AMITY UNIVERSITY HARYANA

NAAC 'A' GRADE ACCREDITED UNIVERSITY

# REPORT ON
# SUSTAINABLE DEVELOPMENT GOAL

## 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

## YEAR 2021-22

## PREAMBLE

Amity University Haryana is committed to promote sustainable management practices and efficient use of resources to deliver responsible consumption and production patterns through its operations by implementing sustainable policies and practices.

## WASTE MANAGEMENT PRACTICES

The University Waste Management Policy places a strong emphasis on recycling and reusing various waste types in order to save natural resources, safeguard public health and the environment, decrease toxicity, and minimise landfilling and/or incineration.

Amity University Haryana being an educational institution, the key operations do not significantly impact the environment. We need to dispose of less trash the less of it we create. Amity University Haryana is committed to producing as little waste as possible and recycling it by running it through a mechanism that makes the material reusable, following the UN mandate to establish the institution as a "live lab of sustainability." Numerous systems, such as those for collecting rainwater, treating wastewater and effluent, ensuring adequate drainage patterns, and many more, have been included in the university's growth plan from its inception. The waste generated in university is divided into three different types for their management and disposal, which is as follow:

(a) Solid Waste
(b) Liquid Waste
(c) e-waste and other hazardous waste

**Solid Waste:** The university's regular operations produce a variety of waste products. Paper, plastics, glass, metals, food items, etc. are all included. Every stage and source of trash is separated. Every block's administrative supervisor makes sure that each floor's garbage is collected at the scheduled times.

The block housekeeping staff in each floor collects the waste in the dustbins provided at each floor. The floor dustbins are dumped into the moveable dustbins or containers that are assigned to each block and transported to the university's disposal yard. The University has made contact with an approved vendor who picks up the garbage from the specified location, separates it, recycles it, and disposes of it in government-approved landfills.

Garbage Shed

Open Area Dustbin

Open Area Dustbin

Open Area Dustbin

The organic waste collected from farm house is disposed through bio gas production and composting infrastructure available at campus. The by-products are further utilized locally for heating and manure.

Cow Dung based Biogas Plant at AUH

**Liquid Waste:** Liquid wastes generated by the University are of two types:

(i) Sewage waste
(ii) Laboratory, Laundry and Cafeteria effluent waste

The aforementioned garbage is processed by a network of ETPs (effluent treatment plants) and STPs (sewage treatment plants), which mix aerobic and anaerobic processes to handle organic waste before oxidation ponds are added. Following treatment, treated water is put through a simple filtering process before being used again for a variety of applications, such as cooling plants, horticulture, agricultural irrigation, and toilet flushing. Laundry wastewater is handled by a separate treatment facility.

A committed and knowledgeable crew manages the upkeep and operation of the sewage and effluent treatment plant, ensuring the effective operation of the treatment unit. Groundwater is replenished with purified water throughout the winter and wet seasons.

**The following are the details of STPs and ETPs installed in the university**

| STP | Location | Capacity in Litters/day | Type |
|---|---|---|---|
| STP1 | Near Faculty Flats | 4,50,000 | Aerobic |
| STP2 | Near Faculty Flats | 4,50,000 | Anaerobic |

| ETP | Location | Capacity in Litters/day | Type |
|---|---|---|---|
| ETP1 | Near Faculty Flats | 50,000 | Kitchen |
| ETP2 | Near Faculty Flats | 20,000 | Laundry |

