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Karpagam Academy of Higher Education (KAHE)
Environmental Quality and Energy Policy -2023
(version 2 -Revised)

Section 1: Environmental Quality Policy

1. Introduction

Karpagam Academy of Higher Education (KAHE) is committed to promoting a sustainable, low-carbon, and resource-efficient campus environment in alignment with both national and international sustainability standards. This Environmental Quality Policy is designed to guide the university in its efforts to reduce its environmental impact and mitigate climate change while supporting its academic and operational goals.

KAHE's commitment is to ensure that environmental sustainability is a core principle in all campus operations, including energy use, waste management, water conservation, transportation, and educational initiatives. The goal is to reduce carbon emissions, enhance energy efficiency, and foster a culture of sustainability throughout the institution.

2. Scope of the Environmental Policy

The Environmental Quality Policy covers all aspects of KAHE's operations, with a primary focus on:

- **Waste Management**: Minimizing waste through segregation, recycling, and reusing materials.

- **Green Spaces**: Promoting the creation and preservation of green areas, enhancing biodiversity, and increasing the campus's tree cover.

- **Water Conservation**: Managing water resources efficiently through technologies like rainwater harvesting and water-saving fixtures.

- **Plastic-Free Campus**: Reducing plastic consumption by eliminating single-use plastics and promoting alternatives.

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- **Sustainable Infrastructure**: Ensuring that all new buildings, renovations, and campus developments follow green building standards to reduce environmental impact.

- **Educational Programs**: Raising awareness about sustainability and integrating environmental topics into the curriculum and extracurricular activities.

3. Focus Areas of the Environmental Policy

1. **Waste Management**

   o **Solid Waste**: Promote waste reduction strategies, including recycling and composting.

   o **E-Waste**: Establish e-waste collection points and recycling programs.

   o **Liquid Waste**: Use water-efficient systems to minimize wastewater and promote treatment.

2. **Green Spaces and Tree Plantation**

   o **Existing Green Spaces**: KAHE's campus currently hosts **1,027 trees**, contributing to the institution's environmental sustainability efforts. These trees play a significant role in improving air quality, enhancing campus aesthetics, and aiding carbon sequestration.

   o Continue organizing annual tree planting events, with the goal of planting an additional **2,000 trees** over the next 10 years to further increase green cover and improve the campus's ecological balance.

   o Increase green areas by 10% over the next 5 years, enhancing biodiversity and increasing the campus's capacity for carbon sequestration. And providing an ambient micro climate for the thermal comfort.

3. **Water Conservation**

   o **Rainwater Harvesting**: KAHE will continue its efforts to capture and store rainwater, contributing to the replenishment of the local groundwater table and reducing water consumption from municipal sources.

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o **Water-Saving Measures**: All hostels and academic buildings will be fitted with **solar water heating systems** to reduce the energy required for heating water, leading to both energy and carbon savings.

4. **Plastic-Free Campus**

   o Eliminate single-use plastics across campus. This reduction in plastic waste also helps decrease the carbon footprint associated with plastic production and disposal.

   o Promote the use of reusable materials through awareness campaigns.

5. **Sustainable Infrastructure**

   o **Green Building Certifications**: Ensure all new construction and major renovations meet **LEED**, **GRIHA**, or **EDGE** standards, focusing on energy conservation and sustainable building materials.

6. **Educational and Awareness Programs**

   o Integrate sustainability education into the curriculum.

   o Support student clubs and activities that promote environmental sustainability.

4. Objectives of the Environmental Policy

The key objectives of this policy are to:

- **Reduce KAHE's Carbon Footprint**: Achieve a 30% reduction in carbon emissions by 2030.

- **Promote Renewable Energy**: Achieve a 5% (currently 1%) renewable energy share in total campus energy consumption by 2030.

- **Minimize Waste**: Achieve zero waste by promoting recycling, composting, and reducing single-use plastics.

- **Water Conservation**: Reduce water consumption by implementing water-saving systems and practices.

- **Foster Sustainability in Education**: Educate students and staff on the importance of sustainability and encourage environmentally responsible behaviours.

