7.1.6 Quality audits on environment and energy are regularly undertaken by the institution.

7.1.6.1. The institution's initiatives to preserve and improve the environment and harness energy are confirmed through the following.

1.Green audit
2. Energy audit
3.Environment audit
4.Clean and green campus recognitions/awards
5. Beyond the campus environmental promotional activities

Options:

A. Any 4 or all of the above
B. Any 3 of the above
C. Any 2 of the above
D. Any 1of the above
E. None of the above

Response: A. Any 4 or all of the above

Supporting documents

1. Green/Energy/Environment audit report 2022-2023

2. LEED certification weblink

https://indiaeducationdiary.in/amity-university-haryana-awarded-leed-green-building-certification-platinum-category/

https://www.business-standard.com/article/news-ani/amity-university-haryana-becomes-first-in-india-to-receive-leed-platinum-certification-usa-117072801071_1.html

3. Weblink of environment and sustainability related policies and governance:

https://www.amity.edu/gurugram/sdg/sdg7/sdg-7-mom-and-environment-and-sustainability-policy.pdf

https://www.amity.edu/gurugram/sdg/sdg7/sdg-7-plan-for-carbon-management-admin.pdf

https://www.amity.edu/gurugram/sdg/sdg7/sdg-7-plan-to-reduce-energy-consumption.pdf

https://www.amity.edu/gurugram/sdg/sdg7/sdg-7-mom-and-sustainable-purchasing-policy.pdf

https://www.amity.edu/gurugram/sdg/sdg7/sdg-7-commissioning-plan-for-buildings-admin.pdf

4. Weblink of Amity University Haryana THE IMPACT RANKING 2023

https://www.timeshighereducation.com/world-university-rankings/amity-university-gurugram

AMITY UNIVERSITY HARYANA

GREEN/ENVIRONMENT/ENERGY

AUDIT REPORT

2022-23

Document No: GAR022145

By: Ashish Jain | ashish.jain@aeonconsultants.in

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Amity University Haryana
Manesar Gurgaon-122413

1. GREEN LANDSCAPE AND DEVELOPMENT:

Amity University Haryana has maintained an optimum balance between environmental and functional requirements. The natural landscape is altered minimally to develop infrastructure at one-third part while the rest is dedicated to natural vegetation, farmland, and orchards including the Government supported medicinal plant distribution center (Ministry of Ayush, Govt. of India) aligned to natural drainage. Out of the total land area of 110 acres, only 36 acres is taken by buildings or infrastructure rest 74 acres is green area which includes trees, shrubs, farmland and playground. Plantation and greening initiatives include multipurpose native vegetation and fruit-bearing trees. Greening of land use critically improves the environmental performance of Amity University Haryana campus, which has been slowly transformed into a green oasis in the harsh semi-arid Aravalli region (detail of vegetation and land use Annexure I). University takes special care of the environment and preserves most of the trees present at the site including a grand old Banyan Tree, which is slowly transforming into a functional space amidst nature. Almost half of the site with one line of boundary plantation is provided with vegetation and trees with native and adapted species with the least water and maintenance intensity. In a very short span of time, the campus has been turned into an ecologically sound campus, which is reflected in the large varieties of birds and butterflies found in the campus. Periodical survey of AUH campus has revealed more than 140 species of birds and more than 40 varieties of butterfly which has been documented and is indicative of very sound ecological space. Tree plantations are carried out on frequent basis.

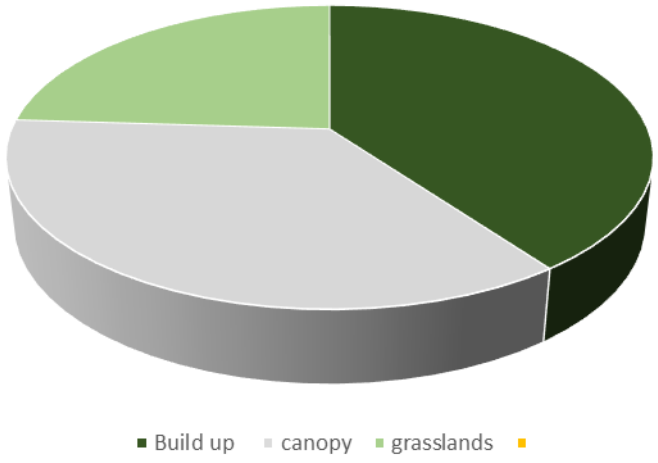

Figure: Land Use map of Amity University Haryana

2. SUSTAINABLE TRANSPORTATION:

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With onsite hostel and housing facilities, Campus bus facilities and the practice of carpool among commuting faculties, staff, and students, Amity University Haryana achieves a significant reduction in commuter trips and thereby environmental pollution caused by vehicles and overall carbon footprint. All vehicles entering University have a “Pollution Under Control” certificate. The project has achieved a significant reduction in conventional commuting trips. Since post-COVID, University is under strict compliance of its Environmental and Sustainability Policy to reduce its transportation footprint.