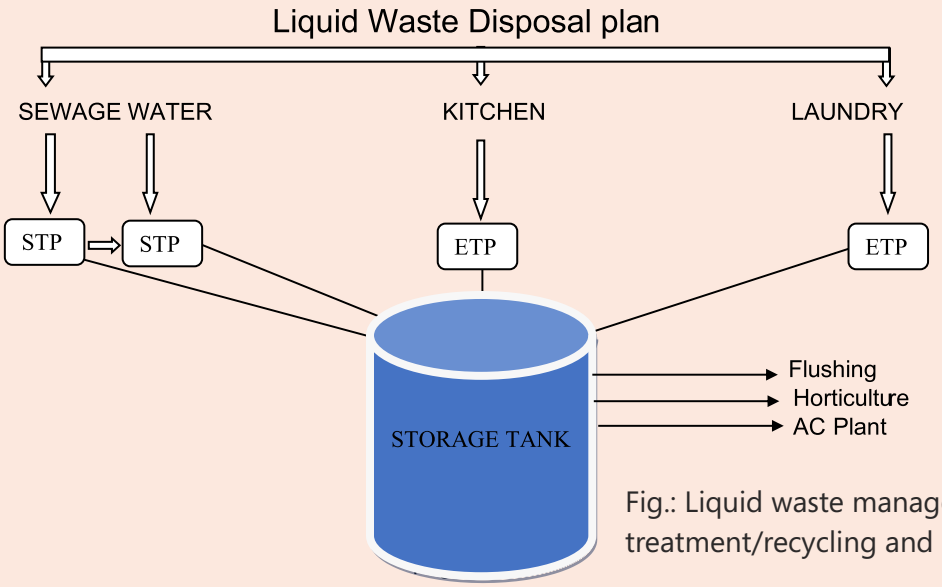



Fig.: Liquid waste management plan including treatment/recycling and reuse

**e-waste:** Desktop, Printer, Camera, Wi-fi devices, used Blank Cartridges, Speakers, Mouse, Keyboard, UPS, Projector Screen and Biometric Machine etc. are recycled properly. The university keeps track of every electronic device provided by its IT departments, ensures that it is operating at peak efficiency, and disposes of it after its useful life. The buy-back option is used for technological upgrades rather than purchasing a new computer. The authorised suppliers listed below are responsible for disposing of the electronic trash that is created from hardware that cannot be recycled or reused.

**ETP**

**ETP Laundry Unit**

**Pump Room**

**Oxidation Pond**

Fig.: Wastewater treatment

## TEACHING & LEARNINGS

The University is committed to promoting sustainable consumption and production through several modules contained within courses delivered.

| Programme Name | Level | URL |
|---|---|---|
| MBA (Sustainable Management) | Post Graduate | https://www.amity.edu/gurugram/mba-sustainability-management |
| Executive MBA (Sustainable Management) | Post Graduate | https://www.amity.edu/gurugram/executive-mba-sustainability-management |
| M.Tech. (Solar & Alternate Energy) | Post Graduate | https://www.amity.edu/gurugram/mtech-solar-and-alternate-energy |
| M.Sc. (Renewable Energy) | Post Graduate | https://www.amity.edu/gurugram/msc-renewable-energy |
| M.Tech (Atmospheric Technology and Climate Management) | Post Graduate | https://www.amity.edu/gurugram/mtech-atmospheric-technology-and-climate-management |
| M.Sc. (Environmental Sciences and Management) | Post Graduate | https://www.amity.edu/gurugram/msc-environmental-sciences-and-management |
| B.Sc. (Hons) - Earth Sciences | Under Graduate | https://www.amity.edu/gurugram/bsc-hons-earth-sciences |
| Ph.D. (Earth and Environmental Sciences) | PhD | https://www.amity.edu/gurugram/phd-earth-and-environmental-sciences |