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Section 2: Energy Policy

1. Scope of the Energy Policy

The Energy Quality Policy focuses on optimizing energy use, increasing renewable energy adoption, and reducing carbon emissions through targeted energy conservation strategies. This policy aligns with guidelines set by national bodies like the **Bureau of Energy Efficiency (BEE) and Tamil Nadu Energy Conservation Mission (TNECM)**, and international green building standards such as **LEED** and **GRIHA** new constructions and major renovations.

The policy will address energy use across campus infrastructure, including buildings, transportation, and equipment, as well as the adoption of renewable energy sources and energy-efficient technologies. KAHE is committed to making energy conservation and the reduction of carbon emissions central to its sustainability efforts.

2. Energy Conservation and Carbon Reduction Measures

KAHE is committed to reducing energy consumption and minimizing its carbon emissions through a combination of energy-efficient technologies, renewable energy adoption, and sustainable campus operations. The following key initiatives are outlined:

1. **Energy Efficient Infrastructure**

    o   **Solar Power Integration:** The current solar energy capacity of 50KVA shall be expanded to 250KVA by 2030. Integration of solar power for all common amenities such as street lights, corridors, lawn lights etc..

    o   **LED Lighting:** Retrofit all campus buildings with 80% LED lighting to significantly reduce electricity consumption.

    o   **Air Conditioning Equipment:** Upgrade air-conditioning equipment's in academic buildings to more energy-efficient models of BEE 3star rating. targeting a minimum **Energy Efficiency Ratio (EER)** in all air-cooling systems by 2025.

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2. **Energy Audits and Monitoring**

   o **Annual Energy Audits**: Perform energy audit and review every year to identify inefficiencies, energy wastage prone areas and implement corrective measures to reduce energy consumption.

   o **Smart Monitoring Systems**: Install real-time energy monitoring systems and software (E3) across campus operations, including occupancy sensors, air quality monitors, and smart thermostats, to optimize energy use and reduce waste.

3. **Renewable Energy Adoption**

   o **Solar Energy**: Install solar panels on all buildings, aiming to achieve a 5% renewable energy share of total energy needs by 2030.

   o **Exploration of Other Renewables**: Investigate the feasibility of incorporating wind, biomass energy, and other renewable energy sources into the campus energy mix as part of long-term sustainability goals.

4. **Energy Conservation Practices**

   o **Energy-Saving Technologies**: Adopt energy-efficient appliances and technologies, such as low-energy cooling systems, energy-efficient water heaters, and advanced insulation in buildings.

   o **Behavioural Changes**: Promote energy-saving habits among students and staff, such as turning off lights and appliances when not in use and using energy-efficient equipment.

5. **Higher Energy Efficient Buildings**

   o Ensure that all new constructions and major renovations meet green building standards focusing on energy conservation and sustainable building materials.

6. **Carbon reduction and management**

   o KAHE encourages the use of **public transport** by students and staff and restricts automobile access to the campus.

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- o KAHE encourages **carpooling program** to reduce individual car usage and associated carbon emissions.

- o **Electric Vehicle Charging Stations**: To further reduce the carbon footprint from transport, KAHE will install **electric vehicle charging stations** on campus to encourage the use of electric vehicles among staff and students.

7. **Policy for divesting investment from carbon intensive energy industries:**

- o **Fossil Fuel Divestment**: To minimize procurements from companies and industries that rely on fossil fuels (coal, oil, and natural gas) and carbon-intensive technologies.

- o **Investing in Climate Solutions**: To invest in renewable energy systems, energy-efficient technologies, and other climate change mitigation solutions that help reduce carbon emissions and promote sustainability.

- o **Encouraging Renewable Energy Adoption**: To incentivize the use of renewable energy within the campus, such as solar, wind, and biogas, and reduce the dependence on coal-based energy.

- o **Supporting Sustainable Infrastructure**: To prioritize investments in sustainable campus infrastructure, including green buildings, electric vehicles, and other low-carbon technologies.

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3. Energy and Carbon Performance Targets

The following targets outline KAHE's energy conservation and carbon reduction goals:

- • **Short-Term (2025)**:

  - o Retrofit all buildings with LED lighting and implement energy-efficient HVAC systems in selected buildings.

  - o Reduce overall electricity consumption by 15% through energy-saving measures.

  - o Complete the first round of campus-wide energy audits and implement corrective actions.