3. HEAT ISLAND REDUCTION:

Hardscape areas available on-site are provided with light-colored reflective surfaces, shaded with trees and grass pavers contributing to reduced heat island impact. The provision of large sunken space between building complexes (sunken courts along and between academic blocks) moderates the heat regime in both summer and winter. This overall reduces the carbon footprint of the campus. It is also considered a unique local innovation in the building code for LEED certification of university buildings. All these provisions are passive approaches to moderate heat impact in semi-arid areas having extreme summer and winter, where the campus is located.

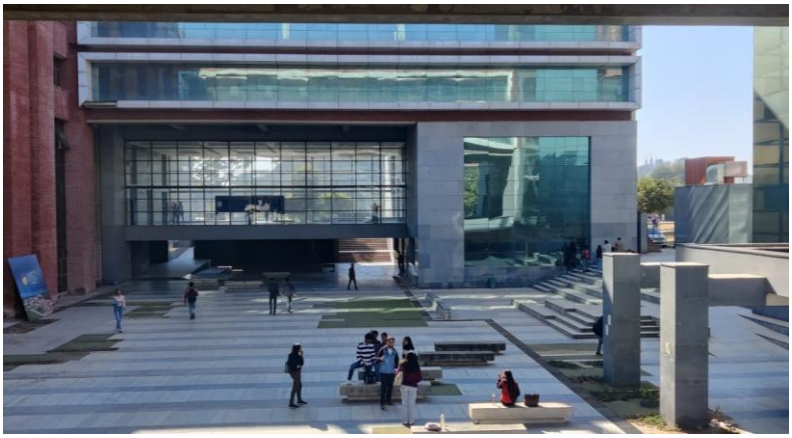

Figure: Sunken Court, Amity University Haryana

4. WATER ENVIRONMENT:

Amity University stives towards a ZERO Discharge campus. It consists provision of an onsite Sewage Treatment Plant (STP; capacity- 900KLD) and Effluent Treatment Plant (ETP; capacity- 50KLD) to treat entire wastewater along with a network of rainwater harvesting infrastructure and reuse to ensure efficient and optimal water consumption generated from domestic consumption and toilet. University has elaborate arrangements for treating wastewater generated from different university units including administrative, hostels, residential buildings including laundry units. The

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performance and efficiency of STPs, ETPs is regularly monitored to ensure efficient utilization. Immediate remedial action is taken to rectify any problem to ensure water conservation and safety. The treated water is linked to the different sectors for reuse including horticulture, farm irrigation, and toilet flush. It also helps to enhance water recharge and decrease groundwater levels.

The University promotes conscious water usage through its Environment and Sustainability Policy, displaying signages/pamphlets across the university on each academic and hostel block in all toilets and drinking water cooler areas for effective water usage.

By proper landscaping and plantation (native vegetation), the university minimizes water consumption even in the operation and maintenance of the university landscape.

5. RAINWATER HARVESTING

Amity University Haryana building plan integrates Rainwater harvesting and stormwater management provisions (reservoir and structures) to meet sustainable water availability as the university is located in a semi-arid region and devoid of any ephemeral source of water. So rainwater is the only source available in this area for groundwater recharge, which is the ultimate source of water for the University. 100% rainwater runoff from building terraces and ground surfaces is channeled through proper landscaping to recharge the ground aquifer. Rainwater harvesting infrastructure includes 43 recharge well and 112 bores at appropriate locations, and natural drainage patterns which are connected through a large stormwater network laid throughout the campus. The location and size of such water harvesting infrastructure is selected based on the watershed contour of this area which ensures a maximum harvest of rainwater. Periodical cleaning and maintenance of Rainwater harvesting infrastructure is carried out to ensure their efficiency for groundwater recharge to maintain the quantity and quality of rainwater being discharged to the ground aquifer.