## A) Minor Specialization Elective Track offer to all Under Graduate Programmes

| Sl.No. | Track with details of courses |
|---|---|
| 1. | **Climate Science**<br>Semester 1- AST2151- Basics of Climate Science<br>Semester 2- AST2251- Introduction to Earth System Science<br>Semester 3- AST2351- Cloud Microphysics and Chemistry<br>Semester 4- AST2451-Climate Change: Impact, Vulnerability and Adaption<br>Semester 5- AST2551- Primer of Oceanography<br>Semester 6- AST2651- Fundamentals of Climate Variability and Modeling |
| 2. | **Disaster Management & Sustainable Built Environment**<br>Semester 1-DSM2151-Introduction to Disaster Management<br>Semester 2-DSM2251-Resilience Building for Built Environment<br>Semester 3-DSM2351-Emergency Management<br>Semester 4-DSM2451-Rehabilitation Reconstruction and Recovery<br>Semester 5-DSM2551-Climate Change Adaptations and Sustainable Development<br>Semester 6-DSM2651-Geoinformatics in Disaster Management |
| 3. | **Dietetics & Nutrition**<br>Semester 1-DAN2151-Principles of Nutrition<br>Semester 2-DAN2251-Family Meal Management<br>Semester 3-DAN2351-Basics Dietetics<br>Semester 4-DAN2451-Advanced Dietetics<br>Semester 5-DAN2551-Community Nutrition<br>Semester 6-DAN2651-Food Chemistry |
| 4. | **Environmental Management**<br>Semester 1- ENV2151- Environmental Studies-I*<br>Semester 2- ENV2251- Environmental Studies-II*<br>Semester 3- ENV2351-Environmental Pollution and Waste Management<br>Semester 4- ENV2451-Environmental Management and Industrial Safety<br>Semester 5- ENV2551-Environmental Economics and Globalization<br>Semester 6- ENV2651-Sustainable Development Practices |
| 5. | **Entrepreneurship**<br>Semester 1-MGT2152-Orientation Programme in Entrepreneurship<br>Semester2-MGT2252-Exploring Business Opportunity<br>Semester 3-MGT2352-Developing a Business Model<br>Semester 4-MGT2452-Translating Business Model into Startup<br>Semester 5-MGT2552-Advanced Programme in Entrepreneurship: Growth<br>Semester 6-MGT2652-Advanced Programme in Entrepreneurship: Expansion |

| Sl.No. | Track with details of courses |
|---|---|
| 6. | **Environmental Health & Climate**<br>Semester 1-AST2152-Linkages between Environment and Health<br>Semester 2-AST2252-Climate Change and Implications on Public Health<br>Semester 3-AST2352-Diseases in Contemporary Society<br>Semester 4-AST2452-Air, Water and Soil Pollution,Environmental Health Professions<br>Semester 5-AST2552-Ground-based and Satellite Remote Sensing<br>Semester 6-AST2652-Instrumentation Lab |
| 7. | **Polymer Technology**<br>Semester 1-PTE2151- Polymerization<br>Semester 2-PTE2251-Waste Plastic Recycling<br>Semester 3-PTE2351-Polymer Technology<br>Semester 4-PTE2451- Rubber &Tyre Technology<br>Semester 5-PTE2551-Polymeric Nano Composites<br>Semester 6-PTE2651-Bio-Medical Plastics |
| 8. | **Renewable Energy**<br>Semester 1-SAE2151- Renewable Energy Conversion Systems<br>Semester 2-SAE2251- Introduction to Solar Thermal Engineering<br>Semester 3-SAE2351- Introduction to Solar Photovoltaic<br>Semester 4-SAE2451-Energy from Wastes<br>Semester 5-SAE2551- Renewable Energy for Heat Applications<br>Semester 6-SAE2651- Energy Audit and Energy Management |

## PLASTIC FREE CAMPUS

The campus is trying its best to minimise the use of plastic. In this concern the stores and even the food stalls are motivated to use paper and jute bags for packing.

## RESEARCH & PUBLICATIONS

### High impact research

- Maheshwari N, Thakur IS, Srivastava S. Role of carbon-dioxide sequestering bacteria for clean air environment and prospective production of biomaterials: a sustainable approach. Environ Sci Pollut Res 2022;29(26):38950- 38971
- Singh M, Dhiman S, Debnath N, Das S. Magnetic nanoparticles and their application in sustainable environment. Sustainable Nanotechnology for Environmental Remediation; 2022. p. 457-483

- A Game Theory based Attacker Defender Model for IDS in Cloud Security. Proceedings of the 2022 9th International Conference on Computing for Sustainable Global Development, INDIACom 2022; 2022