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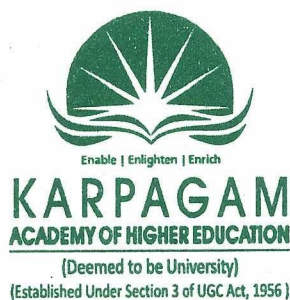
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- **Mid-Term (2030)**:

  o Achieve a 5% share of campus energy from renewable sources (solar power).

  o Expand the electric vehicle (EV) charging network and encourage EV use among staff and students.

  o Retrofit Air Conditioning systems to meet BEE standards.

  o Implement smart energy monitoring systems campus-wide for real-time tracking of energy use.

- **Long-Term (2035)**:

  o To develop a energy efficient green campus.

  o Achieve a 30% reduction in carbon emissions compared to the 2020 baseline.

  o Install solar panels on all buildings, achieving maximum renewable energy for campus electricity needs.

  o Expand water conservation measures and integrate solar water heating systems into all campus hostels and academic buildings.

  o Complete transition to a plastic-free campus, eliminating single-use plastics in all university operations.

  o Monitor and continuously improve energy consumption and waste management strategies, ensuring that KAHE is an environmentally responsible institution.

4. Monitoring, Reporting, and Accountability

KAHE will regularly monitor and evaluate its energy performance and carbon footprint:

- **Carbon Footprint Assessment**: Conduct annual carbon footprint assessments to track progress toward the campus's carbon reduction targets.

- **Energy Monitoring Reports**: Publish detailed energy consumption reports annually, including energy-saving measures, renewable energy generation, and efficiency improvements.

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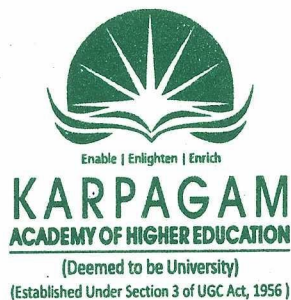
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- **Sustainability Reports**: An annual sustainability report will outline energy usage, carbon emissions, water conservation, waste management efforts, and the status of all sustainability targets.

KAHE is committed to transparent reporting and continuous improvement in all aspects of energy management and sustainability.

5. Energy use Density

S.no	Description	Area
1	Site area	1,06877 sq.m (26.5 Acres)
2	Covered Area	11,100 sq.m
3	Open Spaces	95,777 sq.m
Energy use Density		
5	Total Energy Used	36,928 Kwh/yr
6	University Floor Space	69,430 sq.m
Solar Energy		
7	Total Energy Used (low carbon sources)	300units per day (50 KVA capacity)

6.Energy and Community

- Education and awareness programmes and campaign such as – Environmental Quality maintenance, Green Campus, waste management, energy conservation practices to be conducted every 6 months.
- Establishing the Energy efficiency committee involving both faculty and students to step forward to achieve the SGD 7.
- Assign responsibilities to each department.
- Regular review of the policy shall be done once in a year with the committee and necessary revisions done.

7. Start-up Assistance

- The Institute established a non-profit Trust for Technology Business Incubation Centre (TBI) that foster and support various start-ups, which will involve the low carbon economy.

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ANNEXURE -1

Iniatives already taken under the Environmental policy and Energy policy

1. Solar Photovoltaic power generation -Installed 50 KVA Grid Connected Solar Photovoltaic Power Plant.
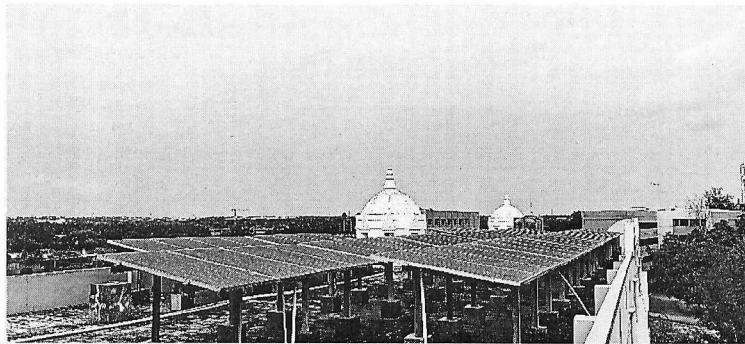