6. ENERGY CONSERVATION:

Amity University Haryana is dedicated to making a sustainable green campus by adopting green building energy conservation measures in the design along with a rooftop solar PV system. The academic buildings have incorporated below energy conservation measures in design:

- Double wall for exterior walls
- Provision of sunken courts in all buildings
- Optimized WWR (window to wall Ratio)
- High-efficiency chillers for air-conditioning
- High-efficiency pumps & motors
- Efficient lighting fixtures (more than 50% are LED)

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- Ample scope of passive lightening
- Minimal use of artificial lights during non-operating hours
- Use of Energy Star-rated equipment

The university has a robust system of monitoring its energy consumption that leads to efficient operation and maintenance of energy systems and equipment. On average Amity University Haryana meets 10% of energy consumption from solar energy with provision to wheel its surplus solar energy to the local grid. This is a significant improvement over pre-covid solar energy production. University is mandated to achieve zero carbon emissions by 2028 with phase-wise transformation to low-carbon energy sources including Solar and other alternate energy sources.

7. WASTE MANAGEMENT:

Amity University Haryana puts all its efforts and initiates towards clean and healthy surroundings within and outside the campus. Within Amity University Haryana, a sustainable waste management plan has been implemented incorporating the following strategies:

a. Compost Pits for Organic Waste (Farming waste)
b. Biogas plant for generating gas out of biomass generated from dairy farm
c. e-governance protocol for regular operation (paperless office)
d. Centralized waste segregation and collection areas (green heart)
e. Awareness and collection drive for plastic and e-waste on a regular basis
f. Provision of separate waste bins for Recyclable and Non-recyclable waste types
g. Professional agency for waste segregation, collection, and diversion from landfill.

To enable the neighborhood community to also practice waste management for hygienic and healthy conditions in the vicinity, Amity has constructed various waste collection sheds outside the campus. These waste sheds are effectively utilized, helping to create clean and healthy surroundings.

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Figure: Green Heart; onsite collection spot of plastic waste

8. COMMUNITY/ SOCIAL INITIATIVES

In addition to the construction of waste collection sheds outside, Amity University has been regularly organizing medical camps and educational camps for the neighborhood community. Amity University Haryana working on a high societal impact pond restoration project in village Bilaspur in collaboration with Gurujal; an Ministry of Jal Shati. Some of the additional initiatives under progress include:

- Tree plantation drive of native vegetation in and on campus on a regular basis to promote green cover.
- Gifting tree saplings to dignitaries as souvenirs.
- Declaration of Amity University Haryana as 'No-Polythene Zone'
- Animals and birds have been preserved; Annual 'Campus Bird Count' and similar campus-based activities be organized.
- Apart from structured initiatives several academic activities including teaching learning and research infrastructure have also been developed over last few years.
- LEED Lab, an education module, is established as teaching-learning exercise for students based upon green building designs and certificates

9. AMBIENT AIR QUALITY:

Infrastructure for Air Quality and weather monitoring station has been established, in collaboration with national and international agencies. SAFAR Air Quality Monitoring station, Air Pollution

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Decision Theatre have been installed in collaboration with Indian Institute of Tropical Meteorology (IITM), Pune and the Indian Institute of Technology, Delhi respectively. AUH is also under the network of field stations of NASA for optical depth monitoring of several atmospheric parameters including Ozone. The project is dedicated in making a sustainable green campus by adopting green building IAQ Measures like:

- Efficient Exterior Cleaning and Maintenance practices
- Blend of Landscaped areas, fully grown trees act like a filter for cleaning the outside air
- Outdoor Pollutants like PM2.5, PM10 are below the maximum allowable limits.

10. GREEN BUILDING CERTIFICATION

Amity University Haryana has demonstrated high performance in meeting the green building rating compliances and has achieved highest PLATINUM level of rating under LEED Existing Buildings: Operations and Maintenance (O&M) rating system by the United States Green Building Council.

11. IMPACT RANKING 2023

Amity University Haryana is working to transform its campus into a living laboratory of sustainability and is currently ranked among a global band of 301-400 for its performance and compliance of Sustainable Development Goals (SDGs). University is adjusted fourth in India.

Annexure I: Bird data base of Amity University Haryana campus

https://ebird.org/hotspot/L5441195?yr=all&m=&rank=mrec

Annexure II: Impact Ranking 2023

https://www.timeshighereducation.com/world-university-rankings/amity-university-gurugram

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