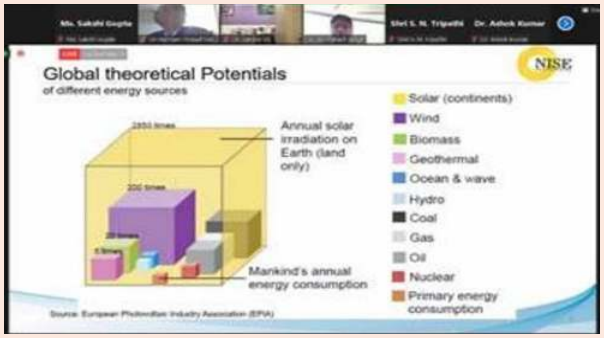
## Patent

- Hon'ble Founder President Dr. Ashok K. Chauhan, Dr. P. B. Sharma, Dr. Indu Shekhar, Dr. Shalini Bhaskar Bajaj, Dr. Manoj Kumar Pandey and Dr. W. Selvamurthy AUH, Gurgaon campus A system for saccharification, gasification and upgradation of lignocellulose waste for production of green energ'y 30-06-2022 202211037786
- Hon'ble Founder President Dr. Ashok K. Chauhan, Dr. P. B. Sharma, Dr. Sanjeev Sharma, Dr. Shalini Bhaskar Bajaj, and Dr. W.Selvamurthy, AUH, Gurgaon 'An electrode-based green coal bed gasifier system' 07-07-2022 202211038879

# HAPPENINGS & EVENTS

- Workshop on Urban Renewal and Conservation, organised on July 2021, Resouceperson Ar. Abhishek Jain Principal Architect Urban Regeneration Shahjahanabadi Foundation, Delhi, Students learnt urban renewal /redevelopment approaches at old city and historical sites in the context of having better access to services and sustainable urban development
- Guest Lecture on Solar operated direct energy conversion systems for power generation options, in sep 2021 by Dr Ravita Lamba Asst. Prof. Solar Photovoltaics & Thermoelectri c systems MNIT,Jaipur, Rajasthan, To motivate and guide students about the new and innovative options of power generation in today's era.
- FDP on Production of Creative Sculpture Using Waste Materials; for Skill Enhancement by Mr. Animesh Mahata Sculpture Visual Artist Asst. Professor, Amity School of Fine Arts, This FDP explored variety of mediums and techniques, while developing critical thinking and problem-solving skills.
- Workshop on E-Waste & Circularity, in May 2022, Mrs. Panni Verma Project Manager Organizational Development, Project Initiation and Implementation, Training Program Design, Communication & People Orientation, etc. SAAHAS, Ms. Deepika Chhetri Project Coordinator natural resources SAAHAS, Mr. Shivam Rawat Project Coordinator zero-waste sustainable solutions SAAHAS

**Example:**



## WEBINAR ON

# GREEN TECHNOLOGIES FOR MITIGATION OF GLOBAL WARMING & CLIMATE CHANGE

4TH APRIL 2022

The Department of Civil Engineering, Amity School of Engineering Department (ASET) coordinated a Webinar on "Green Technologies for mitigation of Global Warming & Climate Change" The theme was on increasing trend of average temperature of the air near Earth's surface, the threat of global warming appears to be true. Research and Scientific studies have revealed that the global atmosphere concentrations of Carbon Dioxide ($CO_2$), Methane (CH4) and Nitrous Oxide (N2O) have increased due to anthropogenic activities. These gases are called Green House Gases (GHGs) responsible for increasing global average temperature and causes adverse effects on ecosystem. The coordinators were Dr HRP Yadav, Professor and Head, Civil Dept. Ms Sakshi Gupta, Assistant Professor and Dr Tanvi Gupta, Assistant Professor, Department of Civil Engineering, ASET.

**The United Nations Sustainable Development Goals (SDGs) are the focus of Amity University Haryana of Eminence. The four pillars of our approach to the SDGs are research, teaching, basic institutional practices, and collaborations**