Figure 1: Distribution of 50KVA grid-connected Solar Photovoltaic Power Plant on rooftop in the Karpagam Academy of Higher Education campus

2. **Installation of LED Street Lights**

Figure 2: led street lights of -15300w installed and flood lights of 4500w installed

3. **Energy Conservation & Energy Efficiency improvement**

    Use of LED Lighting: University campus is moving towards total LED lighting system, which are more efficient than incandescent light bulbs or compact fluorescent lighting (CFL). The campus has 42000W LED lights installed.
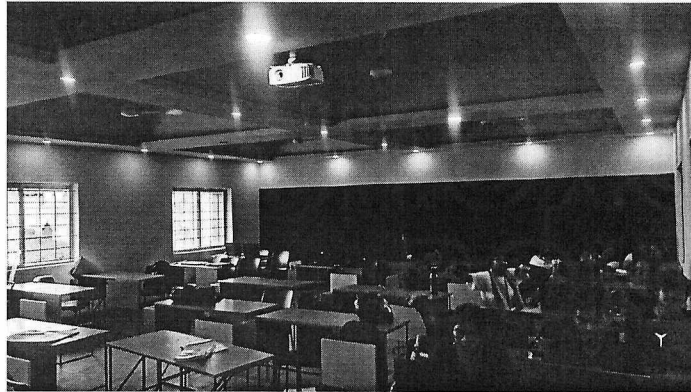
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Figure 3: LED Lights installed in seminar hall

4. Waste segregation
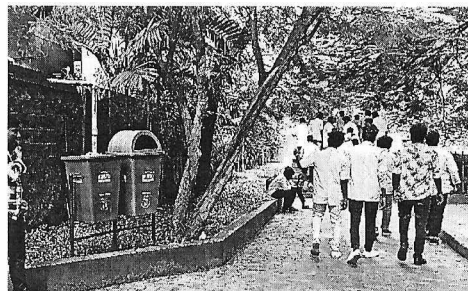
Figure 4: Waste Segregation Bins Installed Across the Campus

5. Plastic Free Campus

Figure 5: Awareness Boards Promoting the Reduction of Single-Use Plastics

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6. Rain Water Harvesting

Rainwater harvesting Pits (18nos) were provided all over the campus to collect the rainwater. The Percolation rate was maintaining to increase the groundwater recharge.
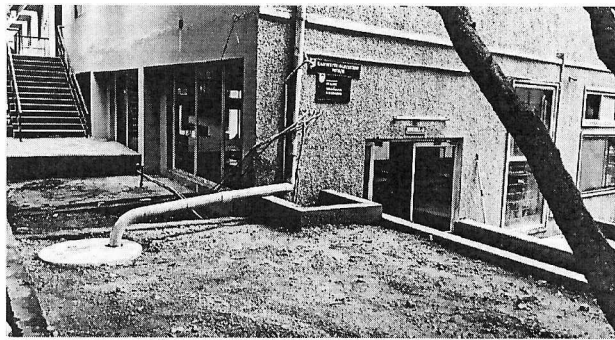

Figure 6: Rainwater Harvesting Pits Installed Across the Campus

7. Sewage Treatment Plant

Karpagam Academy of Higher Education currently operates two fully functional Sewage Treatment Plants (STPs) on its campus. Sewage treatment is a process that removes contaminants from wastewater to produce treated effluent, which can be safely discharged into the environment or reused for non-potable purposes, thus preventing water pollution from raw sewage. The capacities of the sewage treatment plants are as follows: 1 – 100 KLD (Kilolitres per Day); STP 2 – 250 KLD . The treated water from these plants is primarily used for gardening and landscaping purposes across the campus, promoting water conservation and reducing reliance on external water sources for irrigation.

Figure 7: Rainwater Harvesting Pits Installed Across the Campus

Approved by: 44th meeting held on 30.12.2023 of the BoM of Karpagam Academy of Higher Education
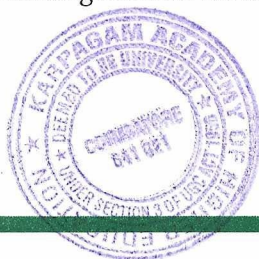
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