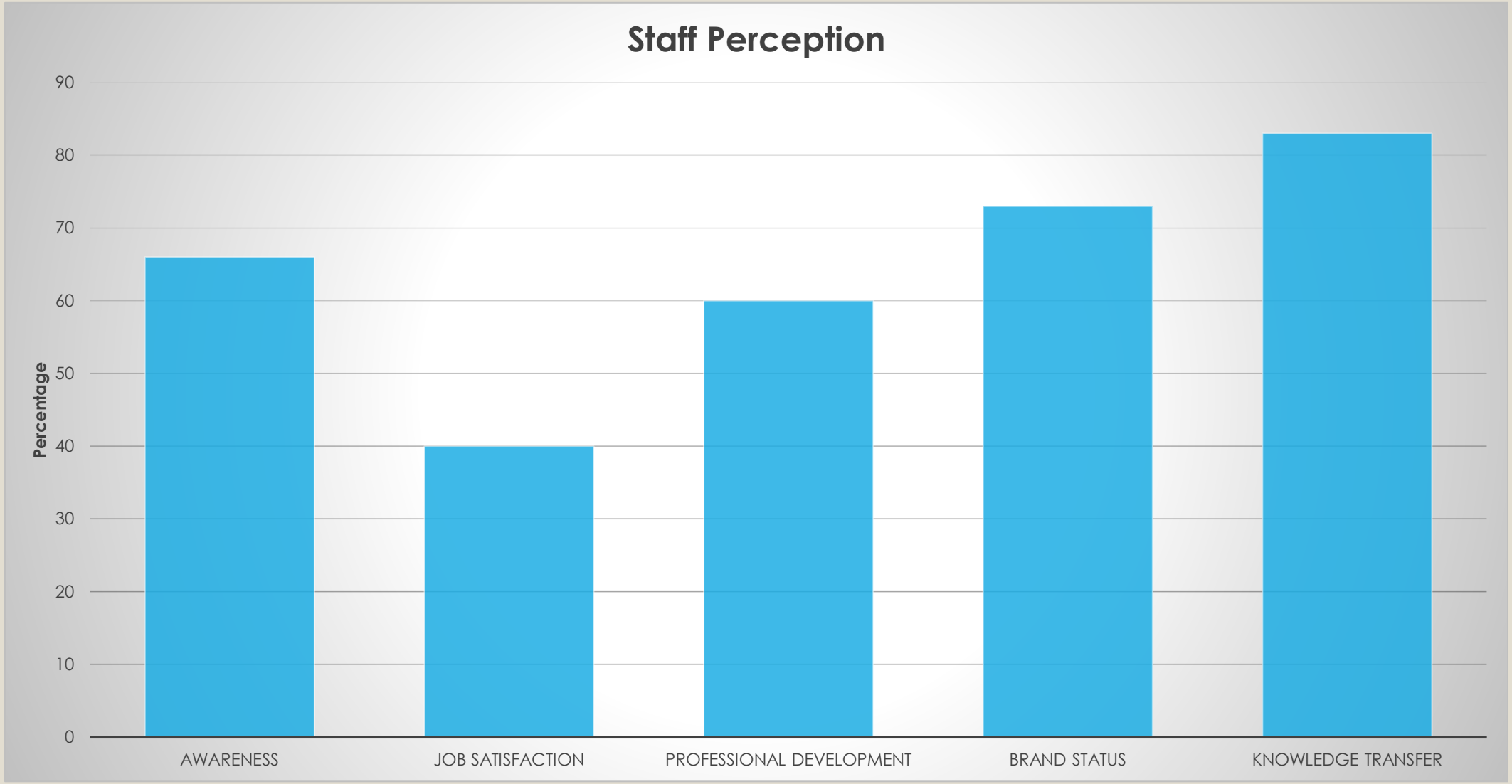


FIG 2.3 Comparison between two financial years of % of waste reduction after implementation of green healthcare initiatives.



Percentage of patient experience visiting a Green Hospital.



Staff perception working in a Green hospital.

INTERPRETATION OF RESULT

- Energy Consumption reduction
- Waste Generation Minimization
- Water Conservation
- Improved Indoor Environmental Quality
- Sustainable Building Design
- Resource Conservation
- Reduced Carbon Footprint
- Encouragement of Biodiversity

CONCLUSION

Rainbow Hospital

- Energy Efficiency: Implemented LED lighting, motion sensors, and high-efficiency HVAC systems.
- Renewable Energy: Installed solar panels that contribute to a significant portion of the hospital's energy needs.
- Energy Management: Uses a centralized energy management system to monitor and optimize energy consumption in real-time.

Apollo Hospital

- Energy Efficiency: Upgraded to energy-efficient appliances and infrastructure, including insulation and energy-efficient windows.
- Renewable Energy: Solar power installations on the hospital rooftops and the use of wind energy where feasible.
- Smart Technology: Integrates smart grids and energy storage systems to ensure optimal energy use and reduce reliance on non-renewable sources.

Aster Hospital

- Energy Efficiency: Retrofitted buildings with energy-saving technologies and implemented policies to reduce energy wastage.
- Renewable Energy: Utilizes geothermal energy for heating and cooling systems in addition to solar power.
- Energy Conservation Programs: Conducts regular energy audits and engages in continuous improvement of energy conservation practices.

Shree Satya Sai Hospital

- Energy Efficiency: Adopted advanced energy-saving measures such as heat recovery systems and energy-efficient medical equipment.
- Renewable Energy: Invested in extensive solar panel arrays and biogas plants for energy generation.
- Sustainable Practices: Focuses on sustainable energy practices and educating staff and patients about energy conservation.

With respect to patients' satisfaction most of the patients are negligent of the idea of getting treated in a green hospital and are only interested if the quality of care is affected or not.

When staffs are considered, the amount of responsibility increases while the reputation and pride for working in a green hospital precedes.

RECOMMENDATION

■ Renewable Energy Integration: Propose the embrace of sun, air and ground heat energy sources to cut back on fossil fuel dependency and decrease carbon outputs. Provide various feasibility studies and cost benefit analysis for different hospital-appropriate renewable technologies.

■ Strategies for Energy Efficiency: Suggest ways of advancing energy productivity in hospitals; these involve upgrading HVAC systems, optimizing lighting systems using LEDs and sensors, and introducing smart buildings techs for energy consumption management.

■ Water-saving Measures: Encourage water conserving mechanisms such as using rain water, grey-water recycling not forgetting efficient water fittings. Analyse its potentiality in cutting down water use as well as wastewater generation.

■ Innovative Waste Management: Come up with new way of reducing medical waste generation, increase recovery rates as well as safely disposing hazardous materials. Emphasize the need to enforce broad based waste management policies besides involving workers in waste reduction strategies.

■ Green Building Design Principles: Encouraged inclusion of green principles in building or upgrading hospitals. The emphasis is on sustainable materials, energy-efficient designs and green roofs or walls to improve indoor air quality and patient comfort.

- THANK YOU